

## 10A, 35V - 200V Dual Common Cathode Schottky Rectifiers

### FEATURES

- Low power loss, high efficiency
- Guard ring for over-voltage protection
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21



### MECHANICAL DATA

**Case:** TO-220AB

Molding compound, UL flammability classification rating 94V-0

Part No. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting torque:** 0.56 Nm max.

**Weight:** 1.88 g (approximately)

**TO-220AB**



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)   |                    |                              |             |                              |             |                              |              |                              |              |      |
|--|--------------------|------------------------------|-------------|------------------------------|-------------|------------------------------|--------------|------------------------------|--------------|------|
| PARAMETER  | SYMBOL             | MBR 1035 CT                  | MBR 1045 CT | MBR 1050 CT                  | MBR 1060 CT | MBR 1090 CT                  | MBR 10100 CT | MBR 10150 CT                 | MBR 10200 CT | UNIT |
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>   | 35                           | 45          | 50                           | 60          | 90                           | 100          | 150                          | 200          | V    |
| Maximum RMS voltage  | V <sub>RMS</sub>   | 24                           | 31          | 35                           | 42          | 63                           | 70           | 105                          | 140          | V    |
| Maximum DC blocking voltage  | V <sub>DC</sub>    | 35                           | 45          | 50                           | 60          | 90                           | 100          | 150                          | 200          | V    |
| Maximum average forward rectified current  | I <sub>F(AV)</sub> | 10                           |             |                              |             |                              |              |                              |              | A    |
| Peak repetitive forward current (Rated V <sub>R</sub> , Square Wave, 20KHz)  | I <sub>FRM</sub>   | 10                           |             |                              |             |                              |              |                              |              | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load  | I <sub>FSM</sub>   | 120                          |             |                              |             |                              |              |                              |              | A    |
| Peak repetitive reverse surge current (Note 1)   | I <sub>RRM</sub>   | 1                            | 0.5         |                              |             |                              |              |                              |              | A    |
| Maximum instantaneous forward voltage (Note 2)<br>I <sub>F</sub> = 5 A, T <sub>J</sub> =25°C<br>I <sub>F</sub> = 5 A, T <sub>J</sub> =125°C<br>I <sub>F</sub> = 10 A, T <sub>J</sub> =25°C<br>I <sub>F</sub> = 10 A, T <sub>J</sub> =125°C | V <sub>F</sub>     | 0.70<br>0.57<br>0.80<br>0.67 |             | 0.80<br>0.65<br>0.90<br>0.75 |             | 0.85<br>0.75<br>0.95<br>0.85 |              | 0.88<br>0.78<br>0.98<br>0.88 |              | V    |
| Maximum reverse current @ rated V <sub>R</sub><br>T <sub>J</sub> =25°C<br>T <sub>J</sub> =125°C  | I <sub>R</sub>     | 0.1                          |             |                              |             |                              |              |                              |              | mA   |
|  |                    | 15                           |             | 10                           |             | 2                            |              | 5                            |              |      |
| Voltage rate of change (Rated V <sub>R</sub> )   | dV/dt              | 10000                        |             |                              |             |                              |              |                              |              | V/μs |
| Typical thermal resistance   | R <sub>θJC</sub>   | 1.5                          |             |                              |             |                              |              |                              |              | °C/W |
| Operating junction temperature range   | T <sub>J</sub>     | - 55 to +150                 |             |                              |             |                              |              |                              |              | °C   |
| Storage temperature range  | T <sub>STG</sub>   | - 55 to +150                 |             |                              |             |                              |              |                              |              | °C   |

Note 1: tp = 2.0 μs, 1.0KHz

Note 2: Pulse test with PW=300μs, 1% duty cycle

**ORDERING INFORMATION**

| PART NO.              | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX (*) | PACKAGE  | PACKING   |
|-----------------------|-----------------|--------------|-------------------------|----------|-----------|
| MBR10xxCT<br>(Note 1) | H               | C0           | G                       | TO-220AB | 50 / Tube |

Note 1: "xx" defines voltage from 35V (MBR1035CT) to 200V (MBR10200CT)

\*: Optional available

**EXAMPLE**

| EXAMPLE PART NO. | PART NO.  | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
|------------------|-----------|-----------------|--------------|---------------------|--------------------------------------|
| MBR1060CTHC0G    | MBR1060CT | H               | C0           | G                   | AEC-Q101 qualified<br>Green compound |

**RATINGS AND CHARACTERISTICS CURVES**

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

FIG. 1 FORWARD CURRENT DERATING CURVE

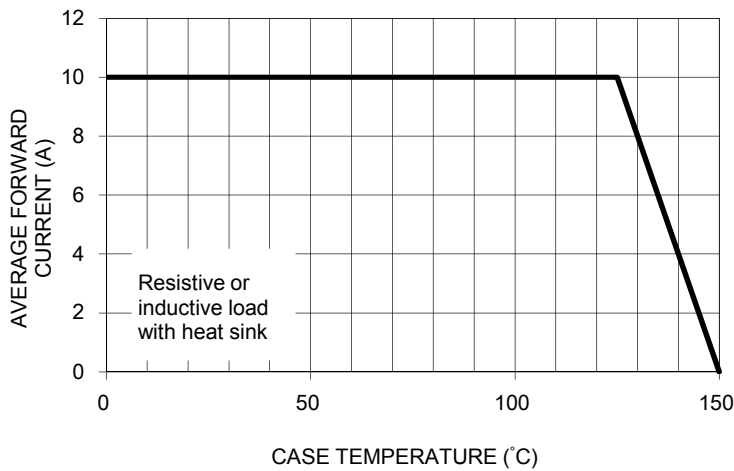


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

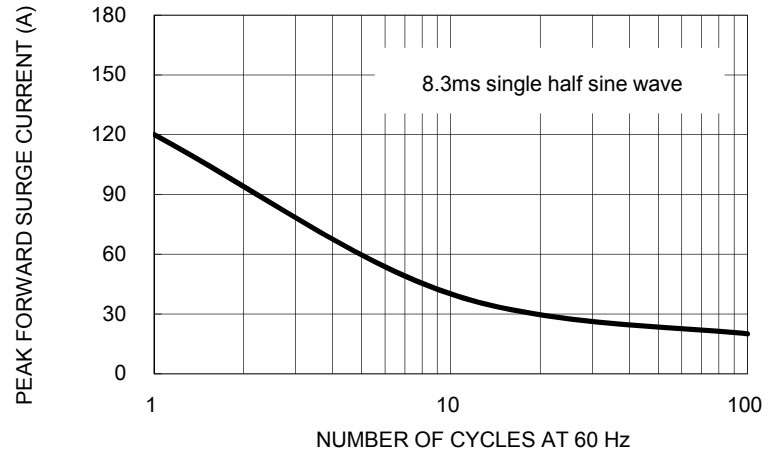


FIG. 3 TYPICAL FORWARD CHARACTERISTICS

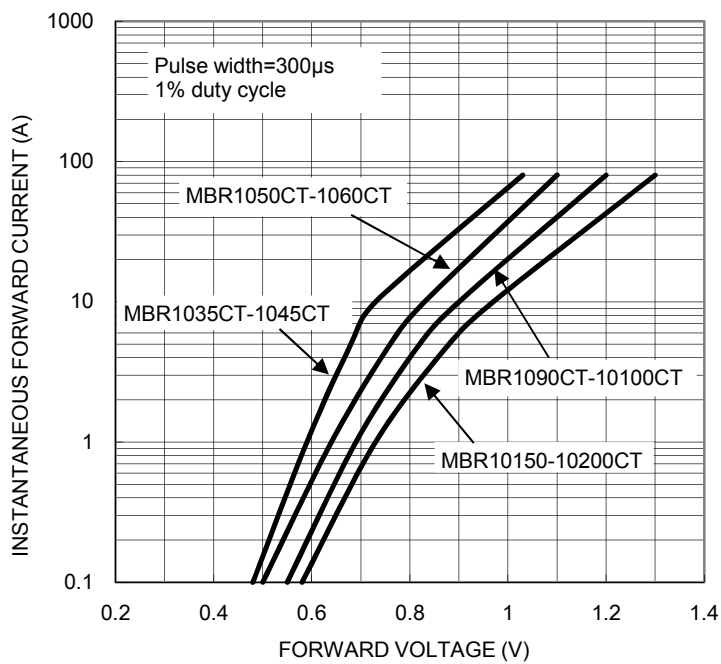


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

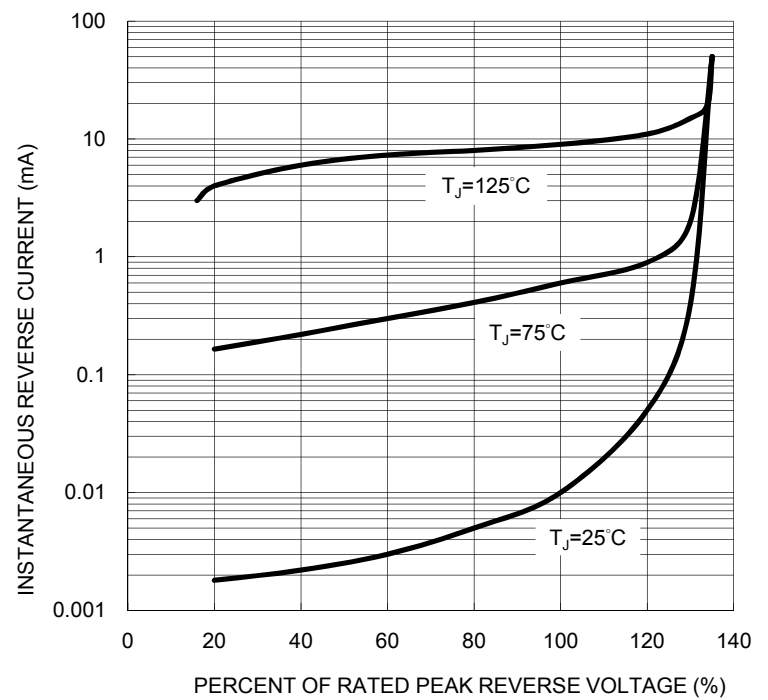


FIG. 5 TYPICAL JUNCTION CAPACITANCE

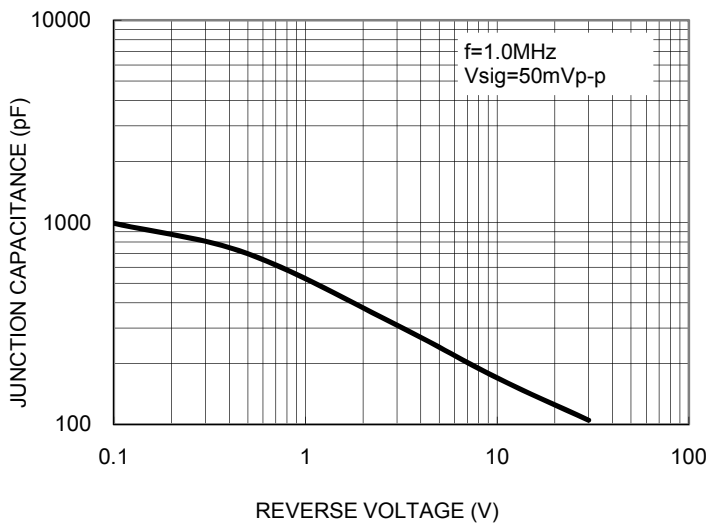
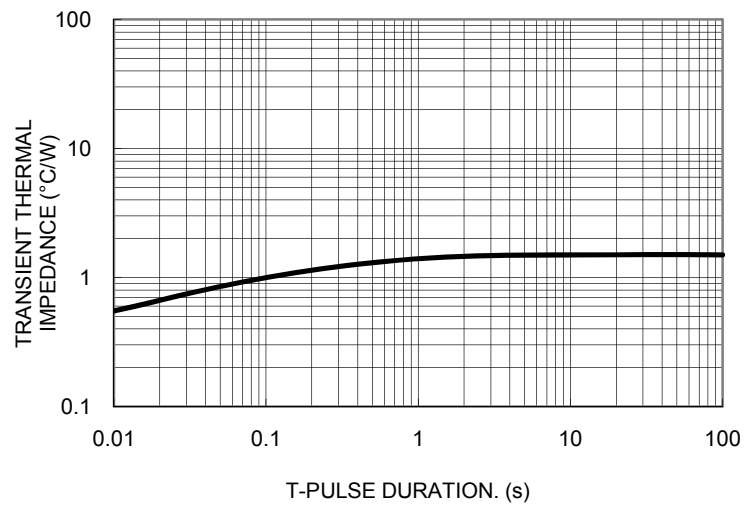
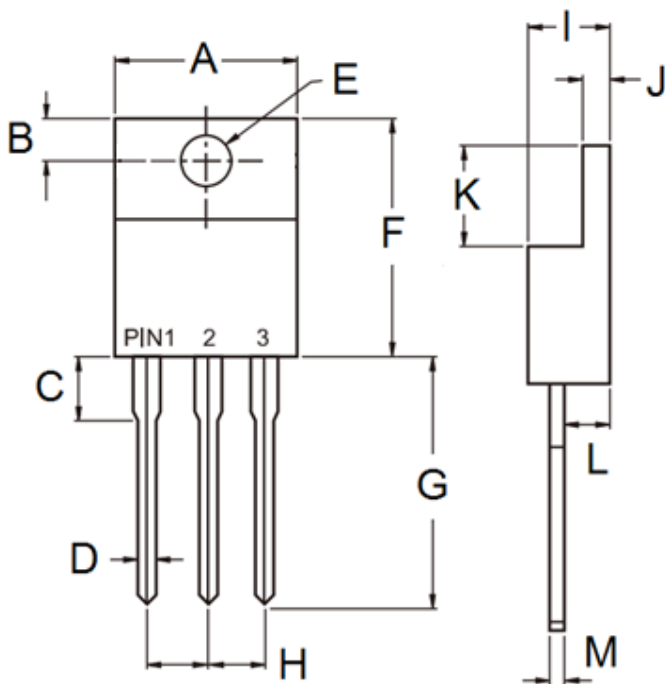


FIG. 6 TYPICAL TRANSIENT THERMAL CHARACTERISTICS PER LEG



PACKAGE OUTLINE DIMENSIONS  
**TO-220AB**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | -         | 10.50 | -           | 0.413 |
| B    | 2.62      | 3.44  | 0.103       | 0.135 |
| C    | 2.80      | 4.20  | 0.110       | 0.165 |
| D    | 0.68      | 0.94  | 0.027       | 0.037 |
| E    | 3.54      | 4.00  | 0.139       | 0.157 |
| F    | 14.60     | 16.00 | 0.575       | 0.630 |
| G    | 13.19     | 14.79 | 0.519       | 0.582 |
| H    | 2.41      | 2.67  | 0.095       | 0.105 |
| I    | 4.42      | 4.76  | 0.174       | 0.187 |
| J    | 1.14      | 1.40  | 0.045       | 0.055 |
| K    | 5.84      | 6.86  | 0.230       | 0.270 |
| L    | 2.20      | 2.80  | 0.087       | 0.110 |
| M    | 0.35      | 0.64  | 0.014       | 0.025 |

MARKING DIAGRAM



- P/N = Specific Device Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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