MMD90A

90A Rectifier Diode Module

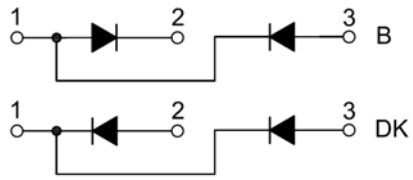
JANUARY 2014 Version 03 **RoHS Compliant**

FEATURES

- ☐ Low Forward Voltage
- ☐ High Surge Current Capability
- ☐ Low Leakage Current
- ☐ Low Inductance Package

APPLICATIONS

- ☐ Field Supply For DC Motors
- ☐ Line Rectifiers For Transistorized AC Motor Controllers
- ☐ Non-controllable Rectifiers For AC/DC Converter



MODULE TYPE

TYPE	Circuit Diagram		VRRM (Repetitive Peak Reverse Voltage)	VRSM (Non-Repetitive Peak Reverse Voltage)	Unit
	B	DK			
	MMD90A120B	MMD90A120DK	1200	1300	`V
	MMD90A140B	MMD90A140DK	1400	1500	
	MMD90A160B	MMD90A160DK	1600	1700	
	MMD90A180B	MMD90A180DK	1800	1900	

ABSOLUTE MAXIMUM RATINGS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
$I_{F(AV)}$	Average Forward Current	Single phase, half wave, 180°conduction, Tc= 85°C	90	A
$I_{F(RMS)}$	R.M.S. Forward Current		141	
I_{FSM}	Non-Repetitive Surge Forward Current	1/2 cycle, 50HZ, peak value Tc =45°C	2000	
		1/2 cycle, 60HZ, peak value Tc =45°C	2200	
I^2t	I^2t (For Fusing)	1/2 cycle, 50HZ, peak value Tc =45°C	20.0	KA^2s
		1/2 cycle, 60HZ, peak value Tc =45°C	20.1	KA^2s
P_D	Power Dissipation		310	W
T_J	Junction Temperature		-40 to +150	°C
T_{STG}	Storage Temperature Range		-40 to +125	°C
V_{ISO}	Isolation Breakdown Voltage	AC, 50Hz(R.M.S), t=1minute	3000	V
Torque	Module-to-Sink	Recommended（M6）	3～5	N.m
Torque	Module Electrodes	Recommended（M5）	2.5～5	N.m
$R_{th\ (J-C)}$	Junction-to-Case Thermal Resistance		0.4	K /W
Weight			110	g

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ELECTRICAL AND THERMAL CHARACTERISTICS *T_C=25°C unless otherwise specified*

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Max.Reverse Leakage Current	V_R= V_{RRM}			500	μA
		V_R= V_{RRM} , T_J=125°C			10	mA
V_F	Forward Voltage	I_F=280A			1.6	V
V_{T0}	For power-loss calculations only				0.85	V
r_T	T_J=125°C				2.9	mΩ

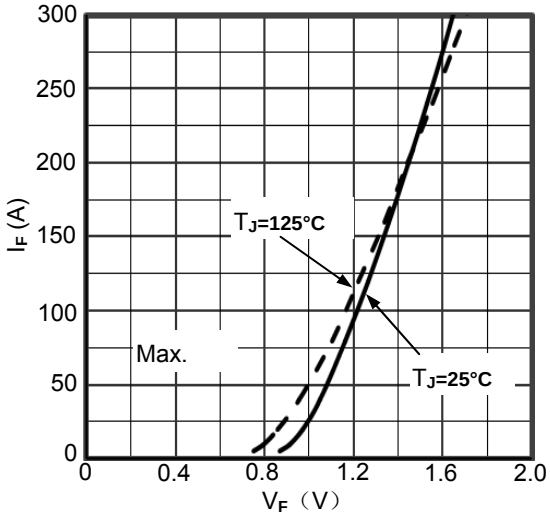


Figure1. Forward current vs.voltage drop

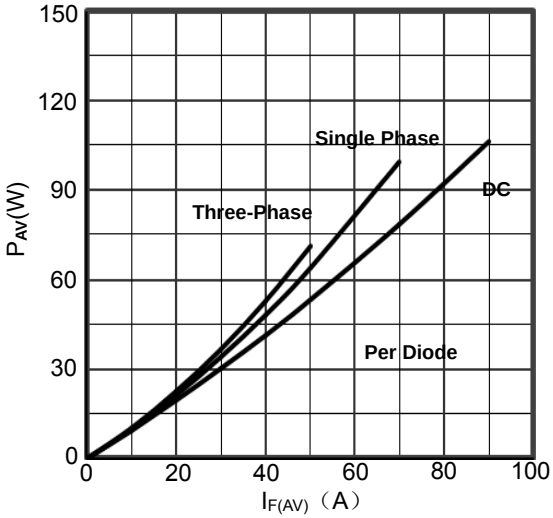


Figure2. Diode Power dissipation vs. $I_{F(AV)}$

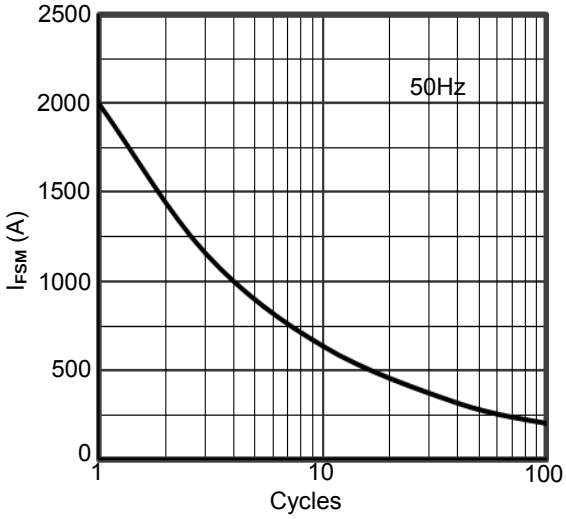


Figure3. Max Non-Repetitive Forward Surge Current

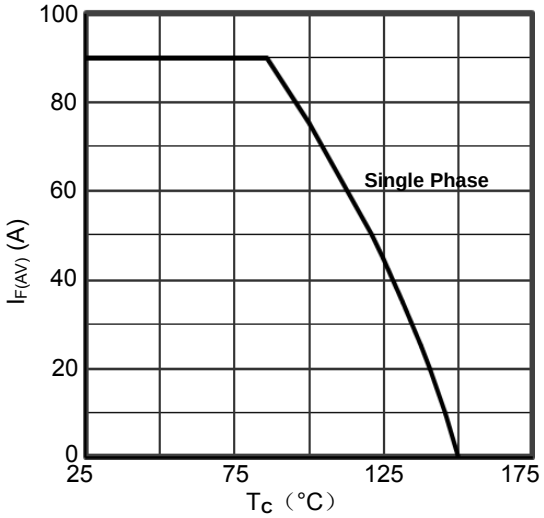


Figure4. Forward current vs.Case temperature

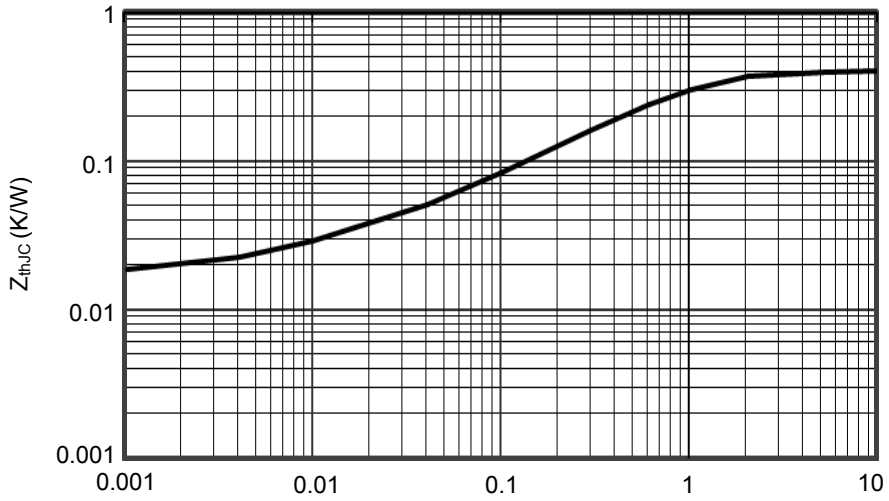
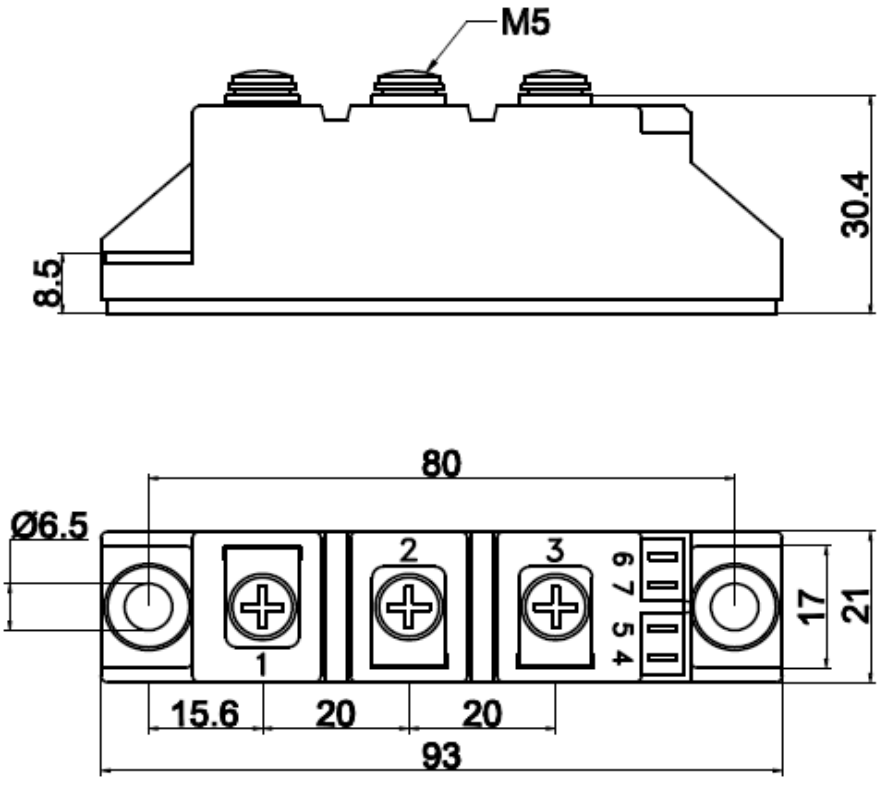


Figure5. Transient Thermal Impedance



Dimensions in Millimeters

Figure6. Package Outline