

CURRENT 25~35 Ampere  
VOLTAGE RANG 50 to 1000 Volts

## MT2516 THRU MT3516

### 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
- Nickel plated terminals solderable using lead (Pb)-free solder; solder alloy Sn/Ag/Cu (SAC305); solder temperature 260 to 275 °C
- RoHS compliant
- Designed and qualified for industrial and consumer level

This series is SGS listed under the Recognized Component Index, file number SZXEC1902259902



D-63



### DESCRIPTION

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

### PRODUCT SUMMARY

|       |           |
|-------|-----------|
| $I_O$ | 25 A/35 A |
|-------|-----------|

### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified

Single Phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

### Voltage Ratings

| Characteristics                     | Symbol       | -00 | -01 | -02 | -04 | -06 | -08 | -10  | -12  | -14  | -16  | Unit |
|-------------------------------------|--------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Peak Repetitive Reverse Voltage     | $V_{RRM}$    |     |     |     |     |     |     |      |      |      |      |      |
| Working Peak Reverse Voltage        | $V_{RWM}$    | 50  | 100 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | V    |
| DC Blocking Voltage                 | $V_R$        |     |     |     |     |     |     |      |      |      |      |      |
| Peak Non-Repetitive Reverse Voltage | $V_{RSM}$    | 75  | 150 | 275 | 500 | 725 | 900 | 1100 | 1300 | 1500 | 1700 | V    |
| RMS Reverse Voltage                 | $V_{R(RMS)}$ | 35  | 70  | 140 | 280 | 420 | 560 | 700  | 840  | 980  | 1120 | V    |

### Forward Conduction

| Characteristic                                                                                                                                                                                                                   | Symbol    | MT25                     | MT35                     | Unit |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------|--------------------------|------|
| Average Rectified Output Current<br>MT25 @T <sub>C</sub> = 70°C, MT35 @ T <sub>C</sub> = 60°C                                                                                                                                    | $I_O$     | 25                       | 35                       | A    |
| Non-Repetitive Peak Forward Surge Current<br>(No Voltage Reapplied t = 8.3ms at 60Hz)<br>(No Voltage Reapplied t = 10ms at 50Hz)<br>(100% $V_{RRM}$ Reapplied t = 8.3ms at 60Hz)<br>(100% $V_{RRM}$ Reapplied t = 8.3ms at 50Hz) | $I_{FSM}$ | 375<br>360<br>314<br>300 | 500<br>475<br>420<br>400 | A    |

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|                                                                                                                                                                                                                |                  |                          |                            |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------|----------------------------|------------------|
| I <sup>2</sup> t Rating for Fusing<br>(No-Voltage Reapplied t = 8.3ms at 60Hz)<br>(No-Voltage Reapplied t = 10ms at 50Hz)<br>(100% VRRM Reapplied t = 8.3ms at 60Hz)<br>(100% VRRM Reapplied t = 10ms at 50Hz) | I <sup>2</sup> t | 580<br>635<br>410<br>450 | 1030<br>1130<br>730<br>800 | A <sup>2</sup> s |
| Forward Voltage (per element)<br>@T <sub>j</sub> = 25°C, @I <sub>FM</sub> = 40A <sub>pk</sub> per single junction                                                                                              | V <sub>F</sub>   | 1.26                     | 1.19                       | V                |
| Peak Reverse Current (per leg) @T <sub>j</sub> = 25°C<br>At Rated DC Blocking Voltage @T <sub>j</sub> = 125°C                                                                                                  | I <sub>R</sub>   | 10<br>5.0                |                            | μA<br>mA         |
| RMS Isolation Voltage from Case to Lead                                                                                                                                                                        | V <sub>iso</sub> | 2500                     |                            | V                |

### Thermal Characteristics

|                                                                                |                  |             |      |     |
|--------------------------------------------------------------------------------|------------------|-------------|------|-----|
| Operating Temperature Range                                                    | T <sub>j</sub>   | -40 to +150 |      | °C  |
| Storage Temperature Range                                                      | T <sub>STG</sub> | -40 to +150 |      | °C  |
| Thermal Resistance Junction to Case at DC Operation per Bridge                 | R <sub>θJC</sub> | 1.42        | 1.16 | K/W |
| Thermal Resistance Case to Heatsink Mounting Surface, Smooth, Flat and Greased | R <sub>θCS</sub> | 0.2         |      | K/W |

### ORDERING INFORMATION

| Product No. | Package Type  | Shipping Quantity |
|-------------|---------------|-------------------|
| MT2500      | Square Bridge | 50 Units/Box      |
| MT2501      | Square Bridge | 50 Units/Box      |
| MT2502      | Square Bridge | 50 Units/Box      |
| MT2504      | Square Bridge | 50 Units/Box      |
| MT2506      | Square Bridge | 50 Units/Box      |
| MT2508      | Square Bridge | 50 Units/Box      |
| MT2510      | Square Bridge | 50 Units/Box      |
| MT2512      | Square Bridge | 50 Units/Box      |
| MT2514      | Square Bridge | 50 Units/Box      |
| MT2516      | Square Bridge | 50 Units/Box      |
| MT3500      | Square Bridge | 50 Units/Box      |
| MT3501      | Square Bridge | 50 Units/Box      |
| MT3502      | Square Bridge | 50 Units/Box      |
| MT3504      | Square Bridge | 50 Units/Box      |
| MT3506      | Square Bridge | 50 Units/Box      |
| MT3508      | Square Bridge | 50 Units/Box      |
| MT3510      | Square Bridge | 50 Units/Box      |
| MT3512      | Square Bridge | 50 Units/Box      |
| MT3514      | Square Bridge | 50 Units/Box      |
| MT3516      | Square Bridge | 50 Units/Box      |

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### Rating and Characteristic Curves (TA = 25°C Unless otherwise noted)

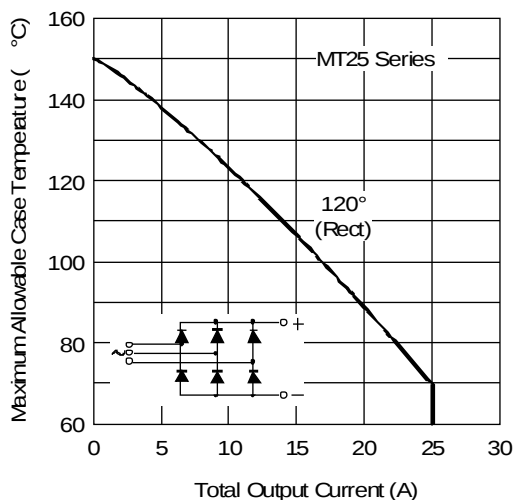


Fig. 1 - Current Ratings Characteristics

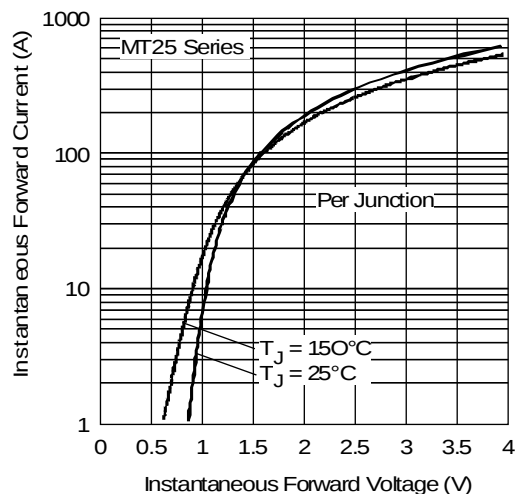


Fig. 2 - Forward Voltage Drop Characteristics

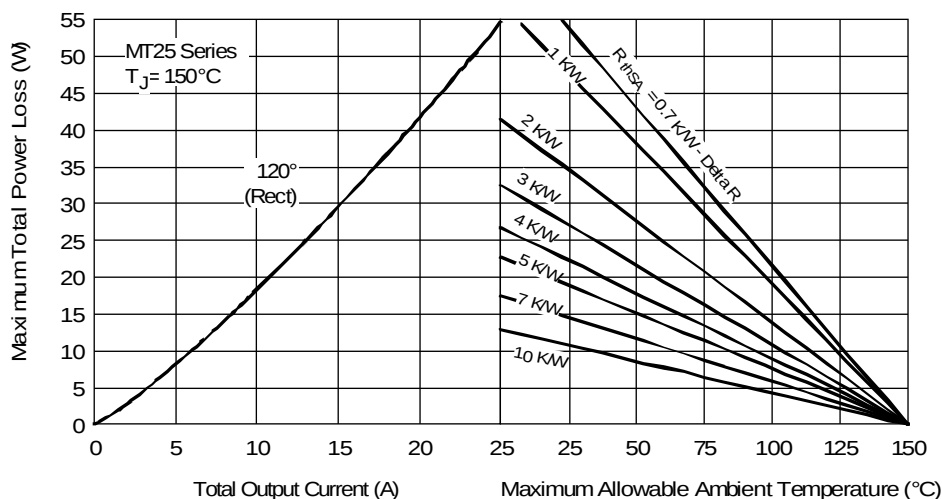


Fig. 3 - Total Power Loss Characteristics

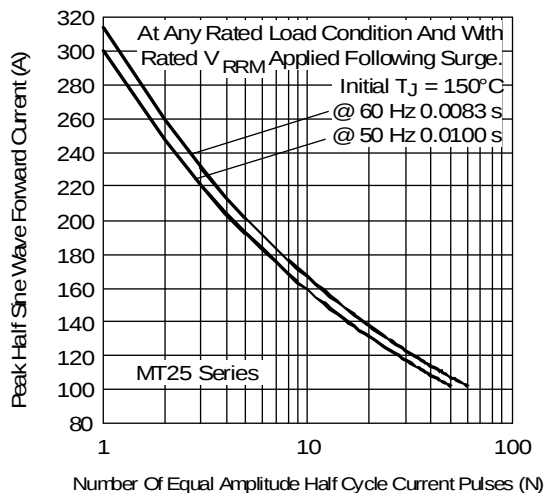


Fig. 4 - Maximum Non-Repetitive Surge Current

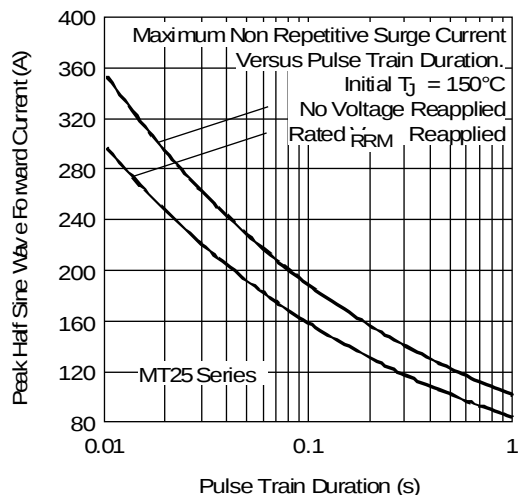


Fig. 5 - Maximum Non-Repetitive Surge Current

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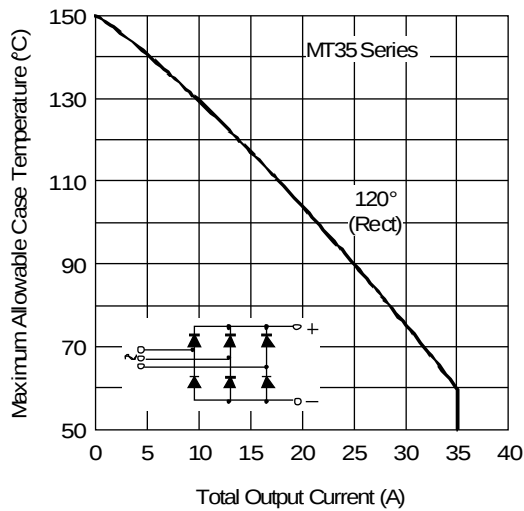


Fig. 6 - Current Ratings Characteristics

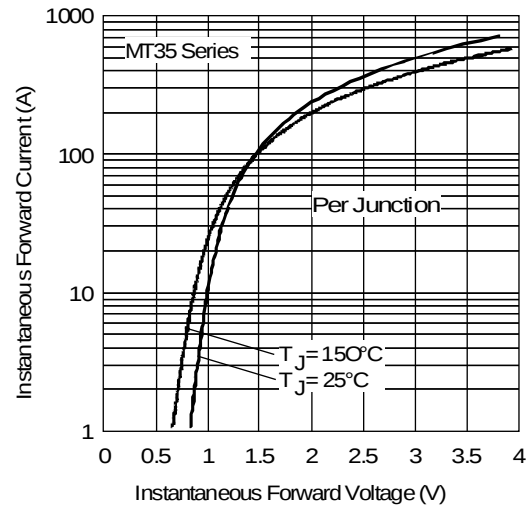


Fig. 7 - Forward Voltage Drop Characteristics

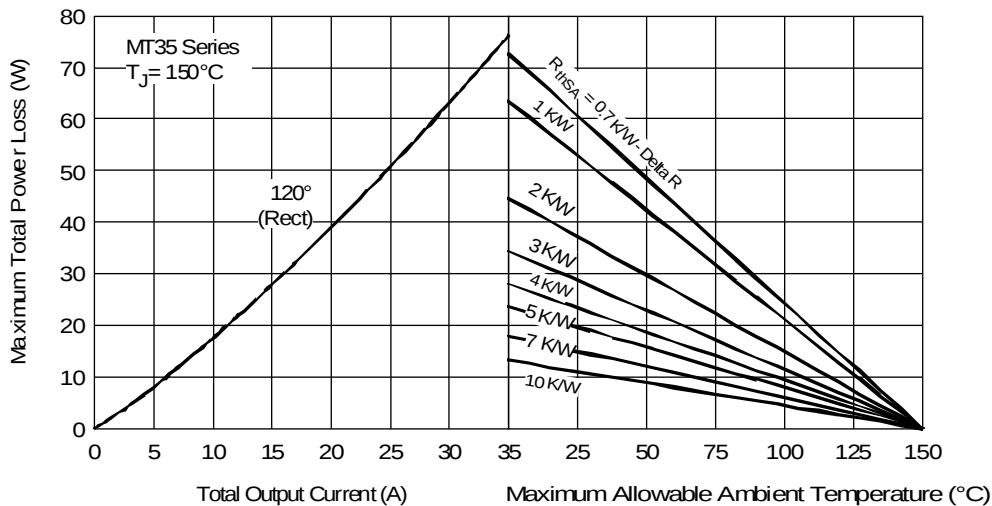


Fig. 8 - Total Power Loss Characteristics

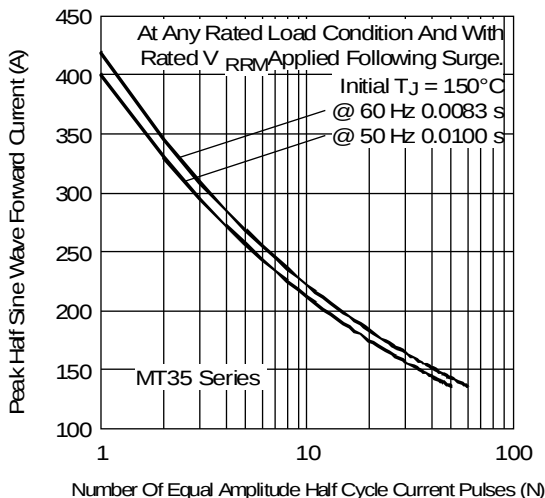


Fig. 9 - Maximum Non-Repetitive Surge Current

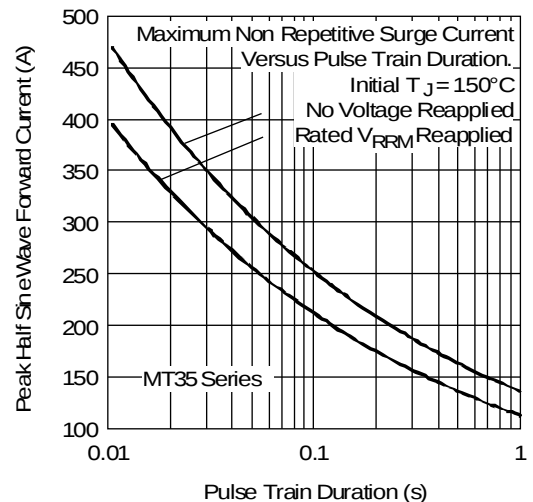


Fig. 10 - Maximum Non-Repetitive Surge Current

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## Rating and Characteristic Curves ( $T_A = 25^{\circ}\text{C}$ Unless otherwise noted )

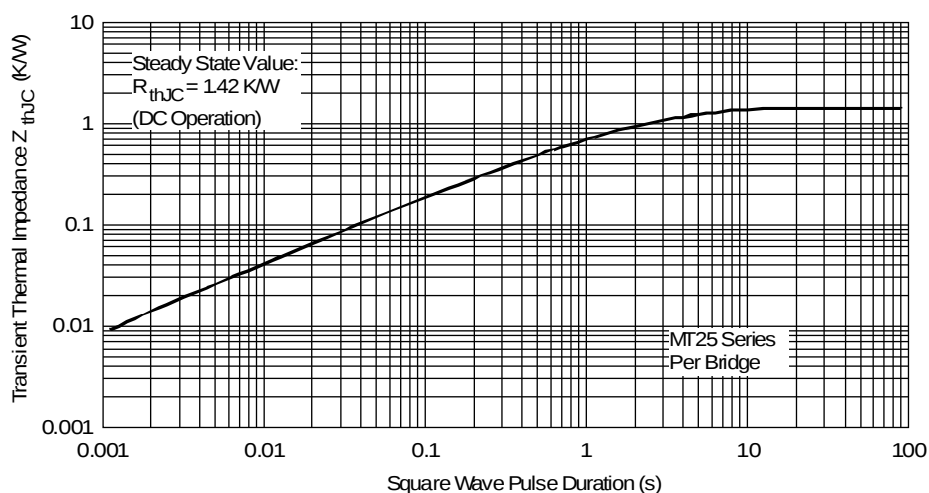


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristics

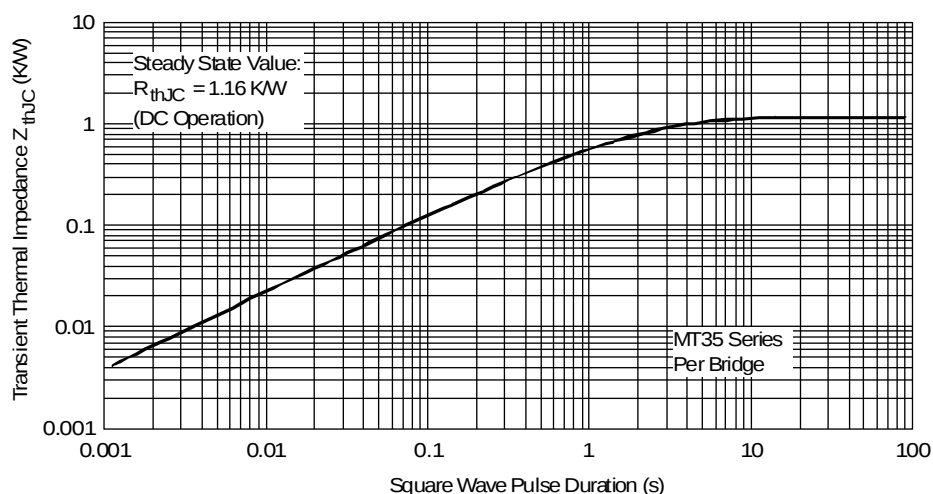
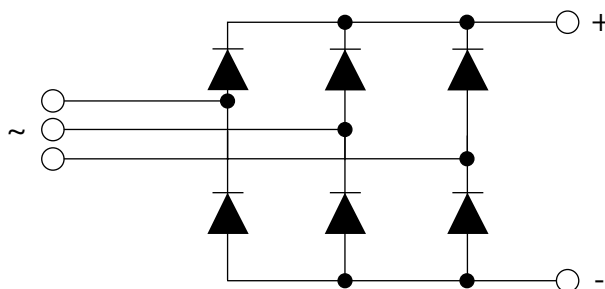


Fig. 12 - Thermal Impedance  $Z_{thJC}$  Characteristics

## CIRCUIT CONFIGURATION



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### ORDERING INFORMATION TABLE

| Device code | MT                              | 35 | 16 |
|-------------|---------------------------------|----|----|
|             | ①                               | ②  | ③  |
| ①           | - Basic part number             |    |    |
| ②           | - Current rating code           |    |    |
| ③           | - Voltage code x 10 = $V_{RRM}$ |    |    |

26 = 25 A (average)  
 36 = 35 A (average)

### Outline Table

