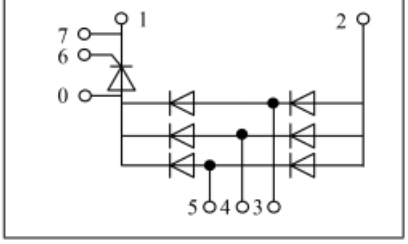


Three Phase Bridge &Thyristor Module

VRRM / VDRM	800 to 1800V
ID	100 A

Circuit



Applications

- Inverter for AC or DC motor control
- Current stablilzed power supply
- Switching power supply

Features

- High Surge Capability
- Glass passivated chip
- Simple Mounting
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate

Module Type

TYPE	VRRM/VDRM	VRSM
MT100DT08L1	800V	900V
MT100DT12L1	1200V	1300V
MT100DT16L1	1600V	1700V
MT100DT18L1	1800V	1900V

□Diode

Maximum Ratings

Symbol	Conditions	Values	Units
I_D	Three phase, full wave Tc=90□	100	A
I_{FSM}	t=10ms T_J=25□	1300	A
I^2t	t=10ms T_J=25□	8450	A^2s
V_{ISO}	AC 50Hz/60Hz; R.M.S; 1min	3000	V
T_J		-40 to +150	□
Tstg		-40 to +125	□
Mt	To Terminals(M5)	3±15%	N·m
Ms	To Heatsink(M6)	5±15%	
Weight		210	g

Thermal Characteristics

Symbol	Conditions	Values	Units
Rth(j-c)	Junction to Case(Per Module)	0.25	□/W
Rth(c-s)	Case to Heat Sink	0.1	□/W

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
V_{FM}	T_J=25□ I_F =100A	—	—	1.3	V
I_{RD}	T_J=150□ V_R=V_{RRM}	—	—	5	mA
r_F	T_J=125□		3.5		mΩ
VF0			0.8		V

□Thyristor
Maximum Ratings

Symbol	Conditions	Values	Units
I_{TAV}	Single phase ,half wave 180°conduction Tc=90□	100	A
I_{TSM}	t=10ms T_J=25□	2400	A
I^2t	t=10ms T_J=25□	28800	A^2s
V_{ISO}	AC 50Hz/60Hz; R.M.S; 1min	3000	V
T_J		-40 to +125	□
Tstg		-40 to +125	□
di/dt	Tj =125□, 2/3VDRM ,IG =500mA Tr<0.5us,tp>6us	150	A/us
a	Maximum allowable acceleration	50	m/s^2

Thermal Characteristics

Symbol	Conditions	Values	Units
Rth(j-c)	Junction to Case(Per Thyristor)	0.25	□/W
Rth(c-s)	Case to Heat Sink	0.1	□/W

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
V_{TM}	T_J =25□ IT=100A			1.3	V
I_{RRM}/I_{DRM}	T_J =25□ ,V_R=V_{RRM} ,V_D=V_{DRM}			20	mA
V_{T0}	T_J=25□			0.85	V
rT	T_J=25□			1.2	mΩ
V_{GT}	T_J=25□, V_D =6V			3	V
I_{GT}	T_J=25□, V_D =6V			150	mA
V_{GD}	T_J=125□, V_D =2/3V_{DRM}			0.25	V
I_{GD}	T_J=125□, V_D =2/3V_{DRM}			10	mA
I_L	T_J=25□, R_G = 33 Ω			300	mA
I_H	T_J=25□, V_D=6V			200	mA
t_{gd}	T_J =25□, I_G=1A, diG/dt=1A/us		1		us
t_q	T_J=125□		100		us
dv/dt	T_{jj} =125□,2/3V_{DRM}, linear voltage rise		1000		V/us

Performance Curves

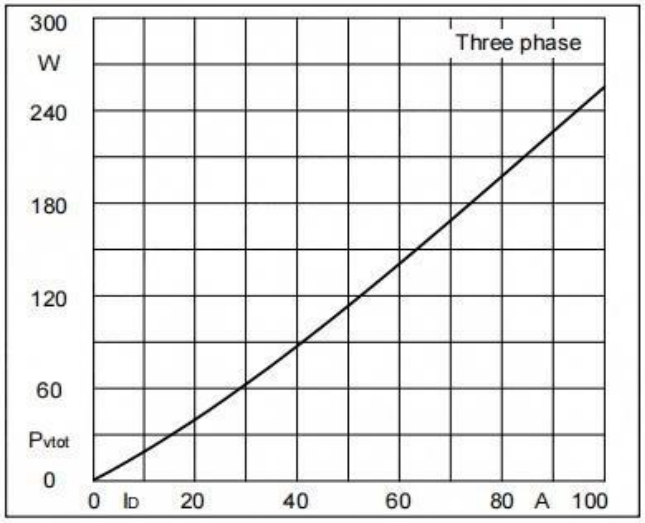


Fig1. Power dissipation

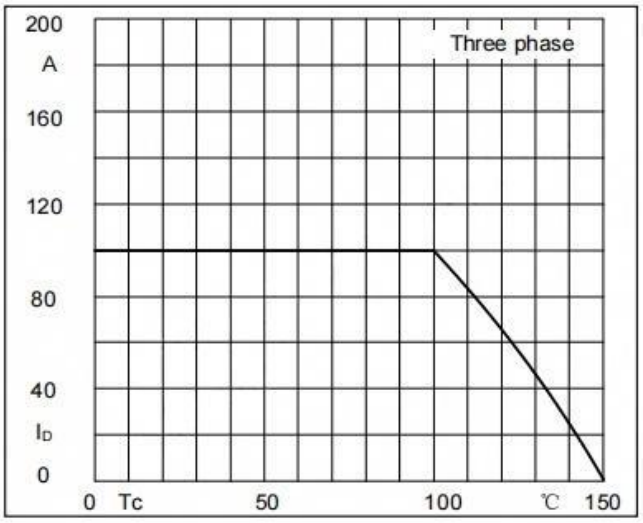


Fig2.Forward Current Derating Curve

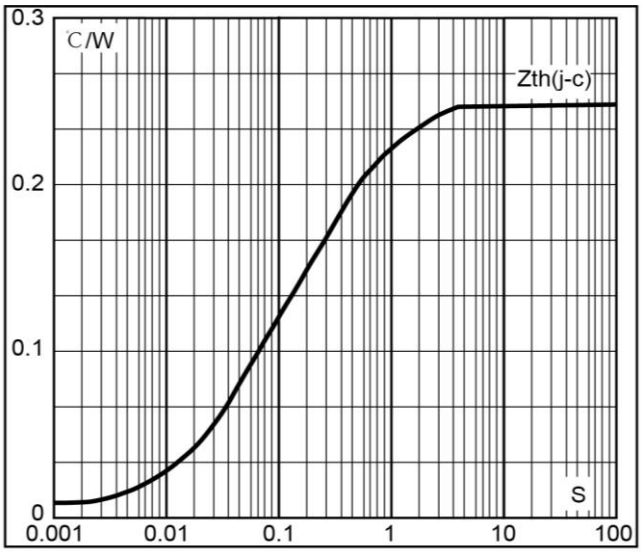


Fig3. Transient thermal impedance

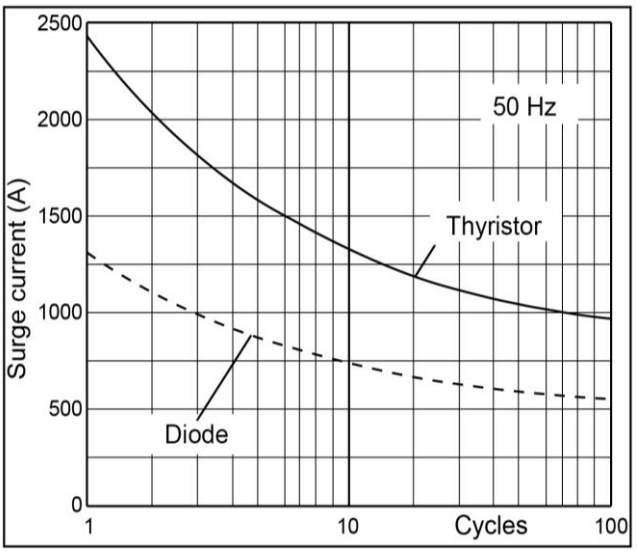


Fig4. Max Non-Repetitive Forward Surge Current

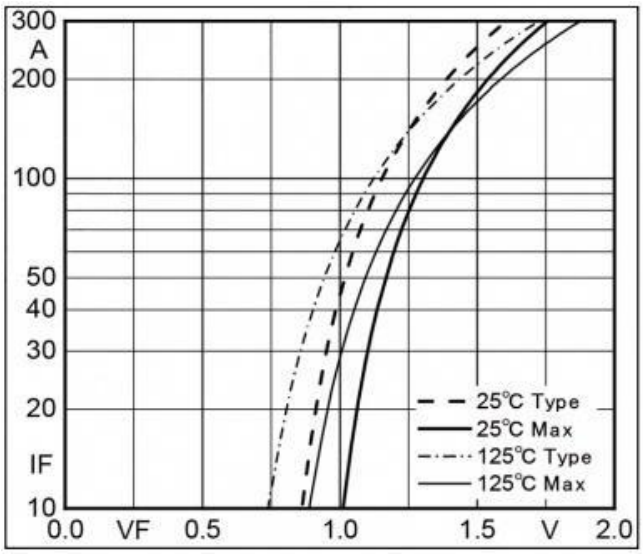


Fig5. Forward Characteristics

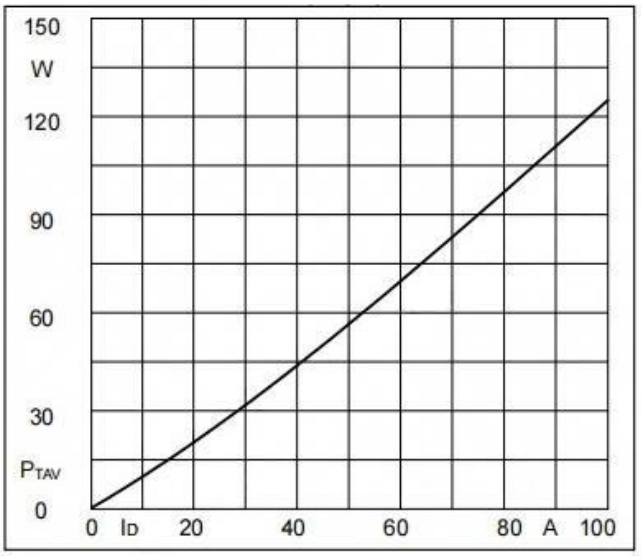


Fig6. SCR Power dissipation

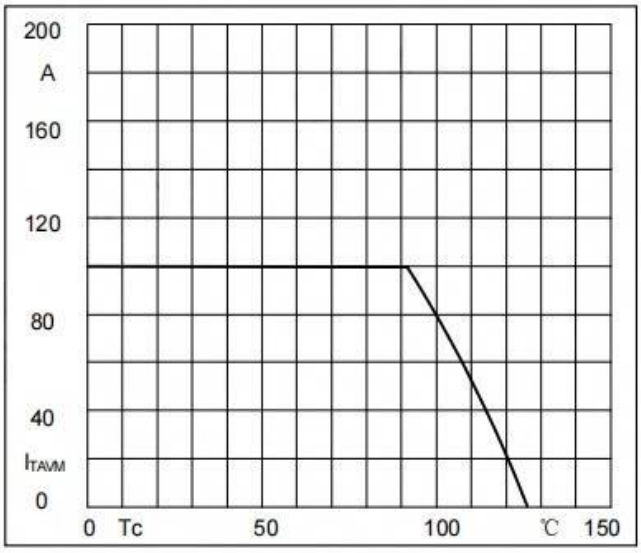


Fig7. SCR Forward Current Derating Curve

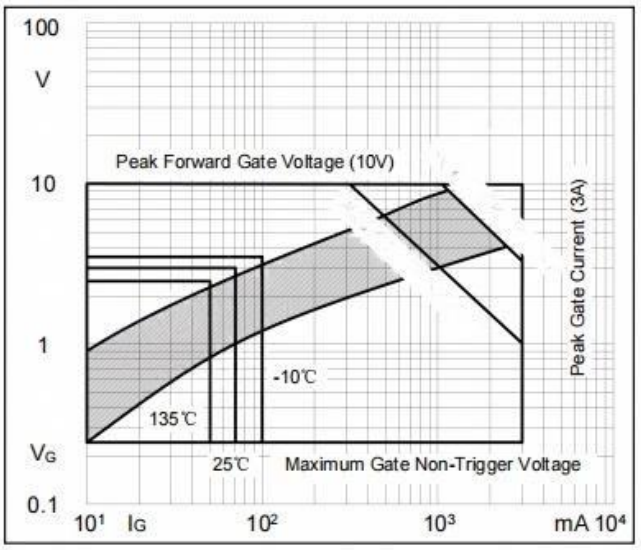
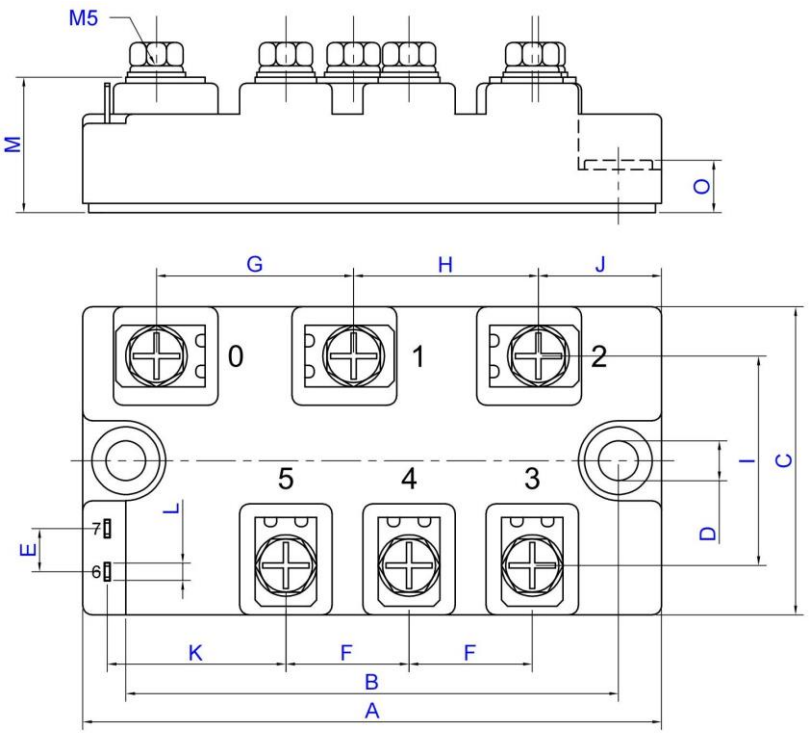


Fig8. Gate trigger Characteristics

Package Outline Information

CASE: L1



DIM	Min (mm)	Max (mm)	Note
A	93.5	94.5	
B	79.5	80.5	
C	49.5	50.5	
D	6.2	6.8	Ø
E	6.5	7.5	
F	19.5	20.5	
G	31.5	32.5	
H	29.5	30.5	
I	33.5	34.5	
J	19.5	20.5	
K	28.5	29.5	
L	2.6	3	
M	21.5	22.5	
N	0.6	1	
O	8.5	9.5	

Packing Standard

Item	Length: A(mm)	Width: B(mm)	Height: C (mm)	Quantity (PCS)
Inner Box	276	258	48	6
Outer Carton	545	295	240	60

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