

GREEGOO ELECTRIC

The Power Management Leader

Rectifier Diode & Thyristor
Introduction





Company Profile

GREEGOO Electric Co., Ltd, located in Wenzhou, the electric capital of China, is specialized in developing, manufacturing and distributing phase control thyristors, rectifier diodes, high frequency thyristors, fast recovery diode and fast switching thyristors along with about 300 components.

Owning skilled workers, advanced equipment and strict quality control process, GREEGOO has passed ISO9001:2000 and obtained CE and KEMA certificates. Our products are enjoying high popularity in Russia, France, Italy, Spain, Australia, India, Korea, Iran, Saudi, South Africa and Brazil etc. Especially, our phase control thyristor SCR and rectifier diodes have been cooperating well with Samsung, Hyundai in Korea, ABB in Belgium, also I&R in India and win good reputation from the buying public.

GREEGOO in Chinese means "Honest, Prosperous and Fortunate". While retrospect to its origin, GREEGOO pronounces similar to the Chinese name of SILICON VALLEY in USA and is a symbol of high technology & excellent quality. Based on it, GREEGOO will march forward steadily in international market with customers all over the world hand by hand!



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Avalanche thyristors

Features

- Hermetic metal case with ceramic insulator.
- Precise internal pressure contacts for high resistance to power cycling.
- Guaranteed maximum avalanche power dissipation in reversed direction.

Typical applications

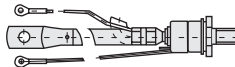
- Controlled and half-controlled rectifiers.
- AC controllers.
- High power drives for industrial and traction applications.



Type designations thyristors

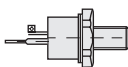
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1 2 3 4 5 6 7 8 9 10

- 1: Letter code T, for “thyristor”
- 2: Letter code for subtype of thyristor: B-fast, BH-fast switching, TC-triac, L-avalanche
- 3: Serial number of construction modification
- 4: Designation of modification according to hexahedron size for stud thyristors or according to case diameter for press-pack thyristors
- 5: Designation of constructive design of case
- 6: Max. Mean on-state current, max. RMS forward current for triacs, max. Turn-off current for GTO (A)
- 7: Class according to VDRM, VRRM
- 8: Group according to (dV/dt) crit
- 9: Group according to tq
- 10: Group according to tgt (for TB and TBH)



Avalanche thyristors

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ (TC, °C) A	I_{TRMS} (TC, °C) A	I_{TSM} 10ms kA	i^2t A ² S10 ³	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di_T/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	P_{RSM} kW	T_{jmax} °C	$R_{th(j-c)}$ °C/W	t_q (typ.) μs	M_d Nm	w kg	Fig
TL371-250	600-1200	35	250(100)	388	60	180	1.90/785	1.00	0.95	125	20-1000	35	250	16	140	0.100	250	25-35	0.44	23
TL371-320	600-1200	35	320(100)	500	8.5	360	1.62/1005	1.05	0.53	320	20-1000	3.5	250	16	140	0.085	250	25-35	0.44	23



Phase control thyristors

Features

- Hermetic metal cases with glass insulators.
- Threaded studs M5, M6, M8, M10, M12, M20 and M24.
- International standard cases.
- High values V_{DRM} , V_{RRM} .
- Low losses on-state (especially T271-320).

Typical applications

- Controlled and half-controlled rectifiers.
- DC motor control.
- AC controllers (e.g. for temperature control).

Metal case with glass insulator (small-sized series)

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ (T_c , °C) A	I_{TRMS} A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di_T/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	T_{jmax} °C	$R_{th(j-c)}$ °C/W	t_q (typ.) μs	M_d Nm	w kg	Fig
T212-10	100-1300	3	10(85)	15.7	0.15	0.11	1.83/31	125	29.3	125	50-1000	30	40	125	1.80	63	0.9-1.1	0.006	1
T212-16	100-1300	3	16(85)	25.2	0.25	0.31	1.80/50	120	11.9	125	50-1000	3.0	40	125	1.50	63	0.9-1.1	0.006	1
T222-20	100-1300	3.5	20(85)	31.4	0.30	0.45	1.75/63	115	17.2	125	50-1000	3.0	60	125	0.90	63	1.4-1.8	0.011	2
T222-25	100-1300	3.5	25(85)	39.2	0.35	0.61	1.75/78	110	10.9	125	50-1000	3.0	60	125	0.80	63	1.4-1.8	0.011	2
T232-20	1200-1600	9	20(85)	31.4	0.22	0.24	2.20/63	110	17.5	125	50-1000	3.5	100	125	1.00	160	5.0-6.2	0.023	3
T232-25	1200-1600	9	25(85)	39.2	0.33	0.48	2.20/78	110	14.0	125	50-1000	3.5	100	125	0.80	160	5.0-6.2	0.023	3
T232-40	100-1300	5	40(85)	62.8	0.75	2.81	1.75/125	105	5.6	125	50-1000	4.0	100	125	0.62	63	5.0-6.2	0.023	3
T232-50	100-1300	5	50(85)	78.5	0.80	3.20	1.75/157	103	4.6	125	50-1000	4.0	100	125	0.50	63	5.0-6.2	0.023	3
T242-40	1200-1600	15	40(85)	62.8	0.70	2.45	2.10/125	125	6.8	125	50-1000	3.5	120	125	0.50	160	9.0-11	0.050	4
T242-50	1200-1600	15	50(85)	78.5	0.85	3.50	2.10/157	120	5.7	125	50-1000	3.5	120	125	0.40	160	9.0-11	0.050	4
T242-63	100-1300	7	63(85)	98.9	1.30	8.45	1.65/198	0.95	4.1	125	50-1000	4.0	150	125	0.40	63	9.0-11	0.050	4
T242-80	100-1300	7	80(85)	125.6	1.50	11.25	1.63/250	0.93	3.3	125	50-1000	4.0	150	125	0.30	63	9.0-11	0.050	4

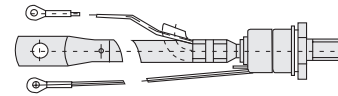
Phase control thyristors

Features

- Hermetic metal cases with glass insulators.
- Threaded studs M5, M6, M8, M10, M12, M20 and M24.
- International standard cases.
- High values V_{DRM} , V_{RRM} .
- Low losses on-state (especially T271-320).

Typical applications

- Controlled and half-controlled rectifiers.
- DC motor control.
- AC controllers (e.g. for temperature control).

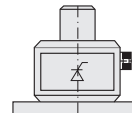


Metal case with ceramic insulator

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ (T_c , °C) A	I_{TRMS} A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di_T/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	T_{jmax} °C	$R_{th(j-c)}$ °C/W	t_q (typ.) μs	M_d Nm	w kg	Fig
T151-100	300-1800	15	100(90)	160	20	20	1.80/314	1.15	2.40	160	200-1000	35	200	140	0.30	160	10-20	0.150	7
T161-125	300-1800	15	125(90)	200	2.5	31	1.75/392	1.15	1.80	125	200-1000	3.5	200	125	0.15	160	20-30	0.240	8
T161-160	300-1800	15	160(87)	260	4.0	80	1.70/502	1.05	1.36	125	200-1000	3.5	200	125	0.15	160	20-30	0.240	8
T161-200	300-1600	15	200(87)	315	5.0	125	1.60/628	1.00	1.05	160	200-1000	3.5	200	125	0.13	250	20-30	0.240	8
T261-160	300-1600	20	160(85)	260	3.0	45	2.00/502	1.00	2.20	125	200-1000	3.5	200	125	0.13	100	20-30	0.240	8
T171-200	300-1800	30	200(90)	300	5.0	125	1.75/628	1.00	1.12	125	200-1000	3.5	200	125	0.10	160	25-35	0.240	9
T171-250	300-1800	30	250(85)	393	6.0	180	1.75/785	1.00	0.95	125	200-1000	3.5	200	125	0.10	160	25-35	0.440	9
T171-320	300-1800	30	320(87)	500	8.5	360	1.60/1005	1.05	0.53	320	200-1000	3.5	200	125	0.085	160	25-35	0.440	9
T271-250	100-800	50	250(115)	393	10.0	500	1.50/785	0.95	0.76	320	200-1000	3.5	150	150	0.09	250	25-35	0.440	9
T271-320	100-800	50	320(117)	550	11.5	660	1.25/1005	0.80	0.45	320	200-1000	3.5	150	150	0.09	160	25-35	0.440	9

Flanged design

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ (T_c , °C) A	I_{TRMS} A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di_T/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	T_{jmax} °C	$R_{th(j-c)}$ °C/W	t_q (typ.) μs	M_d Nm	w kg	Fig
T2-160	400-1000	20	160(85)	250	35	61	1.60/502	1.13	0.94	100	20-1000	50	250	125	0.16	160	16	0.290	22



Phase control thyristors

Features

- Hermetic metal cases with ceramic insulator.
- Capsule packages for double-sided cooling.
- Amplifying gates.
- Optimized for low on-state losses.
- Suitable for series and parallel connections, narrow Q_{rr} and V_{TM} deflection.

Typical applications

- DC motor control.
- Controlled rectifiers.
- AC controllers.
- “Soft” starters for AC motors.
- High voltage SM-drives up to 30 MW.



Phase control thyristors 24MM

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t $A^2S \cdot 10^{-3}$	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μS	$(du_D/dt)_{crit}$ V/ μS	V_{GT} V	I_{GT} mA	T_{max} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ.) μS	F kN	w kg	Fig
T123-160*	3400-4200	40	160(80)	295	28	39	2.70/502	1.20	4.50	200	500-1600	25	250	120	0.08	320-450	6	0.09	11
T223-200*	2600-3200	30	200(85)	390	3.5	61	2.40/628	1.15	2.60	200	500-1600	25	250	125	0.08	200-400	6	0.09	11
T223-250*	1800-2400	20	250(85)	530	4.0	80	2.10/785	1.05	1.50	200	500-1600	25	250	125	0.08	160-320	6	0.09	11
T123-320	400-1600	20	330(85)	750	5.0	125	1.65/1005	0.90	0.75	200	500-1600	25	250	125	0.08	100-200	6	0.07	10
T123-400*	900-1200	25	400(85)	765	5.5	151	1.65/1256	0.83	0.58	200	500-1600	25	250	130	0.08	80-160	6	0.07	10
T123-500	400-800	30	500(100)	1090	6.0	180	1.50/1570	0.80	0.499	200	500-1600	25	250	150	0.07	63-125	6	0.07	10
T123-200	400-1600	15	200(95)	480	4.0	80	1.90/628	1.10	1.50	200	200-1600	35	200	125	0.08	250	6	0.07	10
T123-250	400-1600	15	250(92)	550	4.5	100	1.75/785	1.00	1.08	200	200-1600	35	200	125	0.08	250	6	0.07	10

Phase control thyristors

Features

- Hermetic metal cases with ceramic insulator.
- Capsule packages for double-sided cooling.
- Amplifying gates.
- Optimized for low on-state losses.
- Suitable for series and parallel connections, narrow Q_{rr} and V_{TM} deflection.

Typical applications

- DC motor control.
- Controlled rectifiers.
- AC controllers.
- “Soft” starters for AC motors.
- High voltage SM-drives up to 30 MW.



Phase control thyristors 32MM

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μs	$(du_D/dt)_{crit}$ V/ μs	V_{GT} V	I_{GT} mA	T_{max} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ.) μs	F kN	w kg	Fig
T133-250*	3400-4200	50	300(80)	550	40	80	2.70/785	1.20	2.70	200	500-1600	25	250	120	0.04	320-450	10	0.18	14
T233-320*	2600-3200	40	380(85)	740	50	125	2.00/1005	1.15	1.50	200	500-1600	25	250	125	0.04	200-400	10	0.18	14
T233-400*	2000-2400	30	480(85)	937	70	245	2.00/1254	1.05	0.85	200	500-1600	25	250	125	0.04	160-320	10	0.18	14
T233-500	400-1800	30	590(85)	1160	90	405	1.80/1570	0.95	0.50	200	500-1600	25	250	125	0.04	100-200	10	0.18	14
T133-630	100-1200	40	750(85)	1430	12	720	1.65/1978	0.85	0.35	200	500-1600	25	250	130	0.04	80-160	10	0.10	12
T133-800	100-800	50	900(85)	2085	12	720	1.60/2512	0.80	0.28	200	500-1600	25	250	150	0.035	63-125	10	0.10	12
T133-320	900-2400	30	320(93)	820	70	245	2.00/1005	1.20	1.10	200	200-1600	35	300	125	0.04	250	10	0.18	14
T133-400	400-1600	30	400(93)	995	80	320	1.75/1256	1.05	0.68	200	200-1600	35	200	125	0.045	160	10	0.18	14
T133-500	100-800	50	500(120)	1720	10	500	1.50/1570	0.95	0.42	320	500-1600	35	150	150	0.035	160	10	0.10	12

Phase control thyristors

Features

- Hermetic metal cases with ceramic insulator.
- Capsule packages for double-sided cooling.
- Amplifying gates.
- Optimized for low on-state losses.
- Suitable for series and parallel connections, narrow Q_{rr} and V_{TM} deflection.

Typical applications

- DC motor control.
- Controlled rectifiers.
- AC controllers.
- "Soft" starters for AC motors.
- High voltage SM-drives up to 30 MW.



Phase control thyristors 40MM

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μs	$(du_D/dt)_{crit}$ V/ μs	V_{GT} V	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ.) μs	F kN	w kg	Fig
T243-400*	3400-4200	70	440(80)	810	60	180	2.30/1256	1.20	1.300	200	500-1600	25	250	120	0.034	320-450	15	0.240	15
T243-500	1800-3200	50	550(85)	1110	10	500	2.00/1570	1.00	0.735	200	500-1600	25	250	125	0.034	200-400	15	0.240	15
T243-630*	2000-2400	40	640(85)	1250	9.0	405	1.95/1978	1.05	0.500	200	500-1600	25	250	125	0.034	160-320	15	0.240	15
T143-800	900-1800	40	800(85)	1585	14	980	1.70/2512	0.95	0.300	200	500-1600	25	250	125	0.032	100-200	15	0.240	15
T143-1000	100-1200	50	1045(80)	1860	19	1800	1.60/3140	0.85	0.250	200	500-1600	25	250	130	0.032	80-160	15	0.160	13
T143-1250	100-800	70	1250(100)	2730	21	2205	1.50/3925	0.80	0.170	200	500-1600	25	250	150	0.030	63-125	15	0.160	13
T143-400	1800-2400	50	400(96)	960	9.0	405	2.15/1256	1.20	0.950	200	200-1600	3.5	300	125	0.034	160	15	0.240	15
T143-500	400-1600	30	500(94)	1175	11	605	1.80/1570	1.10	0.570	200	200-1600	3.5	300	125	0.034	250	15	0.240	15
T143-630	400-1600	30	630(93)	1470	13	845	1.65/1978	1.10	0.370	200	200-1600	3.5	250	125	0.030	160	15	0.240	15



Phase control thyristors 53MM

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μs	$(du_D/dt)_{crit}$ V/ μs	V_{GT} V	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ.) μs	F kN	w kg	Fig
T153-630	2000-2600	50	890(85)	1740	15	1120	1.80/1978	1.05	0.370	200	500-1600	25	250	125	0.024	160-320	24	0.50	16
T153-800	1000-2000	50	1030(85)	2020	20	2000	1.55/2512	0.95	0.260	200	500-1600	25	250	125	0.024	100-200	24	0.50	16

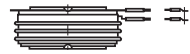
Phase control thyristors

Features

- Hermetic metal cases with ceramic insulator.
- Capsule packages for double-sided cooling.
- Amplifying gates.
- Optimized for low on-state losses.
- Suitable for series and parallel connections, narrow Q_{rr} and V_{TM} deflection.

Typical applications

- DC motor control.
- Controlled rectifiers.
- AC controllers.
- "Soft" starters for AC motors.
- High voltage SM-drives up to 30 MW.



Phase control thyristors 56MM

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μS	$(du_D/dt)_{crit}$ V/ μS	V_{GT} V	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ.) μS	F kN	w kg	Fig
T253-500	5000-6000	100	620(80)	1130	10	500	2.40/1570	1.30	0.900	200	500-1600	25	250	120	0.024	400-600	24	0.55	18
T353-630	3600-4200	70	810(80)	1470	15	1120	2.30/1978	1.20	0.630	200	500-1600	2.5	250	120	0.020	320-450	24	0.55	18
T753-800*	3600-4000	70	820(80)	1490	15	1120	2.25/2512	1.18	0.620	200	500-1600	2.5	250	120	0.020	320-450	24	0.55	18
T353-800	2400-3400	70	920(85)	1780	17	1440	2.00/2512	1.10	0.470	200	500-2500	2.5	250	125	0.020	200-400	24	0.55	18
T353-1000	2000-3200	70	1000(85)	2420	19	1800	2.00/3140	1.05	0.380	200	500-1600	2.5	250	125	0.020	2600-400	24	0.55	16
T253-1000	1000-2400	70	1090(85)	2130	22	2420	1.75/3140	1.02	0.300	200	500-1600	2.5	250	125	0.020	160-320	24	0.55	16
T253-1250	400-1800	50	1270(85)	2490	28	3920	1.60/3925	0.95	0.200	200	500-1600	2.5	250	125	0.020	100-200	24	0.55	16
T153-1600	400-1200	100	1680(80)	3010	30	4500	1.50/5024	0.90	0.140	200	500-1600	2.5	250	130	0.020	80-160	24	0.33	17
T153-2000	400-800	100	2300(90)	4445	36	6480	1.45/6280	0.80	0.110	200	500-1600	2.5	250	150	0.018	63-125	24	0.33	17
T253-800	2000-2400	70	800(91)	1770	17	1440	2.10/2500	1.20	0.440	200	200-1600	3.5	300	125	0.020	250	26	0.55	16
T453-1000	1000-1800	70	1000(94)	2360	24	2880	1.80/3140	1.10	0.250	200	200-1600	3.5	300	125	0.018	160	26	0.55	16
T553-500	3600-4200	100	500(85)	1135	12	720	2.60/1570	1.85	0.900	500	500,1000	5.0	400	125	0.022	320	24	0.50	18
T453-630	2400-3200	100	630(85)	1595	13	845	2.40/1980	1.50	0.480	630	1600	5.0	400	125	0.020	160	26	0.50	18
T553-630	3600-4200	100	630(85)	1230	12.5	781	2.50/1980	1.45	0.900	500	500,1000	5.0	400	125	0.022	320	24	0.50	18
T453-800	2400-2800	100	800(85)	1650	15	1120	2.30/2500	1.45	0.450	630	1600	5.0	400	125	0.020	160	26	0.50	18
T553-800	3600-4200	100	800(85)	1530	12	720	2.60/2500	1.45	0.700	100	500,1000	5.0	400	125	0.018	320	24	0.50	18
T653-800*	2800-3600	100	800(85)	1600	13	845	2.80/2500	1.70	0.400	500	1000	5.0	400	125	0.020	250	24	0.50	18

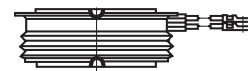
Phase control thyristors

Features

- Hermetic metal cases with ceramic insulator.
- Capsule packages for double-sided cooling.
- Amplifying gates.
- Optimized for low on-state losses.
- Suitable for series and parallel connections, narrow Q_{rr} and V_{TM} deflection.

Typical applications

- DC motor control.
- Controlled rectifiers.
- AC controllers.
- “Soft” starters for AC motors.
- High voltage SM-drives up to 30 MW.



Phase control thyristors 63MM

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ ($T_C, ^\circ C$) A	I_{TRMS} ($T_C=70^\circ C$) A	I_{TSM} 10ms kA	i^2t $A^2S \cdot 10^3$	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μS	$(du_D/dt)_{crit}$ V/ μS	V_{GT} V	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ.) μS	F kN	w kg	Fig
T163-800*	5200-6000	120	810(80)	1485	12	720	2.30/2512	1.30	0.700	200	500-1600	25	250	120	0.018	400-600	38	0.71	19
T263-800*	4400-5000	120	900(80)	1645	15	1125	2.20/2512	1.25	0.60	200	500-1600	25	250	120	0.017	350-500	38	0.71	19
T163-1000*	3400-4200	100	1000(80)	1845	18	1630	2.20/3140	1.20	0.500	200	500-1600	25	250	120	0.016	320-450	38	0.71	19
T263-1000*	2800-3200	100	1150(85)	2230	20	2000	2.10/3140	1.15	0.360	200	500-1600	25	250	125	0.016	200-400	38	0.71	19
T163-1250*	2000-2600	100	1300(85)	2535	25	3125	2.00/3925	1.05	0.270	200	500-1600	25	250	125	0.016	160-320	38	0.71	19
T163-1600*	1400-1800	100	1615(85)	3175	35	6125	1.65/5.24	0.95	0.150	200	500-1600	25	250	125	0.016	100-200	38	0.71	19
T163-2000*	400-1200	100	2050(85)	3950	40	8000	1.45/6280	0.85	0.103	200	500-1600	25	250	130	0.016	80-160	38	0.71	19
T163-2500*	200-800	120	2620(100)	5760	50	12500	1.35/7850	0.82	0.070	200	500-1600	25	250	150	0.015	63-125	38	0.71	19

Phase control thyristors

Features

- Hermetic metal cases with ceramic insulator.
- Capsule packages for double-sided cooling.
- Amplifying gates.
- Optimized for low on-state losses.
- Suitable for series and parallel connections, narrow Q_{rr} and V_{TM} deflection.

Typical applications

- DC motor control.
- Controlled rectifiers.
- AC controllers.
- "Soft" starters for AC motors.
- High voltage SM-drives up to 30 MW.



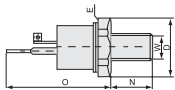
Phase control thyristors 76MM

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μs	$(du_D/dt)_{crit}$ V/ μs	V_{GT} V	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (typ) μs	F kN	w kg	Fig
T173-1000*	5000-6000	200	1240(80)	2255	24	2880	2.30/3140	1.30	0.450	200	500-1600	25	250	120	0.012	400-600	45	1.20	20
T273-1250	2800-4400	200	1580(80)	2725	32	5120	2.10/3925	1.20	0.330	200	500-1600	2.5	250	120	0.011	320-450	45	1.20	20
T173-1600	2400-3400	180	1705(85)	3300	34	5780	2.10/5024	1.08	0.250	200	500-1600	2.5	250	125	0.011	200-400	45	1.20	20
T273-2000	1800-2600	180	2100(85)	4095	42	8820	1.75/6280	0.95	0.150	200	500-1600	2.5	250	125	0.011	160-320	45	1.20	20
T173-2000	1600-2000	180	2220(85)	4350	49	12000	1.65/6280	0.95	0.125	200	500-1600	2.5	250	125	0.011	100-200	45	1.20	20
T173-2500	1000-1600	180	2700(85)	5060	52	13520	1.70/7850	0.95	0.095	200	500-1600	2.5	250	125	0.010	100-200	45	1.20	20
T173-3200	200-1200	200	3350(85)	6450	60	18000	1.50/10050	0.83	0.062	200	500-1600	2.5	250	130	0.010	80-160	45	1.20	20
T173-4000	200-1000	200	4000(85)	7500	62	19220	1.50/12560	0.84	0.053	200	500-1600	2.5	250	140	0.010	63-125	45	1.20	20
T173-5000*	200-800	200	5000(80)	8780	66	21780	1.50/15700	0.85	0.042	200	500-1600	2.5	250	150	0.010	63-125	45	1.20	20



Phase control thyristors 101MM

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TRMS} ($T_c=70^\circ C$) A	I_{TSM} 10ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μs	$(du_D/dt)_{crit}$ V/ μs	V_{GT} V	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	t_q (type) μs	F kN	w kg	Fig
T193-2000	4000-6000	300	2300(80)	4220	54	14580	2.20/6280	1.30	0.235	200	500-2000	35	250	120	0.0065	400-600	80	3.00	21
T193-2500	2600-3800	300	2900(85)	5660	70	24500	1.90/7850	1.10	0.140	200	500-1000	3.5	250	125	0.0065	320-450	80	3.00	21
T193-3200	1600-2400	300	3700(85)	7340	85	36125	1.65/10500	1.00	0.070	200	500-1000	3.5	250	125	0.0065	160-320	80	3.00	21



Triacs

Features

- Wide line of designs.
- Hermetic metal cases with glass and ceramic insulators, threaded stud and capsule designs.
- Single and double polar drive.

Typical applications

- Illuminating engineering products (regulation of light sources in industry and home applications).
- Electrothermal equipment (temperature regulation).
- Motors (regulation of rotation speed and of the reversing gear) textile and sewing industry, passenger and freight lifts, washing machines.

Small-sized series

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TSM} 20ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di_T/dt)_{crit}$ A/μs	V_{GT} V	$(du_D/dt)_{crit}$ V/μs	I_{GT} mA	T_{jmax} °C	$R_{th(j-c)}$ °C/W	F kN	M_j Nm	w kg	Q	Fig
TC212-10	100-1200	30	10(85)	0.07	49	1.85/14	1.20	46	50	100	2.2-25	30	125	2.50	-	0.9-1.1	0.006	1,3,4	1
TC212-16	100-1200	30	16(85)	0.10	100	1.85/22	1.20	29	50	100	2.5-25	3.0	125	1.55	-	0.9-1.1	0.006	1,3,4	1
TC222-20	100-1200	3.5	20(85)	0.12	144	1.85/28	1.10	27	50	150	2.5-50	3.5	125	1.30	-	1.5-1.7	0.011	1,3,4	2
TC222-25	100-1200	3.5	25(85)	0.20	400	1.80/35	1.10	21	50	150	2.5-50	3.5	125	0.90	-	1.5-1.7	0.011	1,3,4	2
TC232-40	100-1200	5.0	40(85)	0.25	625	1.85/56	1.00	15	68	200	2.5-50	4.0	125	0.65	-	5.0-6.2	0.023	1,3,4	3
TC232-50	100-1200	5.0	50(85)	0.45	2025	1.80/70	1.00	12	68	200	2.5-50	4.0	125	0.52	-	5.0-6.2	0.023	1,3,4	3
TC242-63	100-1200	7.0	63(85)	0.48	2300	1.80/89	0.90	10	68	200	2.5-50	5.0	125	0.44	-	9.0-11	0.050	1,3,4	4
TC242-80	100-1200	7.0	80(85)	0.58	3360	1.80/113	0.90	8	68	200	2.5-50	5.0	125	0.34	-	9.0-11	0.050	1,3,4	4

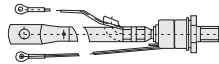
Triacs

Features

- Wide line of designs.
- Hermetic metal cases with glass and ceramic insulators, threaded stud and capsule designs.
- Single and double polar drive.

Typical applications

- Illuminating engineering products (regulation of light sources in industry and home applications).
- Electrothermal equipment (temperature regulation).
- Motors (regulation of rotation speed and of the reversing gear) textile and sewing industry, passenger and freight lifts, washing machines.



Stud design

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ ($T_C, ^\circ C$) A	I_{TSM} 20ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μ S	V_{GT} V	$(du_D/dt)_{crit}$ V/ μ S	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	M_d Nm	w kg	Q	Fig
TC151-100	300-1300	10	100(85)	10	10.0	1.85/140	150	350	63	3	6.3-100	300	125	0.22	-	10-20	0.110	1,2	7
TC151-125	300-1300	10	125(85)	12	14.4	1.74/180	115	350	6.3	3	6.3-100	300	125	0.22	-	10-20	0.110	1,2	7
TC151-160	300-1300	10	160(85)	14	19.6	1.55/225	110	200	6.3	3	6.3-100	300	125	0.19	-	10-20	0.110	1,2	7
TC251-100	300-1400	10	100(85)	10	10.0	1.85/140	150	350	25	3	6.3-100	300	125	0.22	-	10-20	0.110	1,3,4	7
TC251-125	300-1400	10	125(85)	12	14.4	1.74/180	115	350	25	3	6.3-100	300	125	0.22	-	10-20	0.110	1,3,4	7
TC251-160	300-1300	10	160(85)	14	19.6	1.55/225	110	200	25	3	6.3-100	300	125	0.19	-	10-20	0.110	1,3,4	7
TC161-160	200-1300	15	160(85)	18	32.4	1.75/225	120	260	6.3	3	6.3-100	300	125	0.14	-	20-30	0.175	1,2	8
TC161-200	200-1300	15	200(85)	20	40.0	1.60/280	100	225	6.3	4	6.3-100	300	125	0.14	-	20-30	0.175	1,2	8
TC261-160	300-1400	15	160(85)	20	32.4	1.70/225	115	274	25	4	6.3-100	300	125	0.14	-	20-30	0.175	1,3,4	8
TC261-200	300-1400	15	200(85)	20	40.0	1.60/280	100	225	25	4	6.3-100	300	125	0.14	-	20-30	0.175	1,3,4	8
TC171-250	200-1300	25	250(85)	3.0	90.0	1.70/350	100	200	6.3	4	6.3-100	300	125	0.10	-	25-35	0.325	1,2	9
TC171-320	200-1300	25	320(85)	3.3	99.0	1.50/450	0.86	150	6.3	4	6.3-100	300	125	0.10	-	25-35	0.325	1,2	9
TC271-250	300-1400	25	250(85)	3.0	90.0	1.65/350	100	198	25	4	6.3-100	300	125	0.10	-	25-35	0.325	1,3,4	9
TC271-320	300-1400	25	320(85)	3.3	99.0	1.50/450	0.86	150	25	4	6.3-100	300	125	0.10	-	25-35	0.325	1,3,4	9

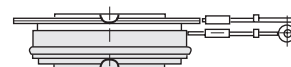
Triacs

Features

- Wide line of designs.
- Hermetic metal cases with glass and ceramic insulators, threaded stud and capsule designs.
- Single and double polar drive.

Typical applications

- Illuminating engineering products (regulation of light sources in industry and home applications).
- Electrothermal equipment (temperature regulation).
- Motors (regulation of rotation speed and of the reversing gear) textile and sewing industry, passenger and freight lifts, washing machines.



Capsule design

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ ($T_c, ^\circ C$) A	I_{TSM} 20ms kA	i^2t A^2S10^3	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di_T/dt)_{crit}$ A/ μs	V_{GT} V	$(du_D/dt)_{crit}$ V/ μs	I_{GT} mA	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	M_d Nm	w kg	Q	Fig
TC133-500*	300-1300	25	500(85)	30	90.0	2.50/700	1.20	1.80	25	30	6.3-100	300	125	0.04	10	-	0.100	1, 2	12
TC133-630*	300-1300	25	630(85)	3.3	109.0	2.20/890	1.10	1.30	6.3	30	6.3-100	300	125	0.37	10	-	0.100	1, 2	12
TC233-500*	300-1400	25	500(85)	3.0	90.0	2.50/700	1.20	1.80	25	3.0	6.3-100	300	125	0.037	10	-	0.100	1, 3, 4	12
TC233-630*	300-1400	25	630(85)	3.3	109.0	2.20/890	1.10	1.30	25	3.0	6.3-100	300	125	0.037	10	-	0.100	1, 3, 4	12
TC143-800*	300-1400	25	800(85)	4.5	250.0	1.95/1120	0.92	0.90	25	3.0	6.3-100	300	125	0.03	10	-	0.100	1, 3, 4	13
TC143-1000*	300-1200	25	1000(85)	5.0	302.5	1.75/1400	0.90	0.61	25	3.0	6.3-100	300	125	0.028	10	-	0.100	1, 3, 4	13

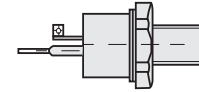
Fast thyristors

Features

- Hermetic metal cases with glass and ceramic insulators.
- International standard cases.
- Low turn-off.
- High dv/dt endurance.
- Amplifying gate.
- Low turn-off.

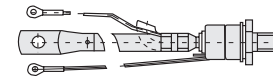
Typical applications

- Small power drives.
- Control of single-phase motor in home appliances.
- Inductive heating.
- Electronic welders.
- High power drives for industrial and traction applications.
- Electronic welders.
- Uninterruptable power supplies.



Stud design (small-sized series)

Type	$\frac{V_{DRM}}{V_{RRM}}$ V	$\frac{I_{DRM}}{I_{RRM}}$ mA	$I_{T(AV)}$ (T_C , °C) A	I_{TRMS} A	I_{TSM} 10ms kA	i^2t $A^2S \cdot 10^3$	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	T_{jmax} °C	$R_{th(j-c)}$ °C/W	F kN	t_q (typ.) μs	w kg	Fig
TB212-10	400-1400	10	10(85)	16	0.15	0.11	2.2/31	140	32	200	100-1000	20	100	125	1.500	0.9-1.1	12.5, 20, 2532, 40	0.006	1
TB222-16	400-1400	12	16(85)	25	0.30	0.45	2.2/50	140	20	200	100-1000	2.0	120	125	0.900	1.5-1.7	12.5, 20, 2532, 40	0.011	2
TB222-20	400-1400	12	20(85)	31	0.35	0.61	2.2/62	140	18	200	100-1000	2.0	120	125	0.800	1.5-1.7	12.5, 20, 2532, 40	0.011	2
TB232-25	400-1400	15	25(85)	39	0.50	1.25	2.2/78	140	10	200	100-1000	2.5	170	125	0.820	5.0-6.2	12.5, 20, 2532, 40	0.023	3
TB232-32	400-1400	15	32(85)	50	0.60	1.80	2.2/98	140	8	200	100-1000	2.5	170	125	0.620	5.0-6.2	12.5, 20, 2532, 40	0.023	3
TB232-40	400-1400	15	40(85)	62	0.75	2.80	2.2/125	140	6	200	100-1000	2.5	170	125	0.500	5.0-6.2	12.5, 20, 2532, 40	0.023	3
TB242-50	400-1400	20	50(85)	78	1.00	5.00	2.2/157	140	5	200	100-1000	3.0	200	125	0.400	9.0-1.1	12.5, 20, 2532, 40	0.050	4
TB242-63	400-1400	20	63(85)	98	1.10	6.05	2.2/198	140	4	200	100-1000	3.0	200	125	0.300	9.0-1.1	12.5, 20, 2532, 40	0.050	4



Stud design

TB351-80	500-1400	20	80(90)	126	1.6	12.8	2.2/250	145	30	500	500,1000	30	250	125	0.250	10-20	20, 25, 32	0.110	7
TB351-100	500-1400	20	100(90)	157	2.0	20.0	1.8/314	130	15	500	500,1000	25	250	125	0.250	10-20	25, 32, 40	0.110	7
TB361-125	500-1400	25	125(88)	196	3.5	61.0	2.2/390	145	25	500	500,1000	2.5	250	125	0.150	20-30	20, 25, 32	0.175	8
TB361-160	500-1400	25	160(88)	250	4.0	80.0	1.8/500	120	1.8	500	500,1000	2.5	250	125	0.150	20-30	25, 32, 40	0.175	8
TB371-200	300-1400	35	200(90)	314	6.0	180.0	2.2/630	138	1.5	500	500,1000	3.5	250	125	0.100	25-35	12.5, 16, 20, 25	0.325	9
TB371-250	300-1400	35	250(90)	392	7.0	245.0	1.8/785	120	0.97	500	500,1000	3.5	250	125	0.100	25-35	16, 20, 25, 32, 40, 50, 63	0.325	9

Fast thyristors

Features

- Hermetic metal cases with glass and ceramic insulators.
- International standard cases.
- Low turn-off.
- High dv/dt endurance.
- Amplifying gate.
- Low turn-off.

Typical applications

- Small power drives.
- Control of single-phase motor in home appliances.
- Inductive heating.
- Electronic welders.
- High power drives for industrial and traction applications.
- Electronic welders.
- Uninterruptable power supplies.



Capsule design

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ (T_C , °C) A	I_{TRMS} A	I_{TSM} 10ms kA	i^2t A ² S10 ³	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	T_{jmax} °C	$R_{th(j-c)}$ °C/W	F kN	t_q μs	w kg	Fig
TB333-400	300-1400	40	400(90)	628	65	211	2.7/1250	1.50	0.92	500	500,1000	35	300	125	0.035	10	12.5,16,32,40	0.100	12
TB333-500	300-1400	40	500(95)	765	7.5	281	2.2/1570	1.00	0.50	500	500,1000	3.5	300	125	0.035	10	16, 20, 25, 32, 40, 50	0.100	12
TB343-500	500-1000	50	500(90)	765	9.0	405	2.6/1570	1.25	1.00	500	500,1000	3.5	300	125	0.028	15	25, 32, 40	0.160	13
TB443-500*	1400-2400	70	500(85)	800	9.0	405	2.5/1570	1.30	0.75	500	500,1000	2.5	300	125	0.035	15	25, 32, 40, 50, 63	0.240	15
TB343-630	500-1400	50	630(90)	990	10.5	551	2.1/2000	1.42	0.34	500	500,1000	3.5	300	125	0.028	15	25*, 32, 40, 50	0.160	13
TB453-630	600-1400	100	630(94)	990	13.5	911	2.4/2000	1.45	0.55	630	1000,1600	3.5	400	125	0.021	24	20*, 25*, 32, 40, 50	0.500	18
TB453-800	600-1400	100	800(87)	1250	15.0	1125	2.3/2500	1.35	0.55	630	1000,1600	3.5	400	125	0.021	24	25*, 32, 40, 50, 63	0.500	18
TB553-800*	1400-2400	120	800(83)	1250	17.0	1445	2.8/2500	1.40	0.40	630	500,1000	2.5	400	125	0.021	24	25*, 32, 40, 50, 63	0.500	18
TB453-1000*	600-1400	100	1000(82)	1600	16.0	1280	2.5/3140	1.20	0.34	630	1000,1600	3.5	400	125	0.021	24	40, 50, 63	0.500	18
TB273-2000*	1400-2400	120	2000(83)	3200	40.0	8000	1.85/6280	0.95	0.15	1000	500,1000	5.0	400	125	0.011	45	40, 50, 63	1.200	20

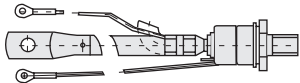
Fast switching thyristors

Features

- Hermetic metal cases with ceramic insulators, threaded stud and capsule designs.
- Low switching losses.
- Short turn-off time.
- Interdigitated amplifying gate for fast turn-on and high di/dt.

Typical applications

- High power drives for industrial and traction applications.
- Inductive heating.
- Electronic welders.
- Uninterruptable power supplies



Stud design

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ (T_C , °C)	I_{TRMS} A	I_{TSM} kA	i^2t A ² S10 ³	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T m Ω	$(di/dt)_{crit}$ A/ μ s	$(dv_D/dt)_{crit}$ V/ μ s	V_{GT} V	I_{GT} mA	T_{max} °C	$R_{th(j-c)}$ °C/W	M_d Nm	t_q μ s	w kg	Fig
TBH361-100	600-1200	50	100/85	157	2.5	31	2.40/314	1.40	2.40	800	1000	25	250	125	0.160	20-30	12.5,16,20	0.24	8
TBH371-160	600-1200	50	160/85	250	4.0	80	2.70/502	1.40	1.20	1000	1000	25	300	125	0.090	25-35	10,12.5,16	0.44	9
TBH371-200	600-1800	40	200/80	314	6.0	180	2.60/628	1.35	1.20	1000	1000	25	300	125	0.090	25-35	25,32,40,50	0.44	9

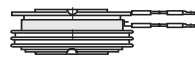
Fast switching thyristors

Features

- Hermetic metal cases with ceramic insulators, threaded stud and capsule designs.
- Low switching losses.
- Short turn-off time.
- Interdigitated amplifying gate for fast turn-on and high di/dt.

Typical applications

- High power drives for industrial and traction applications.
- Inductive heating.
- Electronic welders.
- Uninterruptable power supplies



Capsule design

Type	V_{DRM} V_{RRM} V	I_{DRM} I_{RRM} mA	$I_{T(AV)}$ (T_{C1} °C)	I_{TRMS} A	I_{TSM} 10ms kA	i^2t A ² S10 ³	V_{TM}/I_{TM} V/A	$V_{T(TO)}$ V	r_T mΩ	$(di/dt)_{crit}$ A/μs	$(du_D/dt)_{crit}$ V/μs	V_{GT} V	I_{GT} mA	T_{max} °C	$R_{th(j-c)}$ °C/W	F kN	t_q (typ) μs	w kg	Fig
TBH323-250	600-1200	50	250/80	393	3.0	45	2.60/785	1.10	1.05	800	1000	3.5	250	125	0.070	5.5	20,25	0.07	10
TBH333-320	1200-2200	60	320/85	500	6.0	480	2.70/1005	1.70	1.10	1000	1000	25	250	125	0.045	10	25,32,40,50,63	0.18	14
TBH333-400	600-1400	40	400/80	628	7.0	245	2.30/1250	1.40	0.80	1000	1000	25	300	125	0.045	10	20,25,32,40,50	0.18	14
TBH433-400	300-900	50	400/85	617	7.0	245	2.00/1250	1.20	0.80	1000	1000	25	300	125	0.035	10	12.5,16,20	0.10	12
TBH343-400	1200-2000	80	400/85	628	7.5	281	1.30/1250	1.25	0.80	1000	1000	25	300	125	0.035	15	40,50,63	0.24	15
TBH543-400*	2000-2400	80	400/80	628	6.0	180	2.40/1250	1.25	0.70	1000	1000	25	300	125	0.035	15	40,50,63	0.24	15
TBH343-500	1200-2000	60	500/85	785	7.5	281	2.30/1570	1.25	0.70	1000	1000	25	300	125	0.035	15	40,50,63	0.24	15
TBH534-500*	2000-2400	70	400/80	628	6.0	180	2.40/1250	1.25	0.70	1000	1000	25	250	125	0.035	15	32,40,50,63	0.24	15
TBH343-630	600-1400	50	630/80	990	9.0	405	2.20/2000	1.23	0.54	1000	1000	25	300	125	0.035	15	25,32,40,50	0.24	15
TBH443-630	300-900	80	630/80	990	6.3	198	2.00/2000	1.20	0.45	1000	1000	25	300	125	0.028	15	12.5,16,20	0.16	13
TBH353-800*	2000-2400	120	800/80	1256	18	1620	2.60/2512	1.40	0.56	1000	1000	25	250	125	0.020	21	32,40,50,63	0.55	16
TBH353-1000	1200-2000	150	1000/80	1570	18	1620	2.50/3140	1.34	0.34	1000	1000	40	400	125	0.020	21	40,50,63	0.55	16
TBH453-1000	300-900	150	1000/85	1570	16	1280	2.00/3140	1.20	0.34	1000	1000	25	250	125	0.016	21	12,16,20	0.33	17
TBH353-1250	600-1500	100	1250/80	1900	21	2205	2.10/3925	1.15	0.21	1000	1000	25	250	125	0.020	21	50,63	0.55	16
TBH163-1500*	1200-1600	150	1500/80	2350	35	6161	2.20/4710	1.20	0.19	1000	1000	25	250	125	0.015	30	32,40,50,63	0.90	19
TBH163-1600*	600-1000	150	1600/80	2510	35	6161	2.20/5026	1.20	0.16	1000	1000	25	250	125	0.015	30	25,32,40,50,63	0.90	19
TBH173-1600*	1500-2000	200	1600/85	2510	36	6480	2.20/5026	1.40	0.30	1000	1000	25	350	125	0.011	45	32,40,50,63	1.20	20
TBH273-1600*	2000-2400	200	1600/80	2510	32	5120	2.50/5026	1.40	0.28	1000	1000	25	400	125	0.010	45	32,40,50,63	1.20	20
TBH173-2000*	1200-1600	200	2000/80	3140	45	10184	2.20/6280	1.25	0.15	1000	1000	25	250	125	0.011	45	25,32,40,50,63	1.20	20
TBH273-2000*	2000-2400	200	2000/85	3200	40	8000	1.85/6280	1.00	0.21	1000	1000	25	300	125	0.010	45	40,5,063	1.20	20

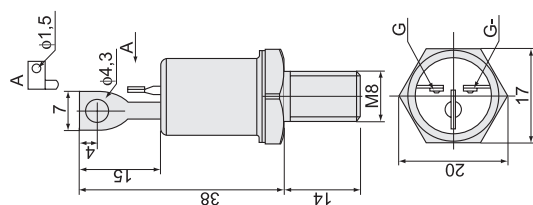


Fig 5

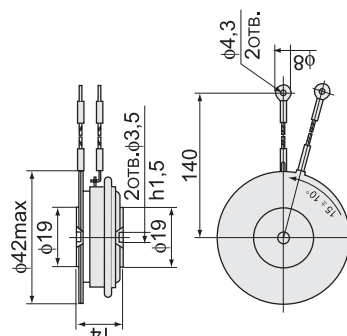


Fig 10

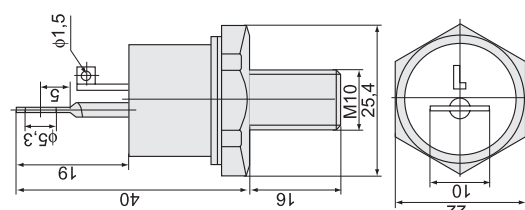


Fig 4

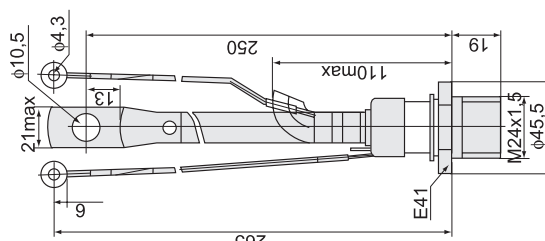


Fig 9

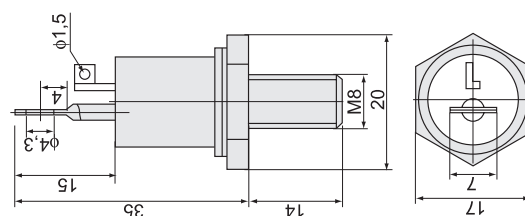


Fig 3

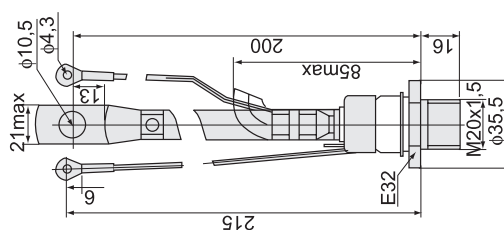


Fig 8

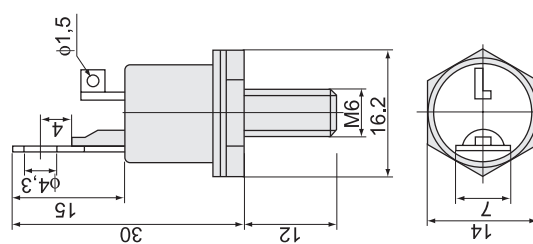


Fig 2

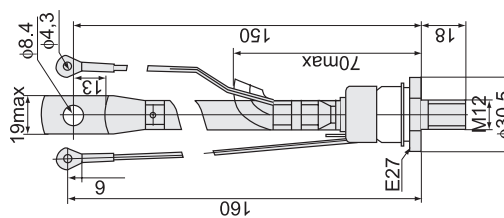


Fig 7

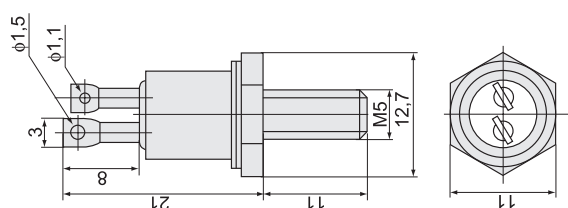


Fig 1

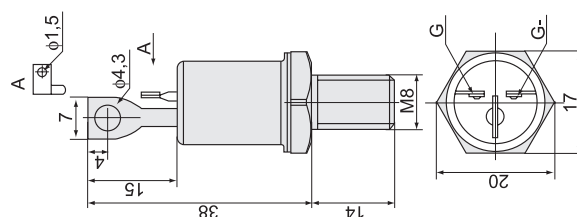


Fig 6

Outline

Outline

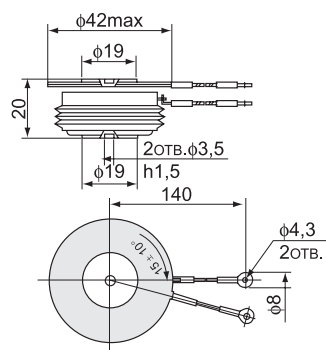


Fig 11

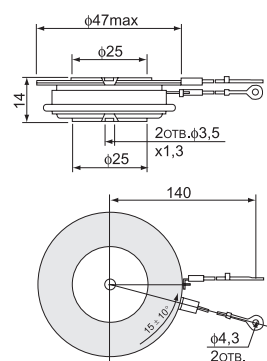


Fig 12

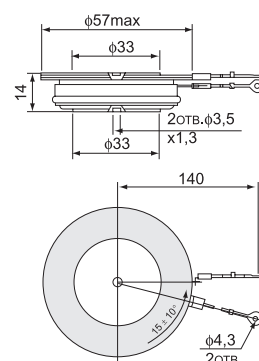


Fig 13

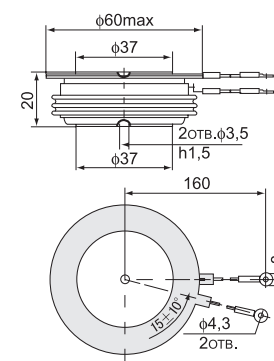


Fig 14

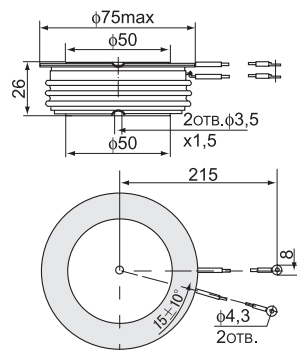


Fig 15

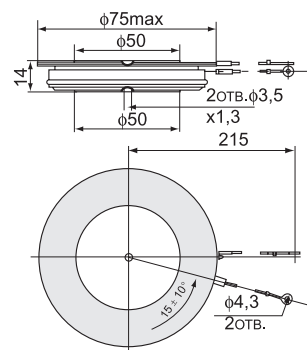


Fig 16

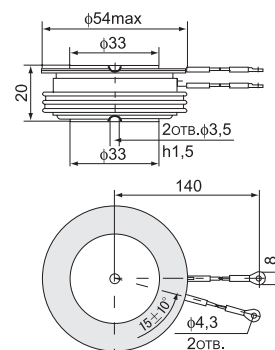


Fig 17

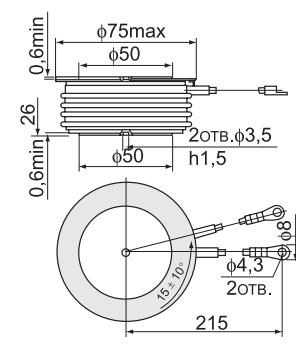


Fig 18

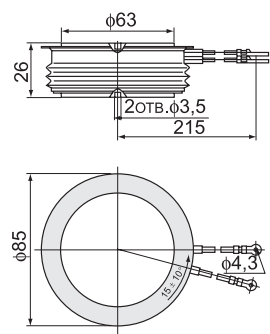


Fig 19

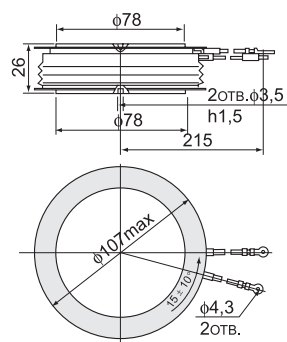


Fig 20

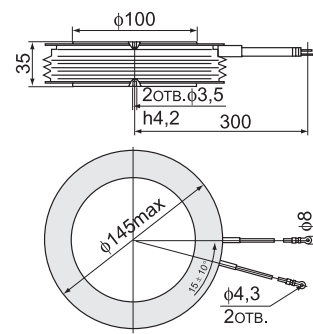


Fig 21

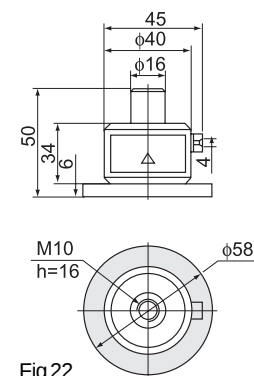


Fig 22

Rectifier diodes

Features

- Hermetic metal cases with glass and ceramic insulators.
- With letter "X"-cathode to stud.
- Without letter "X"-anode to stud.
- Reverse voltages up to 1800V.

Typical applications

- All-purpose small, mean and high power rectifier diodes.
- Non-controllable and half-controllable rectifiers.

Type designations thyristors

D □ □ □ □ □ X □ □
 1 2 3 4 5 6 7 8 9

- 1: Letter code D, for "diode"
- 2: Letter codes for subtype of diodes:
 L- Avalanche (avalanche diode)
 F- Fast recovery diode
- 3: Serial number of construction modification
- 4: Designation of modification according to hexahedron size for stud diodes or according to case diameter for press pack diodes
- 5: Designation of constructive design of case
- 6: Max. Average forward current (A)
- 7: X- Reverse polarity
- 8: Class according to repetitive voltage (VRRM)
- 9: Group according to trr (for AU)

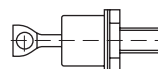
Rectifier diodes

Features

- Hermetic metal cases with glass and ceramic insulators.
- With letter "X" - cathode to stud.
- Without letter "X" - anode to stud.
- Reverse voltages up to 1800V.

Typical applications

- All-purpose small, mean and high power rectifier diodes.
- Non-controllable and half-controllable rectifiers.



Metal case with glass insulator (small-sized series)

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TD} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	M_d Nm	w kg	Fig.
D212-10	100-1600	3	10(150)	15	0.25	0.31	1.35/31	0.90	17500	190	2.700	0.9-1.1	0.006	1
D212-10X	100-1600	3	10(150)	15	0.25	0.31	1.35/31	0.90	17500	190	2.700	0.9-1.1	0.006	1
D212-16	100-1600	3	16(150)	25	0.27	0.36	1.35/50	0.90	10500	190	2.000	0.9-1.1	0.006	1
D212-16X	100-1600	3	16(150)	25	0.27	0.36	1.35/50	0.90	10500	190	2.000	0.9-1.1	0.006	1
D212-25	100-1600	3	25(150)	39	0.34	0.58	1.35/78	0.90	6100	190	1.250	0.9-1.1	0.006	1
D212-25X	100-1600	3	25(150)	39	0.34	0.58	1.35/78	0.90	6100	190	1.250	0.9-1.1	0.006	1
D222-32	100-1600	5	32(150)	50	0.46	1.06	1.35/100	0.85	5000	190	1.000	1.4-1.8	0.012	2
D222-32X	100-1600	5	32(150)	50	0.46	1.06	1.35/100	0.85	5000	190	1.000	1.4-1.8	0.012	2
D222-40	100-1600	5	40(150)	62	0.55	1.51	1.35/125	0.85	4000	190	0.800	1.4-1.8	0.012	2
D222-40X	100-1600	5	40(150)	62	0.55	1.51	1.35/125	0.85	4000	190	0.800	1.4-1.8	0.012	2
D232-50	100-1600	6	50(150)	78	1.20	7.20	1.35/157	0.83	3100	190	0.600	5.0-6.2	0.027	3
D232-50X	100-1600	6	50(150)	78	1.20	7.20	1.35/157	0.83	3100	190	0.600	5.0-6.2	0.027	3
D232-63	100-1600	6	63(150)	98	1.40	9.80	1.35/198	0.83	2800	190	0.500	5.0-6.2	0.027	3
D232-63X	100-1600	6	63(150)	98	1.40	9.80	1.35/198	0.83	2800	190	0.500	5.0-6.2	0.027	3
D232-80	100-1600	6	80(150)	125	1.50	11.25	1.35/250	0.83	2100	190	0.400	5.0-6.2	0.027	3
D232-80X	100-1600	6	80(150)	125	1.50	11.25	1.35/250	0.83	2100	190	0.400	5.0-6.2	0.027	3

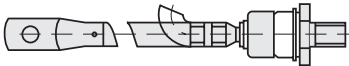
Rectifier diodes

Features

- Hermetic metal cases with glass and ceramic insulators.
- With letter “X”-cathode to stud.
- Without letter “X”-anode to stud.
- Reverse voltages up to 1800V.

Typical applications

- All-purpose small, mean and high power rectifier diodes.
- Non-controllable and half-controllable rectifiers.



Metal case with ceramic insulator

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	M_d Nm	w kg	Fig.
D141-100	300-1600	20	100(135)	180	2.20	24	1.35/314	0.95	1.600	190	0.400	6-10	0.090	4
D141-100X	300-1600	20	100(135)	180	2.00	20	1.45/314	0.95	1.600	190	0.400	6-10	0.090	4
D151-125	300-1600	20	125(140)	196	3.00	45	1.35/392	0.90	1.300	190	0.300	10-20	0.165	5
D151-160	300-1600	20	160(140)	300	4.50	100	1.35/502	0.90	1.000	190	0.240	10-20	0.165	5
D161-200	300-1800	40	200(145)	400	5.50	150	1.35/602	0.90	0.850	190	0.150	20-30	0.265	6
D161-200X	300-1600	40	200(125)	400	5.50	150	1.35/628	0.90	0.850	190	0.150	20-30	0.265	6
D161-250	300-1800	40	250(140)	480	6.40	200	1.35/785	0.90	0.640	190	0.150	20-30	0.265	6
D161-250X	300-1600	40	250(140)	480	6.40	200	1.45/785	0.90	0.765	190	0.140	20-30	0.265	6
D161-320	300-1600	40	320(130)	520	7.50	280	1.35/1005	0.90	0.500	190	0.150	20-30	0.265	6
D161-32X	300-1600	40	320(130)	540	7.50	280	1.50/1005	0.90	0.650	190	0.130	20-30	0.265	6
D161-400	300-1600	40	400(124)	625	8.25	340	1.40/1256	0.90	0.350	190	0.130	20-30	0.265	6
D171-400	300-1800	50	400(124)	760	14.00	980	1.45/1256	0.90	0.560	190	0.085	25-35	0.465	7

Rectifier diodes

Features

- Capsule type metal-ceramic packages with pressure contacts.
- Reverse voltage up to 6000V.
- Low on-state voltage, narrow V/F-deflection for parallel operation.
- Contact diameters 19, 33, 37, 50, 63 and 78mm

Typical applications

- All-purpose high power rectifier diodes.
- High power drives for industrial and traction applications.
- Welding.
- Electroplating.



Press-pack Rectifier Diodes Capsule Type

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} ($T_C=70^\circ C$) A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	w kg	Fig.
B7-200	300	50	200(150)	1240	2.9	40	1.70/628	1.18	0.800	200	0.060	4	0.034	15



Press-pack rectifier diodes capsule type 24MM

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} ($T_C=70^\circ C$) A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	w kg	Fig.
D123-200*	5200-6000	35	225(90)	435	3.0	45	2.60/628	1.00	3.10	140	0.08	6	0.091	9
D123-250*	4400-5000	35	260(100)	550	3.5	61	2.45/785	0.92	2.20	150	0.08	6	0.091	9
D123-320*	3400-4200	35	330(95)	650	4.2	88	2.25/1005	0.90	1.45	150	0.08	6	0.091	9
D123-400*	2400-3200	35	425(115)	960	5.5	150	1.90/1256	0.85	0.85	175	0.08	6	0.091	9
D123-500	400-2200	35	540(115)	1200	7.5	280	1.80/1570	0.77	0.54	180	0.08	6	0.070	8
D123-630*	200-1000	35	670(120)	1512	9.0	405	1.30/1978	0.72	0.35	190	0.08	6	0.070	8

Rectifier diodes

Features

- Capsule type metal-ceramic packages with pressure contacts.
- Reverse voltage up to 6000V.
- Low on-state voltage, narrow V/F-deflection for parallel operation.
- Contact diameters 19, 33, 37, 50, 63 and 78mm

Typical applications

- All-purpose high power rectifier diodes.
- High power drives for industrial and traction applications.
- Welding.
- Electroplating.



Press-pack rectifier diodes capsule type 32MM

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ (T_C , °C) A	I_{FRMS} ($T_C=70^\circ\text{C}$) A	I_{FSM} 10ms kA	i^2t $\text{A}^2\text{S}10^3$	V_{FM}/I_{FRM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} °C	$R_{th(j-c)}$ °C/W	F kN	w kg	Fig.
D333-500*	5200-6000	50	500(90)	965	5.0	125	2.90/1570	1.00	1.420	140	0.036	10	0.180	10
D233-630*	4400-5000	50	630(95)	1245	60	180	2.60/1978	0.92	0.960	150	0.036	10	0.180	10
D233-800*	3400-4200	50	800(110)	1500	72	259	2.30/2512	0.90	0.599	150	0.036	10	0.180	10
D233-1000*	2400-3200	50	1000(110)	2145	90	405	2.05/3140	0.85	0.380	175	0.036	10	0.180	10
D133-1250*	1200-2200	50	1250(110)	2645	11	605	1.80/3925	0.77	0.250	180	0.036	10	0.180	10
D1333-1600*	200-1000	50	1620(115)	3485	15	1125	1.55/5024	0.72	0.150	190	0.035	10	0.180	10
D233-500	1000-4400	35	500(108)	1160	7	245	2.00/1570	1.05	0.900	150	0.040	10	0.180	10
D133-400	1000-4000	50	400(117)	1200	7	245	2.10/1256	1.10	0.950	150	0.036	10	0.180	10
D133-500	1000-2800	50	500(140)	1770	11	605	1.70/1570	1.00	0.570	175	0.036	10	0.180	10
D133-630	1000-3200	35	630(129)	1970	11	605	1.60/1978	1.00	0.350	175	0.040	10	0.180	10
D133-800	400-2000	40	800(145)	2520	12	720	1.60/2512	1.00	0.270	190	0.036	10	0.180	10
D133-1000	400-2000	40	1000(133)	2630	16	1280	1.55/3140	0.95	0.250	190	0.036	10	0.180	10

Rectifier diodes

Features

- Capsule type metal-ceramic packages with pressure contacts.
- Reverse voltage up to 6000V.
- Low on-state voltage, narrow V/F-deflection for parallel operation.
- Contact diameters 19, 33, 37, 50, 63 and 78mm

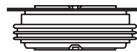
Typical applications

- All-purpose high power rectifier diodes.
- High power drives for industrial and traction applications.
- Welding.
- Electroplating.



Press-pack rectifier diodes capsule type 40MM

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_c, ^\circ C$) A	I_{FRMS} ($T_c=70^\circ C$) A	I_{FSM} 10ms kA	i^2t $A^2S \cdot 10^3$	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	w kg	Fig.
D243-630*	5200-6000	70	715(90)	1380	8.0	320	2.50/1978	1.00	0.90	140	0.027	15	0.24	11
D343-800*	4400-5000	70	850(95)	1680	95	451	2.45/2512	0.92	0.70	150	0.027	15	0.24	11
D343-1000*	3400-3200	70	1050(90)	1990	120	720	2.20/3145	0.90	0.460	150	0.027	15	0.24	11
D243-1250*	2400-3200	70	1330(110)	2840	150	1125	2.00/3925	0.85	0.290	175	0.027	15	0.24	11
D143-1600*	1200-2000	70	1695(110)	3580	190	1780	1.70/5024	0.77	0.180	180	0.027	15	0.24	11
D143-2000*	200-1000	70	2120(115)	4580	240	2880	1.55/6280	0.73	0.110	190	0.027	15	0.24	11



Press-pack rectifier diodes capsule type 40MM

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_c, ^\circ C$) A	I_{FRMS} ($T_c=70^\circ C$) A	I_{FSM} 10ms kA	i^2t $A^2S \cdot 10^3$	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	w kg	Fig.
D143-630	2400-4000	50	630(112)	1695	105	550	2.10/1978	1.00	0.65	150	0.027	15	0.24	11
D143-800	1800-2800	50	800(136)	2625	18	1620	1.55/2512	1.00	0.32	175	0.027	15	0.24	11
D143-1000	400-1800	65	1000(148)	3170	19	1780	1.55/3140	0.90	0.26	190	0.027	15	0.24	11
D143-1250	400-2000	70	1250(135)	3265	20	2000	1.65/3925	0.85	0.25	190	0.027	15	0.24	11
D243-800	2400-4400	45	800(102)	1755	125	780	1.95/2512	1.00	0.50	150	0.030	15	0.24	11
D243-1000	1800-3200	50	1000(127)	2610	18	1620	1.65/3140	0.95	0.28	175	0.030	15	0.24	11

Rectifier diodes

Features

- Capsule type metal-ceramic packages with pressure contacts.
- Reverse voltage up to 6000V.
- Low on-state voltage, narrow V/F-deflection for parallel operation.
- Contact diameters 19, 33, 37, 50, 63 and 78mm

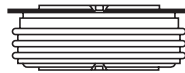
Typical applications

- All-purpose high power rectifier diodes.
- High power drives for industrial and traction applications.
- Welding.
- Electroplating.



Press-pack rectifier diodes capsule type 50MM

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} ($T_C=70^\circ C$) A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	w kg	Fig.
D153-4000*	200-600	90	4230(105)	7900	50	12500	1.60/12560	0.7	0.04	190	0.018	26	0.15	18



Press-pack rectifier diodes capsule type 56MM

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} ($T_C=70^\circ C$) A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	F kN	w kg	Fig.
D153-1000*	5200-6000	100	1240(90)	2420	16	1280	2.00/3140	1.00	0.400	140	0.018	26	0.550	12
D153-1250*	4400-5000	100	1480(95)	2950	18	1620	1.95/3925	0.92	0.310	150	0.018	26	0.550	12
D153-1600*	3400-4200	100	1820(90)	3455	22	2420	1.80/5024	0.90	0.206	150	0.018	26	0.550	12
D153-2000*	2400-3200	100	2280(110)	4930	28	3920	1.65/6280	0.85	0.130	175	0.018	26	0.550	12
D153-2500*	1200-2200	100	2890(110)	6190	35	6120	1.50/7850	0.77	0.080	180	0.018	26	0.550	12
D253-3200*	200-1000	100	3710(115)	9105	45	10125	1.35/10048	0.73	0.050	190	0.017	26	0.550	12
D253-1600	400-2200	90	1600(150)	5250	35	6120	1.50/5020	1.00	0.120	190	0.018	26	0.550	12
D253-2000	400-2400	55	2000(138)	5890	35	6120	1.55/6280	0.85	0.100	190	0.018	26	0.550	12

Rectifier diodes

Features

- Capsule type metal-ceramic packages with pressure contacts.
- Reverse voltage up to 6000V.
- Low on-state voltage, narrow V_F-deflection for parallel operation.
- Contact diameters 19, 33, 37, 50, 63 and 78mm

Typical applications

- All-purpose high power rectifier diodes.
- High power drives for industrial and traction applications.
- Welding.
- Electroplating.



Press-pack rectifier diodes capsule type 63MM

Type	V _{RRM} V	I _{RRM} mA	I _{F(AV)} (T _C , °C) A	I _{FRMS} (T _C =70°C) A	I _{FSM} 10ms kA	i ² t A ² S10 ³	V _{FM} /I _{FM} V/A	V _{TO} V	r _T mΩ	T _{JMAX} °C	R _{th(j-c)} °C/W	F kN	w kg	Fig.
D163-1250*	5200-6000	130	1480(90)	2900	20	2000	1.95/3925	1.00	0.300	140	0.016	33	0.71	13
D163-1600*	4400-5000	130	1670(100)	3555	23	2645	1.90/5024	0.92	0.230	150	0.016	33	0.71	13
D163-2000*	3400-4200	130	2050(95)	4130	28	3920	1.77/6280	0.90	0.154	150	0.016	33	0.71	13
D163-2500*	2400-3200	130	2560(115)	5890	35	6120	1.60/7850	0.85	0.097	175	0.016	33	0.71	13
D163-3200*	1200-2200	130	3425(110)	7365	45	10125	1.35/10048	0.77	0.060	180	0.016	33	0.71	13
D163-4000*	200-1000	130	4320(115)	8910	55	15125	1.30/12560	0.73	0.040	190	0.015	33	0.71	13



Press-pack rectifier diodes capsule type 76MM

Type	V _{RRM} V	I _{RRM} mA	I _{F(AV)} (T _C , °C) A	I _{FRMS} (T _C =70°C) A	I _{FSM} 10ms kA	i ² t A ² S10 ³	V _{FM} /I _{FM} V/A	V _{TO} V	r _T mΩ	T _{JMAX} °C	R _{th(j-c)} °C/W	F kN	w kg	Fig.
D173-2000*	5200-6000	150	2180(90)	4265	28	3920	2.00/6280	1.00	0.200	140	0.011	45	1.200	14
D173-2500*	4400-5000	150	2600(100)	5485	32	5120	1.95/7850	0.95	0.155	150	0.010	45	1.200	14
D173-3200*	3400-4200	150	3200(95)	6455	40	8000	1.80/10048	0.90	0.103	150	0.010	45	1.200	14
D173-4000*	2400-3200	150	4680(100)	9200	50	12500	1.65/12560	0.85	0.065	175	0.010	45	1.200	14
D173-5000*	1200-2200	150	5640(105)	11544	65	21125	1.45/15700	0.77	0.040	180	0.010	45	1.200	14
D173-6300*	200-1000	150	6590(115)	14495	75	28125	1.30/19782	0.73	0.025	190	0.010	45	1.200	14

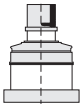
Rectifier diodes

Features

- Capsule type metal-ceramic packages with pressure contacts.
- Reverse voltage up to 6000V.
- Low on-state voltage, narrow V/F-deflection for parallel operation.
- Contact diameters 19, 33, 37, 50, 63 and 78mm

Typical applications

- All-purpose high power rectifier diodes.
- High power drives for industrial and traction applications.
- Welding.
- Electroplating.



Flanged case

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} ($T_C=70^\circ C$) A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	Md Nm	w kg	Fig.
D105-630	2000-2800	50	630(100)	1440	15.00	1120	1.60/1978	1.00	0.400	175	0.060	16	0.580	16
D105-630X	2000-2800	50	630(100)	1440	15.00	1120	1.60/1978	1.00	0.400	175	0.060	16	0.580	16
B6-200	400-1600	8	200(100)	500	6.00	180	1.35/628	0.92	0.95	140	0.13	16	0.290	17
B6-200X	400-1600	8	200(100)	500	6.00	180	1.35/628	0.92	0.95	140	0.13	16	0.290	17

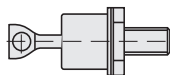
Avalanche rectifier diodes

Features

- Hermetic metal cases with glass and ceramic insulators, threaded stud and capsuledesigns.
- Guaranteed maximum avalanche power dissipation.

Typical applications

- DC supply for magnets and solenoids (brakes, valves, etc.).
- Non-controllable and half-controllable rectifiers.
- High power drives for industrial and traction applications.



Small-sized series

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ (T_C , °C) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A ² S10 ³	V_{FM}/I_{FM} V/A	V_{TO} V	PRSM 100mks kW	T_{jmax} °C	$R_{th(j-c)}$ °C/W	F kN	Md Nm	w kg	Fig	r_T m Ω
DL212-10	400-1600	6	10(120)	15	0.25	0.31	1.35/31	0.90	2.5	160	2.700	-	0.9-1.1	0.006	1	17.5
DL212-10X	400-1600	6	10(1200)	15	0.25	0.31	1.35/31	0.90	25	160	2.700	-	0.9-1.1	0.006	1	17.5
DL212-16	400-1600	6	16(120)	25	0.27	0.36	1.35/50	0.90	25	160	1.750	-	0.9-1.1	0.006	1	10.5
DL212-16X	400-1600	6	16(120)	25	0.27	0.36	1.35/50	0.90	25	160	1.750	-	0.9-1.1	0.006	1	10.5
DL212-25	400-1600	6	25(120)	39	0.34	0.58	1.35/78	0.90	25	160	1.100	-	0.9-1.1	0.006	1	6.1
DL212-25X	400-1600	6	25(120)	39	0.34	0.58	1.35/78	0.90	25	160	1.100	-	0.9-1.1	0.006	1	6.1
DL222-32	400-1600	8	32(120)	50	0.46	1.06	1.35/100	0.85	30	160	0.950	-	1.4-1.8	0.012	2	5.0
DL222-32X	400-1600	8	32(120)	50	0.46	1.06	1.35/100	0.85	30	160	0.950	-	1.4-1.8	0.012	2	5.0
DL222-40	400-1600	8	40(120)	62	0.55	1.51	1.35/125	0.85	30	160	0.800	-	1.4-1.8	0.012	1	4.0
DL222-40X	400-1600	10	40(120)	62	0.55	1.51	1.35/125	0.85	30	160	0.800	-	1.4-1.8	0.012	2	4.0
DL232-50	400-1600	10	50(120)	78	1.2	7.2	1.35/157	0.83	50	160	0.600	-	5.0-6.2	0.027	2	3.1
DL232-50X	400-1600	10	50(120)	78	1.2	7.2	1.37/157	0.83	50	160	0.600	-	5.0-6.2	0.027	3	3.1
DL232-63	400-1600	10	63(120)	98	1.4	9.8	1.35/198	0.83	50	160	0.500	-	5.0-6.2	0.027	3	2.8
DL232-63X	400-1600	10	63(120)	98	1.4	9.8	1.35/198	0.83	50	160	0.500	-	5.0-6.2	0.027	3	2.8
DL232-80	400-1600	10	80(120)	125	1.5	11.25	1.35/250	0.83	50	160	0.400	-	5.0-6.2	0.027	3	2.1
DL232-80X	400-1600	10	80(120)	125	1.5	11.25	1.35/250	0.83	50	160	0.400	-	5.0-6.2	0.027	3	2.1

Avalanche rectifier diodes**Features**

- Hermetic metal cases with glass and ceramic insulators, threaded stud and capsule designs.
- Guaranteed maximum avalanche power dissipation.

Typical applications

- DC supply for magnets and solenoids (brakes, valves, etc.).
- Non-controllable and half-controllable rectifiers.
- High power drives for industrial and traction applications.

**Stud design**

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ (T_C , °C) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	PRSM 100mks kW	T_{jmax} °C	$R_{th(j-c)}$ °C/W	F kN	Md Nm	w kg	Fig	r_T m Ω
DL161-200	400-1800	25	200(115)	280	7.5	280	1.40/628	0.92	16	150	0.130	-	20-30	0.265	6	0.680
DL171-320	400-1800	25	320(115)	600	10	500	1.40/1000	1.00	16	150	0.085	-	25-35	0.465	7	0.500

**Capsule design**

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ (T_C , °C) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	PRSM 100mks kW	T_{jmax} °C	$R_{th(j-c)}$ °C/W	F kN	Md Nm	w kg	Fig	r_T m Ω
DL123-320	400-1600	25	320(113)	770	5.5	151	1.65/1000	0.90	16	150	0.075	6	-	0.070	8	0.830
DL133-500	400-1600	25	500(123)	1430	12	720	1.50/1570	0.85	16	150	0.040	10	-	0.180	10	0.410
DL153-800*	4400-6000	100	800(90)		12	720	2.50/1500		16	140	0.020	24	-	0.550	12	
DL153-1000	3800-5000	50	1250(100)	2240	18	1620	3.00/3140	1.30	16	175	0.020	22	-	0.550	12	0.540
DL153-1250	2200-3200	50	1250(115)	1740	26	3380	2.00/4000	1.10	16	175	0.020	24	-	0.550	12	0.350
DL153-1600	2200-3200	50	1600(100)	2980	26	3380	2.00/5024	1.00	16	175	0.020	24	-	0.550	12	0.300
DL153-2000	1600-2000	50	2000(100)	2650	30	4500	1.80/6280	0.90	16	175	0.020	24	-	0.550	12	0.185
DL173-3200*	2400-3200	100	3250(100)	5760	45	10125	2.2/10053	1.10	16	175	0.011	45	-	1.300	14	0.124
DL173-4000*	1600-2400	100	3860(100)	6870	50	12500	2.2/12560	1.00	16	175	0.011	45	-	1.300	14	0.080

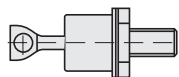
Fast recovery diodes

Features

- Hermetic metal cases with glass and ceramic insulators.
- Small recovered charge.
- “Soft” recovery.
- High di/dt capability at turn-off.

Typical applications

- Inverse diodes for transistors, GTO and asymmetric thyristors.
- Inverters, choppers.
- A.C. motor control.
- Uninterruptable power supplies.



Small-sized series

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	r_T m Ω	T_{JMAX} $^{\circ}C$	$R_{th(j-c)}$ $^{\circ}C/W$	Md Nm	w kg	Fig.
DF212-10	400-1400	10	10(100)	16	0.18	0.16	2.30/31	120	32	150	250	0.9-1.1	0.006	1
DF212-10X	400-1400	10	10(100)	16	0.18	0.16	2.30/31	120	32	150	250	0.9-1.1	0.006	1
DF212-16	400-1400	10	16(100)	25	0.25	0.31	2.30/50	120	20	150	160	0.9-1.1	0.006	1
DF212-16X	400-1400	10	16(100)	25	0.25	0.31	2.30/50	120	20	150	160	0.9-1.1	0.006	1
DF212-20	400-1400	10	20(100)	31	0.31	0.48	2.30/62	120	16	150	120	0.9-1.1	0.006	1
DF212-20X	400-1400	10	20(100)	31	0.31	0.48	2.30/62	120	16	150	120	0.9-1.1	0.006	1
DF222-25	400-1400	15	25(100)	39	0.40	0.80	2.30/78	120	13	150	100	1.4-1.8	0.012	2
DF222-25X	400-1400	15	25(100)	39	0.40	0.80	2.30/78	120	13	150	100	1.4-1.8	0.012	2
DF222-32	400-1400	15	32(100)	50	0.50	1.25	2.30/98	120	10	150	0.80	1.4-1.8	0.012	2
DF222-32X	400-1400	15	32(100)	50	0.50	1.25	2.30/98	120	10	150	0.80	1.4-1.8	0.012	2
DF232-40	400-1400	20	40(100)	62	0.60	1.80	2.30/125	120	8	150	0.60	5.0-6.2	0.027	3
DF232-40X	400-1400	20	40(100)	62	0.60	1.80	2.30/125	120	8	150	0.60	5.0-6.2	0.027	3
DF232-50	400-1400	20	50(100)	78	0.75	2.80	2.30/157	120	6	150	0.50	5.0-6.2	0.027	3
DF232-50X	400-1400	20	50(100)	78	0.75	2.80	2.30/157	120	6	150	0.50	5.0-6.2	0.027	3
DF232-63	400-1400	20	63(100)	98	0.95	4.50	2.30/198	120	5	150	0.40	5.0-6.2	0.027	3
DF232-63X	400-1400	20	63(100)	98	0.95	4.50	2.30/198	120	5	150	0.40	5.0-6.2	0.027	3

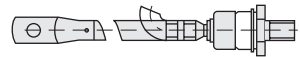
Fast recovery diodes

Features

- Hermetic metal cases with glass and ceramic insulators.
- Small recovered charge.
- “Soft” recovery.
- High di/dt capability at turn-off.

Typical applications

- Inverse diodes for transistors, GTO and asymmetric thyristors.
- Inverters, choppers. A.C. motor control.
- Uninterruptable power supplies.



Stud design

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V	trr μS	T_{jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	Md Nm	F kN	w kg	Fig	r_T m Ω
DF141-63	1600-2600	50	63(100)	100	2.0	20	2.23/198	1.20	1.0,2.0	150	0.45	6-10	-	0.090	4	5.0
DF141-63XL	1600-2500	50	56(100)	100	22	20	2.20/198	1.20	80 ¹⁾ 80 ²⁾	150	0.45	6-10	-	0.090	4	5.0
DF141-80	400-1600	30	80(100)	125	25	31	1.98/250	1.10	16	150	0.45	6-10	-	0.090	4	44
DF141-80XL	400-1600	30	80(95)	125	22	31	2.20/250	1.10	50 ¹⁾ 65 ²⁾	150	0.45	6-10	-	0.090	4	44
DF151-125	400-1600	30	125(100)	200	40	80	2.04/390	1.15	20	150	0.25	10-20	-	0.165	5	22
DF151-125XL	400-1600	30	125(90)	200	35	80	2.20/392	1.15	80 ¹⁾ 80 ²⁾	150	0.25	10-20	-	0.165	5	22
DF351-160	600-1400	20	160(103)	250	35	61	2.45/500	1.40	3.2,4.0	170	0.25	10-20	-	0.165	5	156
DF351-160X	600-1400	20	160(103)	250	35	61	2.45/500	1.40	3.2,4.0	170	0.25	10-20	-	0.165	5	156
DF354-200	600-1400	20	200(103)	300	43	92	1.85/628	1.05	3.2,4.0	170	0.25	10-30	-	0.165	5	11
DF351-200X	600-1400	20	200(103)	300	43	92	1.85/628	1.05	3.2,4.0	170	0.25	10-30	-	0.165	5	11
DF361-250	600-1400	30	250(103)	390	45	101	2.71/785	1.20	3.2,4.0,5.0	170	0.15	20-30	-	0.265	6	16
DF361-250X	600-1400	30	250(103)	390	45	101	2.71/785	1.20	3.2,4.0,5.0	170	0.15	20-30	-	0.265	6	16
DF361-320	600-1400	30	320(103)	500	53	140	2.13/1000	0.80	3.2,4.0,5.0	170	0.15	20-30	-	0.265	6	120
DF361-320X	600-1400	30	320(103)	500	53	140	2.13/1000	0.80	3.2,4.0,5.0	170	0.15	20-30	-	0.265	6	120

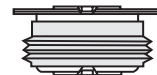
Fast recovery diodes

Features

- Hermetic metal cases with glass and ceramic insulators.
- Small recovered charge.
- “Soft” recovery.
- High di/dt capability at turn-off.

Typical applications

- Inverse diodes for transistors, GTO and asymmetric thyristors.
- Inverters, choppers.
- A.C. motor control.
- Uninterruptable power supplies.



Capsule design

Type	V_{RRM} V	I_{RRM} mA	$I_{F(AV)}$ ($T_C, ^\circ C$) A	I_{FRMS} A	I_{FSM} 10ms kA	i^2t A^2S10^3	V_{FM}/I_{FM} V/A	V_{TO} V	trr μs	T_{Jmax} $^\circ C$	$R_{th(j-c)}$ $^\circ C/W$	Md Nm	F kN	w kg	Fig	r_T m Ω
DF323-200	3000-4600	50	200(93)	400	3.0	45	3.20/628	1.40	5.0	140	0.08	-	45	0.091	9	2.70
DF423-200L	3000-4600	50	200(85)	314	27	35	3.50/628	1.40	300 ¹⁾ , 160 ²⁾	140	0.08	-	45	0.091	9	2.70
DF523-200	600-1600	30	200(100)		30	45	2.00/328		1.0, 1.6, 2.0	150	0.08	-	45	0.067	8	
DF323-250	1600-2400	50	250(100)	500	45	101	1.85/785	1.10	450 ¹⁾ , 250 ²⁾	150	0.08	-	45	0.067	8	0.96
DF423-250L	1600-2400	50	250(95)	388	40	80	2.10/785	1.10	4.0	150	0.08	-	45	0.067	8	0.096
DF523-250*	600-1600	30	250(100)		35	61	2.10/785		1.6, 2, 2.5	150	0.08	-	45	0.067	8	
DF333-400	1600-2400	50	400(100)	800	65	211	2.30/1250	1.20	450 ¹⁾ , 160 ²⁾	150	0.04	-	10	0.180	10	0.88
DF433-400	1600-2600	40	400(95)	628	65	211	2.50/1256	1.20	4.0	150	0.04	-	10	0.180	10	0.88
DF533-400*	600-1600	40	400(100)		65	211	2.10/1256		2.0, 2.5	150	0.04	-	10	0.180	10	
DF343-500	3000-3600	50	500(100)	785	10.5	551	3.00/1570	1.55	5.0	150	0.035	-	15	0.240	11	0.90
DF343-800	600-1800	40	800(100)	1600	12.5	781	2.80/2500	1.30	4.0, 5.0, 6.3, 8.0	175	0.035	-	15	0.240	11	0.60
DF343-1000	600-1800	40	1000(100)	2000	14.5	1051	2.30/3140	1.20	5.0, 6.3, 8.0	175	0.035	-	15	0.240	11	0.35
DF453-630*	1600-2200	85	630(100)		11.0	605	2.80/1980		1.6, 2, 2.5, 3.2	150	0.020	-	24	0.550	12	
DF353-800	3000-4600	50	800(93)	1600	95	451	3.50/2500	1.40	6.3	140	0.020	-	24	0.550	12	0.84
DF453-800L	3000-4600	100	800(90)	1250	16.0	1280	3.20/2512	1.40	1000 ¹⁾ , 700 ²⁾	140	0.020	-	24	0.550	12	0.84
DF453-1000*	1600-2200	85	1000(100)		16.0	1280	2.10/3140		3.2, 4.0, 5.0	150	0.02	-	24	0.550	12	
DF273-2000*	1400-2200	150	2000(100)		32.0	2120	2.10/6280		5.0, 6.3, 8.0	140	0.011	-	45	1.300	14	

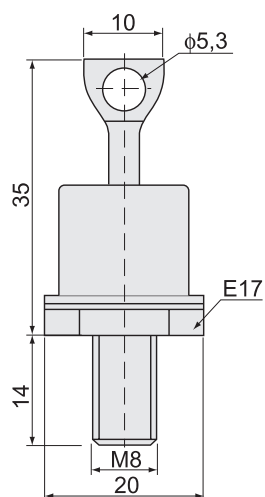


Fig 3

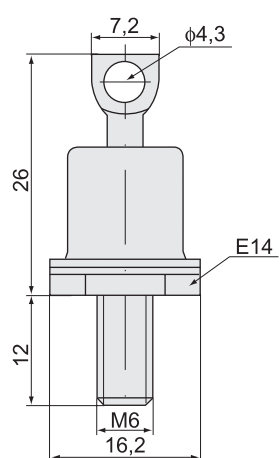


Fig 2

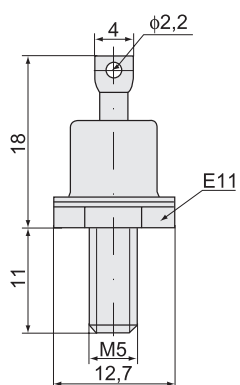


Fig1

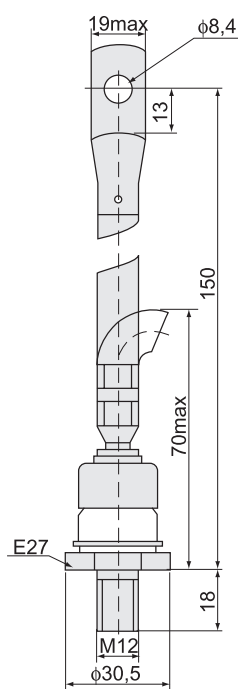


Fig 5

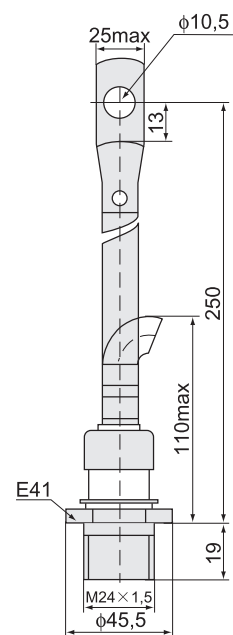


Fig 7

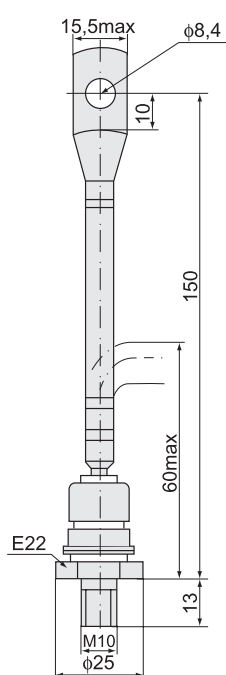


Fig 4

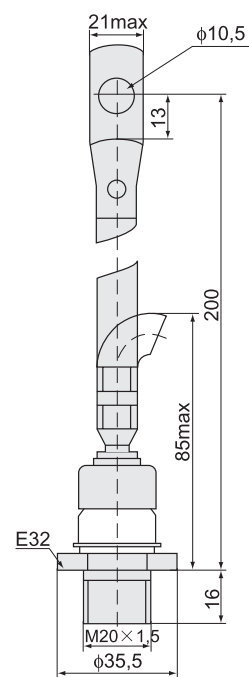


Fig 6

Outlines

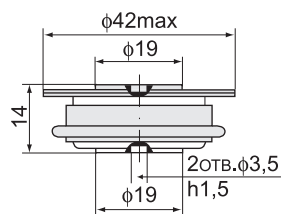


Fig 8

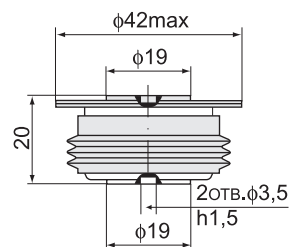


Fig 9

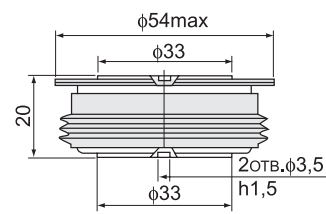


Fig 10

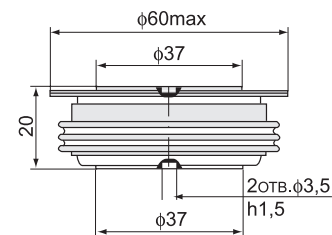


Fig 11

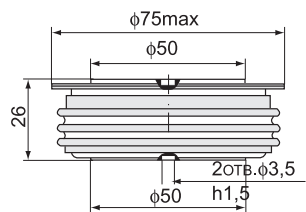


Fig 12

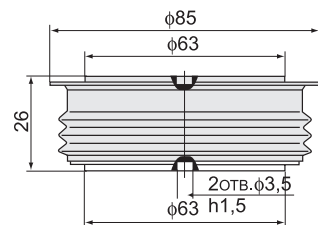


Fig 13

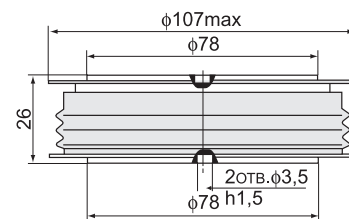


Fig 14

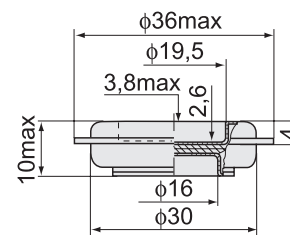


Fig 15

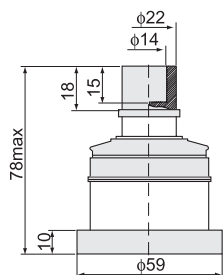


Fig 16

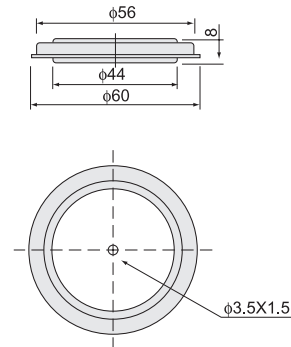


Fig 17

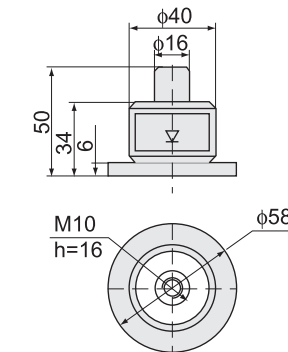


Fig 18



Standard recovery diode

Features

- High surge current capability
- Avalanche types available
- Stud cathode and stud anode version
- Wide current range
- Types up to 1200V VRRM
- RoHS Compliant

Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls

Technical parameter

Part Number	$I_{F(VA)}$ (A)	V_{RRM} (V)	@T _C (°C)	V_{FM} (V)	I_{FSM}		$R_{\theta JC}$ (°C/W)	Outline Fig
					50Hz(A)	60Hz(A)		
ZP6A	6	100~1200	153	1.1@pieXIfav	134	141	2.5	1(DO-4)
ZP12A	12	100~1200	144	1.26@pieXIfav	225	235	2	1(DO-4)
ZP16A	16	100~1200	140	1.23@IFM=50	295	310	1.6	1(DO-4)
ZP25A	25	100~1200	120	1.3@IFM=78	300	314	1.5	1(DO-4)
ZP40A	40	100~1600	140	1.3@pieXIfav	480	500	1	2(DO-5)
ZP50A	50	400~1200	150	1.45@IFM=157	600	628	0.6	2(DO-5)
ZP70A	70	100~1600	140	1.35@IFM=220	1000	1050	0.45	2(DO-5)
ZP80A	80	400~1200	140	1.4@IFM=220	1500	1570	0.3	2(DO-5)
ZP85A	85	100~1600	140	1.2@IFM=267	1450	1500	0.35	2(DO-5)
ZP95A	95	400~1200	140	1.4@IFM=267	2000	2090	0.27	2(DO-5)
ZP150A	150	100~1200	150	1.33@IFM=470	3000	3140	0.25	3(DO-8)
ZP200A	200	2000~2400	110	1.4@IFM=630	3950	4140	0.23	5(DO-30)
ZP300A	300	100~2500	130	1.4@IFM=942	5500	5750	0.18	4(DO-9)
ZP320A	320	600~1200	100	1.33@IFM=750	4500	4700	0.18	4(DO-9)
ZP380A	380	2000~3200	100	1.83@IFM=1180	5090	5330	0.11	4(DO-9)
ZP400A	400	1200~2400	1200	1.62@IFM=1500	8250	8640	0.15	4(DO-9)

Phase control thyristor SCR

Features

- Improved glass passivation for high reliability
- and exceptional stability at high temperature
- High di/dt and dv/dt capabilities
- Standard package
- Low thermal resistance
- Metric threads version available
- Types up to 1200V V_{DRM}/V_{RRM}
- RoHS Compliant

Applications

- Medium power switching
- Phase control applications
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements

Technical parameter

Part Number	I _{T(VA)} (A)	V _{RRM} V _{DRM} (V)	I _{RMS} (A)	@T _C (°C)	I _{TSM}		V _{GT} (V)	I _{GT} (A)	V _{TM} (V)	@I _{TM} (A)	dv/dt (V/μs)	R _{θJC(DC)} (°C/W)	Outline
					50Hz (A)	60Hz (A)							Fig
KP10A	10	100-1200	25	85	180	200	2	60	1.75	32	300	1.85	6(TO-48)
KP16A	16	25-1200	25	85	145	150	2	40	2		250	15	6(TO-48)
KP25A	25	100-1200	40	85	350	370	2	60	1.7	79	300	0.75	6(TO-48)
KP50A	50	100-1200	80	94	1200	1255	25	100	1.6	157	500	0.35	7(TO-65)
KP70A	70	1200-1600	75	82	1400	1200	15	100	1.4	100	500	0.27	
KP80A	80	400-1200	125	85	1600	1675	25	120	1.4	250	500	0.3	9(TO-94)
KP110A	110	400-1600	172	90	1750	1830	2	100	1.5	350	500	0.27	9(TO-94C)
KP180A	180	400-1000	285	80	3500	3660	25	150	1.35	570	500	0.15	8(TO-93)
KP200A	200	400-2000	314	85	4200	4400	3	150	1.75	570	500	0.105	8(TO-93)
KP230A	230	400-1600	361	85	4800	5000	3	150	1.55	720	500	0.1	8(TO-93)
KP280A	280	400-600	440	85	6600	6900	3	150	1.28	880	500	0.105	8(TO-93)
KP330A	330	400-1600	520	75	7570	7920	3	200	1.51	1040	500	0.1	10(TO-118)

Outlines

2

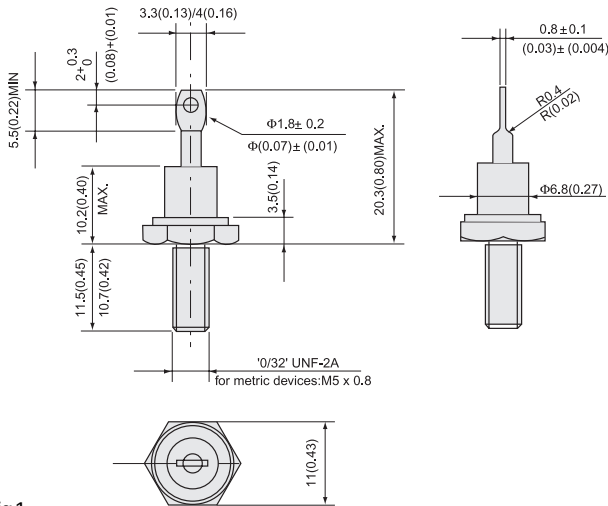


Fig1

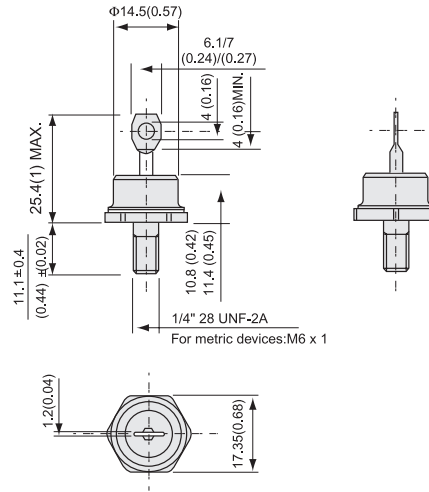


Fig2

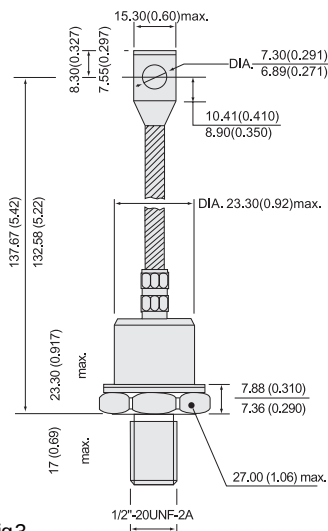


Fig3

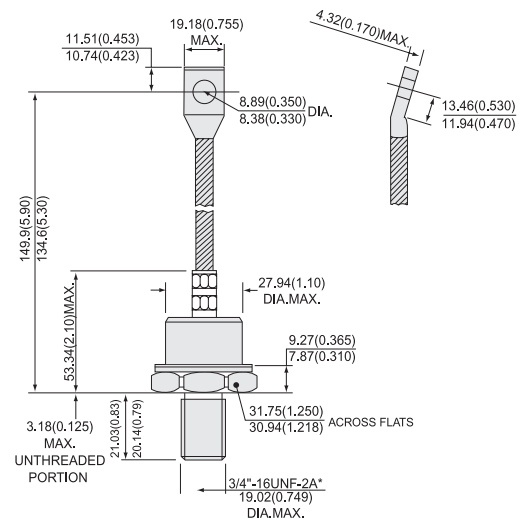


Fig4

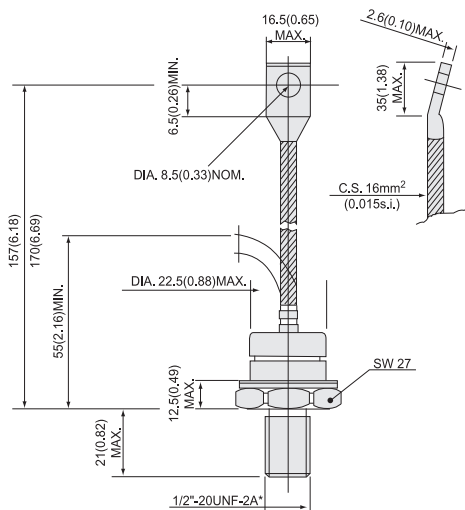


Fig5

Outlines

2

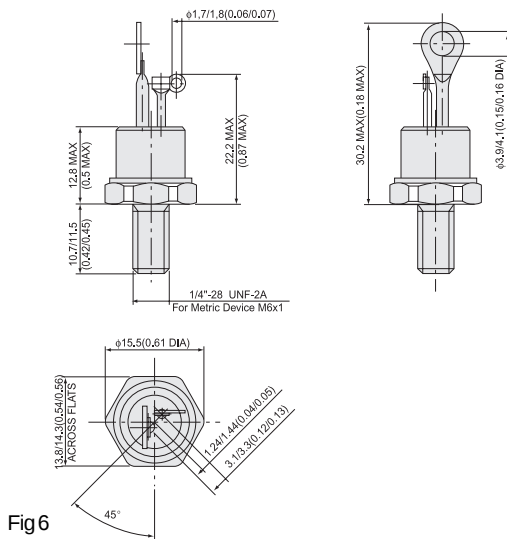


Fig 6

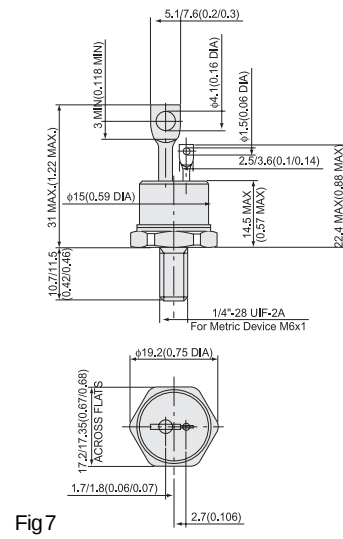


Fig 7

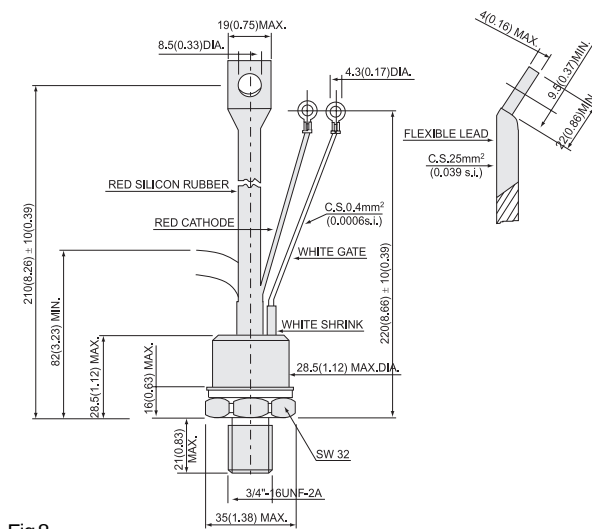


Fig 8

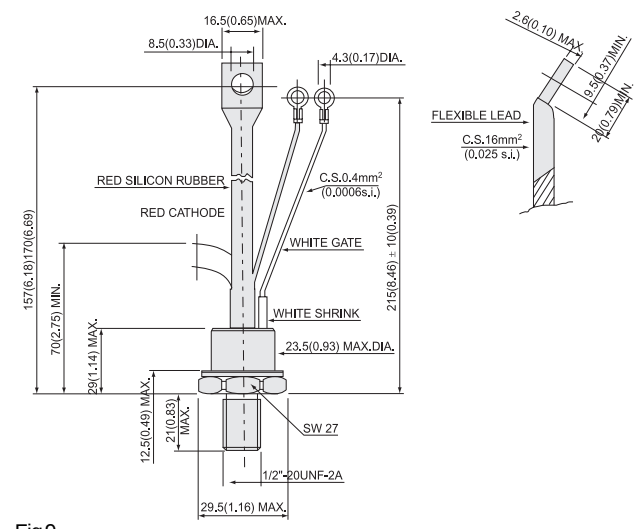


Fig 9

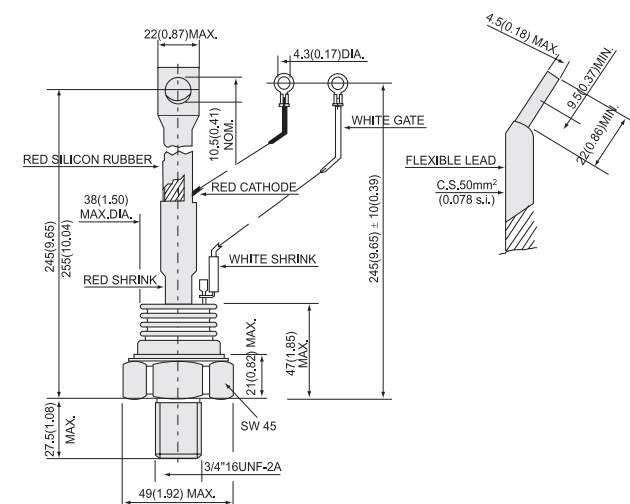


Fig 10



Type and meanings

G 50 KK E
1 2 3 4

1: Greegoo

2: Diameter of chips

3: Model no:

KP: phase control thyristor

KK: fast turn-off thyristor

KA: high-frequency thyristor

KS: bi-directional thyristor

ZP: rectifier diode

ZK: fast recovery diode

DS: super high speed

semiconductor switch

4: Class according to V_{DRM} , V_{RRM}

C: 400~1000V

E: 1100~1800V

H: 1900~3000V

J: 3100~4500V

Phase control thyristor

Features

- Full diffusibility
- Disc type hermetic ceramic seal
- Center-amplifying gate structure
- Double side cooling
- Big current

Applications

- Hi power convertor
- AC/DC motor control
- AC/DC switch
- Phase control rectifying
- Active and negative inverter

Technical parameter

Type	V_{DRM}	V_{RRM}	$I_{T(AV)}$ @ T_{hs}	I_{TSM} 10ms	dv/dt	di/dt	I_{DRM}/I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	V_{TO}	r_T	$R_{TH(j-hs)}$	T_{jm}	F	Outline
	25℃							125℃									
	V	A	℃	KA	V/μs	A/μs	mA	mA	V	mA	V/A	V	mΩ	℃/W	℃	KN	Fig
G24KPE	1100-1800	200	97	2.5	300	100	16	30-200	0.8-2.0	20-150	22/600	0.85	1.20	0.095	125	3355	1
G30KPEA	1100-1800	200	106	2.5	300	100	30	35-250	0.8-2.0	20-150	24/600	0.89	1.10	0.065	125	53-12	28
G24KPC	400-1000	300	82	2.5	300	100	16	30-200	0.8-2.0	20-150	202/900	0.75	1.00	0.095	125	3355	1
G30KPE	1100-1800	300	98	3.8	300	100	30	35-250	0.8-2.5	20-200	22/900	0.877	1.02	0.055	125	53-10	2
G30KPC	400-1000	400	91	3.8	300	100	30	35-250	0.8-2.5	20-200	22/1200	0.70	0.85	0.055	125	53-10	2
G35KPEA*	1100-1800	400	98	5	300	100	40	35-250	0.8-2.5	20-200	24/1200	0.92	0.75	0.040	125	10-20	29
G38KPJ	3100-4500	400	88	6.4	300	100	50	35-300	0.8-2.5	20-250	32/1200	1.18	1.49	0.035	125	10-20	3
G35KPC*	400-1000	500	95	5	300	100	40	35-250	0.8-2.5	20-200	18/1500	0.89	0.65	0.035	125	10-20	3
G38KPE	1100-1800	500	101	6.4	300	100	40	35-300	0.8-2.5	20-250	22/1500	0.85	0.42	0.035	125	10-20	3
G40KPEA	1100-1800	500	104	6.4	300	100	50	35-250	0.8-2.5	20-250	24/1500	0.90	0.23	0.035	125	15-20	30
G40KPH	1900-3000	500	88	6.8	500	100	50	40-300	0.8-2.5	20-250	24/1500	1.2	0.78	0.032	125	15-20	4
G38KPC	400-1000	300	97	6.4	300	100	40	35-300	0.8-2.5	20-250	18/1800	0.80	0.35	0.035	125	15-20	3
G40KPC	400-1000	800	88	10	300	100	50	35-300	0.8-2.5	20-250	18/2400	0.85	0.30	0.032	125	15-20	4
G40KPE	1100-1800	800	84	10	300	100	50	40-300	0.8-3.0	20-250	22/2400	0.91	0.35	0.032	125	15-20	4
G50KPJ	3100-4500	800	70	11.5	500	100	100	40-300	0.8-3.0	20-250	28/1500	1.24	0.77	0.024	125	19-26	6
G45KPC	400-1000	1000	80	13	300	150	60	40-300	0.8-3.0	20-250	18/3000	0.88	0.25	0.030	125	18-25	5
G45KPE	1100-1800	1000	75	13	300	150	60	40-300	0.8-3.0	20-250	22/3000	0.93	0.29	0.030	125	18-25	5
G50KPH	1900-3000	1000	77	13	500	150	80	40-300	0.8-3.0	20-250	24/2400	1.11	0.36	0.024	125	19-26	6
G50KPE	1100-1800	1200	79	15	300	150	80	40-300	0.8-3.0	20-300	22/3000	0.91	0.23	0.024	125	19-26	6
G55KPH*	1900-3000	1200	78	15	500	150	100	40-300	0.8-3.0	20-300	24/3000	0.97	0.27	0.022	125	21-30	7
G65KPJ	3100-4500	1250	70	16	500	200	120	40-300	0.8-3.0	20-300	28/3000	1.17	0.35	0.017	125	27-34	9
G50KPC	400-1000	1600	68	20	300	200	80	40-300	0.8-3.0	20-300	18/3000	0.89	0.15	0.024	125	19-26	6
G55KPE*	1100-1800	1600	61	20	300	200	100	40-300	0.8-3.0	20-300	22/3000	1.10	0.18	0.022	125	21-30	7

Remark

- I_{GT} , V_{GT} , I_H are the tested values under 25℃ and other parameters in the table are under T_{jm} unless there are extra explanations

- $I^2t = I^2_{TSM} \times t_{w/2}$; t_w = Sine and half wave current full-bottomed

- When working at 60Hz: $I_{TSM}(8.3ms) = I_{TSM}(10MS) \times 1.066$, $T_j = T_{jm}$

$$I^2t(8.3ms) = I^2t(10MS) \times 0.943, T_j = T_{jm}$$

- V_{TO} : threshold voltage; r_T : slope resistance

- Gate lead: white or colorless; Cathode lead (when needed): red



Type and meanings

G 50 KK E
1 2 3 4

1: Greegoo

2: Diameter of chips

3: Model no:

KP: phase control thyristor

KK: fast turn-off thyristor

KA: high-frequency thyristor

KS: bi-directional thyristor

ZP: rectifier diode

ZK: fast recovery diode

DS: super high speed

semiconductorswitch

4: Class according to V_{DRM} , V_{RRM}

C:400~1000V

E:1100~1800V

H:1900~3000V

J:3100~4500V

Phase control thyristor

Technical parameter(continue)

Type	V_{DRM}	V_{RRM}	$I_{T(AV)}$ @ T_{HS}		I_{TSM} 10ms	dv/dt	di/dt	I_{DRM}/I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	V_{TO}	r_T	$R_{TH(j-hs)}$	T_m	F	Outline		
													25 °C		125 °C					
	V	A	°C	KA	V/ μ s	A/ μ s	mA	mA	V	mA	V/A	V	m Ω	°C/W	°C	KN	Fig			
G60KPH	1900-3000	1600	60	20	500	200	120	40-300	0.8-30	20-300	243000	1.20	0.21	0.020	125	21-30	8			
G76KPJ	3100-4500	1650	70	20	500	250	200	40-300	0.8-30	20-300	263000	1.15	0.32	0.011	125	35-47	11			
G55KPC*	400-1000	1800	60	22.5	300	200	100	40-300	0.8-30	20-300	184000	0.88	0.17	0.022	125	21-30	7			
G60KPE	1100-1800	1800	66	22.5	300	200	120	40-300	0.8-30	20-300	224000	0.98	0.15	0.020	125	21-30	8			
G65KPH	1900-3000	1800	69	22.5	500	200	120	40-300	0.8-30	20-300	244000	0.99	0.19	0.017	125	27-34	9			
G60KPC	400-1000	2000	63	25	300	200	120	40-300	0.8-30	20-300	184000	0.95	0.12	0.020	125	21-30	8			
G65KPE	1100-1800	2000	72	25	300	200	120	40-300	0.8-30	20-300	224000	0.87	0.14	0.017	125	27-34	9			
G70KPH*	1900-3000	2000	63	25	500	250	160	40-300	0.8-30	20-300	244000	1.07	0.19	0.016	125	30-40	10			
G65KPC	400-1000	2500	64	31	300	250	120	40-300	0.8-30	20-300	185000	0.75	0.11	0.017	125	27-34	9			
G70KPE*	1100-1800	2500	70	31	300	250	160	40-300	0.8-30	20-300	225000	0.85	0.14	0.016	125	30-40	10			
G76KPH	1900-3000	2500	72	31	500	250	200	40-300	0.8-30	20-300	245000	1.00	0.15	0.011	125	35-47	11			
G89KPJ	3100-4500	2500	70	40	500	250	250	40-300	0.8-30	20-300	265000	1.00	0.18	0.009	125	70-85	12			
G70KPC*	400-1000	3000	64	38	300	250	160	40-300	0.8-30	20-300	185000	0.90	0.10	0.016	125	30-40	10			
G76KPE	1100-1800	3000	75	38	300	250	200	40-300	0.8-30	20-300	225000	0.84	0.09	0.011	125	35-47	11			
G76KPC	400-1000	3500	70	44	300	250	200	40-300	0.8-30	20-300	185000	0.82	0.07	0.011	125	35-47	11			
G89KPH	1900-3000	3500	64	44	500	250	250	40-300	0.8-30	20-300	245000	0.99	0.11	0.009	125	70-85	12			
G89KPC	400-1000	4000	72	55	300	250	250	40-300	0.8-30	20-300	185000	0.88	0.06	0.009	125	70-85	12			

Note: * is old model and subject to our confirmation when ordering



Type and meanings

G 50 KK E
1 2 3 4

1: Greegoo

2: Diameter of chips

3: Model no:

KP: phase control thyristor

KK: fast turn-off thyristor

KA: high-frequency thyristor

KS: bi-directional thyristor

ZP: rectifier diode

ZK: fast recovery diode

DS: super high speed

semiconductor switch

4: Class according to V_{DRM} , V_{RRM}

C: 400~1000V

E: 1100~1800V

H: 1900~3000V

J: 3100~4500V

Fast turn-off thyristor

Features

- Full diffusibility
- Center-amplifying gate structure
- Excellent dynamic characteristics
- Fast-switching performance
- Low-switching consumption
- Disc type hermetic ceramic seal
- Double side cooling

Applications

- Inverter
- Wave chopper
- Induction heating
- Different kinds of forced current convertor

Technical parameter

Type	V_{DRM}	V_{RRM}	$I_{T(AV)}$	I_{TSM}	dv/dt	di/dt	$I_{DRM/RRM}$	I_{GT}	V_{GT}	I_H	$V_{TM/IM}$	V_{TO}	r_T	$R_{TH(j-hs)}$	T_{jm}	F	Outline
			T_{is}					25 °C									
	V	A	°C	KA	V/μs	A/μs	mA	mA	V	mA	V/A	V	mΩ	°C/W	°C	KN	Fig
G30KKEA	800-1600	200	16-35	2.5	500	200	30	40-250	0.9-25	20-400	3.1/600	160	1.32	0.065	115	53-12	28
G30KKE	800-1600	300	16-35	38	500	200	30	40-250	0.9-25	20-400	3.0/900	160	1.32	0.055	115	53-10	2
G35KKEA*	800-1600	400	16-35	50	500	300	40	40-250	0.9-25	20-400	3.2/1200	132	0.66	0.040	115	10-20	29
G35KKE*	800-1600	400	16-35	50	500	300	40	40-250	0.9-25	20-400	3.0/1200	132	0.66	0.035	115	10-20	3
G38KKE	800-1800	500	16-35	63	500	300	40	40-250	0.9-25	20-400	3.15/1500	136	0.53	0.035	115	10-20	3
G40KKEA	800-1800	500	16-35	63	500	300	50	40-250	0.9-25	20-400	3.15/1500	142	0.50	0.035	115	15-20	30
G40KKE	800-1800	600	16-35	75	500	300	50	40-300	0.9-30	20-400	3.15/1800	142	0.50	0.032	115	15-20	4
G45KKE	800-1800	800	16-35	10	500	300	60	40-300	0.9-30	20-500	3.15/2400	150	0.45	0.030	115	18-25	5
G50KKE	800-1800	1000	16-35	12	500	500	80	40-300	0.9-30	20-500	3.15/3000	156	0.33	0.024	115	19-26	6
G55KKE	800-1800	1200	16-35	14	500	500	100	40-300	0.9-30	20-500	3.15/3000	151	0.32	0.022	115	21-30	7
G60KKE	800-1800	1500	16-35	16	500	500	120	40-300	0.9-35	20-500	3.15/3000	148	0.28	0.020	115	21-30	8
G65KKE	800-1800	1800	16-35	19	500	500	120	40-400	0.9-40	20-800	3.15/4000	141	0.23	0.017	115	27-34	9
G70KKE*	800-1800	2000	25-40	21	500	600	160	40-450	0.9-45	20-1000	3.15/4000	145	0.21	0.016	115	30-40	10
G70KKG	1900-2500	2000	35-70	21	500	600	160	40-450	0.9-45	20-1000	3.15/4000	148	0.23	0.016	115	30-40	10
G76KKE	800-1800	2500	25-40	27	500	600	200	40-450	0.9-45	20-1000	3.15/5000	130	0.14	0.011	115	35-47	11
G76KKG	1900-2500	2500	35-70	27	500	600	200	40-450	0.9-45	20-1000	3.15/5000	148	0.18	0.011	115	35-47	11
G89KKG	1900-2500	3000	40-80	31	500	600	250	40-450	0.9-45	20-1000	3.15/5000	110	0.14	0.009	115	70-85	12
G100KKG	1900-3000	4000	50-90	45	500	600	250	40-450	0.9-45	20-1000	2.90/5000	080	0.09	0.0075	115	89-113	13

Note: * is old model and subject to our confirmation when ordering

Remark

- I_{GT} , V_{GT} , I_H are the tested values under 25 °C and other parameters in the table are under T_{jm} unless there are extra explanations
- $I^2t = I^2_{TSM} \times t_w / 2$; t_w = Sine and half wave current full-bottomed
- When working at 60Hz: $I_{TSM}(8.3ms) = I_{TSM}(10MS) \times 1.066$, $T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943$, $T_j = T_{jm}$
- V_{TO} : threshold voltage; r_T : slope resistance
- Gate lead: white or colorless; Cathode lead (when needed): red



Type and meanings

G 50 KK E
1 2 3 4

- 1: Greegoo
2: Diameter of chips
3: Model no:
KP: phase control thyristor
KK: fast turn-off thyristor
KA: high-frequency thyristor
KS: bi-directional thyristor
ZP: rectifier diode
ZK: fast recovery diode
DS: super high speed semiconductor switch
4: Class according to V_{DRM} , V_{RRM}
C: 400~1000V
E: 1100~1800V
H: 1900~3000V
J: 3100~4500V

High frequency thyristor

Features

- Full diffusibility
- Distributed and expansive amplifying gate structure
- Low-switching consumption
- Excellent dynamic characteristics
- Excellent high-frequency performance, suitable for 2.5KHz-10KHz
- Disc type hermetic ceramic seal
- Double side cooling

Applications

- Inverter
- Welding machine
- Wave chopper

Technical parameter

Type	V_{DRM}	V_{RRM}	$I_{T(AV)}$ @ T_{hs}	I_{TSM}	dv/dt	di/dt	I_{DRM}/I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	V_{TO}	r_T	$R_{TH(j-hs)}$	T_{jm}	F	Outline
				10ms													
	V	A	A/KHz	KA	V/ μ s	A/ μ s	mA	mA	V	mA	V/A	V	m Ω	$^{\circ}$ C/W	$^{\circ}$ C	KN	Fig
G30KAC	800-1100	200	8-10	24	200	200	30	30-200	0.8-25	20-250	32/600	1.45	1.12	0.055	115	53-10	2
G30KAD	1200-1400	200	10-14	24	200	200	30	30-200	0.8-25	20-250	32/600	1.67	1.32	0.055	115	53-10	2
G38KAB*	600-1000	600	68	60	200	200	40	30-250	0.8-30	20-400	32/1200	1.40	0.48	0.035	115	10-20	3
G38KAC	800-1100	600	8-10	48	200	200	40	30-250	0.8-30	20-400	32/1200	1.48	0.67	0.035	115	10-20	3
G38KAD	1200-1400	500	10-14	36	200	200	40	30-250	0.8-30	20-400	32/900	1.50	0.88	0.035	115	10-20	3
G40KAD*	1200-1400	500	10-14	60	200	200	50	30-250	0.8-30	20-400	32/1500	1.70	0.48	0.032	115	15-20	4
G40KAC*	800-1100	600	8-10	72	200	250	50	30-250	0.8-30	20-400	32/1800	1.43	0.50	0.032	115	15-20	4
G45KAD	1200-1400	600	12-16	72	200	250	60	30-250	0.8-30	20-400	32/1800	1.61	0.45	0.030	115	18-25	5
G45KAC	800-1100	800	8-15	96	200	250	60	30-250	0.8-30	20-400	32/2400	1.41	0.45	0.030	115	18-25	5
G50KAD	1200-1400	800	12-16	96	200	250	80	30-250	0.8-30	20-400	32/2400	1.65	0.36	0.024	115	19-26	6
G50KAC	800-1100	1000	8-15	12	200	250	80	30-300	0.8-30	20-400	32/3000	1.32	0.32	0.024	115	19-26	6
G55KAD*	1200-1400	1000	12-16	12	200	250	100	30-300	0.8-30	20-400	32/3000	1.63	0.25	0.022	115	21-30	7
G55KAC*	800-1100	1200	8-15	14	200	250	100	30-300	0.8-30	20-400	32/3000	1.27	0.23	0.022	115	21-30	7

Note: * is old model and subject to our confirmation when ordering

Remark

- I_{GT} , V_{GT} , I_H are the tested values under 25 $^{\circ}$ C and other parameters in the table are under T_{jm} unless there are extra explanations
- $I^2t = I^2_{TSM} \times t_w / 2$; t_w = Sine and half wave current full-bottomed
- When working at 60Hz: $I_{TSM}(8.3ms) = I_{TSM}(10ms) \times 1.066$, $T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943$, $T_j = T_{jm}$
- V_{TO} : threshold voltage; r_T : slope resistance
- Gate lead: white or colorless; Cathode lead (when needed): red



Type and meanings

G 50 KK E
1 2 3 4

1: Greegoo

2: Diameter of chips

3: Model no:

KP: phase control thyristor
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ZP: rectifier diode
ZK: fast recovery diode
DS: super high speed semiconductor switch

4: Class according to V_{DRM} , V_{RRM}
C: 400~1000V
E: 1100~1800V
H: 1900~3000V
J: 3100~4500V

Bi-directional thyristor(triacs)

Features

- Full diffusibility
- Center gate
- Disc type hermetic ceramic seal
- Double side cooling
- Virtual to two phase control thyristors
- Anti-parallel
- To give a suitable gate current, both normal side and reverse side can work.

Applications

- No-contact AC switch
- AC power adjustment and control

Technical parameter

Type	V_{DRM}	V_{RRM}	$I_{T(AV)}$ @ T_{HS}	I_{TSM}	dv/dt	di/dt	I_{DRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	V_{TO}	r_T	$R_{TH(HS)}$	T_{jm}	Weight	F	Outline
				10ms				25 °C										
	V	A	°C	KA	V/μs	A/μs	mA	mA	V	mA	V/A	V	mΩ	°C/W	°C	g	KN	Fig
G30KSEA	500-1800	300	97	2.5	50	50	30	20-200	0.8-25	20-200	2.7/450	0.99	1.80	0.065	125	8	53-12	28
G30KSE	500-1800	300	101	25	50	50	30	20-200	0.8-25	20-200	2.7/450	0.99	1.80	0.055	125	8	53-10	2
G35KSEA	500-1800	500	99	4	50	50	40	20-300	0.8-30	20-300	2.7/750	0.90	1.02	0.040	125	110	10-20	29
G35KSE	500-1800	600	95	42	50	50	40	20-300	0.8-30	20-300	2.7/900	0.90	1.02	0.035	125	270	10-20	3
G40KSEA	500-1800	800	81	68	50	50	50	20-350	0.8-35	20-400	2.7/1200	1.00	0.85	0.035	125	200	15-20	30
G40KSE	500-1800	800	85	68	50	50	50	20-350	0.8-35	20-400	2.7/1200	1.00	0.85	0.032	125	360	15-20	4

Remark

- I_{GT} , V_{GT} , I_H are the tested values under 25 °C and other parameters in the table are under T_{jm} unless there are extra explanations
- $I^2t = I^2_{TSM} \times t_w / 2$; t_w = Sine and half wave current full-bottomed
- When working at 60Hz: $I_{TSM}(8.3ms) = I_{TSM}(10MS) \times 1.066$, $T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943$, $T_j = T_{jm}$
- V_{TO} : threshold voltage; r_T : slope resistance
- Gate triggering method (datum mark is T1 terminal): I_{GT} , V_{GT} value in the table are only suitable for I+, I-, III- three triggering methods. I_H value is suitable for both directions.
- Gate lead: white or colorless



Features

- Diffusibility
- Disc type hermetic ceramic seal
- Double side cooling

Applications

- Hi-power current convertor
- Welding machine
- Motor control and drive
- Charging equipment

Rectifier diode

Technical parameter

Type	V_{RRM}	$I_{T(AV)}$	@ T_{hs}	I_{TSM}	I^2t	I_{RRM}	V_{FM}/I_{FM}	V_{FO}	r_F	$R_{th(j-hs)}$	T_{jm}	F	Outline
				10ms			25 °C	125 °C					
	V	A	°C	KA	KA ² s	mA	V/A	V	m Ω	°C/W	°C	KN	Fig
G24ZPB	200-1000	200	130	2.8	40	16	1.8/600	0.73	0.68	0.090	150	3.3-5.5	14
G24ZPC	1100-2000	200	129	2.8	40	16	1.8/600	0.70	0.86	0.090	150	3.3-5.5	14
G30ZPB	200-1000	400	123	5.6	160	30	1.8/1200	0.95	0.31	0.055	150	5.3-10	28
G30ZPBA	200-1000	300	126	4.2	90	30	1.8/900	0.98	0.31	0.065	150	5.3-12	15
G30ZPC	1100-2000	400	119	5.6	160	30	1.8/1200	1.06	0.35	0.055	150	5.3-10	28
G30ZPCA	1100-2000	300	122	4.2	90	30	1.8/900	1.08	0.35	0.065	150	5.3-10	15
G35ZPB*	200-1000	600	122	8.4	350	40	1.8/1500	0.97	0.27	0.033	150	10-20	16
G35ZPBA*	200-1000	500	120	7	250	40	1.8/1500	1.06	0.31	0.040	150	10-20	29
G35ZPC*	1100-2000	600	120	8.4	350	40	1.8/1800	1.05	0.30	0.033	150	10-20	29
G35ZPCA*	1100-2000	400	127	5.6	160	40	1.8/1200	1.1	0.32	0.040	150	10-20	16
G38ZPB	200-1000	800	116	11	600	40	2.0/2400	0.81	0.23	0.033	150	10-20	16
G38ZPC	1100-1800	800	112	11	600	40	2.0/2400	0.85	0.29	0.033	150	10-20	16
G40ZPB	200-1000	1000	112	14	950	50	2.0/3000	0.86	0.165	0.030	150	15-20	30
G40ZPBA	200-1000	800	116	11	600	50	2.0/2400	0.88	0.17	0.035	150	15-20	30
G40ZPC	1100-2000	1000	108	14	950	50	2.0/3000	0.90	0.204	0.030	150	15-20	17
G40ZPCA	1100-2000	600	124	8.4	350	50	1.8/1800	0.93	0.21	0.035	150	15-20	17
G45ZPB*	200-1000	1200	106	17	1500	60	2.0/3000	0.82	0.132	0.030	150	18-25	18
G50ZPA	200-400	6300	56	55	15100	50	1.25/5000	0.69	0.042	0.0135	170	19-26	19
G50ZPB	200-1000	1600	102	23	2600	80	2.0/3000	0.80	0.14	0.022	150	19-26	19
G50ZPC	1100-2000	1200	114	17	1500	80	2.0/3000	0.89	0.15	0.022	150	19-26	19
G50ZPD	2100-3000	1000	120	14	950	80	2.0/3000	0.82	0.22	0.022	150	19-26	19
G50ZPE	3100-3800	800	123	11	600	80	2.0/2400	0.98	0.26	0.022	150	19-26	21
G60ZPC	1100-2000	2000	101	28	3900	120	2.0/4000	0.73	0.10	0.020	150	21-30	22
G65ZPB	200-1000	5000	63	58	16800	100	1.2/5000	0.63	0.058	0.016	170	27-34	24
G65ZPC	1100-2000	2500	90	35	6100	120	2.0/5000	0.725	0.11	0.016	150	27-34	24
G76ZPB	200-1000	6400	88	60	18000	100	1.25/5000	0.70	0.03	0.011	170	35-47	26
G76ZPC	1100-2000	3500	87	44	9700	200	2.0/5000	0.93	0.08	0.011	150	35-47	25
G76ZPE	3100-3800	2500	100	35	6100	200	2.0/5000	0.95	0.138	0.011	150	35-47	22
G89ZPC	1100-2000	4000	94	50	12500	200	2.0/5000	0.76	0.08	0.009	150	70-85	24

Note: * is old model and subject to our confirmation when ordering

Remark

- Other parameters in the table are the tested value at T_{jm} unless there are extra explanations
- $I^2t = I^2_{TSM} \times t_w / 2$; t_w = Sine and half wave current full-bottomed
- When working at 60Hz: $I_{FSM}(8.3ms) = I_{FSM}(10MS) \times 1.066$, $T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943$, $T_j = T_{jm}$
- V_{FO} : threshold voltage; R_F : slope resistance



Type and meanings

G 50 KK E
1 2 3 4

1: Greegoo

2: Diameter of chips

3: Model no:

KP: phase control thyristor
KK: fast turn-off thyristor
KA: high-frequency thyristor
KS: bi-directional thyristor
ZP: rectifier diode
ZK: fast recovery diode
DS: super high speed semiconductor switch

Fast recovery diode

Features

- Diffusibility
- Short recovery time
- Small reverse recovery charge
- Fast and soft recovery characteristics
- Disc type hermetic ceramic seal
- Double side cooling

Applications

- Motor control and drive
- Induction heating
- UPS
- Wave chopper
- Welding equipment

Technical parameter

Type	V_{RRM}	$I_{T(AV)}$	$@T_{hs}$	t_{rr}	Q_{rr}	I_{TSM}	I^2t	I_{RRM}	V_{FM}/I_{FM}	V_{FO}	r_F	$R_{th(j-hs)}$	T_{jm}	F	Outline
				100 °C		10ms			25 °C	125 °C					
	V	A	°C	μs	μC	KA	KA ² s	mA	V/A	V	mΩ	°C/W	°C	KN	Fig
G24ZKB	200-1000	200	124	2	50	2.7	40	16	2.4/600	1.10	0.72	0.090	150	3.3-5.5	14
G24ZKC	1100-2000	200	118	2	70	2.7	40	16	2.4/600	1.48	0.65	0.090	150	3.3-5.5	14
G30ZKCA	1100-2000	300	117	3	100	4.1	90	30	2.6/900	1.30	0.55	0.065	150	5.3-10	18
G30ZKB	200-1000	400	116	3	90	5.4	145	30	2.6/1200	1.17	0.36	0.055	150	5.3-10	15
G30ZKC	1100-2000	400	112	3	90	5.4	145	30	2.6/1200	1.30	0.42	0.055	150	5.3-10	15
G38ZKB	200-1000	800	102	3	90	10	500	40	2.8/2400	1.15	0.34	0.033	150	10-20	16
G38ZKC	1100-2000	800	86	3	130	10	500	40	2.8/2400	1.31	0.37	0.033	150	10-20	16
G50ZKC	1100-2000	1200	92	4	250	15	1100	80	2.8/3000	1.42	0.26	0.022	150	19-26	19
G50ZKB	200-1000	1600	82	4	150	20	2000	80	2.8/3000	1.15	0.20	0.022	150	19-26	19
G65ZKC	1100-2000	2500	71	6	700	31	4800	120	3.0/5000	1.12	0.14	0.016	150	27-34	22
G76ZKC	1100-2000	3500	64	6	1300	44	9700	200	3.0/5000	1.19	0.12	0.011	150	35-47	24

Remark

- I_{GT} , V_{GT} , I_h are the tested values under 25 °C and other parameters in the table are under T_{jm} unless there are extra explanations
- $I^2t = I^2_{TSM} \times t_w / 2$; t_w = Sine and half wave current full-bottomed
- When working at 60Hz: $I_{TSM}(8.3ms) = I_{TSM}(10MS) \times 1.066$, $T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943$, $T_j = T_{jm}$
- V_{FO} : threshold voltage; r_F : slope resistance
- The measurement of reverse recovery electric charge: $Q_{rr} = \frac{I_{RR} \times t_{RR}}{2}$

Outlines

2

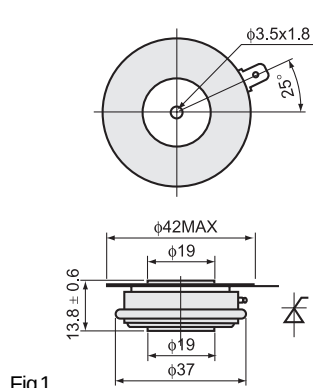


Fig1

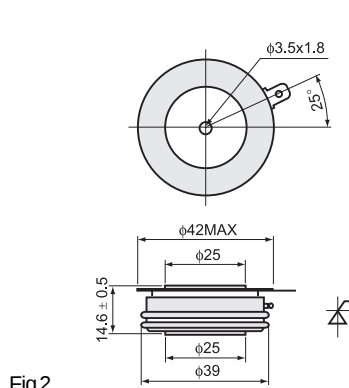


Fig2

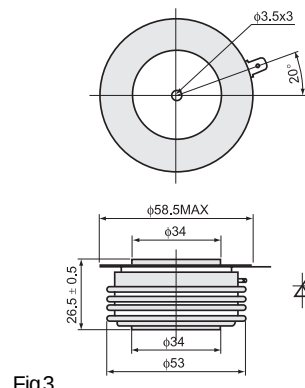


Fig3

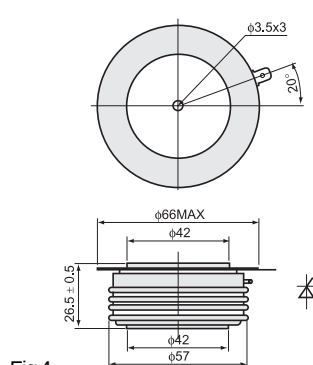


Fig4

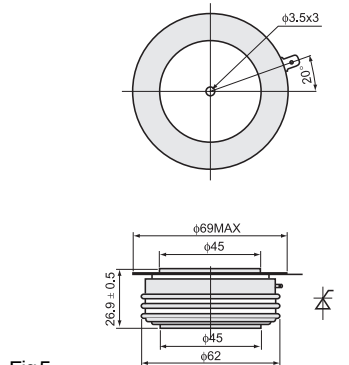


Fig5

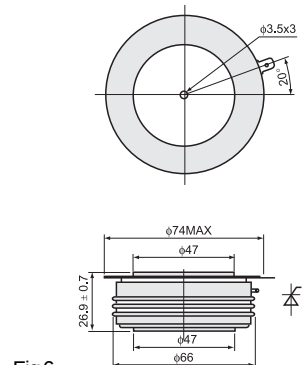


Fig6

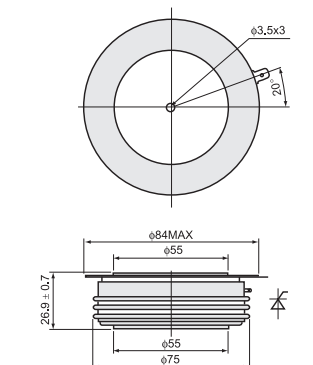


Fig7

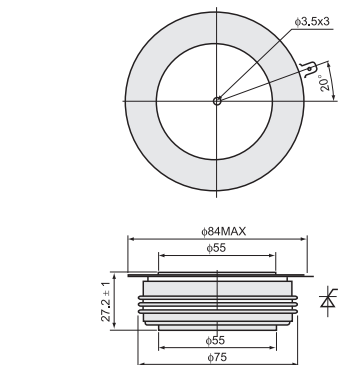


Fig8

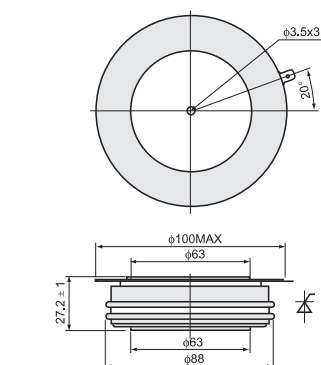


Fig9

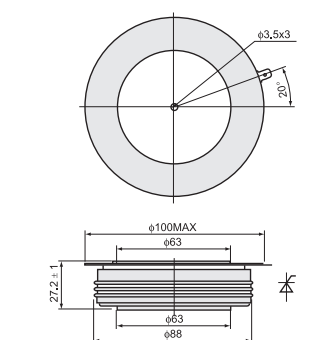


Fig10

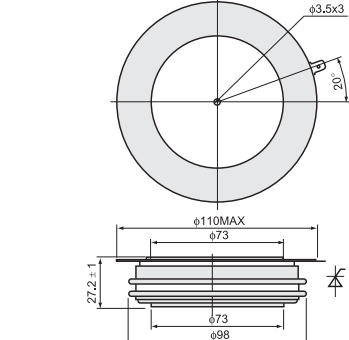


Fig11

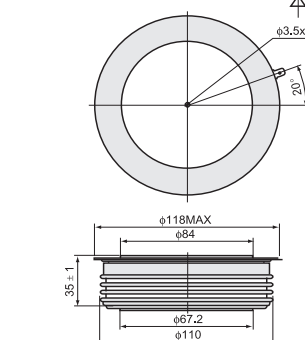


Fig12

Outlines

2

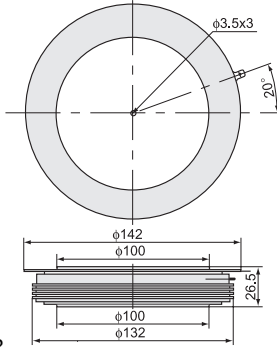


Fig 13

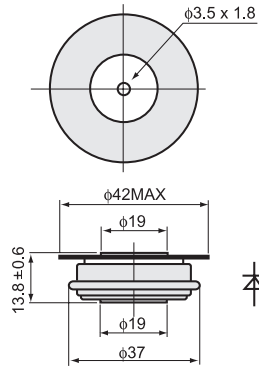


Fig 14

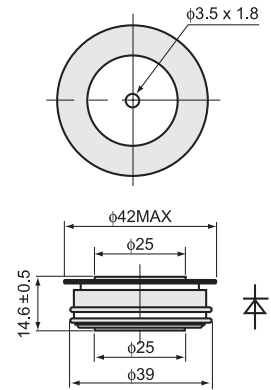


Fig 15

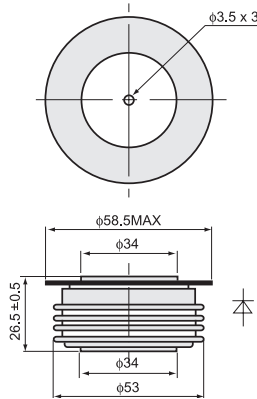


Fig 16

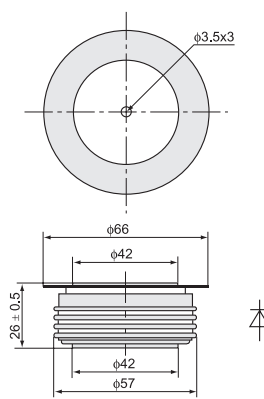


Fig 17

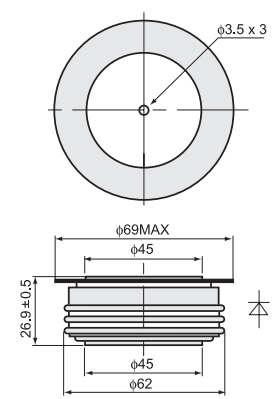


Fig 18

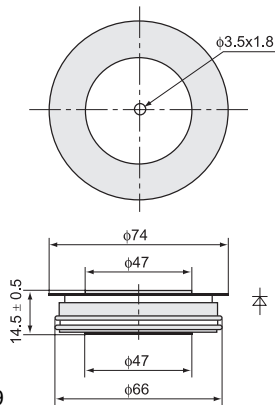


Fig 19

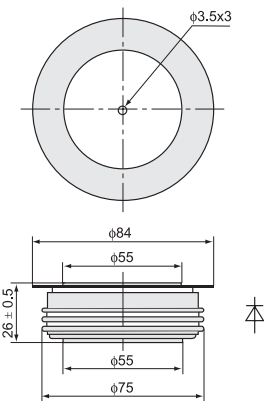


Fig 20

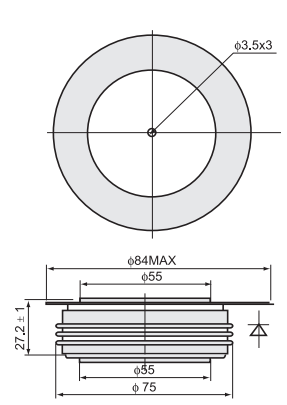


Fig 21

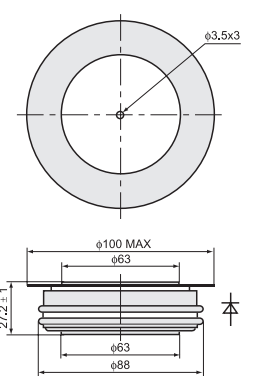


Fig 22

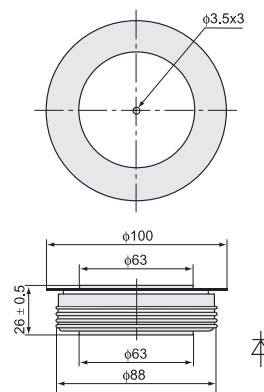


Fig 23

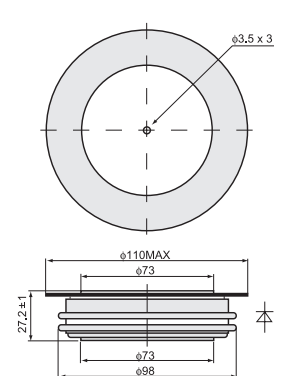


Fig 24

Outlines

2

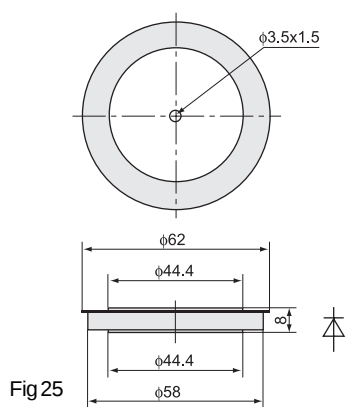


Fig 25

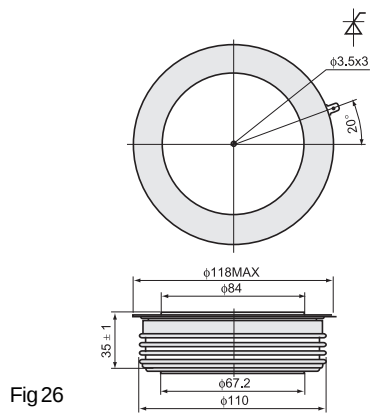


Fig 26

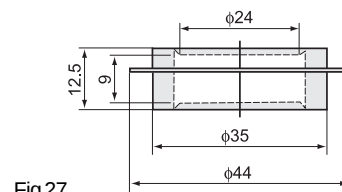


Fig 27

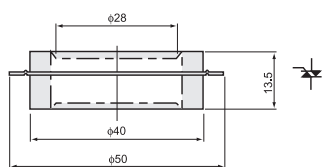


Fig 28

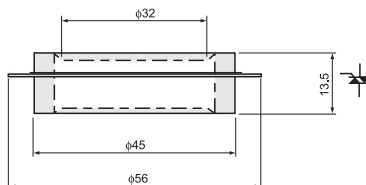


Fig 29

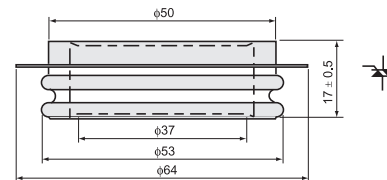


Fig 30

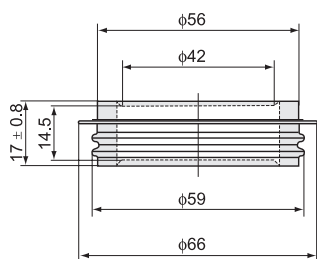


Fig 31

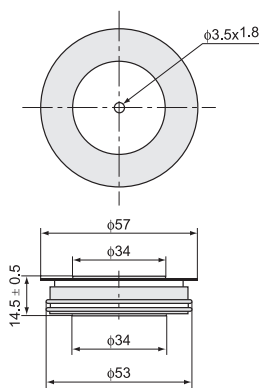


Fig 32

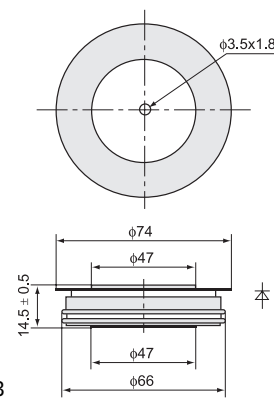


Fig 33

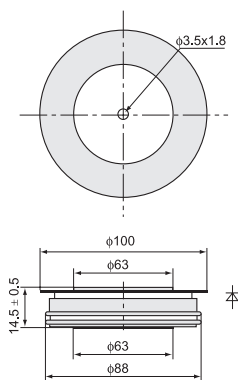


Fig 34

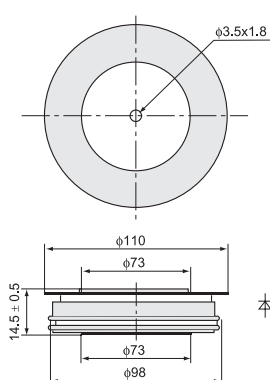


Fig 35



General purpose rectifiers

Features

- Double-side cooling
- High mean current
- High surge current

Applications

- High power drive
- High voltage supplies
- Motor control

Technical parameter

Type **= $V_{RRM}/100$	$I_{F(AV)}$ @ $T_C=100^{\circ}C$	V_{RRM}	I_{FSM} @ T_{VJM} &10ms	V_{FM} @ T_{FM} & $T_C=T_{VJM}$		V_{FO} @ T_{VJM}	I_{FO} @ T_{VJM}	T_{VJM}	R_{thJC}	R_{thCH}	F + 10%	Outline
	A	V	kA	A	V	V	m Ω	$^{\circ}C$	KW	KW	KN	Fig
ZP6500-**	500	600-1400	6.9	800	1.33	0.80	0.657	190	0.090	0.01	5	1
ZP6300-**	300	1600-2200	5.3	800	1.71	0.82	1.110	175	0.090	0.01	5	1
ZP71300-**	1300	600-1400	16.3	1500	1.17	0.78	0.257	190	0.035	0.01	10	2
ZP7900-**	900	1600-2200	12.6	1500	1.47	0.82	0.433	175	0.035	0.01	10	2
ZP7800-**	800	2400-3400	10.6	1500	1.80	0.88	0.613	175	0.035	0.01	15	2
ZP81500-**	1500	600-1400	21	1500	1.06	0.78	0.188	190	0.035	0.008	15	3
ZP81100-**	1100	1600-2200	16.5	1500	1.30	0.82	0.318	175	0.035	0.008	15	3
ZP8900-**	900	2400-3400	13.8	1500	1.56	0.88	0.450	175	0.035	0.008	15	3
ZP8600-**	600	3600-4400	12	1500	1.87	0.96	0.604	150	0.035	0.008	15	3
ZP92700-**	2700	600-1400	33.9	1500	0.92	0.78	0.092	190	0.020	0.005	22	4
ZP92000-**	2000	1600-2200	26.1	1500	1.05	0.82	0.156	175	0.020	0.005	22	4
ZP91800-**	1800	2400-3400	23	1500	1.18	0.88	0.200	175	0.020	0.005	22	4
ZP91200-**	1200	3600-4400	18.9	1500	1.40	0.96	0.296	150	0.020	0.005	22	4
ZP94500-**	4500	600-1400	53.3	3000	0.91	0.76	0.051	190	0.013	0.004	46	5
ZP93300-**	3300	1600-2200	41.1	3000	1.05	0.79	0.086	175	0.013	0.004	46	5
ZP92900-**	2900	2400-3400	34.6	3000	1.21	0.85	0.121	175	0.013	0.004	46	5
ZP91900-**	1900	3600-4400	29.9	3000	1.45	0.96	0.162	150	0.013	0.004	46	5
ZP96000-**	6000	600-1400	74.1	3000	0.87	0.76	0.035	190	0.010	0.003	56	6
ZP94400-**	4400	1600-2200	57	3000	0.99	0.81	0.059	175	0.010	0.003	56	6
ZP93900-**	3900	2400-3400	47.8	3000	1.10	0.85	0.084	175	0.010	0.003	56	6
ZP92600-**	2600	3600-4400	41.4	3000	1.28	0.94	0.112	150	0.010	0.003	56	6



General purpose rectifiers

Features

- Double-sidecooling
- High mean current
- Highsurge current

Applications

- Highpower drive
- High voltage supplies
- Motorcontrol

Technical parameter

Type **= $V_{RRM}/100$	$I_{F(AV)}$ @ $T_C=100^{\circ}C$	V_{RRM}	I_{FSM} @ T_{VJM} &10ms	V_{FM} @ T_{FM} & $T_C=T_{VJM}$	V_{FO} @ T_{VJM}	I_{FO} @ T_{VJM}	T_{VJM}	R_{thJC}	R_{thCH}	F + 10%	Outline	
	A	V	kA	A	V	V	m Ω	°C	KW	KW	KN	Fig
ZP ₈ 700-**	700	4600-5200	10	1000	1.38	0.89	0.487	150	0.035	0.008	15	7
ZP ₈ 500-**	500	5600-6500	7.9	1000	1.84	0.92	0.920	150	0.035	0.008	15	7
ZP ₈ 1200-**	1200	4600-5200	17.1	1500	1.37	0.94	0.284	150	0.020	0.005	22	8
ZP ₈ 1000-**	1000	5600-6500	14.5	1500	1.73	1.05	0.450	150	0.020	0.005	22	8
ZP _A 1700-**	1700	4600-5200	27	3000	1.62	0.96	0.220	150	0.013	0.004	45	9
ZP _A 1500-**	1500	5600-6500	23	3000	1.87	1.00	0.290	150	0.013	0.004	45	9
ZP _x 2100-**	2100	4600-5200	30	3000	1.59	1.00	0.195	150	0.010	0.003	55	10
ZP _x 2000-**	2000	5600-6500	28.6	3000	1.69	1.00	0.230	150	0.010	0.003	55	10
ZP ₆ 6100-**	6100	1600-2200	71	6000	1.09	0.82	0.045	175	0.007	0.002	70	11
ZP ₆ 5000-**	5000	2400-3400	53	6000	1.29	0.80	0.082	175	0.007	0.002	70	11
ZP ₆ 3500-**	3500	3600-4400	51.7	6000	1.50	0.98	0.086	150	0.007	0.002	70	11
ZP ₆ 3100-**	3100	4600-5200	44	6000	1.78	1.00	0.130	150	0.007	0.002	70	12
ZP ₆ 2800-**	2800	5400-6500	39.8	6000	2.02	1.15	0.145	150	0.007	0.002	70	12
ZP _c 7400-**	7400	1600-2200	83.7	6000	1.03	0.82	0.035	175	0.006	0.002	90	13
ZP _c 6600-**	6600	2400-3400	75	6000	1.10	0.80	0.050	175	0.006	0.002	90	13
ZP _c 4200-**	4200	3600-4400	60	6000	1.32	0.80	0.086	150	0.006	0.002	90	13
ZP _c 3900-**	3900	4600-5200	55	6000	1.44	0.80	0.107	150	0.006	0.002	90	13
ZP _c 3400-**	3400	5400-6500	46	6000	1.84	1.15	0.115	150	0.006	0.002	90	13
ZP _b 10000-**	10000	1600-2200	110	6000	0.98	0.77	0.035	175	0.004	0.008	120	14
ZP _b 9400-**	9400	2400-3400	100	6000	1.04	0.80	0.040	175	0.004	0.0008	120	14
ZP _b 6100-**	6100	3600-4400	67	6000	1.19	0.80	0.065	150	0.004	0.0008	120	14
ZP _b 5700-**	5700	4600-5200	63	6000	1.26	0.80	0.076	150	0.004	0.0008	120	14
ZP _b 5000-**	5000	5400-6500	5	6000	1.65	1.15	0.083	150	0.004	0.0008	120	14
ZP _b 4800-**	4800	6600-7200	53	6000	1.71	1.15	0.094	150	0.004	0.0008	120	14
ZP _b 4500-**	4500	7400-8500	50	6000	1.81	1.15	0.110	150	0.004	0.0008	120	14



General purpose thyristors

Features

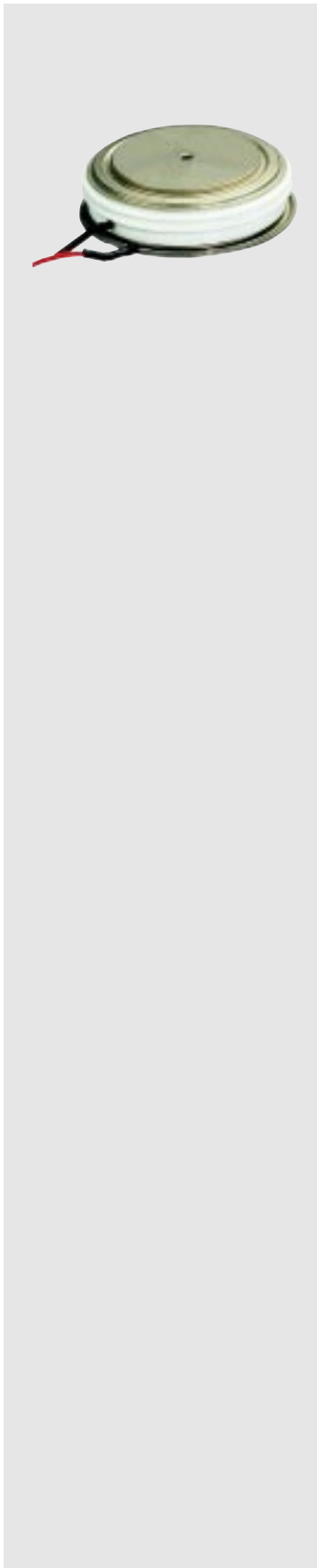
- Double-side cooling
- High mean current
- High surge current

Applications

- High power drive
- High voltage supplies
- Motor control

Technical parameter

Type **= $V_{DRM}/100$ & $V_{RRM}/100$	$I_F(AV)$ @ $T_C=70^{\circ}C$	V_{DRM} V_{RRM}	I_{FSM} @ T_{VJM} &10ms	V_{FM} @ I_{TM} & $T_C=T_{VJM}$		V_{TO} @ T_{VJM}	r_T @ T_{VJM}	T_{VJM}	R_{thJC}	R_{thCH}	F + 10%	Outline
	A	V	kA	A	V	V	m Ω	$^{\circ}C$	KW	KW	kN	Fig
KP6400-**-	400	600-1200	6.4	600	23	0.85	0.640	125	0.080	0.02	5	15
KP6300-**-	300	1200-1600	4.3	600	162	0.93	1.150	125	0.080	0.02	5	15
KP5700-**-	700	600-1200	9.5	1500	156	0.87	0.459	125	0.041	0.01	5	16
KP5600-**-	600	1200-1600	8.3	1500	177	0.87	0.601	125	0.041	0.01	5	16
KP51700-**-	500	1800-2200	6.3	1500	249	0.94	1.036	125	0.041	0.01	5	16
KP51500-**-	400	2400-3400	4.9	1500	363	1.04	1.725	125	0.041	0.01	10	16
KP7800-**-	800	600-1200	9.8	1500	144	0.87	0.382	125	0.035	0.01	10	17
KP7700-**-	700	1200-1600	8.5	1500	165	0.90	0.500	125	0.035	0.01	10	17
KP7600-**-	600	1800-2200	7.1	1500	200	0.92	0.720	125	0.035	0.01	10	17
KP7500-**-	500	2400-3400	5.	1500	278	0.98	1.200	125	0.035	0.01	10	17
KP8900-**-	900	600-1200	16.9	1500	118	0.86	0.215	125	0.037	0.008	10	18
KP8800-**-	800	1200-1600	13.5	1500	141	0.90	0.338	125	0.037	0.008	15	18
KP8700-**-	700	1800-2200	11.2	1500	166	0.93	0.486	125	0.037	0.008	15	18
KP8500-**-	500	2400-3400	8	1500	249	1.03	0.970	125	0.037	0.008	15	18
KP8400-**-	400	3600-4200	6.5	1500	336	1.15	1.470	125	0.037	0.008	15	18
KP91500-**-	1500	600-1200	27.1	1500	107	0.86	0.140	125	0.023	0.005	22	19
KP91300-**-	1300	1200-1600	23.6	1500	120	0.92	0.184	125	0.023	0.005	22	19
KP91200-**-	1200	1800-2200	19.9	1500	135	0.96	0.260	125	0.023	0.005	22	19
KP9900-**-	900	2400-3400	13.9	1500	192	1.08	0.560	125	0.023	0.005	22	19
KP9700-**-	700	3600-4200	11.3	1500	235	1.15	0.799	125	0.023	0.005	22	19
KP2000-**-	2000	1200-1600	36.9	3000	130	0.92	0.125	125	0.015	0.004	45	20
KP21800-**-	1800	1800-2200	30.8	3000	150	0.96	0.179	125	0.015	0.004	45	20
KP21400-**-	1400	2400-3400	23.9	3000	194	1.05	0.298	125	0.015	0.004	45	20
KP21200-**-	1200	3600-4200	19.4	3000	251	1.15	0.452	125	0.015	0.004	45	20
KPx2600-**-	2600	1200-1600	51.0	3000	121	0.95	0.088	125	0.012	0.003	55	21
KPx2300-**-	2300	1800-2200	42.6	3000	134	0.96	0.127	125	0.012	0.003	55	21
KPx1900-**-	1900	2400-3400	33.0	3000	171	1.00	0.235	125	0.012	0.003	55	21
KPx1600-**-	1600	3600-4200	26.8	3000	211	1.15	0.320	125	0.012	0.003	55	21



General purpose thyristors

Features

- Double-sidecooling
- High mean current
- Highsurge current

Applications

- Highpower drive
- Highvoltage supplies
- Motorcontrol

Technical parameter

Type **= $V_{DRM}/100$ & $V_{RRM}/100$	$I_F(AV)$ @ $T_C=70^{\circ}C$	V_{DRM} V_{RRM}	I_{FSM} @ T_{VJM} &10ms	V_{TM} @ I_{TM} & $T_C=T_{VJM}$		V_{TO} @ T_{VJM}	r_T @ T_{VJM}	T_{VJM}	R_{thJC}	R_{thCH}	F + 10%	Outline
	A	V	kA	A	V	V	m.Ω	°C	KW	KW	kN	Fig
ZP8300-**	300	4400-5200	5.5	500	2.00	1.20	1.600	125	0.045	0.008	15	22
ZP8300-**	300	4800-6500	4.8	500	2.35	1.20	2.300	125	0.045	0.008	15	22
ZP9800-**	800	4400-5200	11	1000	1.90	1.12	0.780	125	0.022	0.004	22	23
ZP9700-**	700	5400-6500	10	1000	2.19	1.22	0.970	125	0.022	0.004	22	23
ZPA1300-**	1300	4400-5200	18	1500	1.73	1.10	0.420	125	0.015	0.003	40	24
ZPA1000-**	1000	5400-6500	14	1500	2.37	1.20	0.780	125	0.015	0.003	40	24
ZPx1700-**	1700	4400-5200	24	1500	1.52	1.02	0.330	125	0.011	0.002	50	25
ZPx1300-**	1300	5400-6500	18	6000	2.13	1.18	0.632	125	0.011	0.002	50	25
ZPB3600-**	3600	1800-2200	66	6000	1.43	0.96	0.079	125	0.008	0.002	70	26
ZPB3000-**	3000	2400-3400	53	6000	1.78	1.05	0.121	125	0.008	0.002	70	26
ZPB2500-**	2500	3600-4200	41	6000	2.35	1.15	0.200	125	0.008	0.002	70	26
ZPB2100-**	2100	4400-5200	36	6000	2.88	1.30	0.264	125	0.008	0.002	70	27
ZPB1900-**	1900	5400-6500	31	6000	3.62	1.40	0.370	125	0.008	0.002	70	27
ZPC4500-**	4500	1800-2200	84	6000	1.31	0.96	0.059	125	0.0065	0.002	90	28
ZPC3700-**	3700	2400-3400	65	6000	1.63	1.04	0.098	125	0.0065	0.002	90	28
ZPC3100-**	3100	3600-4200	53	6000	2.04	1.15	0.149	125	0.0065	0.002	90	28
ZPC2700-**	2700	4400-5200	46	6000	2.53	1.35	0.197	125	0.0065	0.002	90	28
ZPC2200-**	2200	5400-6500	39	6000	3.50	1.40	0.350	125	0.0065	0.002	90	28
ZPD6800-**	6800	2200-2800	95	6000	1.19	0.88	0.052	125	0.004	0.0008	120	29
ZPD5200-**	5200	3000-4200	85	6000	1.58	0.98	0.100	125	0.004	0.0008	120	29
ZPD4800-**	4800	4400-5200	75	3000	1.40	1.05	0.116	125	0.004	0.0008	120	29
ZPD3900-**	3900	5400-6500	65	3000	1.75	1.18	0.190	125	0.004	0.0008	120	29
ZPD1900-**	1900	6600-7200	38	3000	1.85	1.26	0.197	90	0.004	0.0008	120	29
ZPD1500-**	1500	7800-8500	40	3000	1.90	1.30	0.400	90	0.004	0.0008	120	29



Fast switching thyristors

Features

- Double-sidecooling
- Low switching loss
- Shorter turn-off time

Applications

- M.F. Inductive heating systems
- DCchoppers
- Pulse electrical power supplies

Technical parameter

Type -**= $V_{DRM}/100$ & $V_{RRM}/100$	$I_{F(AV)}$ @ $T_C=55^\circ\text{C}$	V_{DRM} V_{RRM}	I_{FSM} @ T_{VJM} & 10ms	V_{TM} @ I_{TM} & $T_C=T_{VJM}$		T_{VJM}	R_{thJC}	R_{thCH}	t_q @ T_{VJM}	F + 10%	Outline
	A	V	kA	A	V	°C	KW	KW	μs	kN	Fig
KK6300-**-	300	800-1200	4.1	600	2.35	125	0.08	0.02	20	5	30
KK6300-**-	300	1200-1400	4	600	2.45	125	0.08	0.02	30	5	30
KK6300-**-	300	1600-2000	3.8	600	2.60	125	0.08	0.02	40	5	30
KK8800-**-	800	800-1200	10	1500	2.08	125	0.037	0.008	25	15	31
KK8700-**-	700	1200-1400	9	1500	2.45	125	0.037	0.008	30	15	31
KK8600-**-	600	1600-2000	8	1500	2.80	125	0.037	0.008	40	15	31
KK91300-**-	1300	800-1200	17	2000	1.85	125	0.023	0.005	25	22	32
KK91200-**-	1200	1200-1400	16	2000	2.00	125	0.023	0.005	35	22	32
KK91200-**-	1200	1600-2000	15	2000	2.15	125	0.023	0.005	50	22	32
KKa1900-**-	1900	800-1200	24	3000	2.00	125	0.015	0.004	25	45	33
KKa1800-**-	1800	1200-1400	23	3000	2.15	125	0.015	0.004	35	45	33
KKa1700-**-	1700	1600-2000	21	3000	2.35	125	0.015	0.004	50	45	33
KKa1600-**-	1600	2200-2500	21	3000	2.50	125	0.015	0.004	60	45	33
KKx2800-**-	2800	800-1200	33	4000	1.80	125	0.012	0.003	25	56	34
KKx2700-**-	2500	1200-1400	32	4000	1.90	125	0.012	0.003	35	56	34
KKx2700-**-	2400	1600-2000	31	4000	2.00	125	0.012	0.003	50	56	34
KKx2600-**-	2100	2200-2500	27	4000	2.40	125	0.012	0.003	65	56	34
KKx2400-**-	2000	2600-2800	26	4000	2.65	125	0.012	0.003	100	56	34
KK83000-**-	2700	2600-3000	35	6000	2.95	125	0.008	0.003	120	70	35
KKc3000-**-	3500	2600-3000	45	6000	2.80	125	0.006	0.002	120	90	36
KKc3200-**-	3200	3500-4500	41	4000	2.65	125	0.006	0.002	200	90	36

Freewheeling diodes & snubber diodes

Features

- Double-sidecooling
- High mean current
- High surge current

Applications

- High power drive
- High voltage supplies
- Motorcontrol

Technical parameter

Type	$I_{F(AV)}$ @ $T_c=70^\circ\text{C}$	V_{RRM}	I_{FSM} @ T_{VJM} &10ms	V_{FM} @ I_{FM} & $T_c=T_{VJM}$		T_{VJM}	R_{thJC}	R_{thCH}	I_{rr}	Q_{tr}	F + 10%	Outline
	A	V	kA	A	V	$^\circ\text{C}$	KW	KW	A	μC	KN	Fig
ZKs500-25	500	2500	8	1500	2.63	125	0.035	0.008	470	840	15	37
ZKs1000-25	1000	2500	8	1500	1.77	125	0.020	0.005	550	1200	22	38
ZKs700-45	700	4500	13	1500	2.90	125	0.020	0.005	600	1900	22	38
ZKa1300-45	1300	4500	22	3000	2.74	125	0.013	0.004	800	3000	45	39
ZKa1500-45	1500	4500	25	3000	2.16	125	0.013	0.004	1000	3700	45	39
ZKa1100-60	1100	6000	18	3000	3.30	125	0.013	0.004	1000	4700	45	40

Type	$I_{F(AV)}$ @ $T_c=70^\circ\text{C}$	V_{RRM}	I_{FSM} @ T_{VJM} &10ms	V_{FM} @ I_{FM} & $T_c=T_{VJM}$		T_{VJM}	R_{thJC}	R_{thCH}	I_{rr}	Q_{tr}	F + 10%	Outline
	A	V	kA	A	V	$^\circ\text{C}$	KW	KW	A	μC	KN	Fig
ZRs600-25	600	2500	8.5	1500	2.18	125	0.035	0.008	175	500	15	37
ZRs400-45	400	4500	5	1000	3.50	125	0.035	0.008	200	1000	15	37
ZRs300-60	300	6000	3.5	1000	5.00	125	0.035	0.008	260	2000	15	37
ZRa900-45	900	4500	15	3000	4.50	125	0.013	0.004	260	1700	45	39

Gate turn-off thyristors

Technical parameter

Type	I_{TQ} @ T_{VJM}	$I_{T(AV)}$ @ $T_c=85^\circ\text{C}$	V_{DRM} @ T_{VJM}	I_{DRM} @ T_{VJM}	I_{TSM} @ T_{VJM} &10ms	V_{TM} @ I_{TM} & T_{VJM}		ϕ	T_{VJM}	R_{thJC}	R_{thCS}	V_{TO}	I_T	F	Outline
			V_{RRM} @ T_{VJM}	I_{RRM} @ T_{VJM}						DC	DC	@ T_{VJM}		min. max.	Fig
	A	A	V	nA	kA	V	A	mm	$^\circ\text{C}$	KkW		V	m Ω	KN	
KGa2000-25	2000	830	2500 17	30 50	16.0	2.8	2000	67	125	17	5	1.66	0.57	17 24	41
KGa2000-45	2000	710	4500 17	100 50	13.0	35	2000	67	125	17	5	1.80	0.85	17 24	41
KGa3000-25	3000	1300	2500 17	100 50	30.0	25	3000	85	125	12	3	1.50	0.33	36 44	42
KGa3000-45	3000	930	4500 17	100 20	24.0	40	3000	85	125	12	3	2.20	0.60	36 44	42
KGa4000-45	4000	1180	4500 17	100 50	25.0	38	4000	91	125	11	3	1.20	0.65	36 44	43

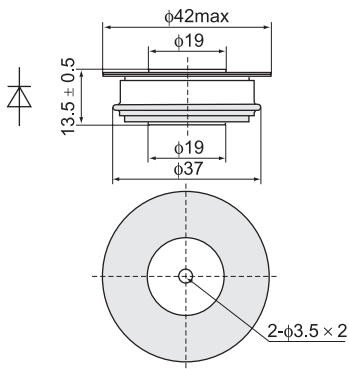


Fig1

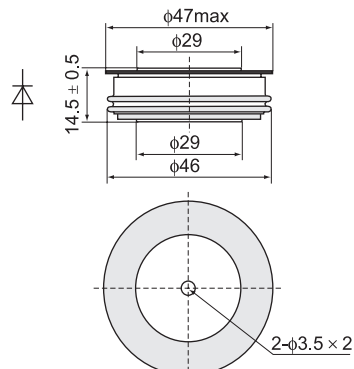


Fig2

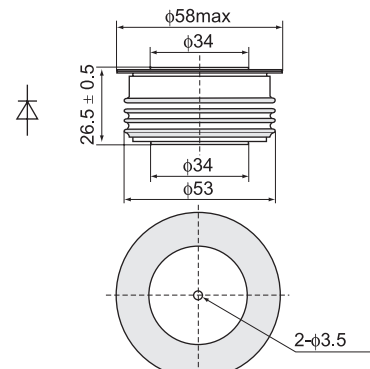


Fig3

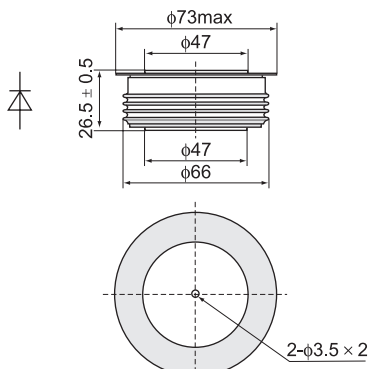


Fig4

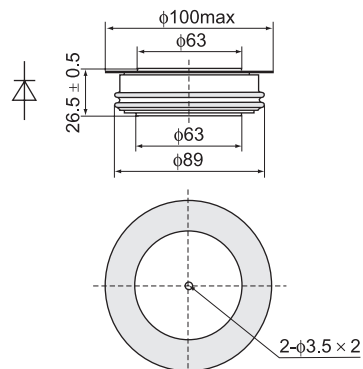


Fig5

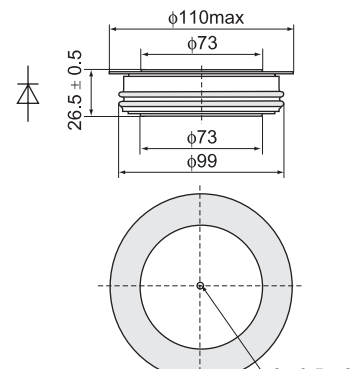


Fig6

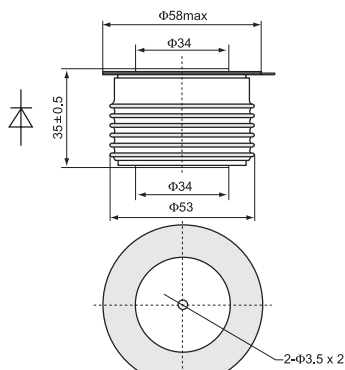


Fig7

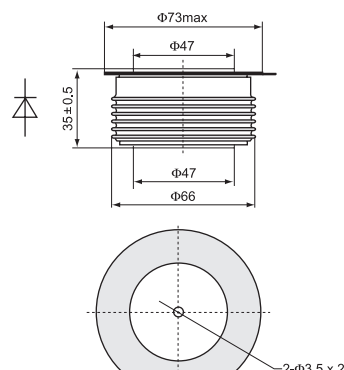


Fig8

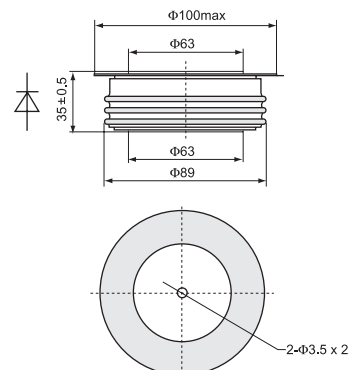


Fig9

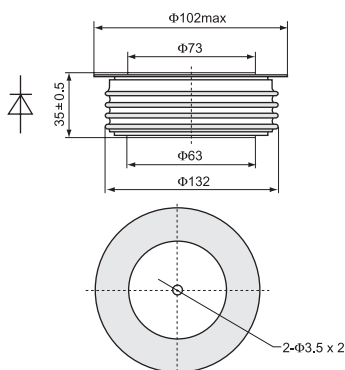


Fig10

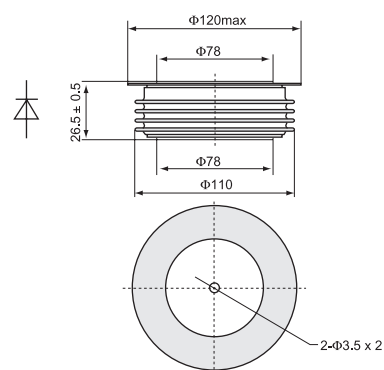


Fig11

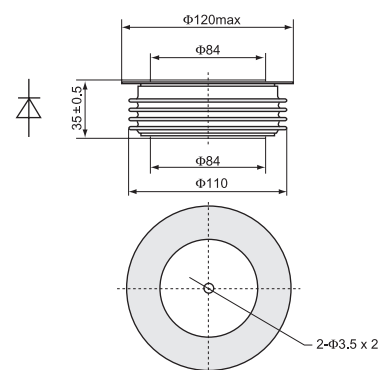


Fig12

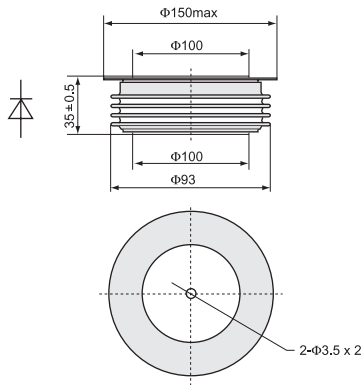


Fig 13

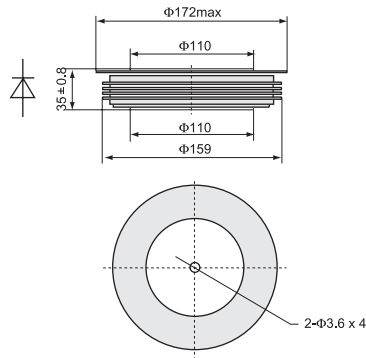


Fig 14

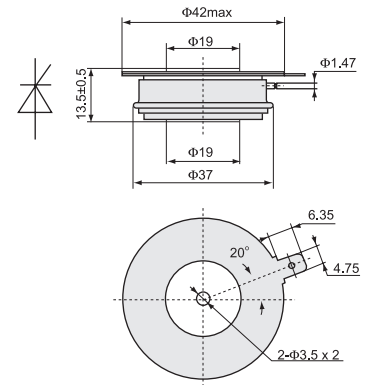


Fig 15

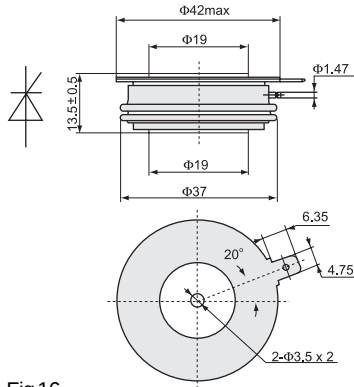


Fig 16

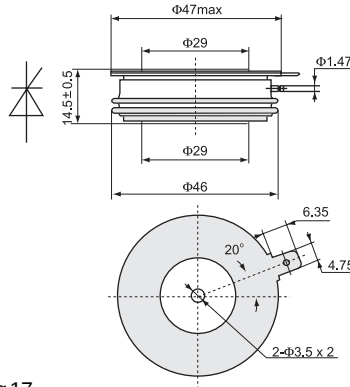


Fig 17

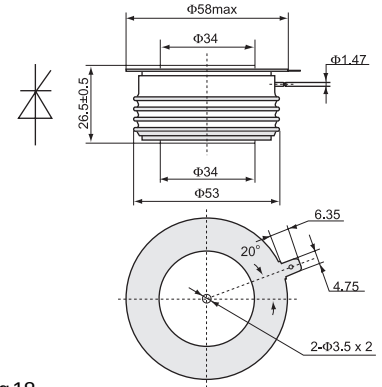


Fig 18

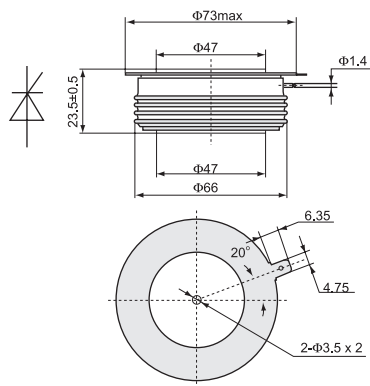


Fig 19

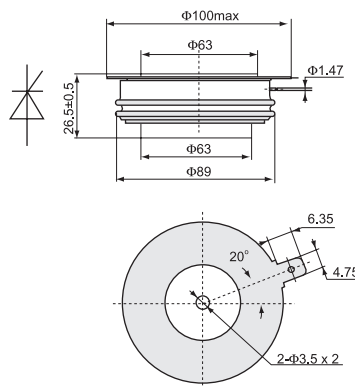


Fig 20

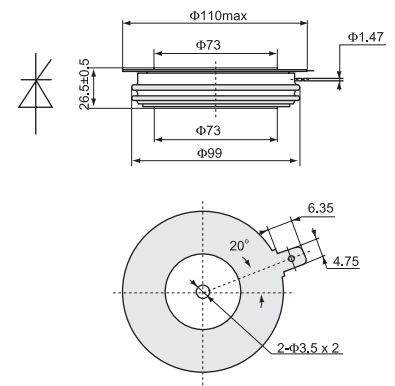


Fig 21

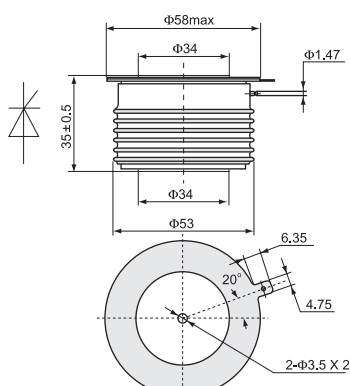


Fig 22

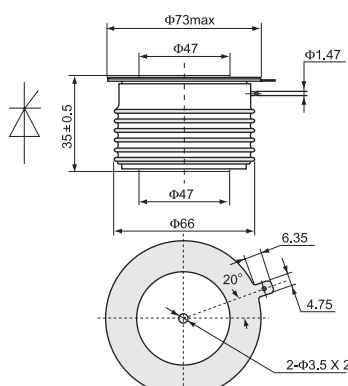


Fig 23

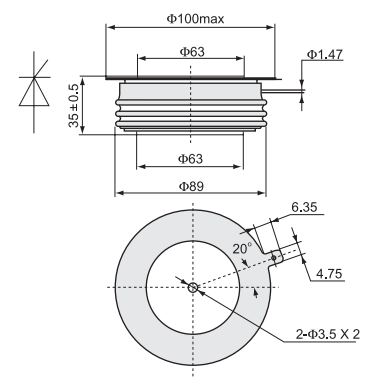


Fig 24

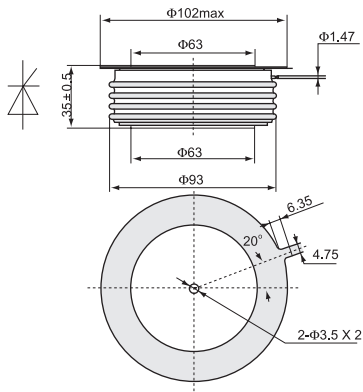


Fig 25

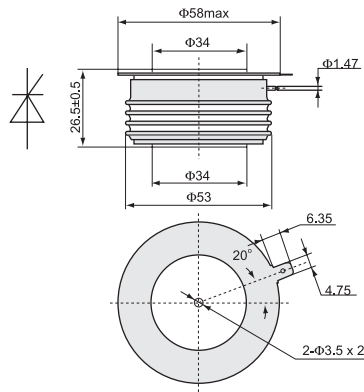


Fig 26

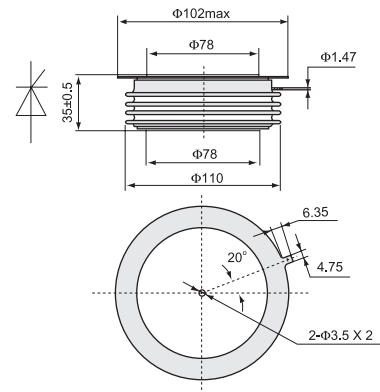


Fig 27

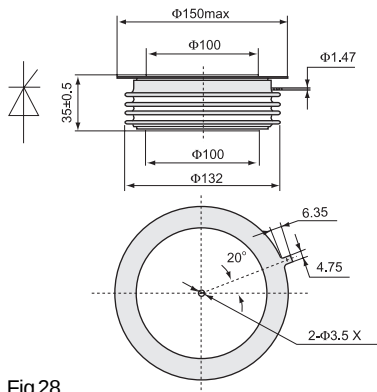


Fig 28

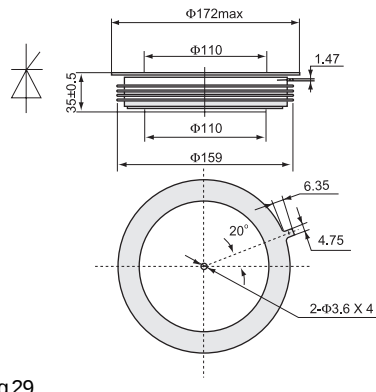


Fig 29

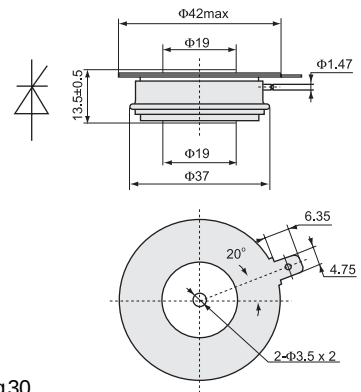


Fig 30

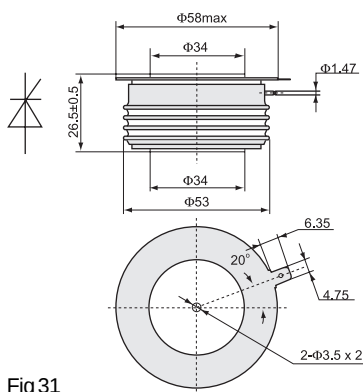


Fig 31

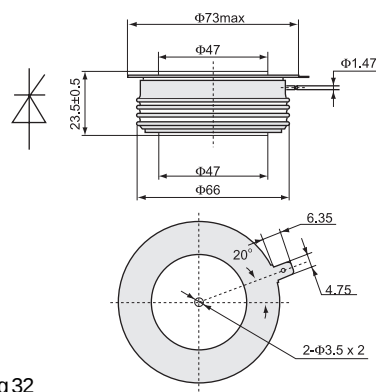


Fig 32

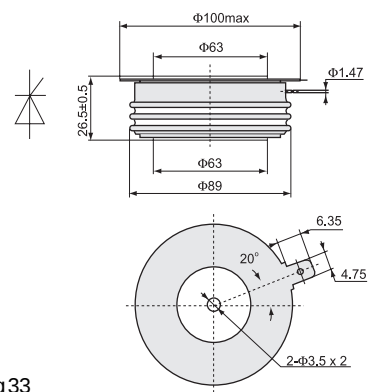


Fig 33

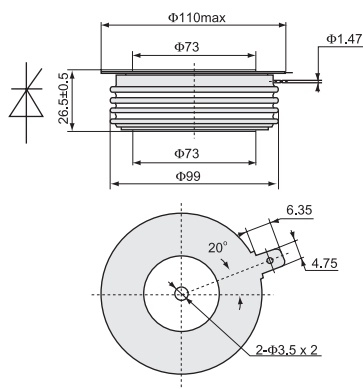


Fig 34

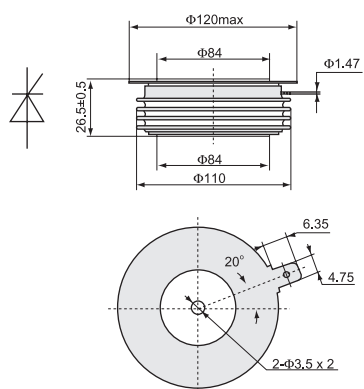


Fig 35

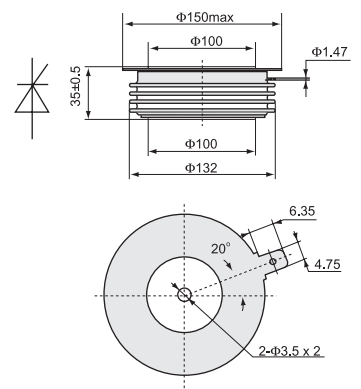


Fig 36

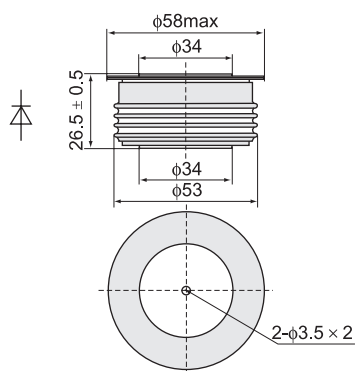


Fig 37

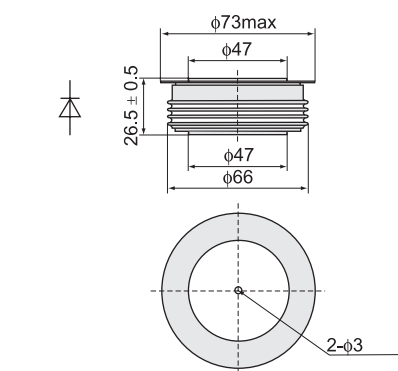


Fig 38

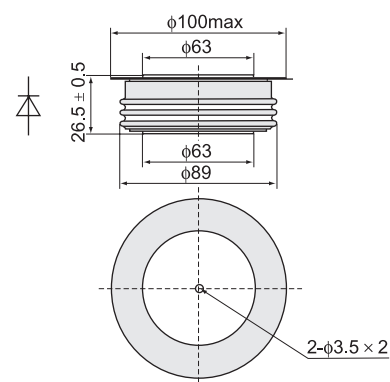


Fig 39

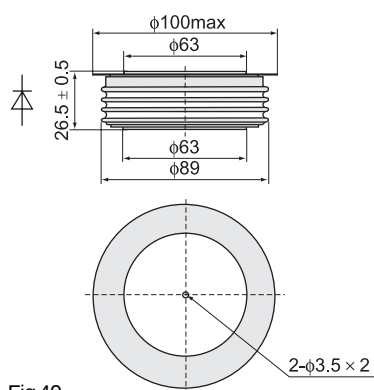


Fig 40

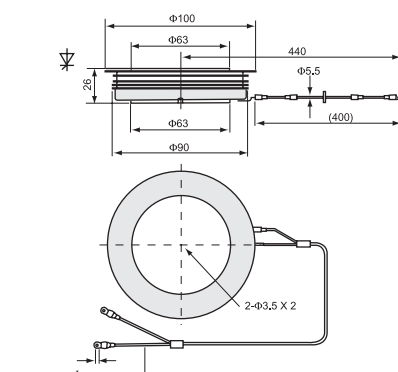


Fig 41

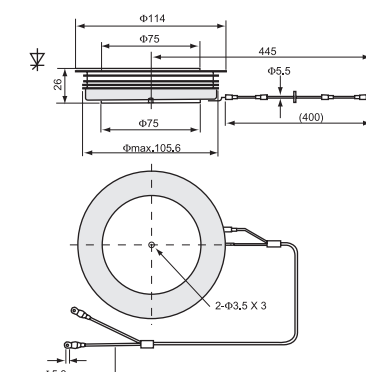


Fig 42

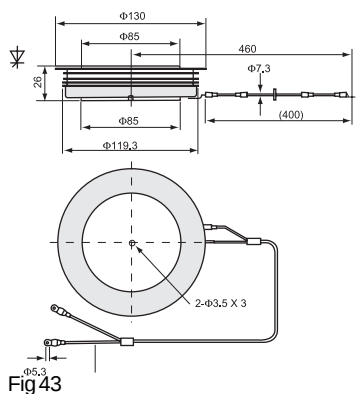
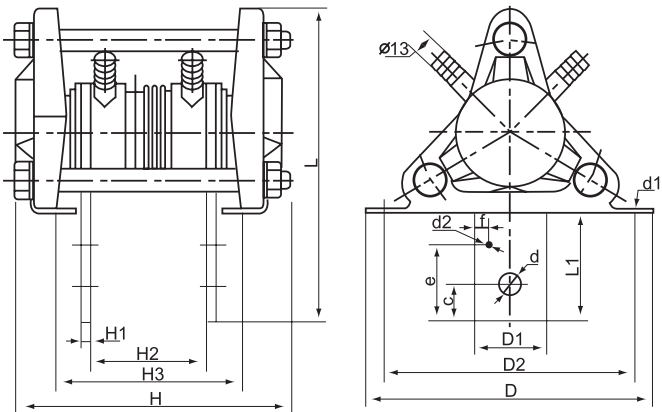


Fig 43

SS Series Water Cooling Heatsink

SS11, SS12 Monopipe Water Cooling Heatsink (Fig.1)

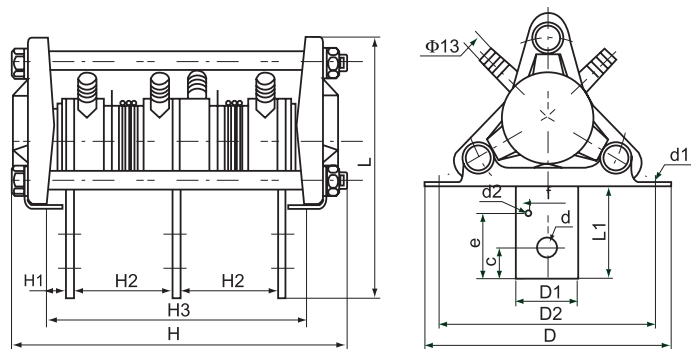
Type	Outline size			Arcpower lead size			Mounting size								
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	d2	c	e	f
SS11	140	135	145	53	4	30	112	64	105	2-φ 9	9x14	M3	20	35	6
SS12	190	160	152	78	5	40	140	64	105	2-φ 13	11x14	M3	20	65	8



SS11BL, SS12BL Doublepipe Water Cooling Heatsink (Fig.2)

Type	Outline Size			Arcpower lead size			Mounting size								
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	d2	c	e	f
SS11BL	140	135	215	53	4	30	112	64	173	3-φ 9	9x14	M3	20	35	6
SS12BL	190	160	220	78	5	40	140	64	174	3-φ 13	11x14	M3	20	65	8

The tolerance of L, L1, D2, H2, H3 are + 2, + 2, + 0.5[±], + 3 respectively.



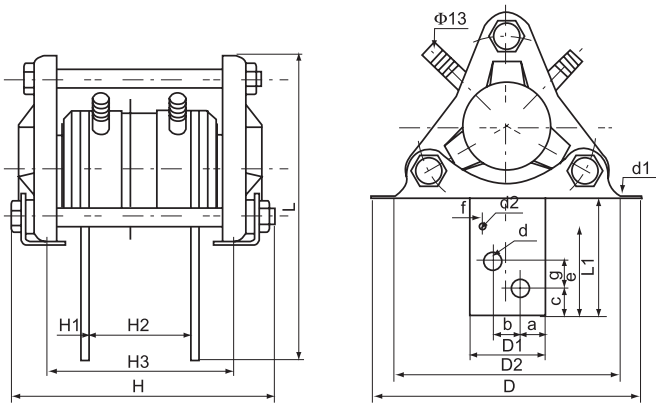
SS Series Water Cooling Heatsink

SS11BL, SS12BL Doublepipe Water Cooling Heatsink (Fig.2)

Type		SS11,SS11BL			SS12,SS12BL			
SurfaceDiameter		PlateSurface	RaisedSurface		PlateSurface	RaisedSurface		
		φ 45	φ 23	φ 27	φ 55	φ 32	φ 37	φ 41
Applicable casesurface	RaisedSurface	φ 19~ φ 40			φ 34~ φ 40			
	PlateSurface	φ 24~ φ 28			φ 32	φ 37		φ 41
MountingForceP(KN)		3.3~20			5.5~25			
ThermaResistance		0.026			0.018			
APPLICATION		Thisproductappliesto200~800Aelementassemblies,waterflow ≥ 4L/Min						

SS13, SS14 Monopipe Water Cooling Heatsink (Fig.3)

Type	Outline size			Arcpowerlead size			Mounting size											
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	d2	a	b	c	e	f	g
SS13	190	160	152	78	6	50	140	64	105	4-φ 13	11x13	M8	15	20	15	65	8	20
SS14	220	195	188	85	6	55	165	74	130	4-φ 13	11x13	M8	17.5	20	20	65	10	20



SS13BL, SS14BL Doublepipe Water Cooling Heatsink (Fig.4)

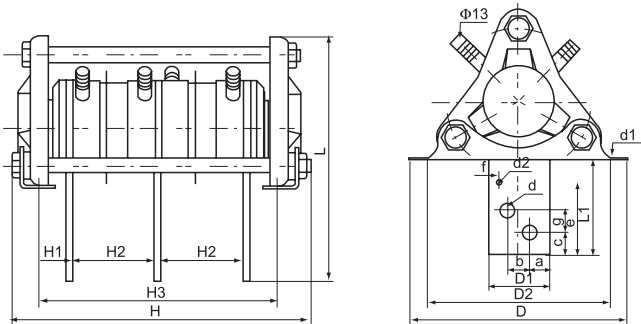
Type	Outline size			Arcpower lead size			Mounting size											
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	d2	a	b	c	e	f	g
SS13BL	190	160	220	78	6	50	140	64	172	6-φ 13	11x13	M3	15	20	15	65	8	20
SS14BL	220	195	268	85	6	55	165	74	210	6-φ 13	11x13	M3	17.5	20	20	65	10	20

The tolerance of L, L1, D2, H2, H3 are +2, +2, +0.5^{±0.1}, +3 respectively.

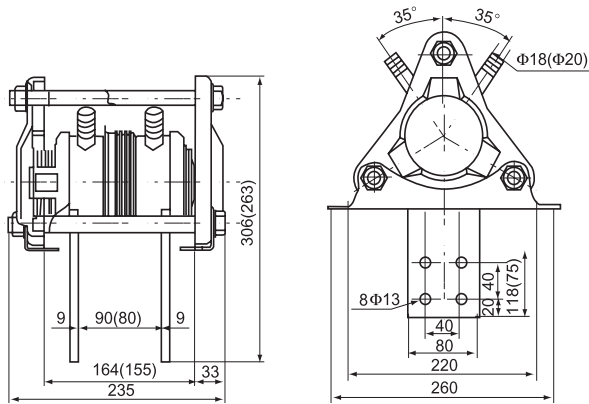
SS Series Water Cooling Heatsink

SS13BL, SS14BL Doublepipe Water Cooling Heatsink (Fig.4)

Type	Surface diameter	Applicable case surface	Mounting force P (KN)	Weight of heatsink (kg)	Thermalresistance (℃ /W)
SS13,SS13BL	φ 68	φ 40~ φ 65	15~34	≥ 1.7	0.015
SS14,SS14BL	φ 84	φ 50~ φ 73	18~47	≥ 2.2	0.013
Application	Thisproductappliesto500~2000Aelementassemblings, waterflow ≥ 6L/Min1500~2000Aelementswaterflow ≥ 7L/Min				



SS15 Monopipe Water Cooling Heatsink (Fig.5)

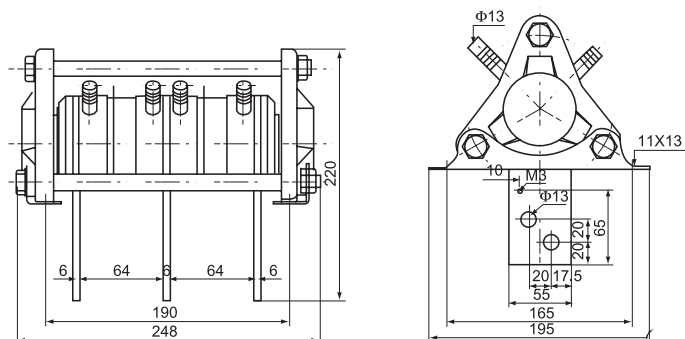


SS15BL Doublepipe Water Cooling Heatsink (Fig.6)

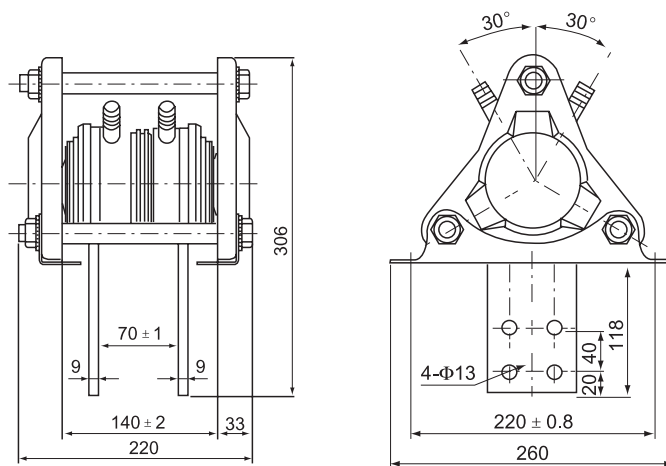
Types	Surface diameter	Applicablecase surface	Mountingforce P (KN)	Thermalresistance (℃ /W)
SS15SS15BL	φ 100	φ 73~ φ 100	60~70	0.011
Application	Thisproductappliesto2000~3000Aelementassemblings,waterflow ≥ 8L/Min			

SS2x Series Water Cooling Heatsink

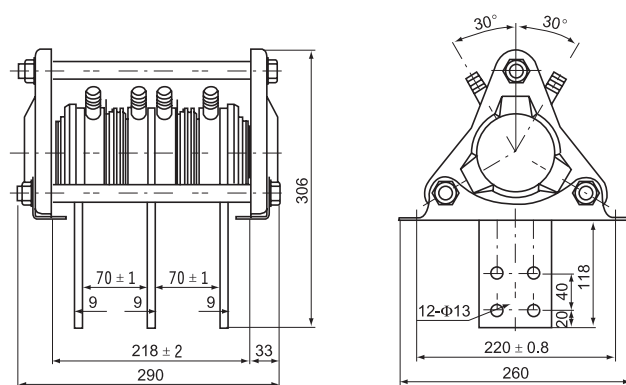
SS24BL(Fig.8)



SS25(Fig.9)



SS25BL(Fig.10)

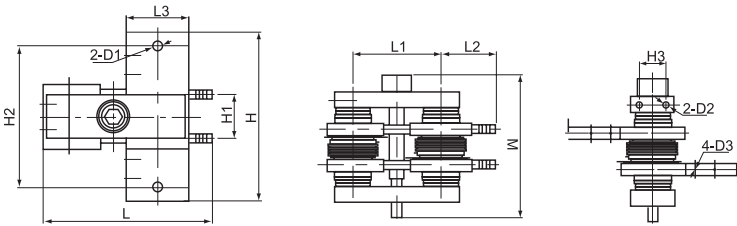


D-Type Water Cooling Heatsink

DSS3,DSS5,DSS6,DSS8 Water Cooling Heatsink (Fig.11)

Type	Outline size						Mountingsize					
	L	L1	L2	L3	H	H1	H2	H3	D1	D2	D3	W _{max}
DSS3	140	70	50	40	118	25	8	25	φ 8.2	M5x7	M3x6	135
DSS5	170	88	57	50	130	30	100	30	φ 11	M6x15	M3x6	155
DSS6	180	93	59.5	55	151	35	121	30	φ 11	M6x15	M3x6	155
DSS8	193	100	62	60	190	50	160	30	φ 11	M6x10	M3x6	160

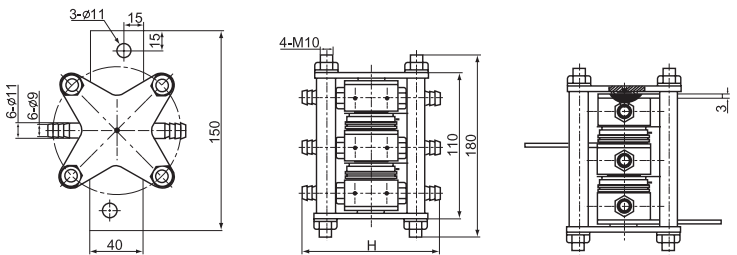
Type	Maximum surface dimension	Applicable case surface	Thermalresistance (℃/W)	Application
DSS3	40X40	φ 19~ φ 34	0.030	Thisproductappliesto 300~800Aelement assmblings,andinverse parallelconnectionpower sets,waterflow ≥ 4L/Min
DSS5	50X50	φ 34~ φ 40	0.026	
DSS6	55X55	φ 34~ φ 45	0.022	
DSS8	60X60	φ 34~ φ 47	0.018	



HSS3-type Water Cooling Heatsink

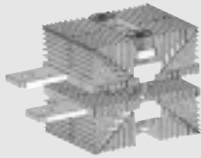
HSS3 Water Cooling Heatsink (Fig.12)

Type	Maximum surface dimension	Applicable case surface	Thermal resistance (℃/W)	Weight (kg)	Application
HSS3	40x40	φ 19~ φ 34	0.030	2.2	This product applies to 200~400Aelement assmblings,andinverse parallelconnectionpower sets,waterflow ≥ 4L/Min



SF Series Air Cooling Heatsink

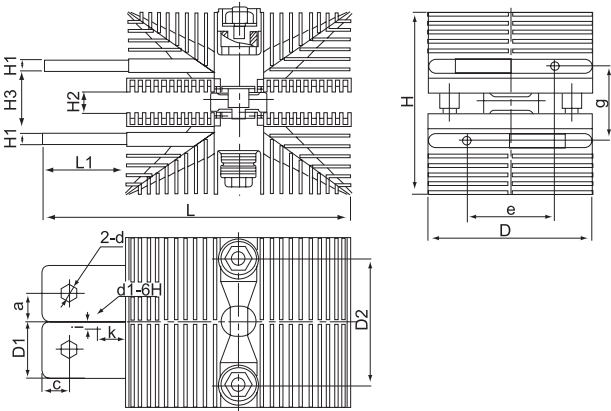
SF12, SF13 Monopipe Air Cooling Heatsink (Fig.13)



Type	Outline size			Arcpowerlead size				Mountingsize									
	L	D	H	L1	D1	H1	D2	H2	H3	d	d1	a	c	e	g	i	k
SF12	200	110	125	60	40	8	80	15	22	φ 13	M8	20	20	55	30	6	20
SF13	220	120	130	60	40	8	90	15	45	φ 13	M8	20	20	64	53	6	20

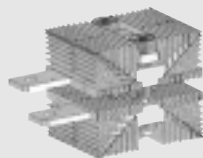
The tolerance of D, H, H2, H3, g are $^{+2}_{-0}$, $^{+5}_{-1}$, $^{+3}_{-1}$, $^{+4}_{-1}$, $^{+5}_{-2}$ respectively.

Type		SF12			SF13			
Surface diameter		Plate Surface	Raised Surface		Plate Surface	Raised Surface		
		φ 65	φ 23	φ 27	φ 65	φ 27	φ 27	φ 31
Applicable casesurface	RaisedSurface	φ 19~ φ 40			φ 34~ φ 40			
	PlateSurface	φ 24~ φ 28			φ 28~ φ 32			
Mounting force P (KN)		33~20			55~25			
Thermal resistance (C/W)		0.090			0.071			
Flow resistance (Pa)		45			55			
Application		Thisproductappliesto200~800Aelementassemblings,windspeed > 4m/sec						



SF Series Air Cooling Heatsink

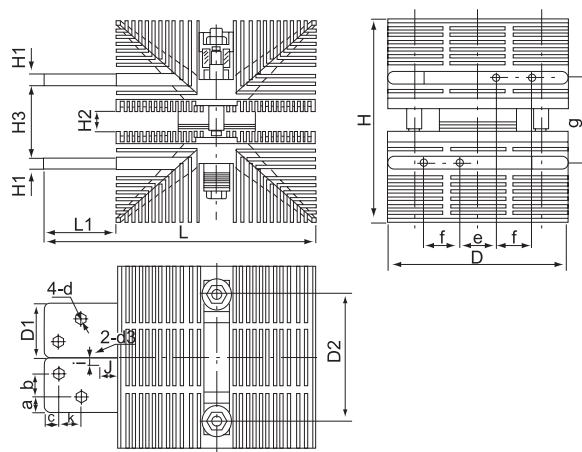
SF14, SF15, SF16, SF17 Monopipe Air Cooling Heatsink (Fig.14)



Type	Outline size			Arcpower lead Size			Mounting size												
	L	D	H	L1	D1	H1	D2	H2	H3	d	d1	a	b	c	e	g	i	j	k
SF14	250	140	145	80	50	10	105	15	45	φ 11	M6	125	25	125	40	55	8	20	25
SF15	280	140	165	80	60	12	105	15	50	φ 13	M8	175	25	15	40	62	8	20	25
SF16	280	180	200	80	60	12	130	15	66	φ 13	M8	175	25	15	40	78	8	20	25
SF17	300	200	215	80	60	12	130	15	73	φ 13	M8	175	25	15	40	85	8	24	25

The tolerance of D, H, H2, H3, g are $^{+2}_{-0}$, $^{+5}_{-1}$, $^{+3}_{-1}$, $^{+4}_{-1}$, $^{+5}_{-2}$ respectively

Type		SF14			SF15				SF16	SF17
Surface Diameter		Plate Surface	Raised Surface		Plate Surface	Raised Surface			Plate Surface	Plate Surface
		φ 82	φ 32	φ 37	φ 82	φ 32	φ 37	φ 42	φ 82	φ 120
Applicable casesurface	Raised Surface	φ 34~ φ 45			φ 40~ φ 47				φ 45~ φ 65	φ 40~ φ 73
	PlateSurface	φ 32 φ 37			φ 32 φ 37 φ 42				-	-
Mounting Force P (KN)		55~30			10~34				15~40	15~47
ThermalResistance(℃/W)		0.056			0.048				0.037	0.030
FlowResistance(Pa)		60			65				70	75
Application		Thisproductappliesto600~2000Aelementassemblies,windspeed ≥4m/sec,1500Aaboveelementassemblies,windspeed ≥6m/sec								

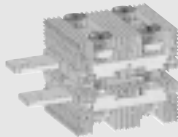
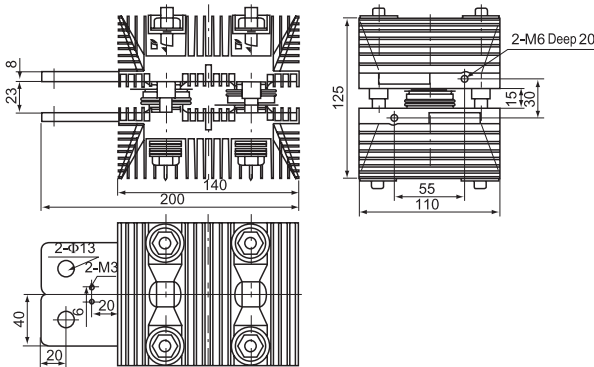




SF Series Air Cooling Heatsink

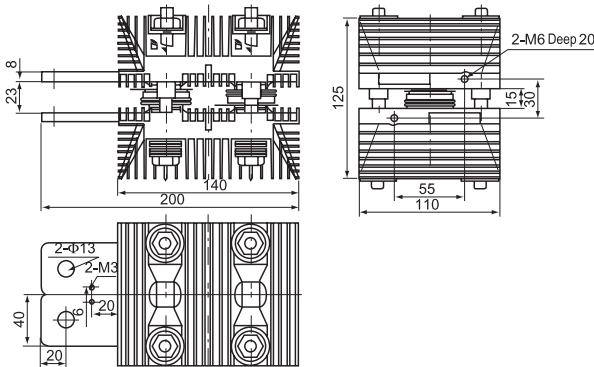
SF12BL Doublepipe Air Cooling Heatsink (Fig.15)

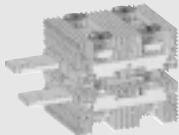
Surface dimension	Applicable case surface	Mounting force P(KN)	Thermal resistance (℃/W)	Flow resistance (Pa)	Application
φ 27	φ 19~ φ 25	3.3~20	0.050	45	This product applies to 200A element assemblies and in series parallel connection power sets, wind speed ≥ 4m/sec



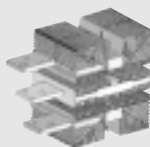
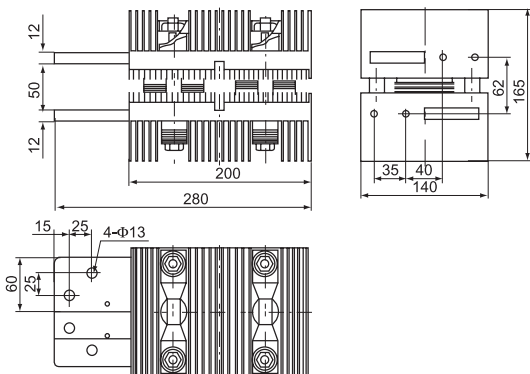
SF13BL Doublepipe Air Cooling Heatsink (Fig.16)

Surface dimension	Applicable case surface	Mounting force P(KN)	Thermal resistance (℃/W)	Flow resistance (Pa)	Application
φ 66	φ 34	5.5~25	0.130	45	This product applies to 200~300A element assemblies and in series parallel connection power sets, wind speed ≥ 4m/sec

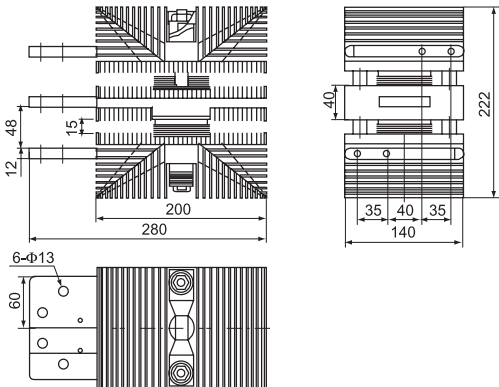


**SF Series Air Cooling Heatsink****SF15BL Doublepipe Air Cooling Heatsink(Fig.17)**

Surface dimension	Applicable case surface	Mounting force P(KN)	Thermal resistance (°C/W)	Flow resistance (Pa)	Application
φ 82	φ 34~ φ 45	10~34	0.090	45	This product applies to 300~500A element assemblies and inverse parallel connection power sets, wind speed ≥ 4m/sec

**SF15CL Doublepipe Air Cooling Heatsink(Fig.18)**

Surface dimension	Applicable case surface	Mounting force P(KN)	Thermal resistance (°C/W)	Flow resistance (Pa)	Application
φ 82	φ 34~ φ 45	10~34	0.090	45	This product applies to 300~500A element assemblies and inverse parallel connection power sets, wind speed ≥ 6m/sec



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