Bulletin I2771 rev. E 04/03

International
IOR Rectifier

# MT SERIES

**THREE PHASE BRIDGE** **Power Modules**

25 A
35 A

## Features

- Universal, 3 way terminals: push-on, wrap around or solder
- High thermal conductivity package, electrically insulated case
- Center hole fixing
- Excellent power/volume ratio
- UL E 62320 approved
- Terminals Solderable as per MIL-STD-202 METHOD 208, solder: Sn/Pb (60/40); solder temperature: 235-260°C mx. time: 8-10 sec.

## Description

A range of extremely compact, encapsulated three phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications.

## Major Ratings and Characteristics

| Parameters | | 26MT | 36MT | Units |
|---|---|---|---|---|
| $I_O$ | | 25 | 35 | A |
| | @ $T_C$ | 70 | 60 | °C |
| $I_{FSM}$ | @ 50Hz | 360 | 475 | A |
| | @ 60Hz | 375 | 500 | A |
| $I^2t$ | @ 50Hz | 635 | 1130 | $A^2s$ |
| | @ 60Hz | 580 | 1030 | $A^2s$ |
| $V_{RRM}$ | range | 100 to 1600 | | V |
| $T_J$ | | -55 to 150 | | °C |

## ELECTRICAL SPECIFICATIONS

Voltage Ratings

| Type number | Voltage Code | $V_{RRM}$ , maximum repetitive peak reverse voltage V | $V_{RSM}$ , maximum non-repetitive peak rev. voltage V | $I_{RRM}$ max. @ $T_J$ max. mA |
|---|---|---|---|---|
| 26MT../ 36MT.. | 10 | 100 | 150 | 2 |
| | 20 | 200 | 275 | |
| | 40 | 400 | 500 | |
| | 60 | 600 | 725 | |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |
| | 140 | 1400 | 1500 | |
| | 160 | 1600 | 1700 | |

Forward Conduction

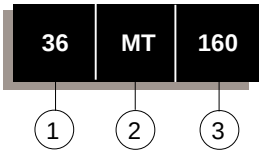
| | Parameters | 26MT | 36MT | Units | Conditions | | |
|---|---|---|---|---|---|---|---|
| $I_O$ | Maximum DC output current | 25 | 35 | A | 120° Rect Conduction angle | | |
| | @ $T_C$ | 70 | 60 | °C | | | |
| $I_{FSM}$ | Maximum peak, one-cycle | 360 | 475 | A | t = 10ms | No voltage | |
| | non-repetitive forward current | 375 | 500 | | t = 8.3ms | reapplied | |
| | Initial $T_J = T_J$ max. | 300 | 400 | | t = 10ms | 100% $V_{RRM}$ | |
| | | 314 | 420 | | t = 8.3ms | reapplied | Initial $T_J = T_J$ max. |
| $I^2t$ | Maximum $I^2t$ for fusing | 635 | 1130 | $A^2s$ | t = 10ms | No voltage | |
| | Initial $T_J = T_J$ max. | 580 | 1030 | | t = 8.3ms | reapplied | |
| | | 450 | 800 | | t = 10ms | 100% $V_{RRM}$ | |
| | | 410 | 730 | | t = 8.3ms | reapplied | |
| $I^2\sqrt{t}$ | Maximum $I^2\sqrt{t}$ for fusing | 6360 | 11300 | $A^2\sqrt{s}$ | $I^2t$ for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$ ; $0.1 <= t_x <= 10ms$, $V_{RRM} = 0V$ | | |
| $V_{F(TO)1}$ | Low-level of threshold voltage | 0.88 | 0.86 | V | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ $T_J$ max. | | |
| $V_{F(TO)2}$ | High-level of threshold voltage | 1.13 | 1.03 | | $(I > \pi \times I_{F(AV)})$, @ $T_J$ max. | | |
| $r_{t1}$ | Low-level forward slope resistance | 7.9 | 6.3 | mΩ | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, @ $T_J$ max. | | |
| $r_{t2}$ | High-level forward slope resistance | 5.2 | 5.0 | | $(I > \pi \times I_{F(AV)})$, @ $T_J$ max. | | |
| $V_{FM}$ | Maximum forward voltage drop | 1.26 | 1.19 | V | $T_J = 25°C$, $I_{FM} = 40A_{pk}$ - Per single Junction | | |
| $I_{RRM}$ | Max. DC reverse current | 100 | | µA | $T_J = 25°C$, per Junction at rated $V_{RRM}$ | | |
| $V_{INS}$ | RMS isolation voltage | 2700 | | V | $T_J = 25°C$, All terminal shorted f= 50Hz , t= 1s | | |

## Thermal and Mechanical Specifications

| | Parameters | 26MT | 36MT | Units | Conditions |
|---|---|---|---|---|---|
| $T_J$ | Max. junction temperature range | -55 to 150 | | °C | |
| $T_{stg}$ | Max. storage temperature range | -55 to 150 | | °C | |
| $R_{thJC}$ | Max. thermal resistance junction to case | 1.42 | 1.35 | K/W | DC operation per bridge (Based on total power loss of bridge) |
| $R_{thCS}$ | Max. thermal resistance, case to heatsink | 0.2 | 0.2 | K/W | Mounting surface, smooth, flat and greased |
| wt | Approximate weight | 20 | | g | |
| T | Mounting Torque ± 10% | 2.0 | | Nm | Bridge to heatsink with screw M4 |

## Ordering Information Table

**Device Code**

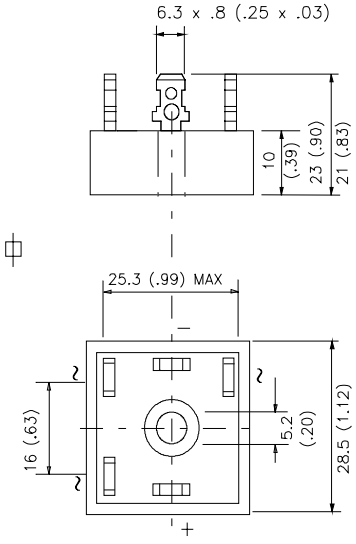



**1** - Current rating code: 26 = 25A (Avg), 36 = 35A (Avg)

**2** - Basic part number

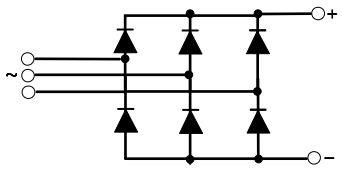
**3** - Voltage code ( code x 10 = $V_{RRM}$)

## Outline Table




Not To Scale

Suggested plugging force:
400 N max; axially applied to faston terminals




All dimensions in millimeters (inches)

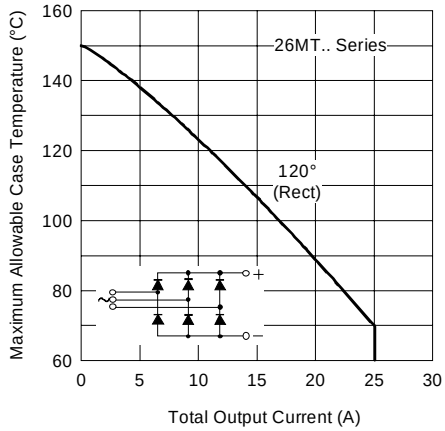



Fig. 1 - Current Ratings Characteristics

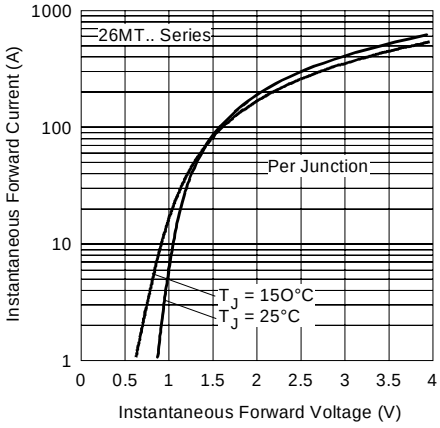



Fig. 2 - Forward Voltage Drop Characteristics

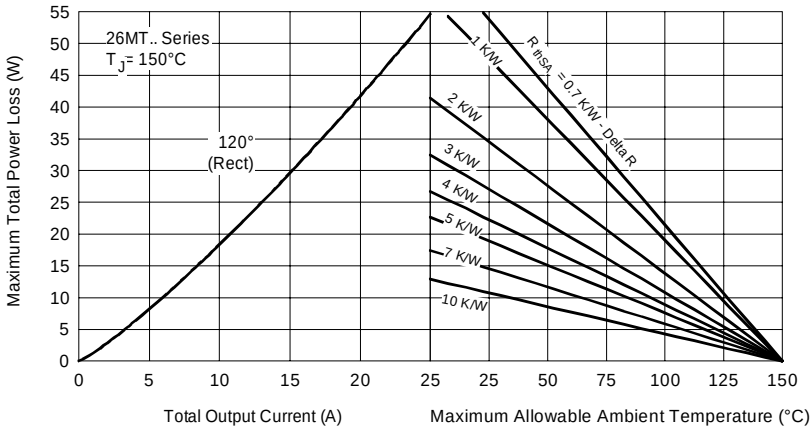



Fig. 3 - Total Power Loss Characteristics

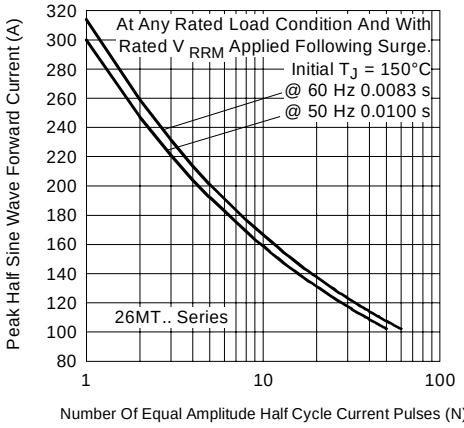



Fig. 4 - Maximum Non-Repetitive Surge Current

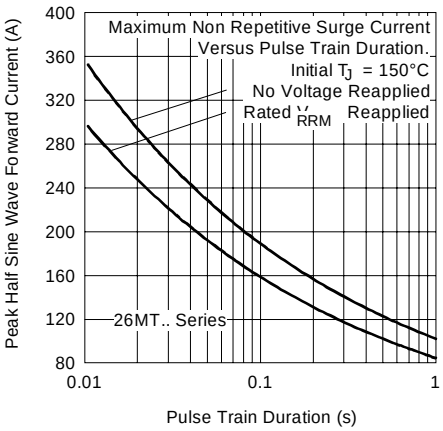



Fig. 5 - Maximum Non-Repetitive Surge Current

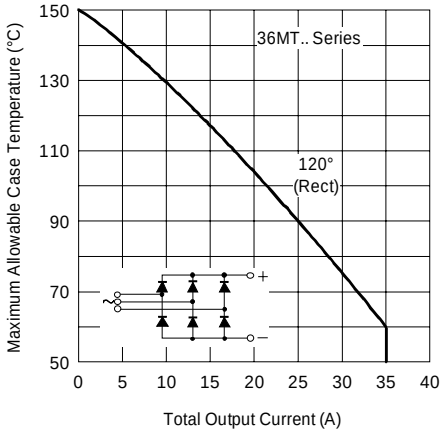



Fig. 6 - Current Ratings Characteristics

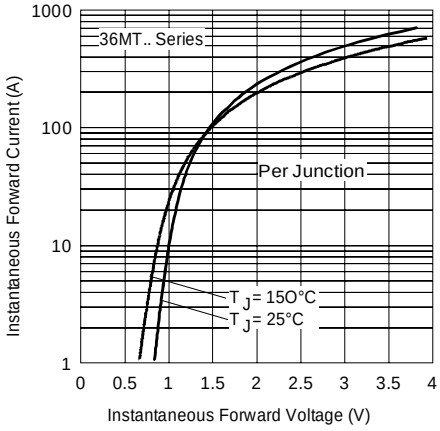



Fig. 7 - Forward Voltage Drop Characteristics

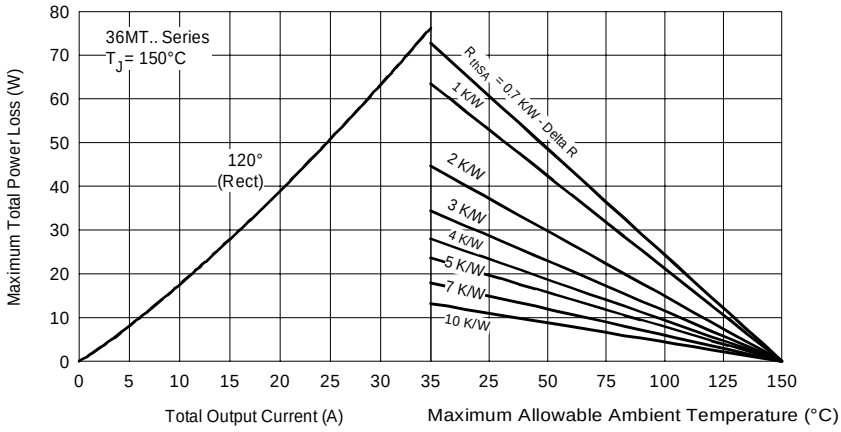



Fig. 8 - Total Power Loss Characteristics

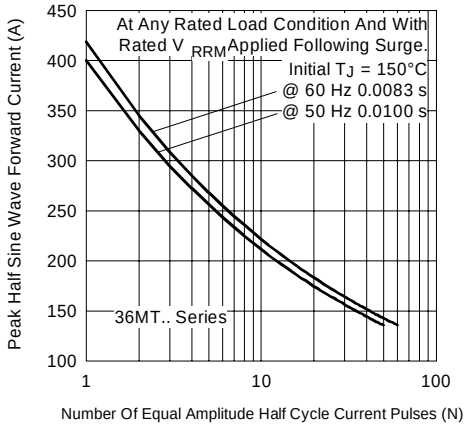



Fig. 9 - Maximum Non-Repetitive Surge Current

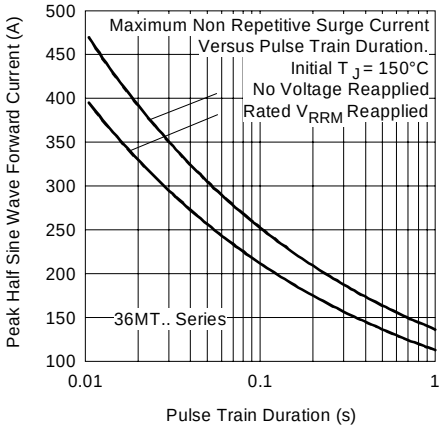



Fig. 10 - Maximum Non-Repetitive Surge Current

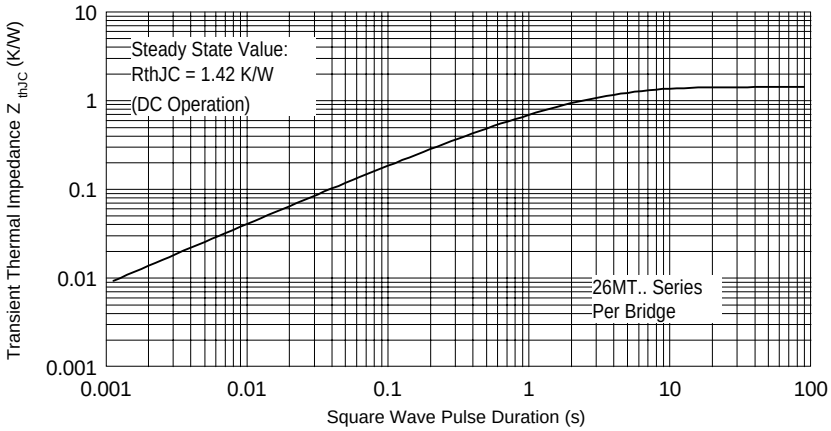



Fig. 11 - Thermal Impedance $Z_{thJC}$ Characteristics

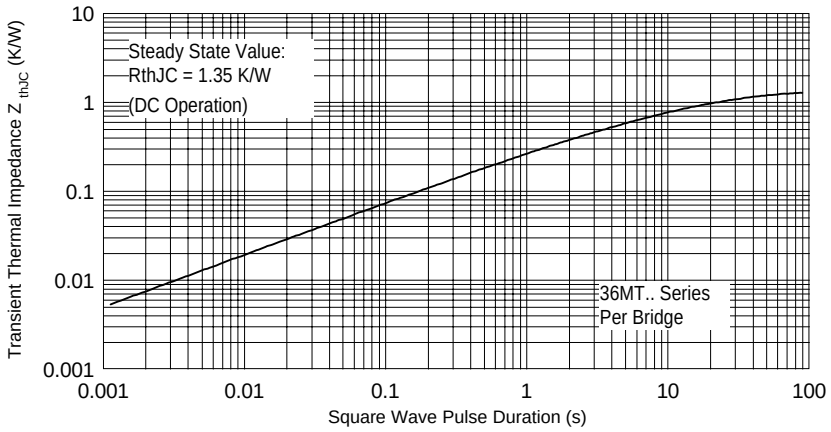



Fig. 12 - Thermal Impedance $Z_{thJC}$ Characteristics

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial and Consumer Level.
Qualification Standards can be found on IR's Web site.

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