

MITSUBISHI FAST RECOVERY DIODE MODULES

# RM50DA/CA/C1A-XXF

HIGH SPEED SWITCHING USE  
INSULATED TYPE

## RM50DA/CA/C1A-XXF



- **Idc** DC current ..... **50A**
- **VRRM** Repetitive peak reverse voltage  
.. **600/800/1000/1200V**
- **trr** Reverse recovery time ..... **0.8μs**
- **Insulated Type**
- **UL Recognized**

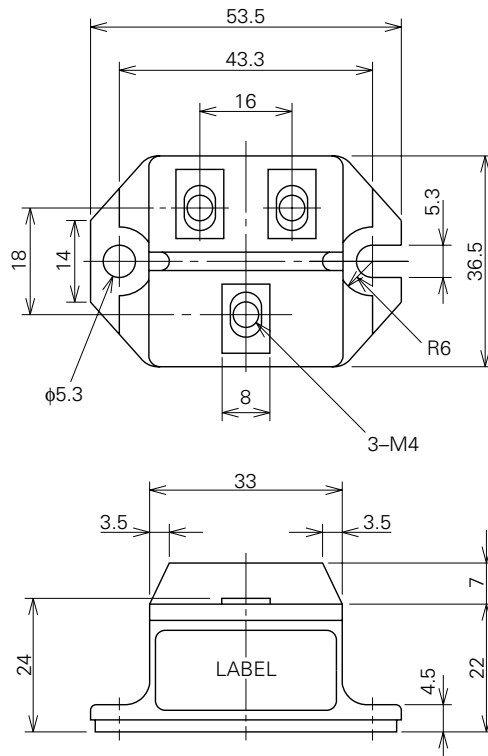
Yellow Card No. E80276 (N)  
File No. E80271

## APPLICATION

Free wheel use, Welders

## OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



|     |  |
|-----|--|
| DA  |  |
| CA  |  |
| D1A |  |

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## ABSOLUTE MAXIMUM RATINGS (T<sub>j</sub>=25°C)

| Symbol              | Parameter                           | Voltage class |     |      |      | Unit |
|---------------------|-------------------------------------|---------------|-----|------|------|------|
|                     |                                     | 12            | 16* | 20*  | 24   |      |
| V <sub>RRM</sub>    | Repetitive peak reverse voltage     | 600           | 800 | 1000 | 1200 | V    |
| V <sub>DRM</sub>    | Non-repetitive peak reverse voltage | 720           | 960 | 1100 | 1350 | V    |
| V <sub>R</sub> (DC) | Reverse DC voltage                  | 480           | 640 | 800  | 960  | V    |

\* Order made

| Symbol                      | Parameter                              | Conditions                            | Ratings             | Unit             |
|-----------------------------|----------------------------------------|---------------------------------------|---------------------|------------------|
| I <sub>DC</sub>             | DC output current                      | Resistive load, T <sub>C</sub> =105°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, V <sub>RRM</sub> applied                                         | —      | —    | 10   | mA   |
| V <sub>FM</sub>       | Forward voltage            | T <sub>j</sub> =25°C, I <sub>FM</sub> =50A, instantaneous meas.                         | —      | —    | 1.5  | V    |
| t <sub>rr</sub>       | Reverse recovery time      | I <sub>FM</sub> =50A, di/dt=-100A/μs, V <sub>R</sub> =300/600V*1, T <sub>j</sub> =150°C | —      | —    | 0.8  | μs   |
| Q <sub>rr</sub>       | Reverse recovery charge    |                                                                                         | —      | —    | 30   | μC   |
| R <sub>th</sub> (j-c) | Thermal resistance         | Junction to case                                                                        | —      | —    | 0.6  | °C/W |
| R <sub>th</sub> (c-f) | Contact thermal resistance | Case to fin, conductive grease applied                                                  | —      | —    | 0.3  | °C/W |

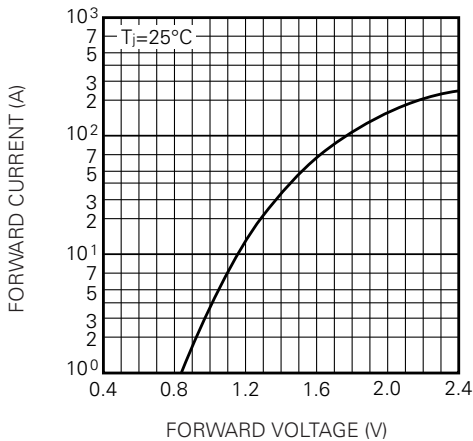
\*1 12, 16 class: V<sub>R</sub>=300V 20, 24 class: V<sub>R</sub>=600V

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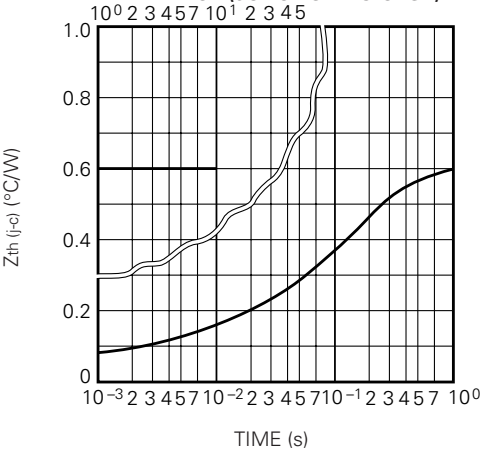
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## PERFORMANCE CURVE

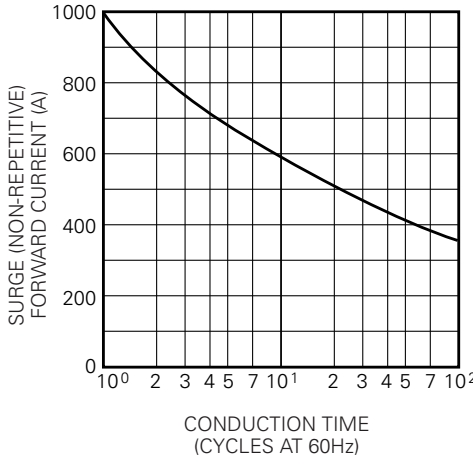
MAXIMUM FORWARD CHARACTERISTIC



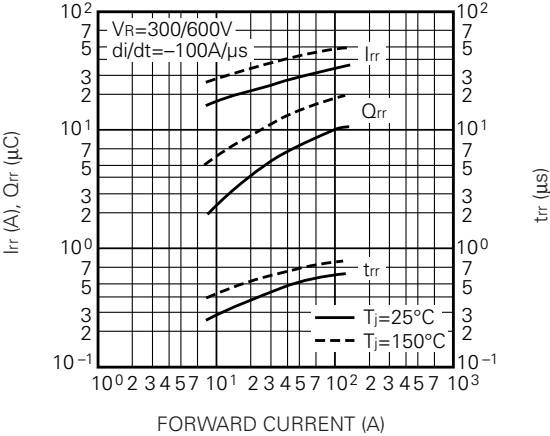
MAXIMUM TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



RATED SURGE (NON-REPETITIVE) FORWARD CURRENT



REVERSE RECOVERY CHARACTERISTICS VS. FORWARD CURRENT (TYPICAL)



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

