

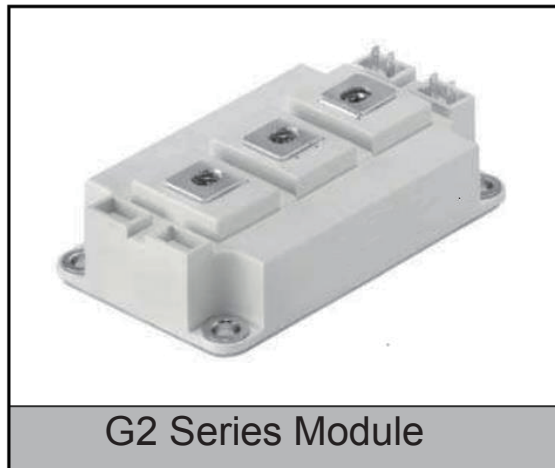
G150HF120TK-G2 150A 1200V

FEATURES

- High short circuit capability, self limiting short circuit current
- IGBT CHIP(Trench+ Field Stop technology)
- $V_{CE(sat)}$ with positive temperature coefficient
- Fast switching and short tail current, Low switching losses
- Free wheeling diodes with fast and soft reverse recovery

APPLICATIONS

- AC motor control
- Inverter and power supplies
- Motion/servo control
- UPS systems



ABSOLUTE MAXIMUM RATINGS

T_c=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
IGBT				
V_{CES}	Collector - Emitter Voltage	$T_{vj}=25^{\circ}C$	1250	V
V_{GES}	Gate - Emitter Voltage		± 30	V
I_c	DC Collector Current	$T_c=25^{\circ}C$	220	A
		$T_c=80^{\circ}C$	150	A
I_{CM}	Repetitive Peak Collector Current	$t_p=1ms$	300	A
P_{tot}	Power Dissipation Per IGBT		1190	W
Diode				
V_{RRM}	Repetitive Reverse Voltage	$T_{vj}=25^{\circ}C$	1250	V
$I_{F(AV)}$	Average Forward Current	$T_c=25^{\circ}C$	220	A
		$T_c=80^{\circ}C$	150	A
I_{FRM}	Repetitive Peak Forward Current	$t_p=1ms$	300	A

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ELECTRICAL AND THERMAL CHARACTERISTICS TC=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
IGBT						
$V_{GE(th)}$	Gate - Emitter Threshold Voltage	$V_{CE}=V_{GE}, I_c=2.0mA$	5.0		6.8	V
$V_{CE(sat)}$	Collector - Emitter Saturation Voltage	$I_c=150A, V_{GE}=15V, T_{vj}=25^{\circ}C$		1.9	2.2	V
		$I_c=150A, V_{GE}=15V, T_{vj}=125^{\circ}C$		2.1		V
I_{CES}	Collector Leakage Current	$V_{CE}=1250V, V_{GE}=0V, T_{vj}=25^{\circ}C$			1	mA
		$V_{CE}=1250V, V_{GE}=0V, T_{vj}=125^{\circ}C$			5	mA
R_{gint}	Integrated Gate Resistor	Per switch		10		Ω
I_{GES}	Gate Leakage Current	$V_{CE}=0V, V_{GE}\pm 15V, T_{vj}=125^{\circ}C$	-500		500	nA
C_{ies}	Input Capacitance	$V_{CE}=25V, V_{GE}=0V, f = 1MHz$		TBD		nF
C_{res}	Reverse Transfer Capacitance				TBD	
$t_{d(on)}$	Turn - on Delay Time	$V_{cc}=600V, I_c=150A,$ $R_g = 5.6 \Omega,$	$T_{vj} = 25^{\circ}C$	335		ns
			$T_{vj} = 125^{\circ}C$	344		ns
t_r	Rise Time	$V_{GE}=\pm 15V,$ Inductive Load	$T_{vj} = 25^{\circ}C$	87		ns
			$T_{vj} = 125^{\circ}C$	89		ns
$t_{d(off)}$	Turn - off Delay Time	$V_{cc}=600V, I_c=150A,$ $R_g = 5.6 \Omega,$	$T_{vj} = 25^{\circ}C$	419		ns
			$T_{vj} = 125^{\circ}C$	442		ns
t_f	Fall Time	$V_{GE}=\pm 15V,$ Inductive Load	$T_{vj} = 25^{\circ}C$	170		ns
			$T_{vj} = 125^{\circ}C$	224		ns
E_{on}	Turn - on Energy	$V_{cc}=600V, I_c=150A,$ $R_g = 5.6 \Omega,$	$T_{vj} = 25^{\circ}C$	9		mJ
			$T_{vj} = 125^{\circ}C$	11.3		mJ
E_{off}	Turn - off Energy	$V_{GE}=\pm 15V,$ Inductive Load	$T_{vj} = 25^{\circ}C$	11.5		mJ
			$T_{vj} = 125^{\circ}C$	14.7		mJ
I_{sc}	Short Circuit Current	$t_{psc} \leq 10\mu s, V_{GE}=15V$ $T_{vj}=125^{\circ}C, V_{cc}=720V$		600		A
R_{thJC}	Junction-to-Case Thermal Resistance (Per IGBT)				0.13	K/W

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Diode

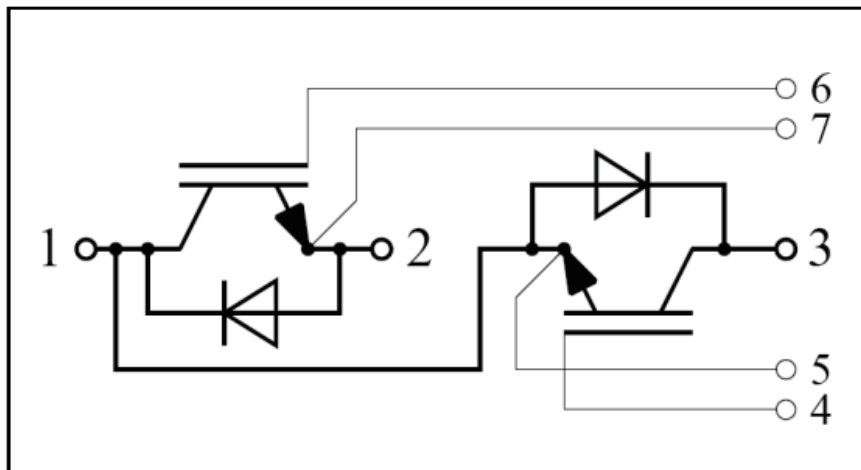
V _F	Forward Voltage	I _F =150A , V _{GE} =0V, T _{vj} =25°C	1.8	2.3	V
		I _F =150A , V _{GE} =0V, T _{vj} =125°C	1.8		V
Q _{rr}	Reverse Recovery Charge	I _F =150A , V _R =600V di _F /dt=-3000A/μs T _{vj} =125°C	28		μC
I _{RRM}	Max. Reverse Recovery Current		140		A
E _{rec}	Reverse Recovery Energy		13.5		mJ
R _{thJC}	Junction-to-Case Thermal Resistance (Per Diode)			0.26	K/W

MODULE CHARACTERISTICS

T_c=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
T _{vj max}	Max. Junction Temperature				150	°C
T _{vj op}	Operating Temperature		-40		125	°C
T _{stg}	Storage Temperature		-40		125	°C
V _{isol}	Insulation Test Voltage	AC, t=1min	3000			V
Torque	To-Sink	Recommended (M6)	3		5	N·m
Torque	To-Terminal	Recommended (M6)	2.5		5	N·m
Weight				302		g

CIRCUIT DIAGRAM



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PACKAGE OUTLINE

