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MITSUBISHI FAST RECOVERY DIODE MODULES

# RM50DA/CA/C1A-XXS

MEDIUM POWER, HIGH FREQUENCY USE  
INSULATED TYPE

RM50DA/CA/C1A-XXS



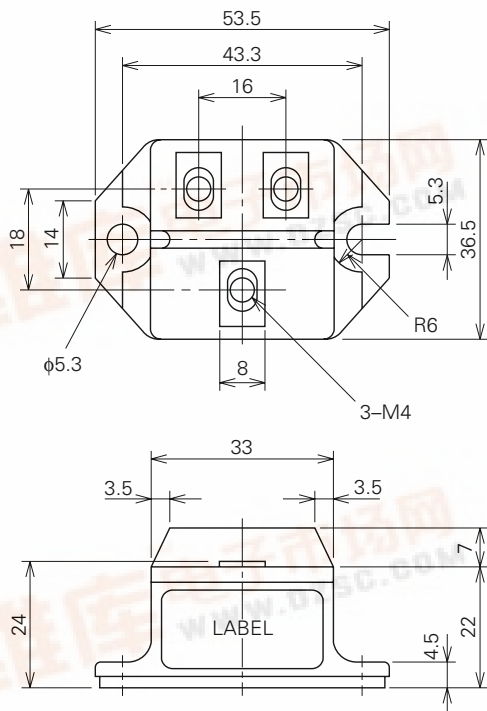
- **Idc** DC current ..... **50A**
- **VRRM** Repetitive peak reverse voltage ..... **300/600V**
- **trr** Reverse recovery time ..... **0.4μs**
- **Insulated Type**

## APPLICATION

Free wheel use, Welder

## OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



CA	
C1A	
DA	

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**ABSOLUTE MAXIMUM RATINGS** (T<sub>j</sub>=25°C, unless otherwise noted)

Symbol	Parameter	Voltage class		Unit
		6	12	
VRRM	Repetitive peak reverse voltage	300	600	V
VDRM	Non-repetitive peak reverse voltage	360	720	V
VR	Reverse DC voltage	240	480	V

Symbol	Parameter	Conditions	Ratings	Unit
I <sub>DC</sub>	DC current	Resistive load, T <sub>c</sub> =93°C	50	A
I <sub>FSM</sub>	Surge (non-repetitive) forward current	One half cycle at 60Hz, peak value	1000	A
I <sup>2</sup> <sub>t</sub>	I <sup>2</sup> <sub>t</sub> for fusing	Value for one cycle of surge current	4.2×10 <sup>3</sup>	A <sup>2</sup> s
T <sub>j</sub>	Junction temperature		-40~150	°C
T <sub>stg</sub>	Storage temperature		-40~125	°C
V <sub>iso</sub>	Isolation voltage	Charged part to case	2500	V
—	Mounting torque	Main terminal screw M4	0.98~1.47	N·m
			10~15	kg·cm
		Mounting screw M5	1.47~1.96	N·m
			15~20	kg·cm
—	Weight	Typical value	90	g

**ELECTRICAL CHARACTERISTICS**

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I <sub>RRM</sub>	Repetitive reverse current	T <sub>j</sub> =150°C, VRRM applied	—	—	20	mA
V <sub>FM</sub>	Forward voltage	T <sub>j</sub> =25°C, I <sub>FM</sub> =50A, instantaneous meas.	—	1.7	1.8	V
t <sub>rr</sub>	Reverse recovery time	I <sub>FM</sub> =50A, di/dt=-100A/μs, V <sub>R</sub> =150/300V*1, T <sub>j</sub> =25°C	—	—	0.2	μs
Q <sub>rr</sub>	Reverse recovery charge		—	—	1.5	μC
t <sub>rr</sub>	Reverse recovery time	I <sub>FM</sub> =50A, di/dt=-150A/μs, V <sub>R</sub> =150/300V*1, T <sub>j</sub> =150°C	—	—	0.4	μs
Q <sub>rr</sub>	Reverse recovery charge		—	—	4.5	μC
R <sub>th(j-c)</sub>	Thermal resistance	Junction to case	—	—	0.6	°C/W
R <sub>th(c-f)</sub>	Contact thermal resistance	Case to fin, conductive grease applied	—	—	0.3	°C/W

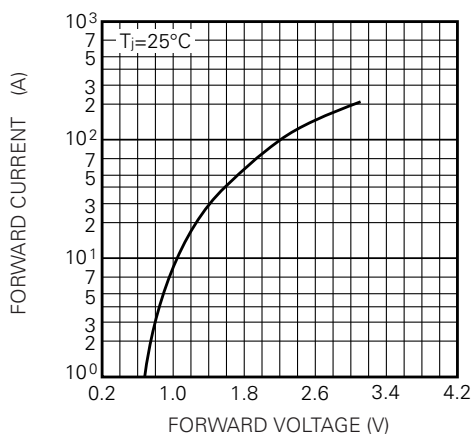
\*1 6 class: V<sub>R</sub>=150V 12 class: V<sub>R</sub>=300V

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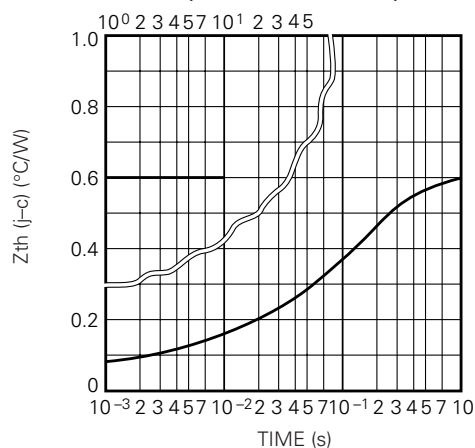
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## PERFORMANCE CURVES

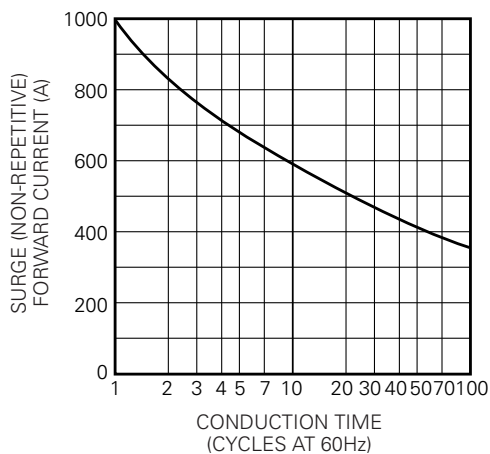
MAXIMUM FORWARD CHARACTERISTIC



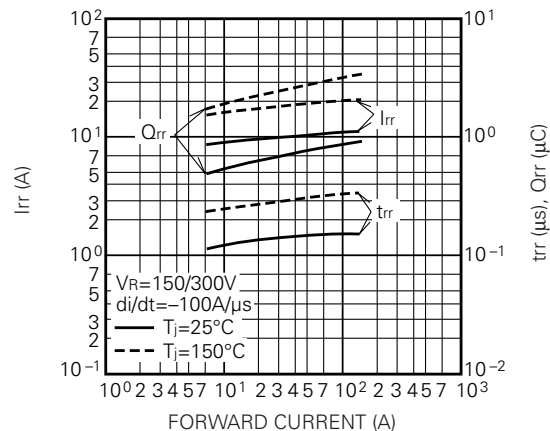
MAXIMUM TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



ALLOWABLE SURGE (NON-REPETITIVE) FORWARD CURRENT



REVERSE RECOVERY CHARACTERISTICS VS. FORWARD CURRENT (TYPICAL)



REVERSE RECOVERY CHARACTERISTICS VS. -di/dt (TYPICAL)

