

Glass Passivated Rectifier Diode Modules

VRRM 800 to 2000V
IFAV 120 A

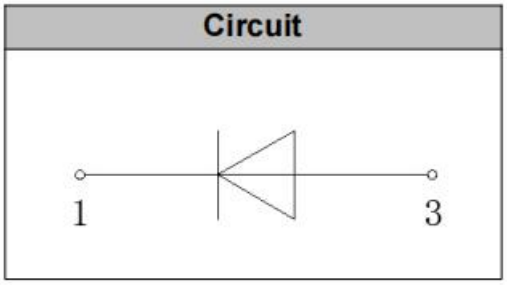
Applications

- Non-controllable rectifiers for AC/AC converters
- Line rectifiers for transistorized AC motor controllers
- Field supply for DC motors

Features

- Blocking voltage:800 to 2000V
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- Glass passivated chip

Circuit



Module Type

TYPE	VRRM	VRSM
MD120U08D1	800V	900V
MD120U12D1	1200V	1300V
MD120U16D1	1600V	1700V
MD120U18D1	1800V	1900V
MD120U20D1	2000V	2100V

Maximum Ratings

Symbol	Conditions	Values	Units
I_{FAV}	Single phase ,half wave 180°conduction Tc=106℃	120	A
I_{FSM}	t=10ms T_J =25℃	4000	A
I^2t	t=10ms T_J=25℃	80000	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%	N·m
Weight		95	g

Thermal Characteristics

Symbol	Conditions	Values	Units
Rth(j-c)	Junction to Case(Per Diode)	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 =300A	—	1.20	1.35	V
I_{RD}	T_J=150℃ V_R=V_{RRM}	—	—	5	mA
r_F	T_J=125℃		1.4		mΩ
VF0			0.8		V

Performance Curves

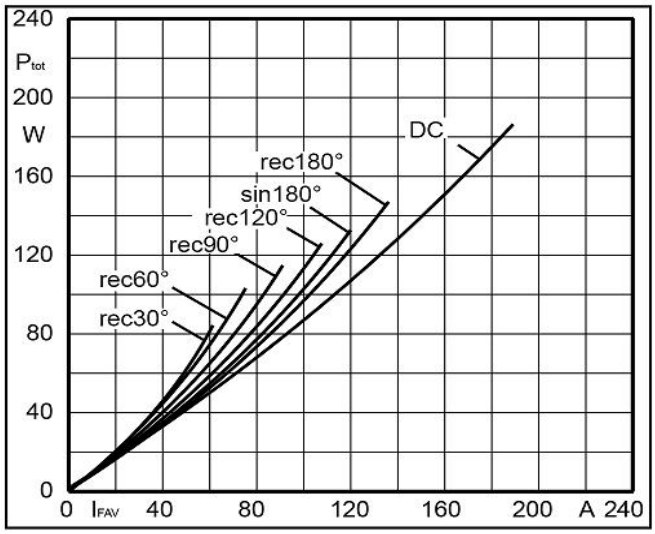


Fig1. Power dissipation

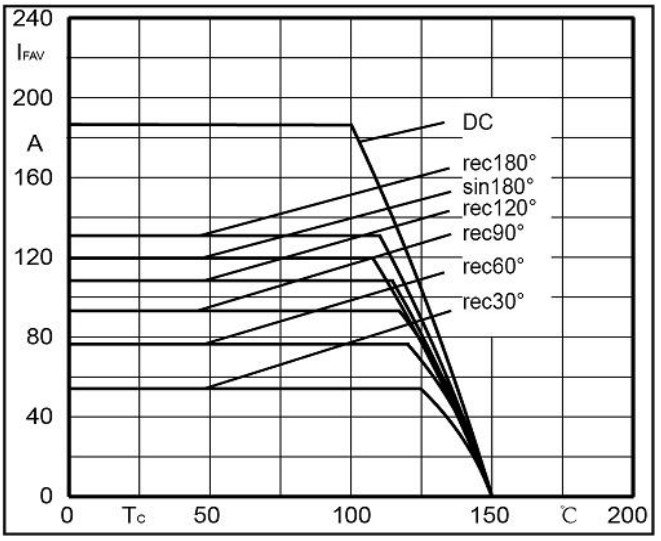


Fig2.Forward Current Derating Curve

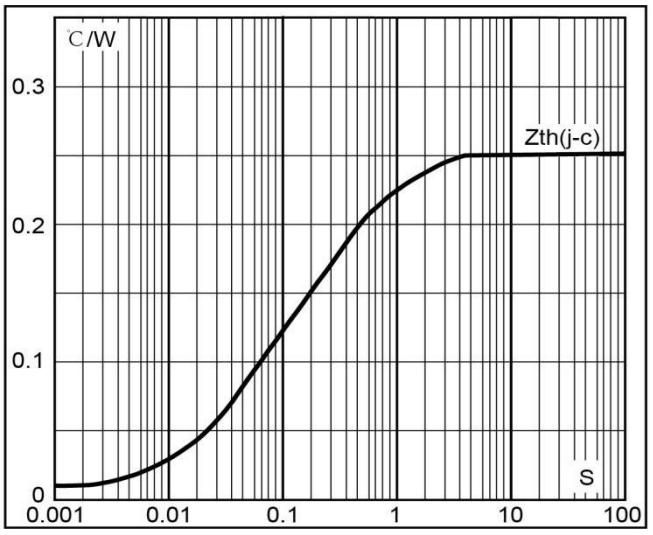


Fig3. Transient thermal impedance

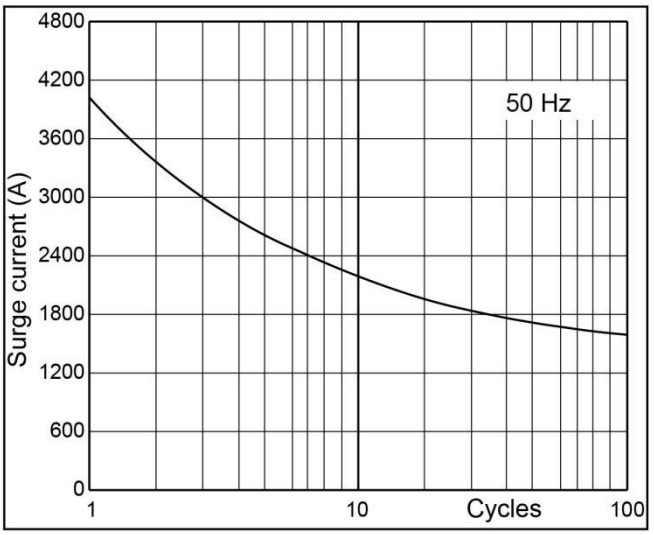


Fig4. Max Non-Repetitive Forward Surge Current

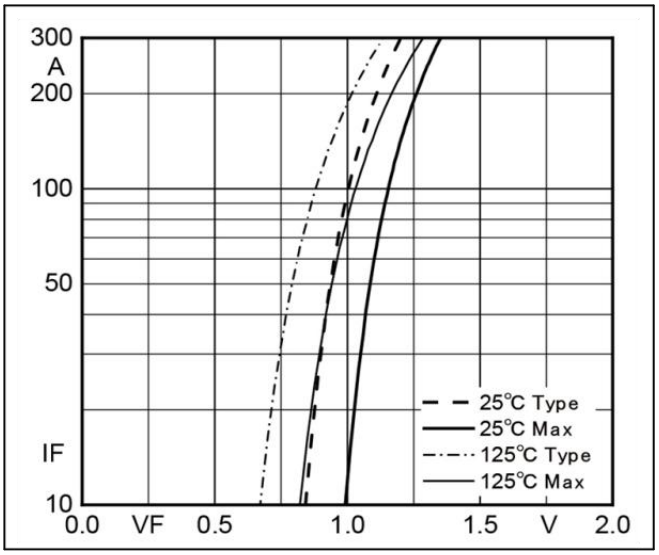
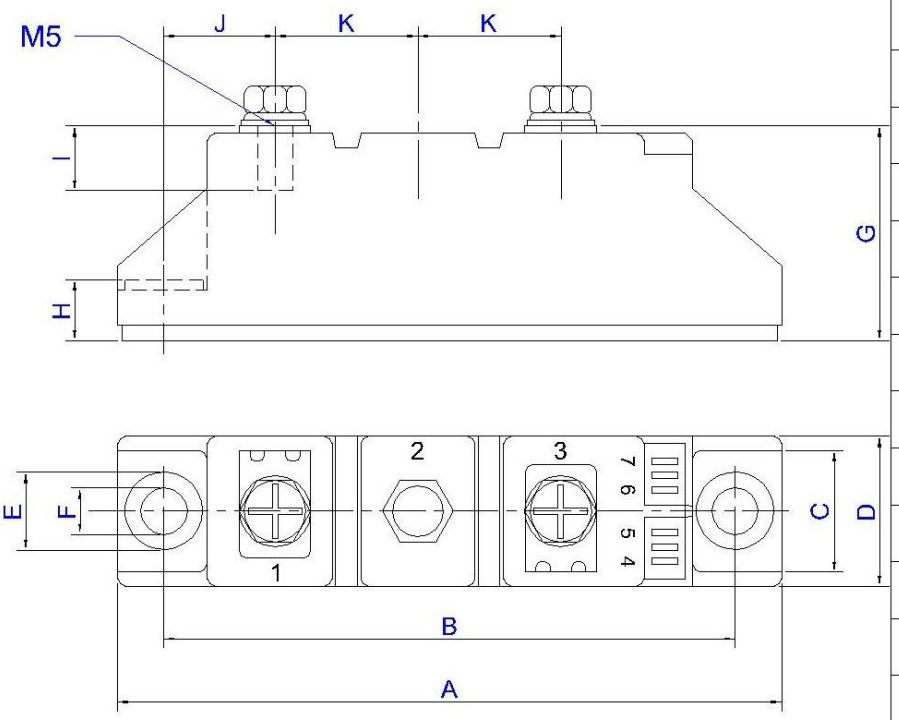


Fig5. Forward Characteristics

Package Outline Information

CASE: D1



DIM	Min (mm)	Max (mm)	Note
A	92.5	93.5	
B	79.5	80.5	
C	16.5	17.5	
D	20.5	21.5	
E	10.7	11.3	Ø
F	6.2	6.8	Ø
G	29.5	30.5	
H	8	9	
I	8.5	9.5	
J	15	15.5	
K	19.7	20.3	

Packing Standard

Item	Length: A(mm)	Width: B(mm)	Height: C (mm)	Quantity (PCS)
Inner Box	276	258	40	10
Outer Carton	545	295	240	120

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