

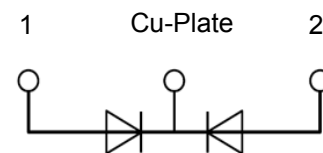
## PRODUCT FEATURES

- Ultrafast Reverse Recovery Time
- Soft Reverse Recovery Characteristics
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current



## APPLICATIONS

- Inversion Welder
- Uninterruptible Power Supply
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- PFC



## ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Values	Unit
$V_R$	Maximum D.C. Reverse Voltage		400	V
$V_{RRM}$	Maximum Repetitive Reverse Voltage			
$I_{F(AV)}$	Average Forward Current	$T_C = 110^\circ\text{C}$ , Per Diode	200	A
		$T_C = 110^\circ\text{C}$ , Per Module	400	
$I_{F(RMS)}$	RMS Forward Current	$T_C = 110^\circ\text{C}$ , Per Diode	280	
$I_{FSM}$	Non Repetitive Surge Forward Current	$T_J = 45^\circ\text{C}$ , $t = 10\text{ms}$ , Sine, peak value	2550	
		$T_J = 45^\circ\text{C}$ , $t = 8.3\text{ms}$ , Sine, peak value	2800	
$I^2t$	For Fusing	$T_J = 45^\circ\text{C}$ , $t = 10\text{ms}$ , Sine, peak value	32.51	KA <sup>2</sup> S
		$T_J = 45^\circ\text{C}$ , $t = 8.3\text{ms}$ , Sine, peak value	32.53	
$P_D$	Power Dissipation		1562	W
$T_J$	Junction Temperature		-40 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range		-40 to +125	$^\circ\text{C}$
Torque	Module to Sink	Recommended (M6)	3~4.7	Nm
Torque	Module Electrodes	Recommended (M6)	3~4.7	Nm
$R_{thJC}$	Junction to Case Thermal Resistance (Per Diode)		0.08	$^\circ\text{C}/\text{W}$
Weight			92	g

# MMF400Y040DK1

## ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions	Min.	Typ.	Max.	Unit
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = 400\text{V}$		0.5	mA
		$V_R = 400\text{V}, T_J = 125^\circ\text{C}$		10	
$V_F$	Forward Voltage	$I_F = 200\text{A}$	1.2	1.5	V
		$I_F = 200\text{A}, T_J = 125^\circ\text{C}$	1.0		
$t_{rr}$	Reverse Recovery Time ( $I_F = 1\text{A}, dI_F/dt = -200\text{A}/\mu\text{s}, V_R = 30\text{V}$ )		52		ns
$t_{rr}$	Reverse Recovery Time		75		ns
$I_{RRM}$	Maximum Reverse Recovery Current		7.5		A
$t_{rr}$	Reverse Recovery Time		140		ns
$I_{RRM}$	Maximum Reverse Recovery Current		15		A

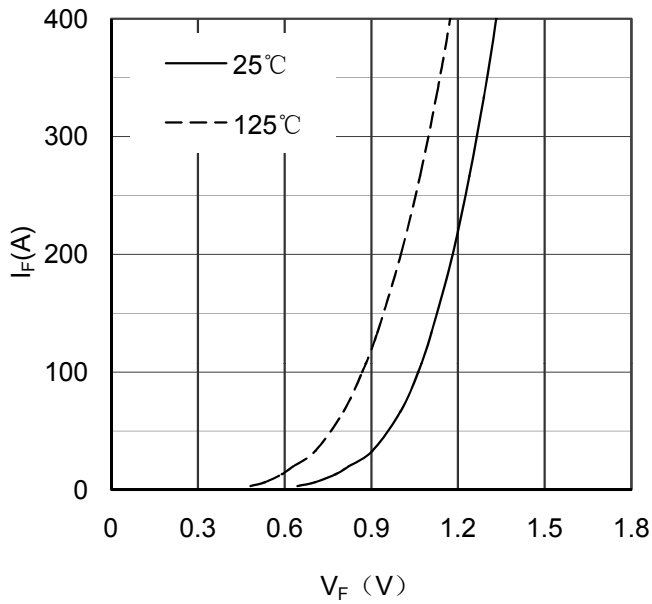


Figure 1. Forward Voltage Drop vs Forward Current

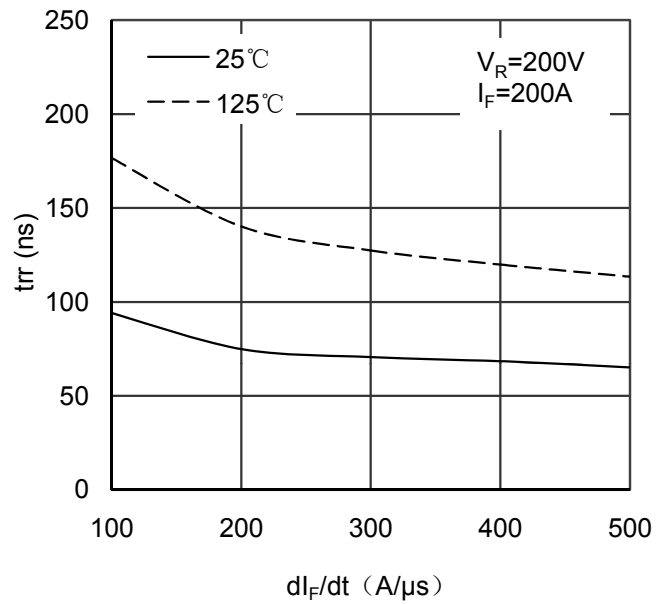


Figure 2. Reverse Recovery Time vs  $dI_F/dt$

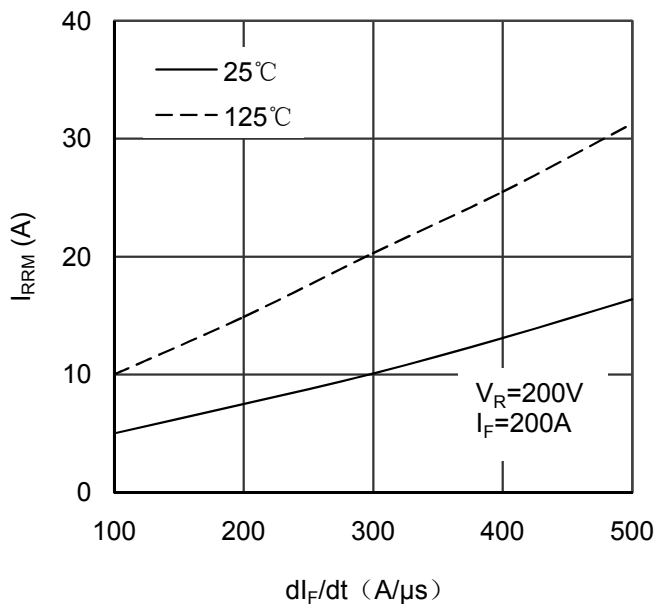


Figure 3. Reverse Recovery Current vs  $dI_F/dt$

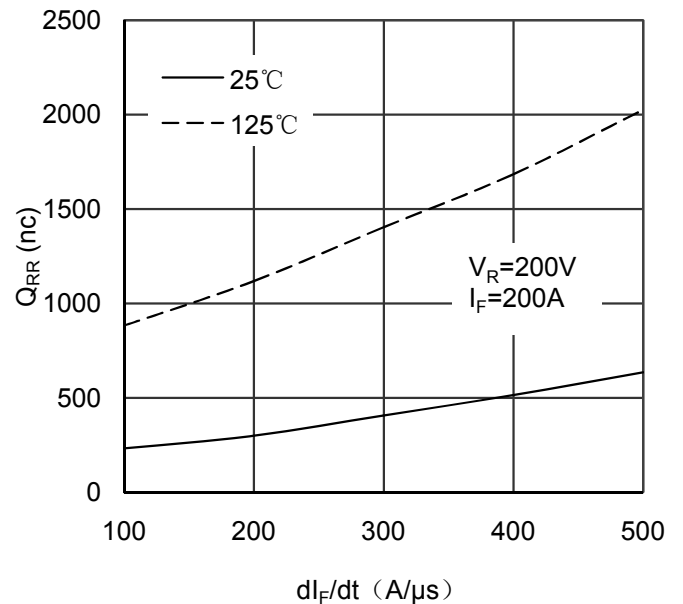


Figure 4. Reverse Recovery Charge vs  $dI_F/dt$

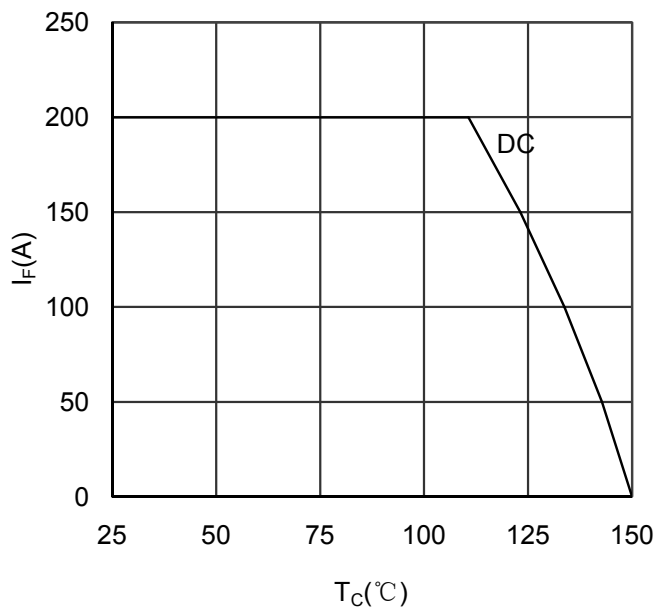


Figure 5. Forward current vs Case temperature

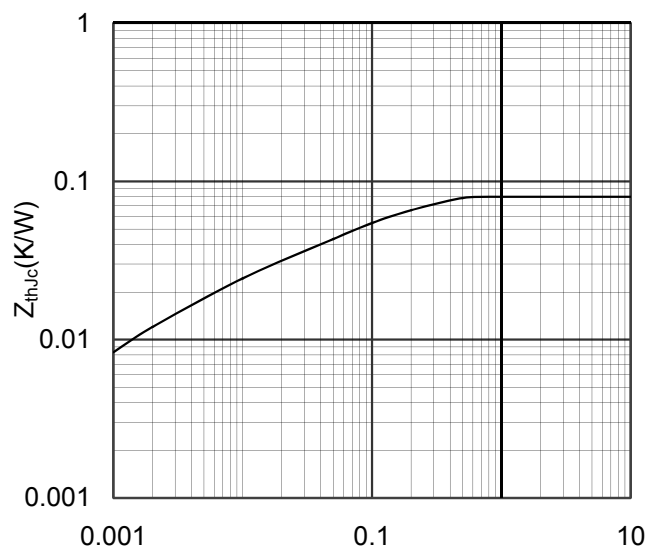


Figure 6. Transient Thermal Impedance

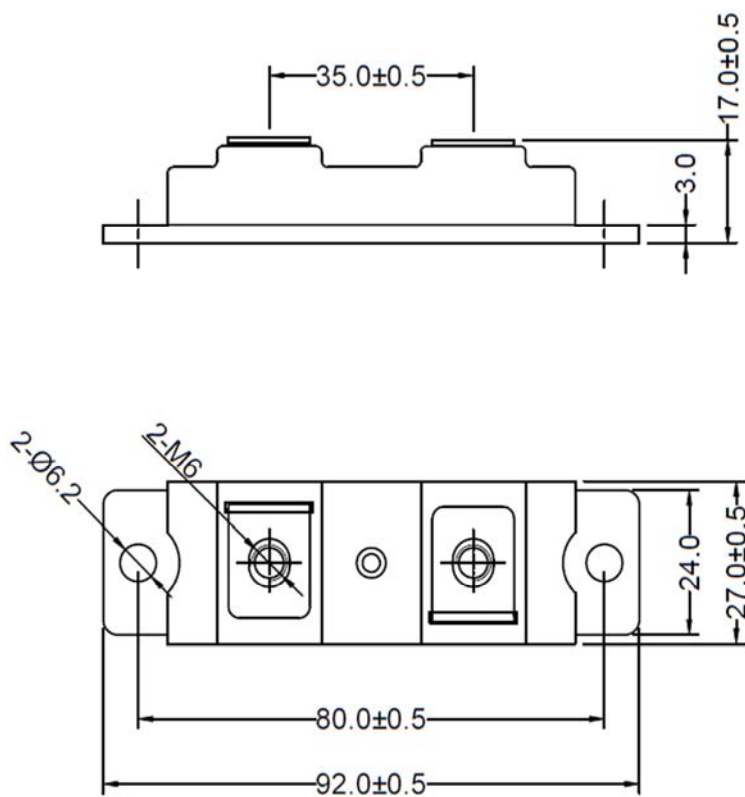


Figure 7. Package Outline