

Rectifier Diode Module

V_{RRM}	1200 to 2000V
I_{FAV}	300 Amp
I_{FRMS}	470 Amp

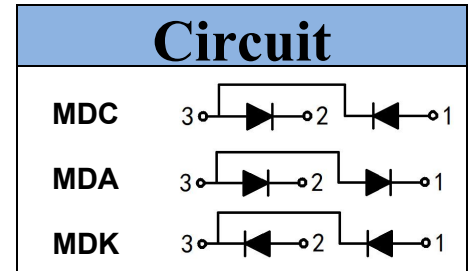


Features

- Aluminum oxide DBC
- Glass passivated chip

Applications

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



Module Type

Type			V _{RRM}	V _{RSM}
MDC300J-12	MDA300J-12	MDK300J-12	1200V	1300V
MDC300J-16	MDA300J-16	MDK300J-16	1600V	1700V
MDC300J-18	MDA300J-18	MDK300J-18	1800V	1900V
MDC300J-20	MDA300J-20	MDK300J-20	2000V	2100V

Maximum Ratings

Symbol	Item	Conditions	Values	Unit
I _{FAV}	Average Forward Current	180° Conduction Sin Half Wave, T _c = 105°C	300	A
I _{FRMS}	RMS Forward Current		470	A
I _{FSM}	Surge Forward Current	T _j = 25°C, t = 50Hz(10ms), V _R = 0V	10500	A
I ² t	Circuit Fusing Consideration	t = 10ms T _j = 25°C	551250	A ² s
V _{ISO}	Isolation Breakdown Voltage	AC 50Hz/60Hz; R.M.S; 1min	3000	V
T _j	Operating Junction Temperature		-40 to +150	°C
T _{stg}	Storage Temperature		-40 to +125	°C
M _t	Mounting Torque	To Terminals(M6)	5±15%	N·m
M _s		To Heatsink(M6)	5±15%	
Weight	Module (Approximately)		200	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Unit
R _{th(j-c)}	Thermal Impedance, Max	Junction to Case(Per Diode)	0.10	°C/W
R _{th(c-s)}	Thermal Impedance, Max	Case to Heat Sink	0.05	°C/W

Electrical Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
V _{FM}	Forward Voltage Drop, Max	T _j = 25°C I _F = 900A	—	—	1.50	V
I _{RRM}	Repetitive Peak Reverse Current, Max	T _j = 25°C V _R = V _{RRM}	—	—	0.1	mA
		T _j = 150°C V _R = V _{RRM}	—	—	20	
V _{T0}	Threshold Voltage, for power loss calculation only	T _j = 125°C	0.90			V
r _T	Slope Resistance, for power loss calculation only	T _j = 125°C	0.61			mΩ

Performance Curves

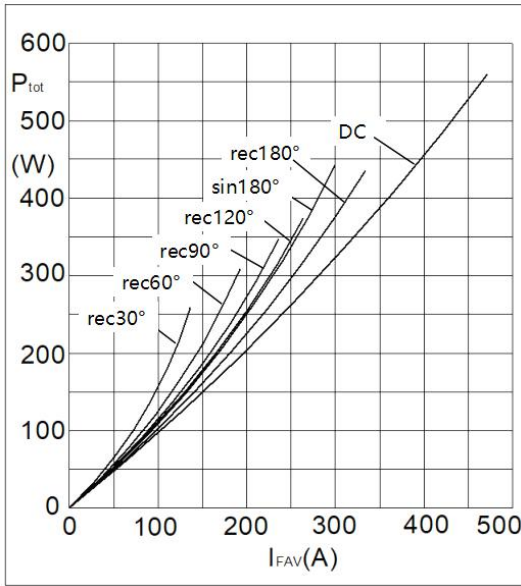


Fig1. Power Dissipation

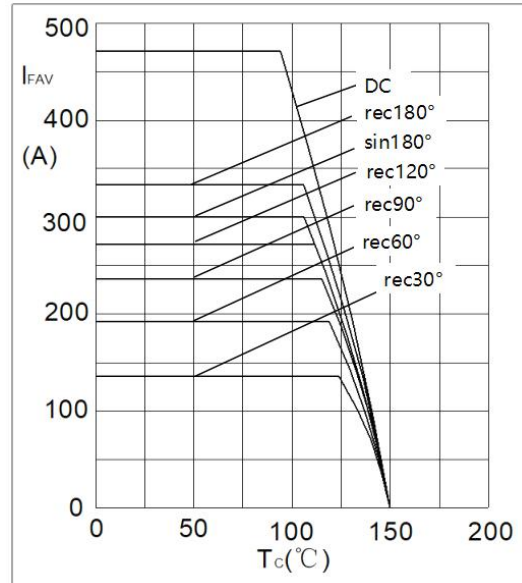


Fig2. Forward Current Derating Curve

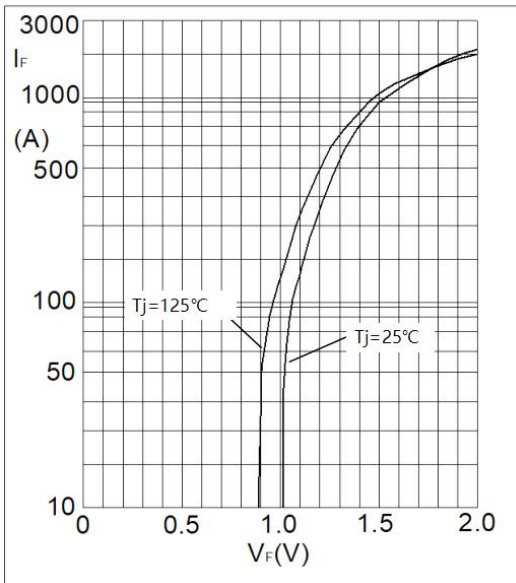


Fig3. Forward Characteristics

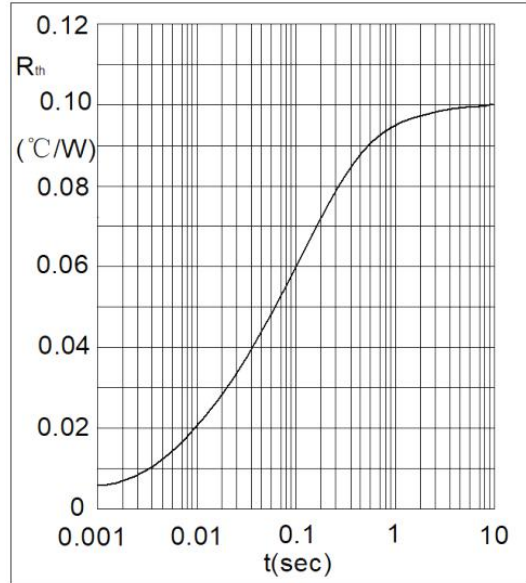


Fig4. Transient Thermal impedance

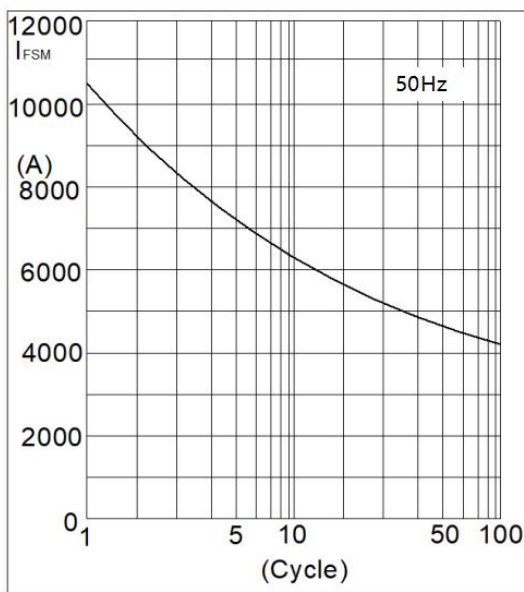
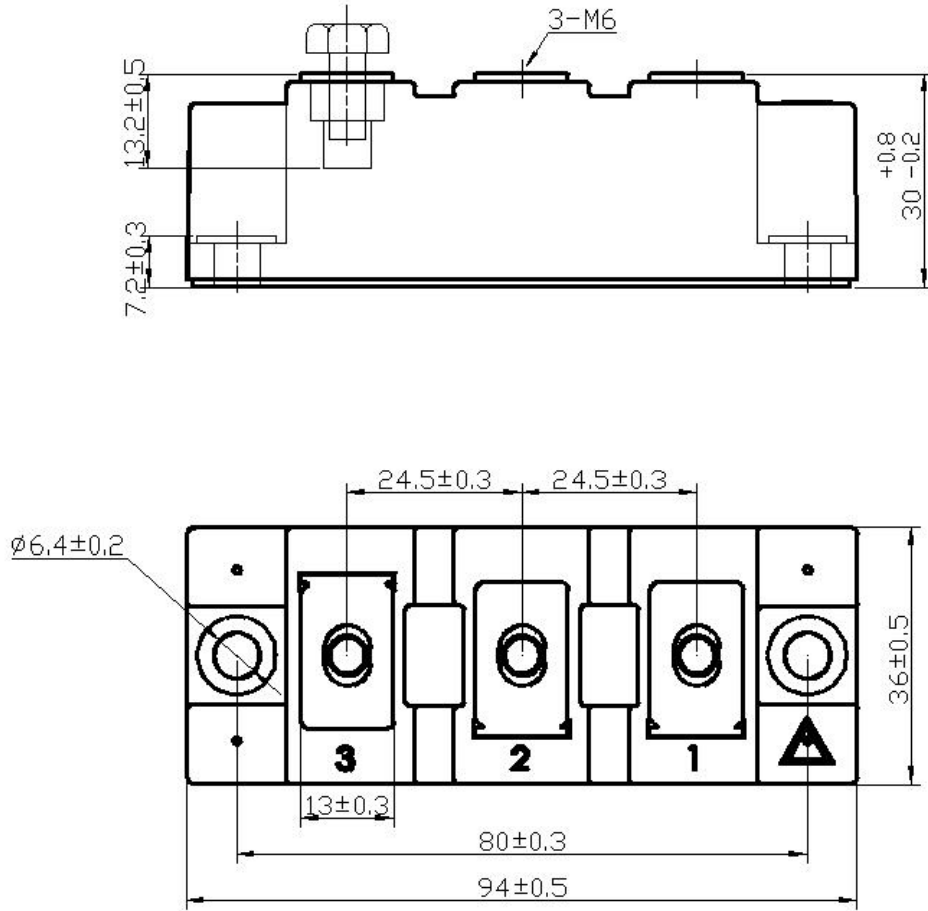


Fig5. Max Non-Repetitive Forward Surge Current

Package Outline Information

CASE: M117



Dimensions in mm

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