

## 7A, 35V - 150V Isolated Schottky Barrier Rectifiers

### FEATURES

- Low power loss, high efficiency
- Guard ring for over-voltage protection
- High surge current capability
- UL Recognized File # E-326243
- 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:** ITO-220AC

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

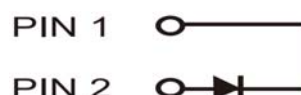
Meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting torque:** 0.56 Nm max.

**Weight:** 1.7 g (approximately)

**ITO-220AC**



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)                                                                                                                                           |                    |                           |                        |             |                        |             |                        |              |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------|------------------------|-------------|------------------------|-------------|------------------------|--------------|------|
| PARAMETER                                                                                                                                                                                                                              | SYMBOL             | MBRF<br>735               | MBRF<br>745            | MBRF<br>750 | MBRF<br>760            | MBRF<br>790 | MBRF<br>7100           | MBRF<br>7150 | UNIT |
| Maximum repetitive peak reverse voltage                                                                                                                                                                                                | V <sub>RRM</sub>   | 35                        | 45                     | 50          | 60                     | 90          | 100                    | 150          | V    |
| Maximum RMS voltage                                                                                                                                                                                                                    | V <sub>RMS</sub>   | 24                        | 31                     | 35          | 42                     | 63          | 70                     | 105          | V    |
| Maximum DC blocking voltage                                                                                                                                                                                                            | V <sub>DC</sub>    | 35                        | 45                     | 50          | 60                     | 90          | 100                    | 150          | V    |
| Maximum average forward rectified current                                                                                                                                                                                              | I <sub>F(AV)</sub> | 7.5                       |                        |             |                        |             |                        |              | A    |
| Peak repetitive forward current<br>(Rated V <sub>R</sub> , Square wave, 20KHz)                                                                                                                                                         | I <sub>FRM</sub>   | 15                        |                        |             |                        |             |                        |              | A    |
| Peak forward surge current, 8.3 ms single half<br>sine-wave superimposed on rated load                                                                                                                                                 | I <sub>FSM</sub>   | 150                       |                        |             |                        |             |                        |              | A    |
| Peak repetitive reverse surge current (Note 1)                                                                                                                                                                                         | I <sub>RRM</sub>   | 1.0                       |                        | 0.5         |                        |             |                        |              | A    |
| Maximum instantaneous forward voltage (Note 2)<br>I <sub>F</sub> =7.5A, T <sub>J</sub> =25°C<br>I <sub>F</sub> =7.5A, T <sub>J</sub> =125°C<br>I <sub>F</sub> =15A, T <sub>J</sub> =25°C<br>I <sub>F</sub> =15A, T <sub>J</sub> =125°C | V <sub>F</sub>     | -<br>0.57<br>0.84<br>0.72 | 0.75<br>0.65<br>-<br>- |             | 0.92<br>0.82<br>-<br>- |             | 1.02<br>0.92<br>-<br>- |              | 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          |                        | 5           |                        |              |      |
| Voltage rate of change (Rated V <sub>R</sub> )                                                                                                                                                                                         | dV/dt              | 10000                     |                        |             |                        |             |                        |              | V/μs |
| Typical thermal resistance                                                                                                                                                                                                             | R <sub>θJC</sub>   | 7                         |                        |             |                        |             |                        |              | °C/W |
| Operating junction temperature range                                                                                                                                                                                                   | T <sub>J</sub>     | - 55 to +150              |                        |             |                        |             |                        |              | °C   |
| Storage temperature range                                                                                                                                                                                                              | T <sub>STG</sub>   | - 55 to +175              |                        |             |                        |             |                        |              | °C   |

Note 1: t<sub>p</sub> = 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   |
| MBRF7xx<br>(Note 1)  | H               | C0           | G                       | ITO-220AC | 50 / Tube |

Note 1: "xx" defines voltage from 35V (MBRF735) to 150V (MBRF7150)

\*: Optional available

| EXAMPLE     |          |                 |              |                     |                                      |
|-------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| EXAMPLE P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                          |
| MBRF760HC0G | MBRF760  | H               | C0           | G                   | AEC-Q101 qualified<br>Green compound |

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub>=25°C unless otherwise noted)

FIG.1 FORWARD CURRENT DERATING CURVE

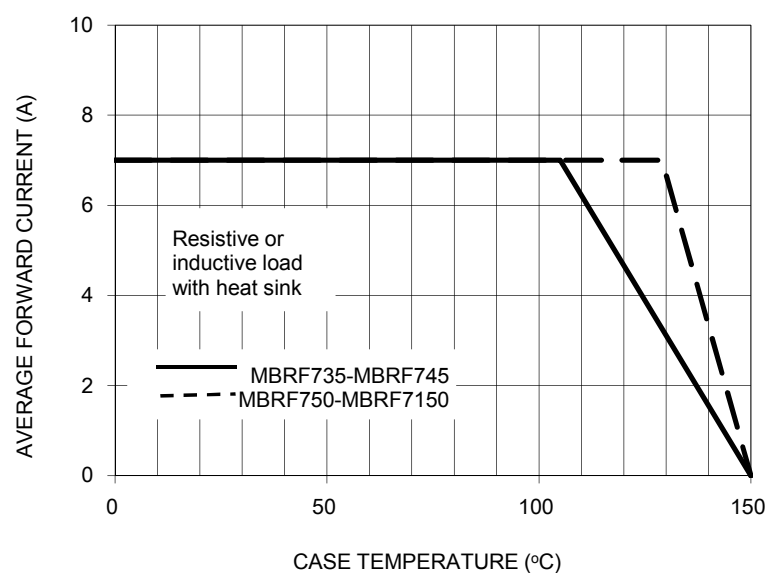


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

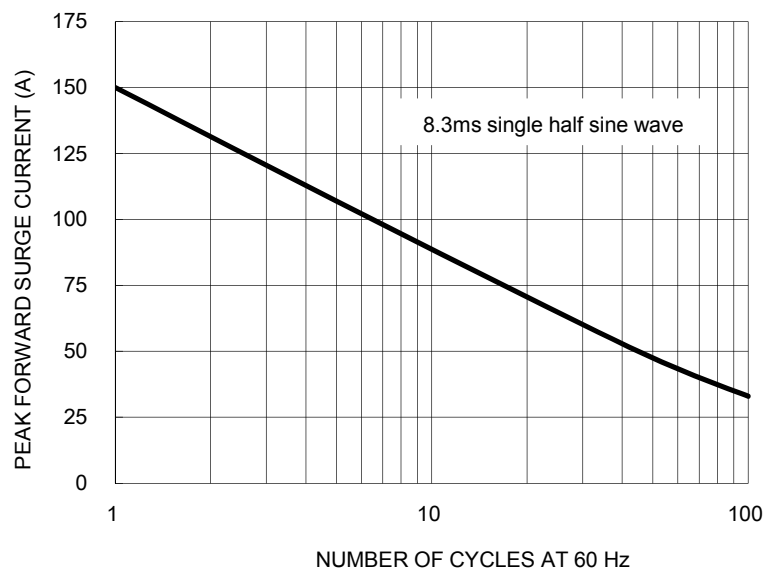


FIG. 3 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

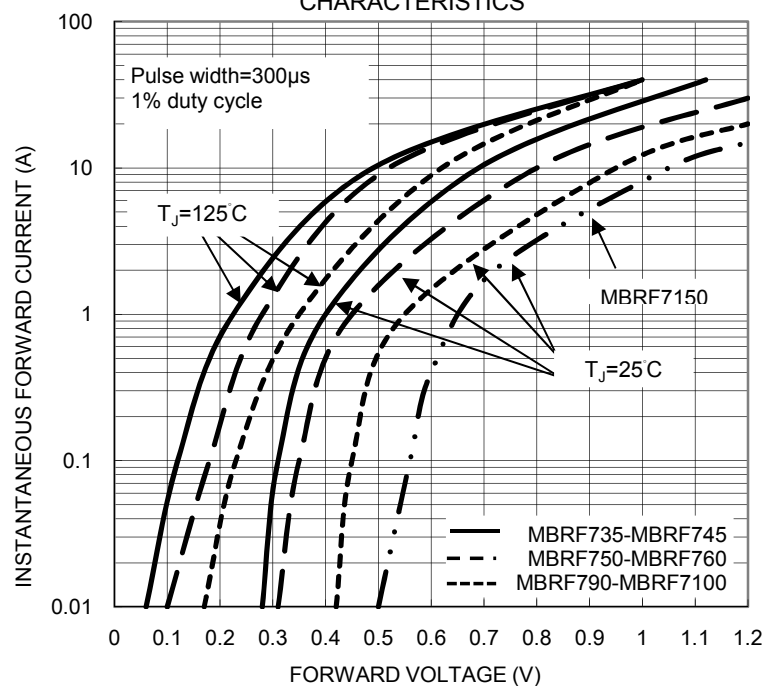


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

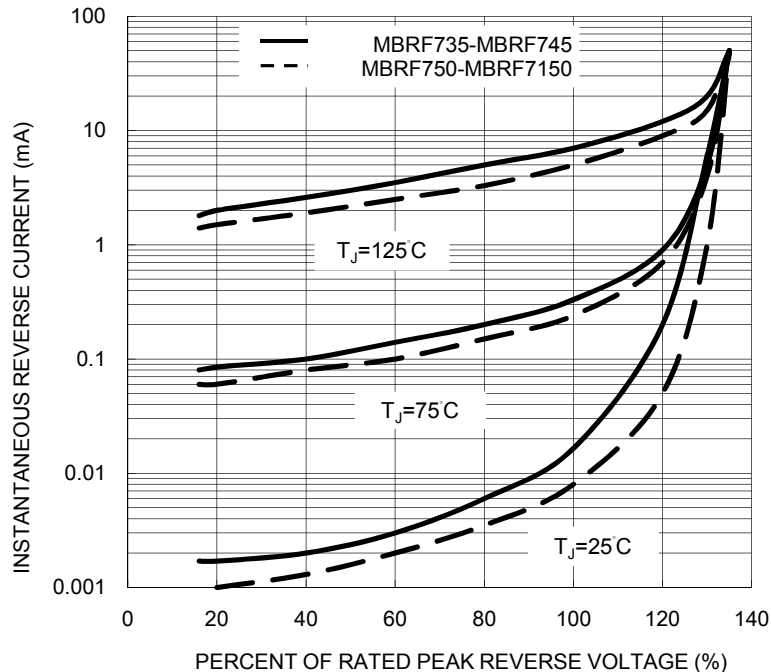


FIG. 5 TYPICAL JUNCTION CAPACITANCE

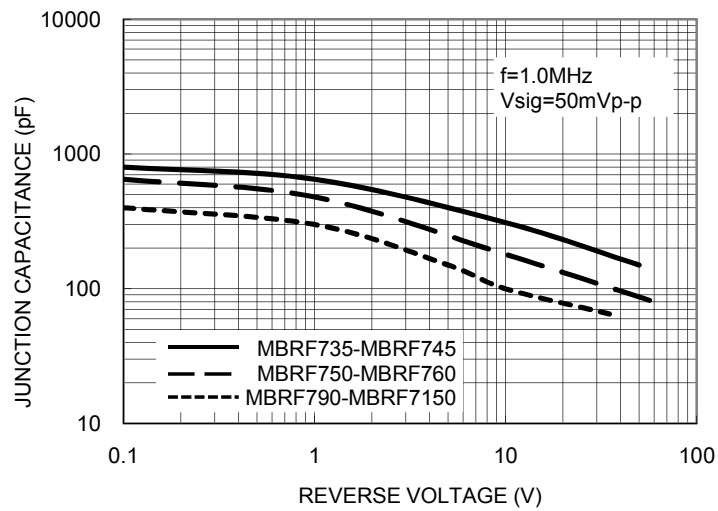
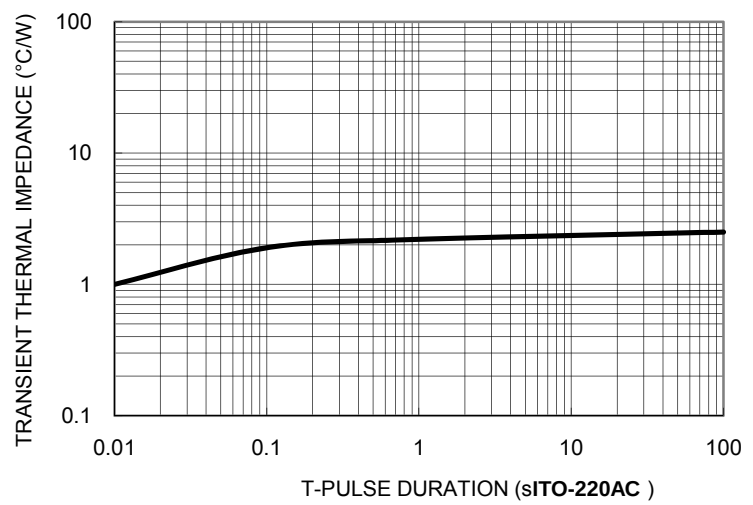
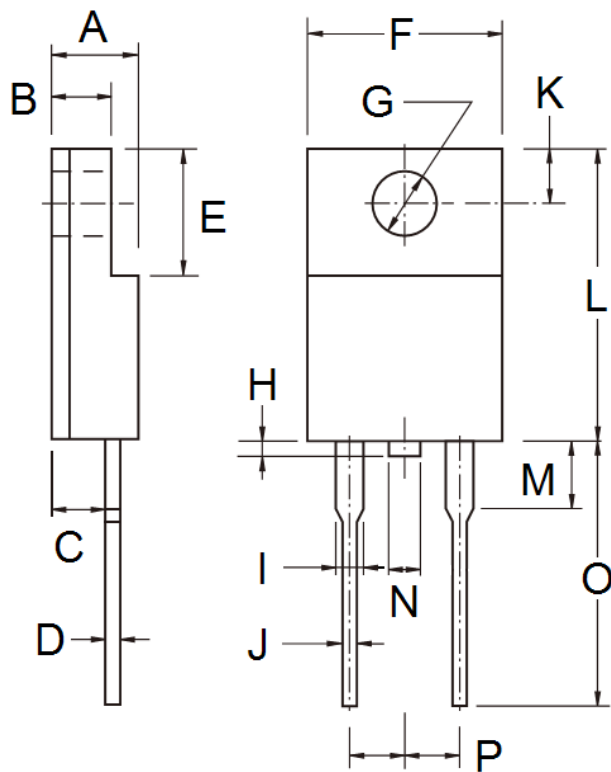


FIG. 6 TYPICAL TRANSIENT THERMAL CHARACTERISTICS

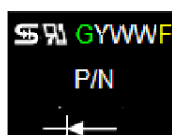


**PACKAGE OUTLINE DIMENSIONS**  
**ITO-220AC**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 4.30      | 4.70  | 0.169       | 0.185 |
| B    | 2.50      | 3.10  | 0.098       | 0.122 |
| C    | 2.30      | 2.90  | 0.091       | 0.114 |
| D    | 0.46      | 0.76  | 0.018       | 0.030 |
| E    | 6.30      | 6.90  | 0.248       | 0.272 |
| F    | 9.60      | 10.30 | 0.378       | 0.406 |
| G    | 3.00      | 3.40  | 0.118       | 0.134 |
| H    | 0.00      | 1.60  | 0.000       | 0.063 |
| I    | 0.95      | 1.45  | 0.037       | 0.057 |
| J    | 0.50      | 0.90  | 0.020       | 0.035 |
| K    | 2.40      | 3.20  | 0.094       | 0.126 |
| L    | 14.80     | 15.50 | 0.583       | 0.610 |
| M    | -         | 4.10  | -           | 0.161 |
| N    | -         | 1.80  | -           | 0.071 |
| O    | 12.60     | 13.80 | 0.496       | 0.543 |
| P    | 4.95      | 5.20  | 0.195       | 0.205 |

**MARKING DIAGRAM**



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

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