



MACMIC

November 2012

PRELIMINARY

MMD400S160U

1600V 400A Rectifier Diode Module
RoHS Compliant

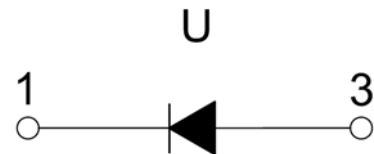
PRODUCT FEATURES

- Glass Passivated Chip
- Aluminum Oxide Ceramic Isolated Metal Baseplate
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package



APPLICATIONS

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



ABSOLUTE MAXIMUM RATINGS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Max.	Unit
V _{RRM}	Repetitive Reverse Voltage		1600	V
I _{F(AV)}	Average Forward Current	T _C =85°C Rectangular, d=0.5	400	A
I _{F(RMS)}	RMS Forward Current	T _C =85°C Rectangular, d=0.5	580	A
I _{FSM}	Non-Repetitive Surge Forward Current	T _J =45°C, t=10ms, 50Hz, Sine	12000	A
		T _J =45°C, t=8.3ms, 60Hz, Sine	13000	A
I ² t	I ² t (For Fusing)	T _J =45°C, t=10ms, 50Hz, Sine	720	KA ² s
		T _J =45°C, t=8.3ms, 60Hz, Sine	701	KA ² s
P _D	Power Dissipation		1380	W
T _J	Junction Temperature		-40 to +150	°C
T _{STG}	Storage Temperature Range		-40 to +125	°C
V _{isol}	Insulation Test Voltage	AC, 50Hz, t=1min	3000	V
Weight			161	g

ELECTRICAL AND THERMAL CHARACTERISTICS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{RM}	Reverse Leakage Current	V _R =1600V	--	--	500	µA
		V _R =1600V, T _J =125°C	--	--	10	mA
V _F	Forward Voltage	I _F =400A	--	1.1	1.25	V
		I _F =400A, T _J =125°C	--	1.02	--	V
V _{T0}	For power-loss calculations only				0.9	V
Γ _T					0.8	mΩ
R _{θJC}	Thermal Resistance	Junction-to-Case	--	--	0.09	°C/W

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MECHANICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Torque	Module-to-Sink	Recommended (M6)	3		5	N · m
Torque	Module Electrodes	Recommended (M6)	3		5	N · m

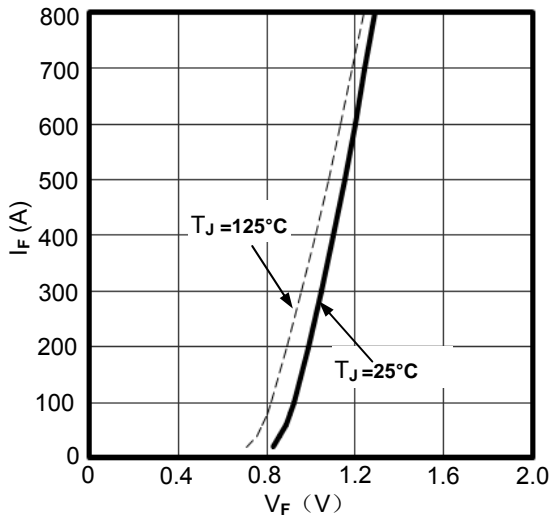


Figure1. Forward current vs.voltage drop

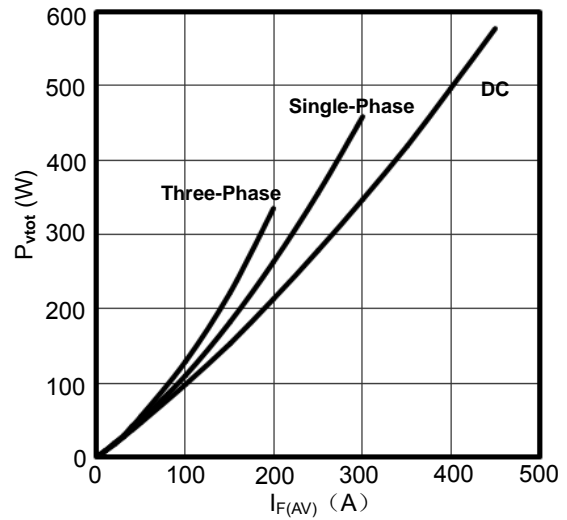


Figure2. Power dissipation vs. $I_{F(AV)}$

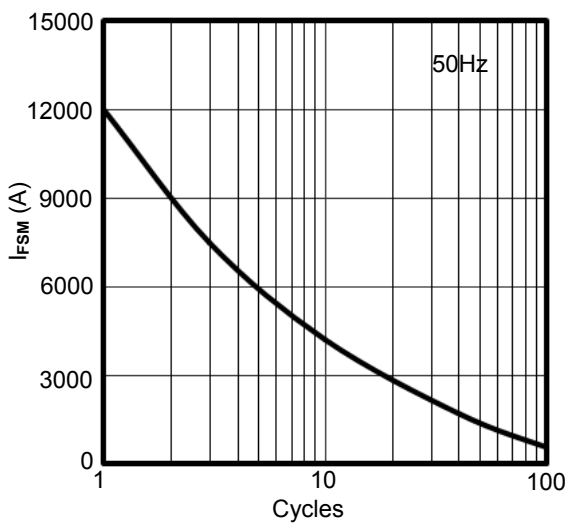


Figure3. Max Non-Repetitive Forward Surge Current

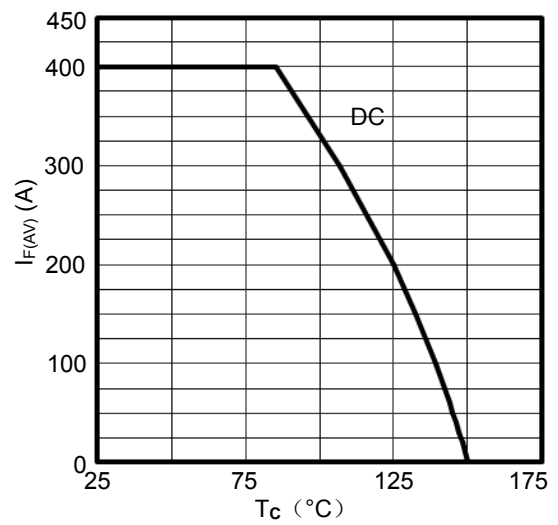


Figure4. Forward current vs. Case temperature

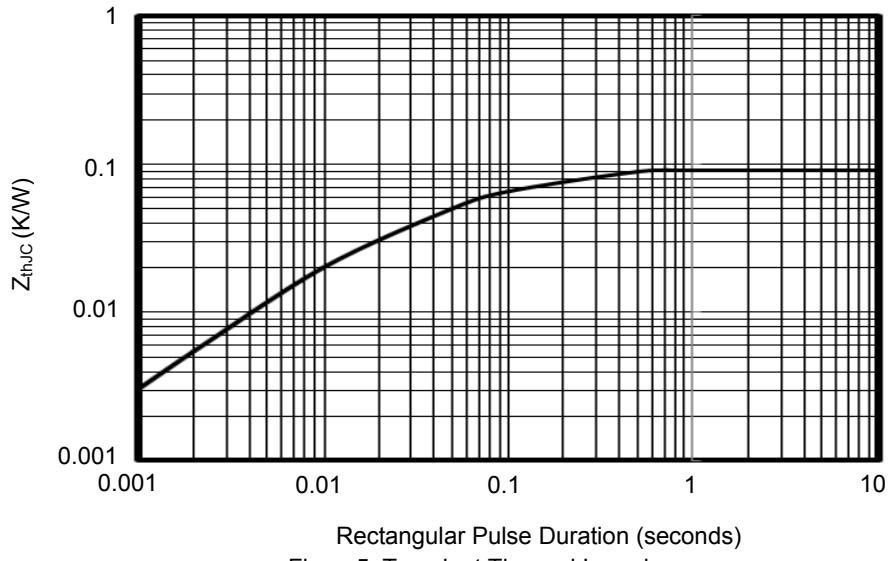


Figure5. Transient Thermal Impedance

Package Outline (Dimensions in mm)

