Thyristor Diode Module

MFC500B

Features

- Electrical isolation between chip and base plate, 2500V AC insulatior
- Excellent temperature characteristics and power cycling capability
- Compact size and lightweight

Applications

- AC/DC motor control
- Various rectifier power supplies
- Frequency converters

V_{RSM}(V)	V_{RRM}(V)	Model
1300	1200	MFC500B-12
1700	1600	MFC500B-16
1900	1800	MFC500B-18
2100	2000	MFC500B-20
2500	2400	MFC500B-24

Symbol	Parameter	Test Conditions	T_j(°C)	Rating			Units
				Min.	Typ.	Max.	
$I_{T(AV)}$	Mean on-state current	180° sine half-wave, 50Hz, single-sided heat dissipation, Tc=70°C	125			500	A
I_{FSM}	Non-repetitive on-state surge current	10ms, sine half-wave, V_R=0.6V_{RRM}	125			15	KA
I^2t						1125	$A^2s \cdot 10^3$
I_{DRM}	Repetitive peak off-state current	At V_{DRM}	125			40	mA
I_{RRM}	Repetitive peak reverse current	At V_{RRM}	125			40	mA
V_{TO}	On-state threshold voltage		125			0.75	V
V_{TM}	Peak on-state voltage	I_{TM} =1500A	25		1.4	1.7	V
R_T	Slope resistance		125			0.36	mΩ
dv/dt	Critical rate of rise of off-state voltage	V_{DM}=0.67V_{DRM}	125			1000	V/μs
di/dt	Critical rate of rise of off-state current	V_{DM}=0.67V_{DRM}, Gate pulse t_r≤0.5μs , I_{GM}=1.5A	125			200	A/μs
I_{GT}	Gate trigger current	V_A=12V , I_A=1A	25	30		100	mA
V_{GT}	Gate trigger voltage		25			1.8	V
I_H	Holding current		25	20		150	mA
V_{iso}	Insulation voltage	AC, 50Hz, R.M.S, 1min		2500			V
$R_{th(j-c)}$	Thermal resistance junction-case	180° sine half-wave, single die				0.07	°C/W
$R_{th(c-h)}$	Thermal resistance case-heatsink	180° sine half-wave, single module				0.03	°C/W
Mt	Terminal mounting torque			10		12	N・m
Ms	Baseplate mounting torque			4		6	N・m
T_{stg}	Storage temperature			-40		125	°C

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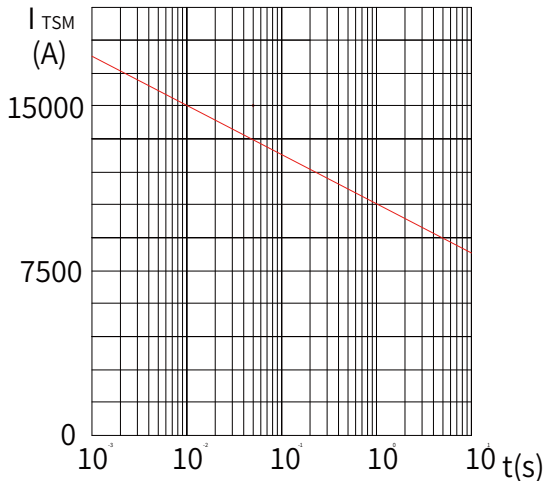
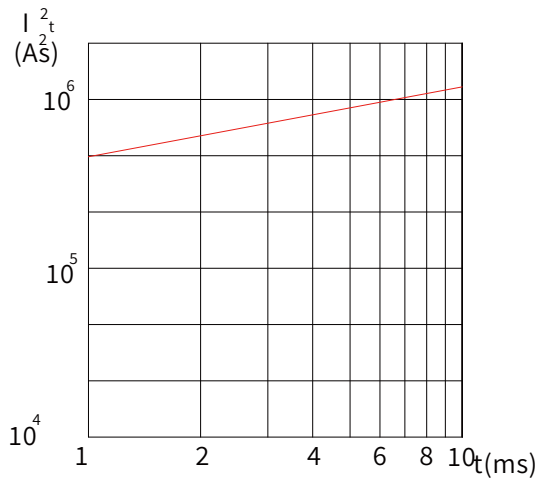
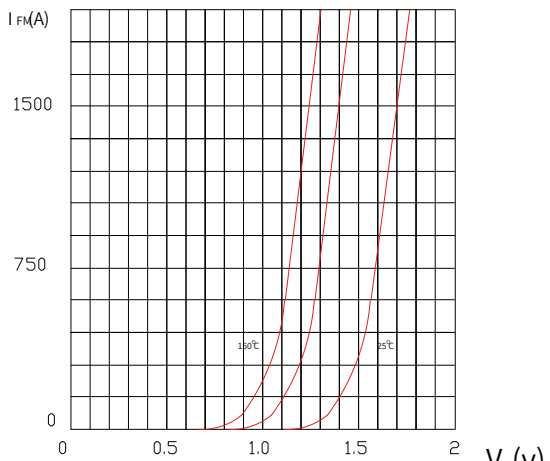


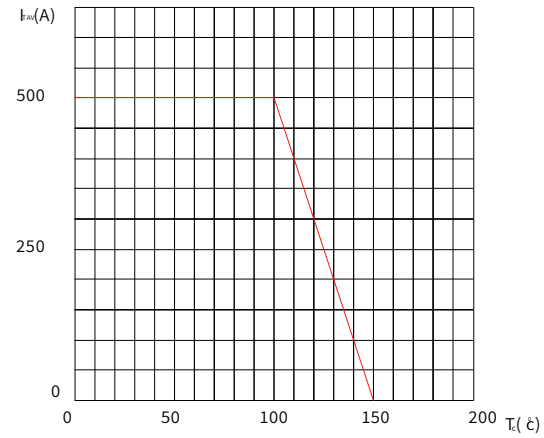
Surge Current Curve



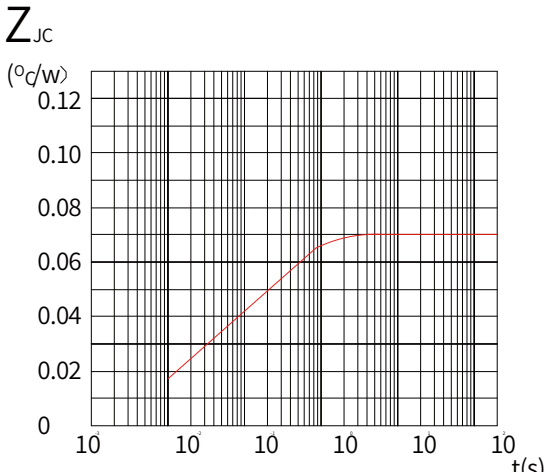
I²t Curve



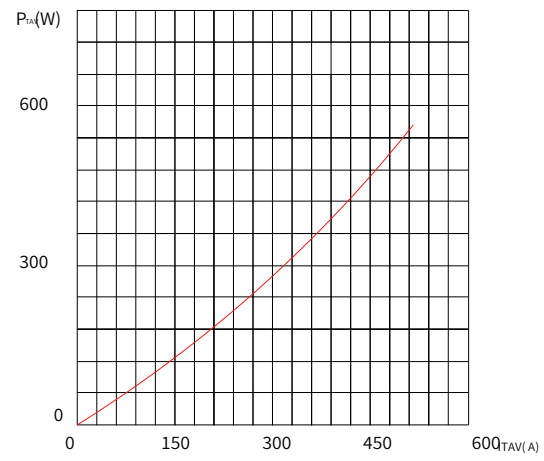
On-state Voltage Drop Curve



Temperature Load Curve



Transient Thermal Impedance Curve



Power Dissipation per Chip Curve

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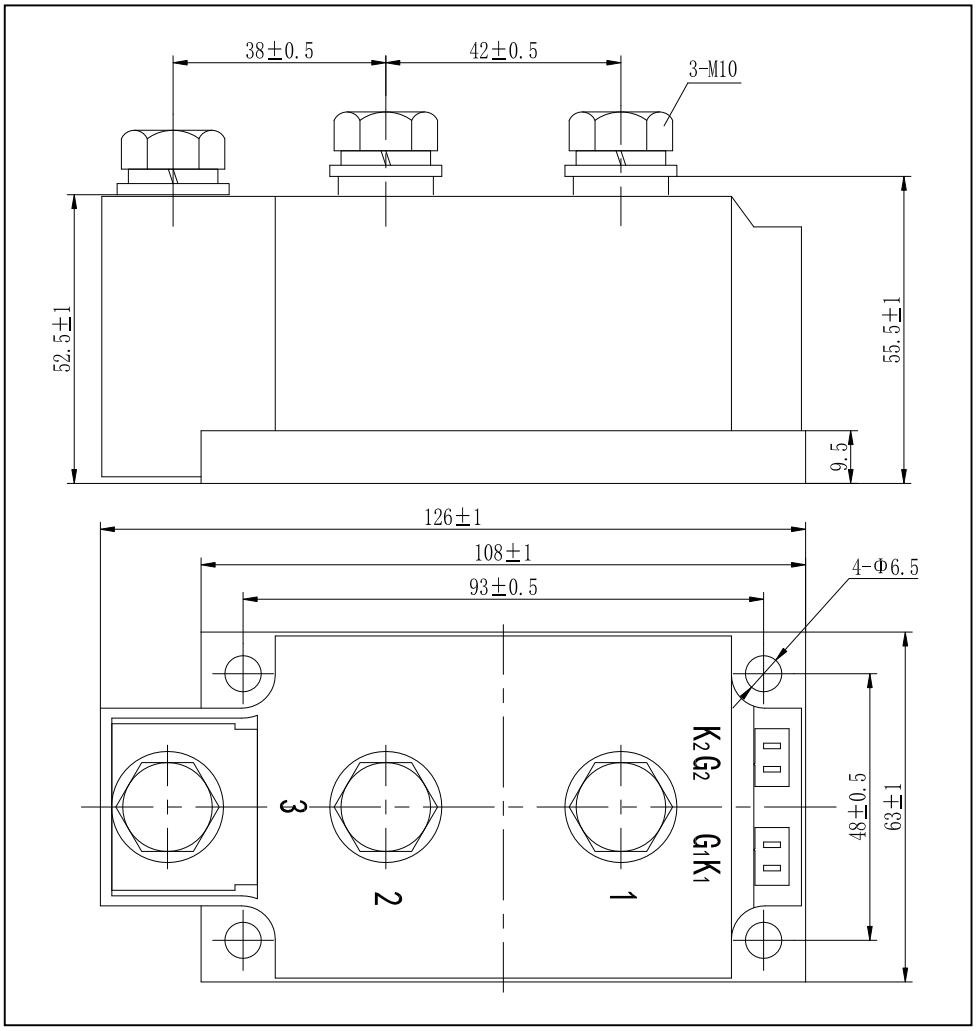
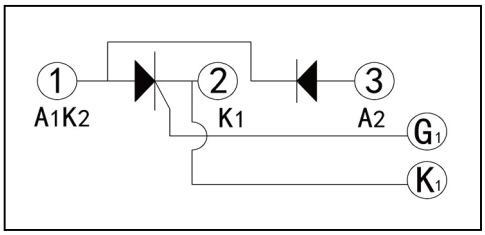
Outline package dimensions





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