



# MER1002T

## Super Fast Recovery Rectifier

|         |       |         |      |
|---------|-------|---------|------|
| Voltage | 200 V | Current | 10 A |
|---------|-------|---------|------|

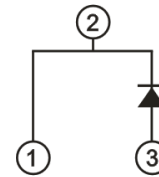
### Features

- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Low leakage
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case : TO-220AC Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 1.8903 grams

TO-220AC



## Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| PARAMETER  | SYMBOL                       | LIMIT   | UNITS |
|--|------------------------------|---------|-------|
| Maximum Repetitive Peak Reverse Voltage  | V <sub>RRM</sub>             | 200     | V     |
| Maximum RMS Voltage  | V <sub>RMS</sub>             | 140     | V     |
| Maximum DC Blocking Voltage  | V <sub>DC</sub>              | 200     | V     |
| Maximum Average Forward Current  | I <sub>F(AV)</sub>           | 10      | A     |
| Peak Forward Surge Current : 8.3 ms Single Half Sine-Wave Superimposed On Rated Load | I <sub>FSM</sub>             | 170     | A     |
| Typical Junction Capacitance<br>Measured at 1 MHz And Applied V <sub>R</sub> = 4 V   | C <sub>J</sub>               | 100     | pF    |
| Typical Thermal Resistance   | (Note 1)<br>R <sub>θJC</sub> | 2       | °C/W  |
|  | (Note 1)<br>R <sub>θJL</sub> | 2.5     |       |
| Operating Junction Temperature Range   | T <sub>J</sub>               | -55~175 | °C    |
| Storage Temperature Range  | T <sub>STG</sub>             | -55~175 | °C    |



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## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER               | SYMBOL    | TEST CONDITION  | MIN. | TYP.  | MAX. | UNITS |
|-------------------------|-----------|---|------|-------|------|-------|
| Forward Voltage         | $V_F$     | $I_F = 3\text{ A}, T_J = 25^\circ\text{C}$  | -    | 0.79  | -    | V     |
|                         |           | $I_F = 5\text{ A}, T_J = 25^\circ\text{C}$  | -    | 0.83  | -    | V     |
|                         |           | $I_F = 10\text{ A}, T_J = 25^\circ\text{C}$   | -    | -     | 0.95 | V     |
|                         |           | $I_F = 3\text{ A}, T_J = 125^\circ\text{C}$   | -    | 0.65  | -    | V     |
|                         |           | $I_F = 5\text{ A}, T_J = 125^\circ\text{C}$   | -    | 0.7   | -    | V     |
|                         |           | $I_F = 10\text{ A}, T_J = 125^\circ\text{C}$  | -    | 0.8   | -    | V     |
| Reverse Current         | $I_R$     | $V_R = 160\text{ V}, T_J = 25^\circ\text{C}$  | -    | 0.004 | -    | uA    |
|                         |           | $V_R = 200\text{ V}, T_J = 25^\circ\text{C}$  | -    | -     | 1    |       |
|                         |           | $V_R = 200\text{ V}, T_J = 125^\circ\text{C}$   | -    | -     | 90   |       |
| Reverse Recovery Time   | $T_{RR}$  | $I_F = 0.5\text{ A}, I_R = 1\text{ A},$<br>$I_{RR} = 0.25\text{ A}, T_J = 25^\circ\text{C}$ | -    | -     | 35   | ns    |
| Reverse Recovery Time   | $T_{RR}$  | $I_F = 10\text{ A}, V_R = 200\text{ V}$   | -    | 30    | -    | ns    |
| Peak Recovery Current   | $I_{RRM}$ | $di/dt = 300\text{ A/uS}$   | -    | 6.8   | -    | A     |
| Reverse Recovery Charge | $Q_{RR}$  | $T_J = 25^\circ\text{C}$  | -    | 102   | -    | nC    |
| Reverse Recovery Time   | $T_{RR}$  | $I_F = 10\text{ A}, V_R = 200\text{ V}$   | -    | 47    | -    | ns    |
| Peak Recovery Current   | $I_{RRM}$ | $di/dt = 300\text{ A/uS}$   | -    | 11    | -    | A     |
| Reverse Recovery Charge | $Q_{RR}$  | $T_J = 125^\circ\text{C}$   | -    | 250   | -    | nC    |

NOTES :

- Device mounted on a infinite heatsink.



# MER1002T

## TYPICAL CHARACTERISTIC CURVES

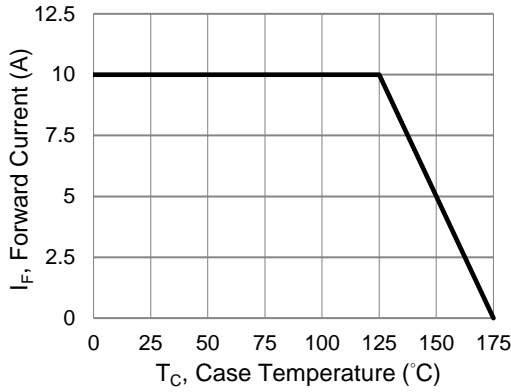


Fig.1 Forward Current Derating Curve

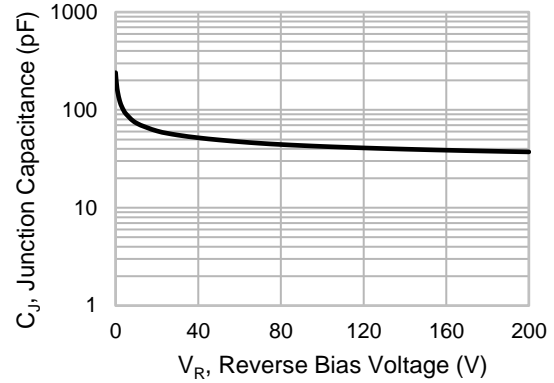


Fig.2 Typical Junction Capacitance

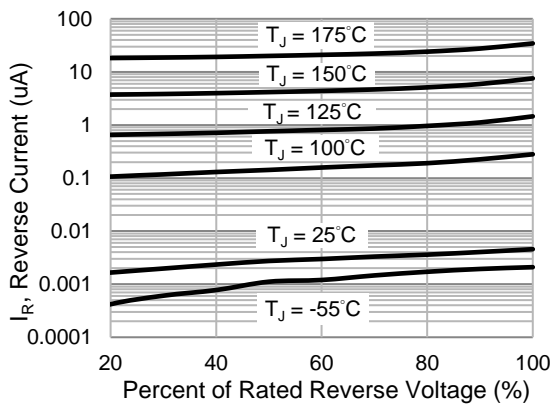


Fig.3 Typical Reverse Characteristics

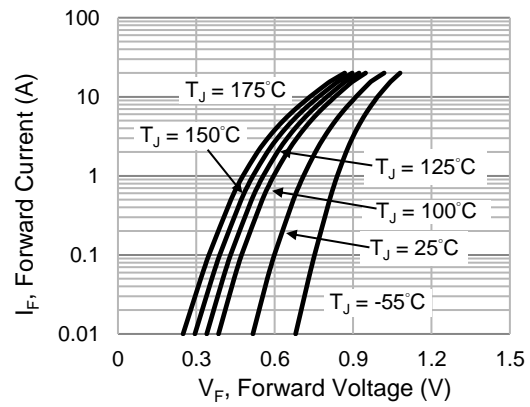


Fig.4 Typical Forward Characteristics

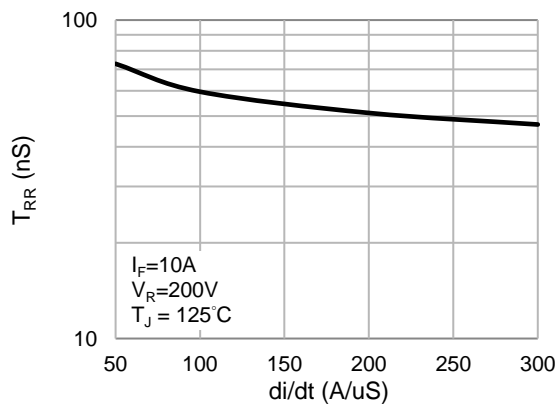


Fig.5 Typical Reverse Recovery Time Versus di/dt

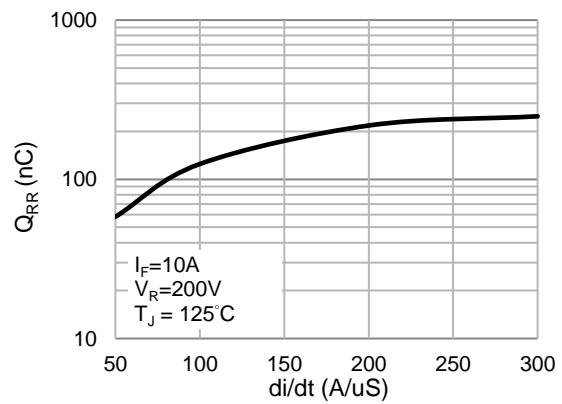


Fig.6 Typical Reverse Recovery Charge Versus di/dt

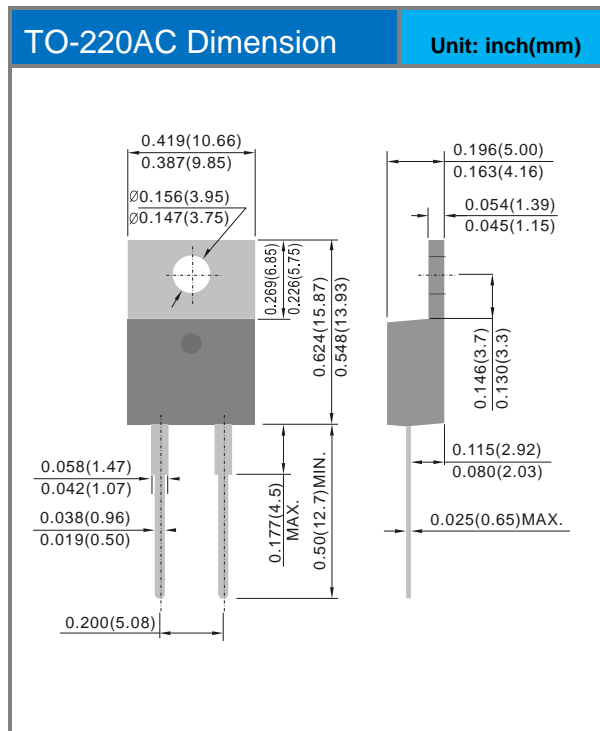


# MER1002T

Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type | Marking  | Version                        |
|-----------------------|--------------|--------------|----------|--------------------------------|
| MER1002T_T0_00601     | TO-220AC     | 50pcs / Tube | MER1002T | Halogen free<br>RoHS compliant |

## Packaging Information





## MER1002T

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