Rectifier Diode Module

V_{RRM}	1200 to 2000V
I_{FAV}	160 Amp
I_{FRMS}	250 Amp

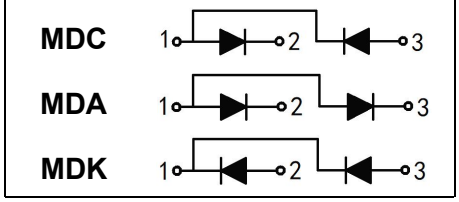
Features

- Very low forward voltage drop
- High surge current capability

Applications

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

Circuit



Module Type

Type			V_{RRM}	V_{RSM}
MDC160-12	MDA160-12	MDK160-12	1200V	1300V
MDC160-16	MDA160-16	MDK160-16	1600V	1700V
MDC160-18	MDA160-18	MDK160-18	1800V	1900V
MDC160-20	MDA160-20	MDK160-20	2000V	2100V

■ Maximum Ratings

Symbol	Item	Conditions	Values	Unit
I_{FAV}	Average Forward Current	180° Conduction Sin Half Wave, T_c = 100℃	160	A
I_{FRMS}	RMS Forward Current		250	A
I_{FSM}	Surge Forward Current	T_j = 25℃, t = 50Hz(10ms), V_R = 0V	6000	A
I^2t	Circuit Fusing Consideration	t = 10ms T_j =25℃	180000	A^2s
V_{ISO}	Isolation Breakdown Voltage	AC 50Hz/60Hz; R.M.S; 1min	2500	V
T_j	Operating Junction Temperature		-40 to +150	℃
T_{stg}	Storage Temperature		-40 to +125	℃
M_t	Mounting Torque	To Terminals(M6)	5±15%	N·m
M_s		To Heatsink(M6)	5±15%	
Weight	Module (Approximately)		220	g

■ Thermal Characteristics

Symbol	Item	Conditions	Values	Unit
$R_{th(j-c)}$	Thermal Impedance, Max	Junction to Case(Per Diode)	0.28	℃/W
$R_{th(c-s)}$	Thermal Impedance, Max	Case to Heat Sink	0.05	℃/W

■ Electrical Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_{FM}	Forward Voltage Drop, Max	T_j = 25℃ I_F = 480A	—	—	1.20	V
I_{RRM}	Repetitive Peak Reverse Current, Max	T_j = 25℃ V_R = V_{RRM}	—	—	0.1	mA
		T_j = 150℃ V_R = V_{RRM}	—	—	10	
V_{T0}	Threshold Voltage, for power loss calculation only	T_j = 125℃		0.7		V
r_T	Slope Resistance, for power loss calculation only	T_j = 125℃		0.83		mΩ

Performance Curves

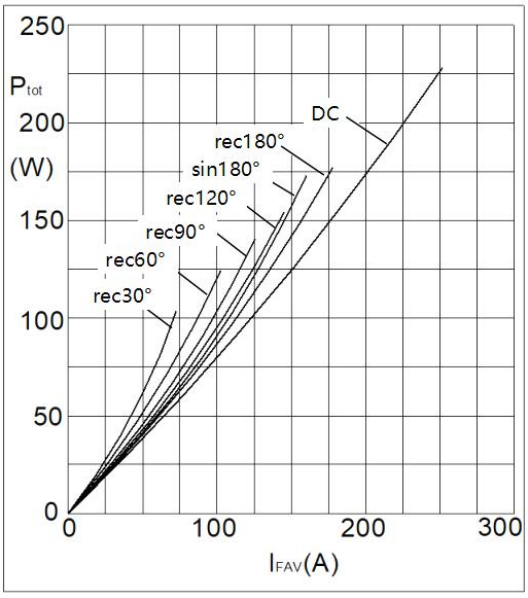


Fig1. Power Dissipation

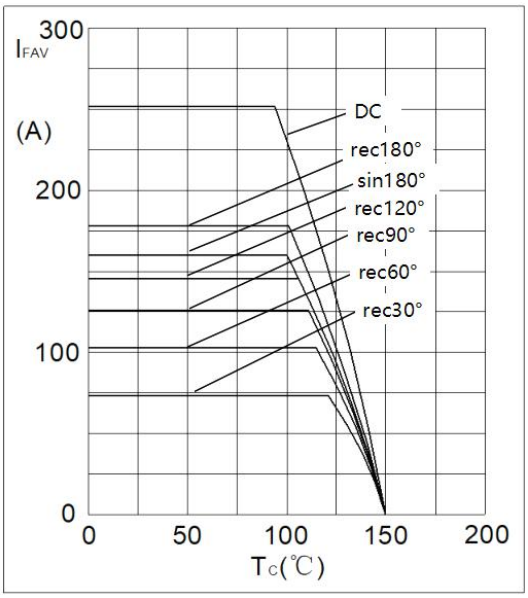


Fig2. Forward Current Derating Curve

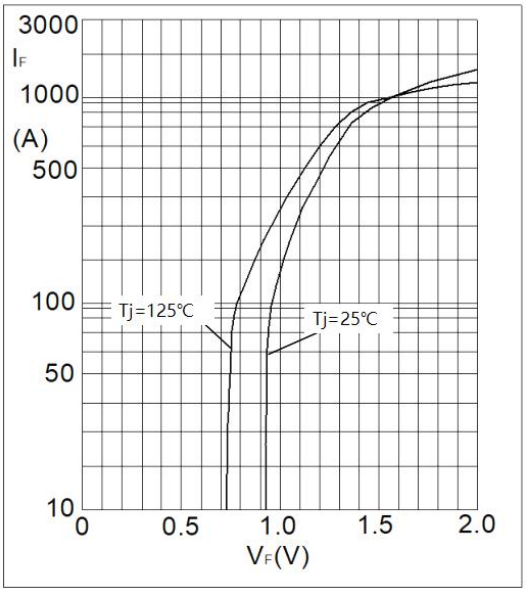


Fig3. Forward Characteristics

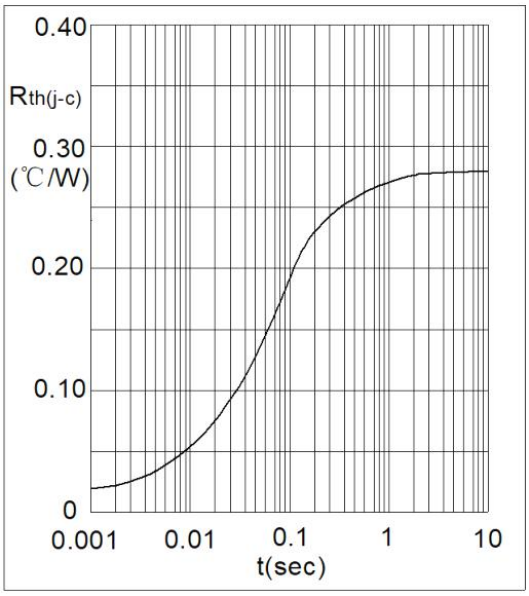


Fig4. Transient Thermal impedance

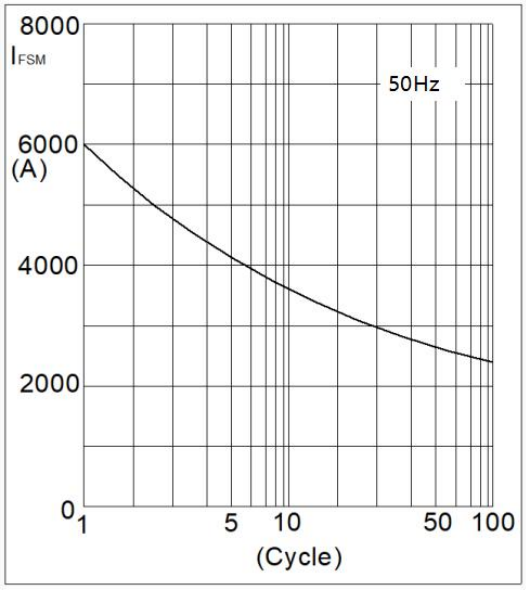
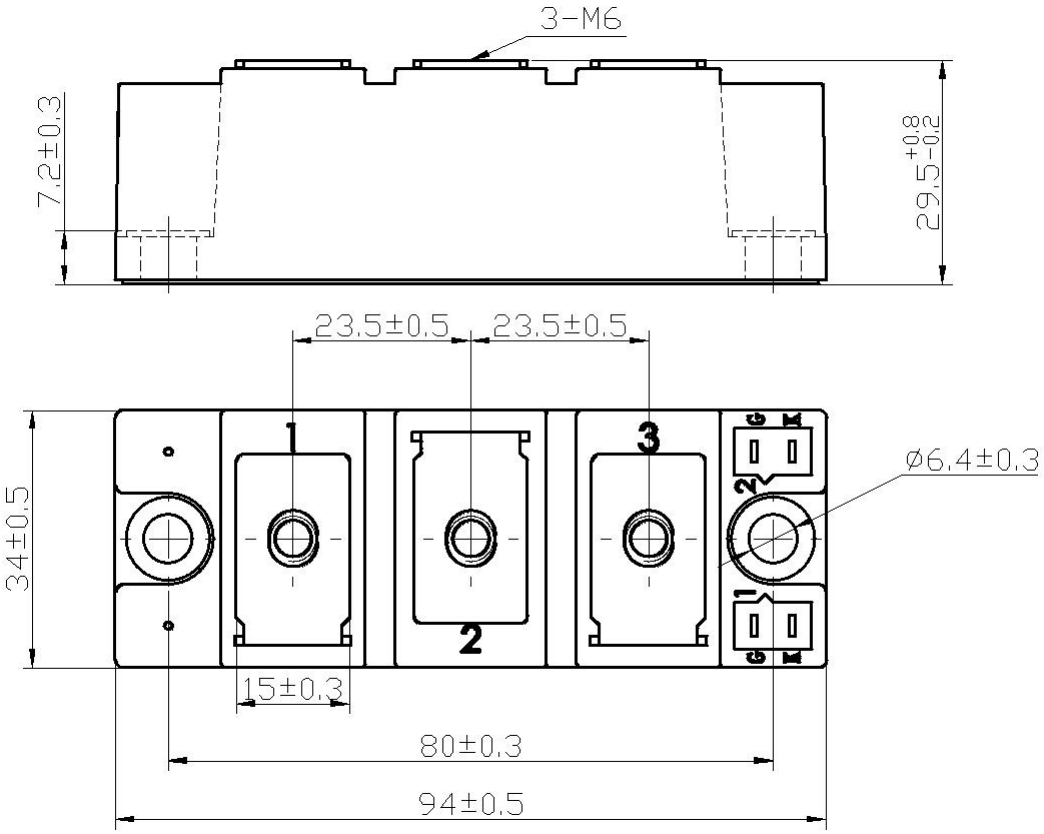


Fig5. Max Non-Repetitive Forward Surge Current

Package Outline Information

CASE: M03



Dimensions in mm

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