

15A, 45V - 200V Schottky Barrier Rectifier

FEATURES

- Low power loss, high efficiency
- Guard ring for overvoltage protection
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

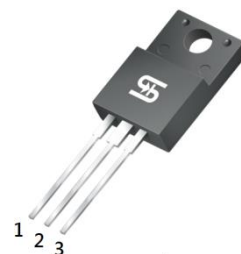
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

| KEY PARAMETERS | | |
|----------------|-----------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 15 | A |
| V_{RRM} | 45 - 200 | V |
| I_{FSM} | 150 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | ITO-220AB | |
| Configuration | Dual dies | |



ITO-220AB



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | |
|--|--------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|------------------|
| PARAMETER | SYMBOL | MBRF 1545 CT-Y | MBRF 1560 CT-Y | MBRF 15100 CT-Y | MBRF 15150 CT-Y | MBRF 15200 CT-Y | UNIT |
| Marking code on the device | | MBRF 1545 CT | MBRF 1560 CT | MBRF 15100 CT | MBRF 15150 CT | MBRF 15200 CT | |
| Repetitive peak reverse voltage | V_{RRM} | 45 | 60 | 100 | 150 | 200 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 31 | 42 | 70 | 105 | 140 | V |
| Forward current | I_F | 15 | | | | | A |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | I_{FSM} | 150 | | | | | A |
| Peak repetitive reverse surge current ⁽¹⁾ | I_{RRM} | 1.0 | 0.5 | | | | A |
| Peak repetitive forward current (Rated V_R , Square wave, 20KHz) | I_{FRM} | 15 | | | | | A |
| Critical rate of rise of off-state voltage | dv/dt | 10,000 | | | | | V/ μs |
| Junction temperature | T_J | -55 to +150 | | | | | °C |
| Storage temperature | T_{STG} | -55 to +150 | | | | | °C |

Notes:

1. $t_p = 2.0\mu s, 1.0KHz$

| THERMAL PERFORMANCE | | | |
|-------------------------------------|-----------------|------------|---------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 3.5 | $^{\circ}C/W$ |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted) | | | | | | |
|--|---------------|----------------------------------|---------------|------------|------------|-------------|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | MBRF1545CT-Y | $I_F = 7.5A, T_J = 25^{\circ}C$ | V_F | - | - | V |
| | MBRF1560CT-Y | | | - | 0.75 | V |
| | MBRF15100CT-Y | | | - | 0.92 | V |
| | MBRF15150CT-Y | | | - | 0.95 | V |
| | MBRF15200CT-Y | | | - | 0.84 | V |
| | MBRF1545CT-Y | $I_F = 15A, T_J = 25^{\circ}C$ | | - | - | V |
| | MBRF1560CT-Y | | | - | - | V |
| | MBRF15100CT-Y | | | - | - | V |
| | MBRF15150CT-Y | | | - | - | V |
| | MBRF15200CT-Y | | | - | - | V |
| | MBRF1545CT-Y | $I_F = 7.5A, T_J = 125^{\circ}C$ | | - | 0.57 | V |
| | MBRF1560CT-Y | | | - | 0.65 | V |
| | MBRF15100CT-Y | | | - | 0.82 | V |
| | MBRF15150CT-Y | | | - | 0.92 | V |
| | MBRF15200CT-Y | | | - | 0.72 | V |
| | MBRF1545CT-Y | $I_F = 15A, T_J = 125^{\circ}C$ | | - | - | V |
| MBRF1560CT-Y | - | | - | V | | |
| MBRF15100CT-Y | - | | - | V | | |
| MBRF15150CT-Y | - | | - | V | | |
| MBRF15200CT-Y | - | | - | V | | |
| Reverse current @ rated V_R per diode ⁽²⁾ | MBRF1545CT-Y | $T_J = 25^{\circ}C$ | I_R | - | 500 | μA |
| | MBRF1560CT-Y | | | - | 300 | μA |
| | MBRF15100CT-Y | | | - | 100 | μA |
| | MBRF15150CT-Y | | | - | 100 | μA |
| | MBRF15200CT-Y | | | - | 100 | μA |
| | MBRF1545CT-Y | $T_J = 125^{\circ}C$ | | - | 10 | mA |
| | MBRF1560CT-Y | | | - | 7.5 | mA |
| | MBRF15100CT-Y | | | - | 5 | mA |
| | MBRF15150CT-Y | | | - | 5 | mA |
| | MBRF15200CT-Y | | | - | 5 | mA |

Notes:

1. Pulse test with $PW = 0.3ms$
2. Pulse test with $PW = 30ms$

ORDERING INFORMATION

| ORDERING CODE⁽¹⁾ | PACKAGE | PACKING |
|------------------------------------|----------------|----------------|
| MBRF15xCT-Y | ITO-220AB | 50 / Tube |

Notes:

1. "x" defines voltage from 45V(MBRF1545CT-Y) to 200V(MBRF15200CT-Y)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

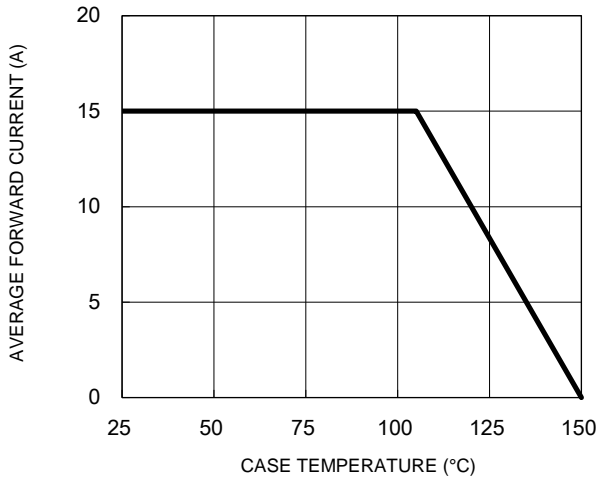


Fig.2 Typical Junction Capacitance

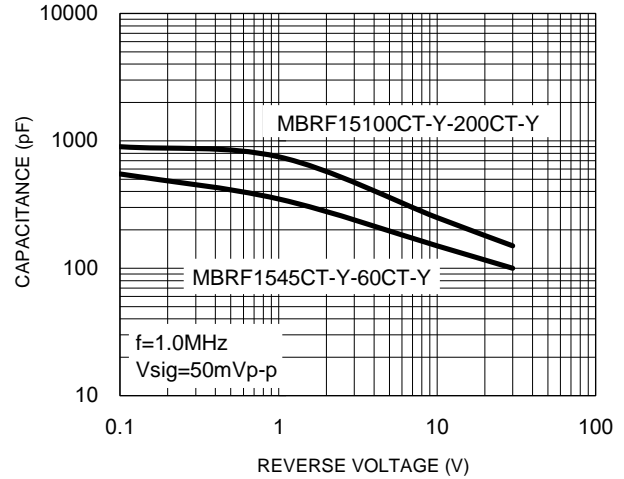


Fig.3 Typical Reverse Characteristics

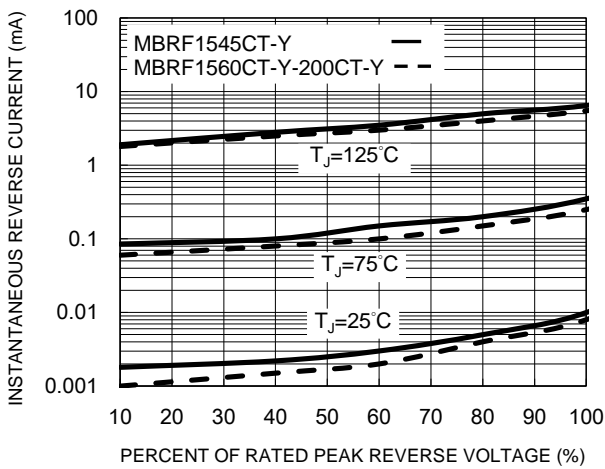


Fig.4 Typical Forward Characteristics

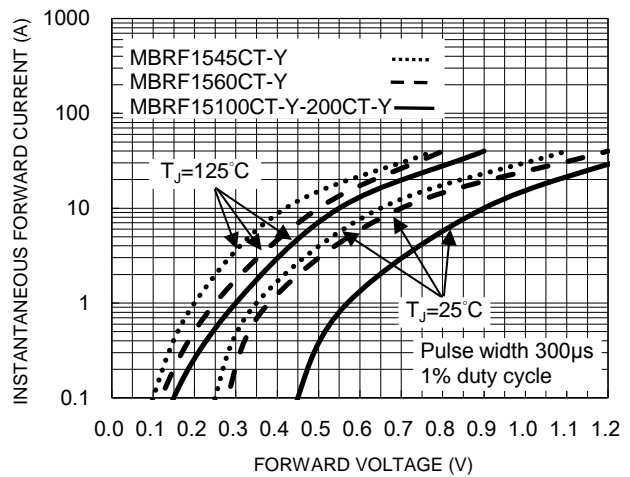
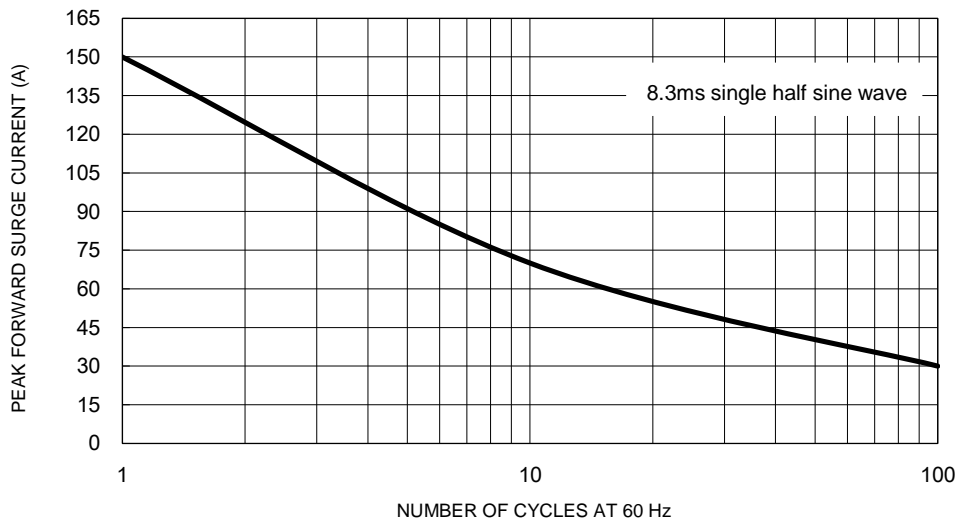


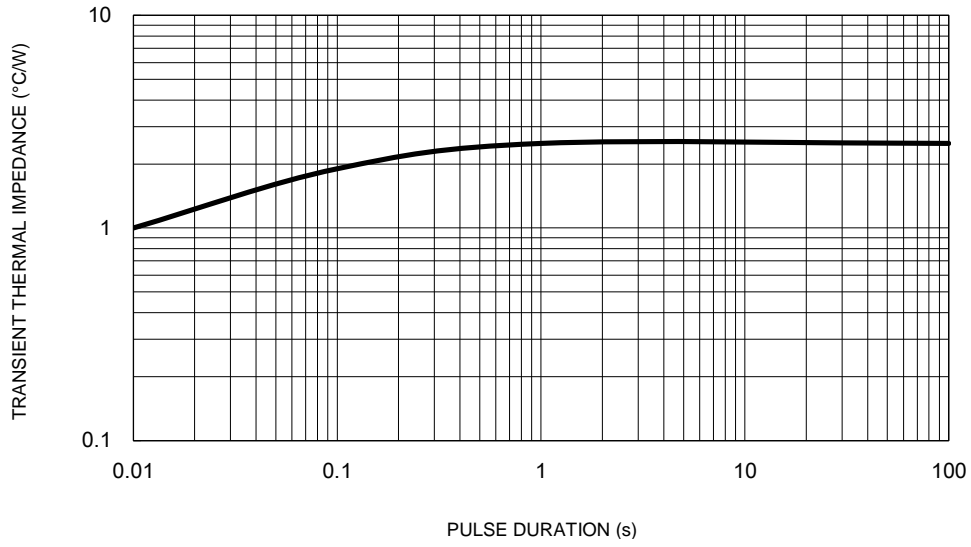
Fig.5 Maximum Non-Repetitive Forward Surge Current



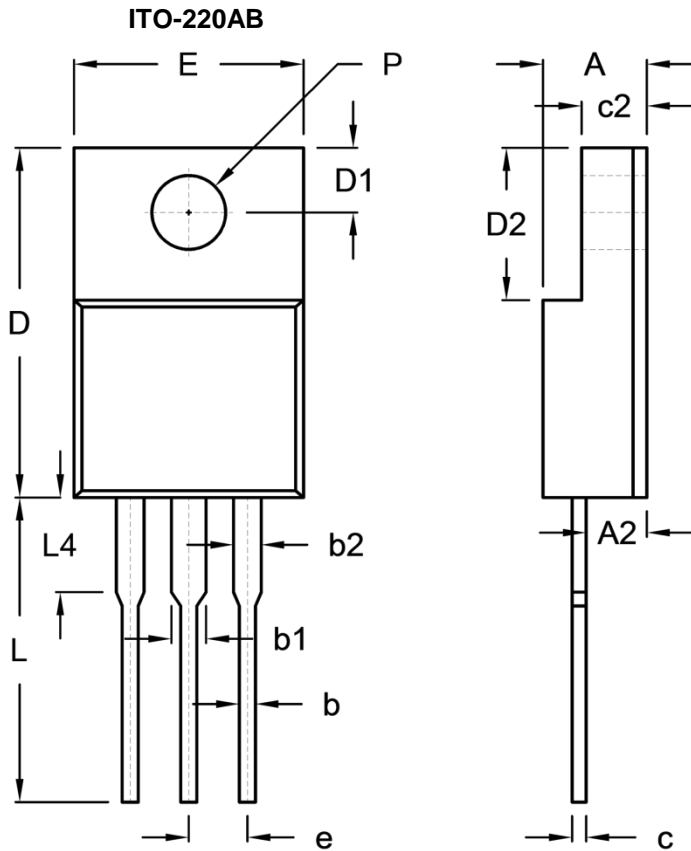
CHARACTERISTICS CURVES

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

Fig.6 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|-------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 4.30 | 4.70 | 0.169 | 0.185 |
| A2 | 2.30 | 2.96 | 0.091 | 0.117 |
| b | 0.50 | 0.90 | 0.020 | 0.035 |
| b1 | - | 1.80 | - | 0.071 |
| b2 | 0.95 | 1.45 | 0.037 | 0.057 |
| c | 0.46 | 0.76 | 0.018 | 0.030 |
| c2 | 2.50 | 3.16 | 0.098 | 0.124 |
| D | 14.80 | 15.50 | 0.583 | 0.610 |
| D1 | 2.40 | 3.20 | 0.094 | 0.126 |
| D2 | 6.30 | 6.90 | 0.248 | 0.272 |
| E | 9.60 | 10.30 | 0.378 | 0.406 |
| e | 2.41 | 2.67 | 0.095 | 0.105 |
| L | 12.60 | 13.80 | 0.496 | 0.543 |
| L4 | - | 4.10 | - | 0.161 |
| P | 3.00 | 3.40 | 0.118 | 0.134 |

MARKING DIAGRAM



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

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