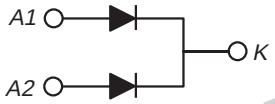
GENERAL SEMICONDUCTOR®

# MBR3045CT, MBRF3045CT & MBRB3045CT /CT-1 Series

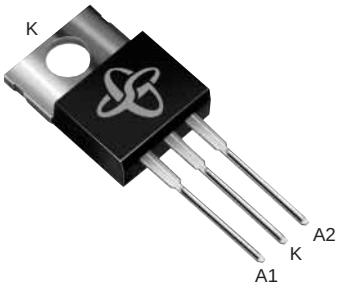
## Dual Schottky Rectifiers




New Product

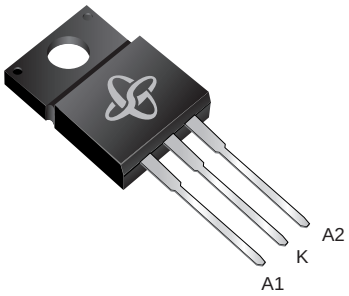
**Reverse Voltage** 30 to 45V
**Forward Current** 30A
**Max. Forward Voltage** 0.76V at 30A
**Max. Junction Temperature** 150°C

**TO-220AB**



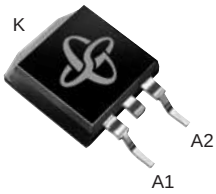

MBR3035CT
MBR3045CT

**ITO-220AB**



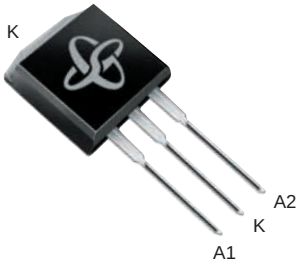

MBRF3035CT
MBRF3045CT

**TO-263AB**
**($D^2Pak$)**




MBRB3035CT
MBRB3045CT

**TO-262AA**
**($I^2Pak$)**




MBRB3035CT-1
MBRB3045CT-1

## Mechanical Data

**Case:** JEDEC TO-220AB, ITO-220AB, TO-263AB & TO-262AA molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case (TO-220AB, ITO-220AB & TO-252AA) at terminals (TO-236AB)

**Polarity:** As marked **Mounting Position:** Any

**Mounting Torque:** 10 in-lbs maximum

**Weight:** 0.08 ounce, 2.24 grams

## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Dual rectifier construction, positive center tap
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- Guardring for overvoltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications

## Ordering Information

| Product | Case | Package Code | Package Option |
|---|---|---|---|
| MBR3035CT - MBR3045CT | TO-220AB | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRF3035CT - MBRF3045CT | ITO-220AB | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRB3035CT - MBRB3045CT | TO-263AB | 31<br>45<br>81 | 13” reel, 800/reel, 4.8K/carton<br>Anti-Static tube, 50/tube, 2K/carton<br>Anti-Static 13” reel, 800/reel, 4.8K/carton |
| MBRB3035CT-1 - MBRB3045CT-1 | TO-262AA | 45 | Anti-Static tube, 50/tube, 2K/carton |

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## Dual Schottky Rectifiers

## Maximum Ratings ($T_C$ = 25°C unless otherwise noted)

| Parameter | Symbol | MBR3035CT | MBR3045CT | Unit |
|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 35 | 45 | V |
| Working peak reverse voltage | $V_{RWM}$ | 35 | 45 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 35 | 45 | V |
| Maximum average forward rectified current *Total device* / *Per leg* | $I_{F(AV)}$ | 30<br>15 | | A |
| Peakrepetitive forward current per leg at $T_C$ = 105°C (rated $V_R$, square wave, 20KHz) | $I_{FRM}$ | 30 | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg | $I_{FSM}$ | 200 | | A |
| Peak repetitive reverse current per leg at $t_p$ = 2μs, 1KHz | $I_{RRM}$ | 2.0 | | A |
| Voltage rate of change (rated $V_R$) | dv/dt | 10,000 | | V/μs |
| Operating junction temperature range | $T_J$ | –65 to +150 | | °C |
| Storage temperature range | $T_{STG}$ | –65 to +175 | | °C |
| RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1 second, RH ≤ 30% | $V_{ISOL}$ | 4500 (1)<br>3500 (2)<br>1500 (3) | | V |

## Electrical Characteristics ($T_C$ = 25°C unless otherwise noted)

| Parameter | | | Symbol | Value | Unit |
|---|---|---|---|---|---|
| Maximum instantaneous forward voltage per leg at(4): | $I_F$ = 20A, | $T_C$ = 125°C | $V_F$ | 0.60 | V |
| | $I_F$ = 30A, | $T_C$ = 25°C | | 0.76 | |
| | $I_F$ = 30A, | $T_C$ = 125°C | | 0.72 | |
| Maximum instantaneous reverse current per leg at rated DC blocking voltage(4) | | $T_J$ = 25°C | $I_R$ | 1.0 | mA |
| | | $T_J$ = 125°C | | 60 | |

## Thermal Characteristics ($T_C$ = 25°C unless otherwise noted)

| Parameter | Symbol | MBR | MBRF | MBRB | Unit |
|---|---|---|---|---|---|
| Typical thermal resistance per leg | $R_{\Theta JC}$ | 1.5 | 4.5 | 1.5 | °C/W |

**Notes:**
(1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
(2) Clip mounting (on case), where leads do overlap heatsink
(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
(4) Pulse test: 300μs pulse width, 1% duty cycle

# MBR3045CT, MBRF3045CT & MBRB3045CT /CT-1 Series
## Dual Schottky Rectifiers

## Ratings and Characteristic Curves per leg ($T_A$ = 25°C unless otherwise noted)

**Fig. 1 – Forward Current Derating Curve**

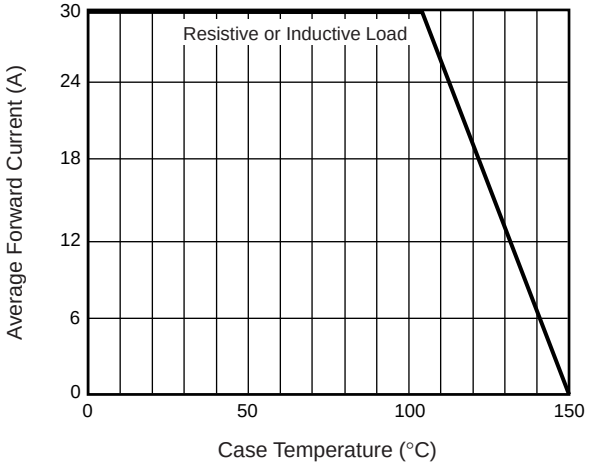



**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg**

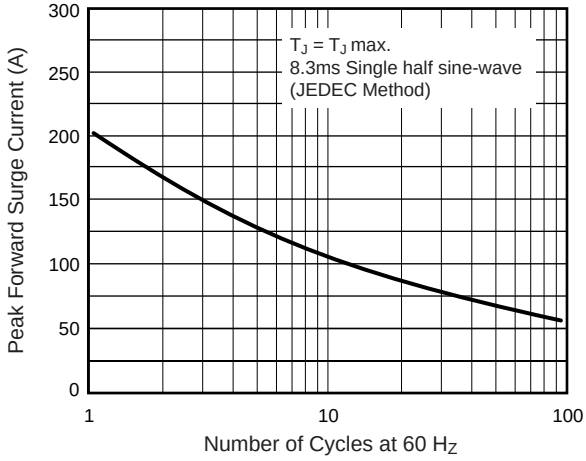



**Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg**

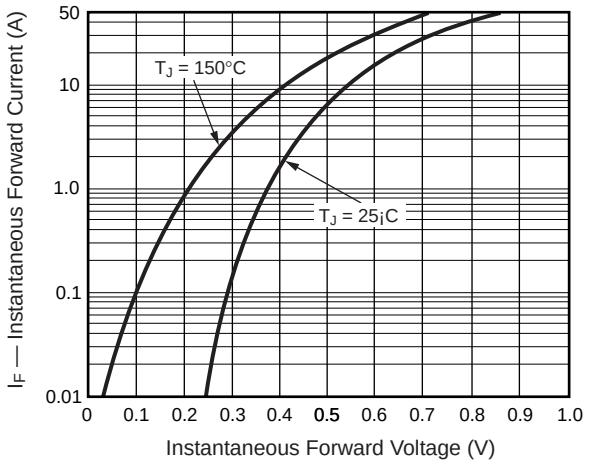



**Fig. 4 – Typical Reverse Characteristics Per Leg**

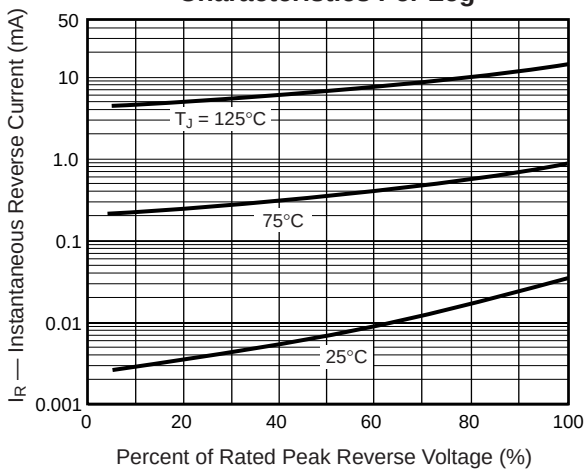



**Fig. 5 – Typical Junction Capacitance Per Leg**

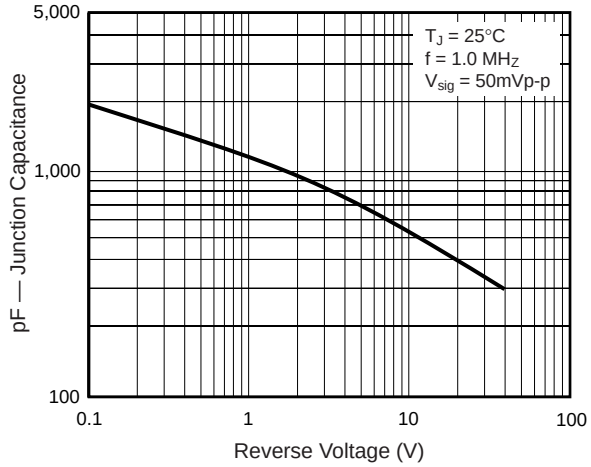
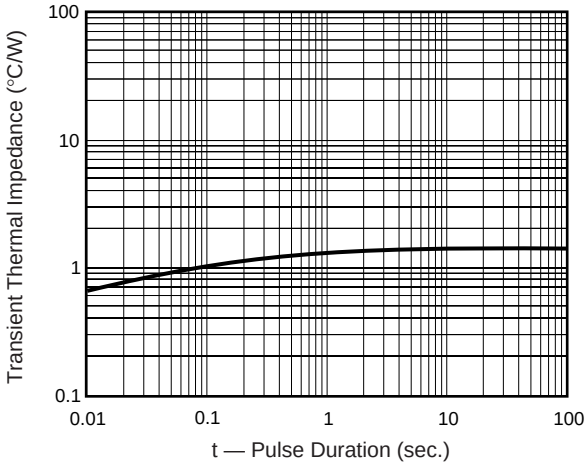



**Fig. 6 – Typical Transient Thermal Impedance Per Leg**



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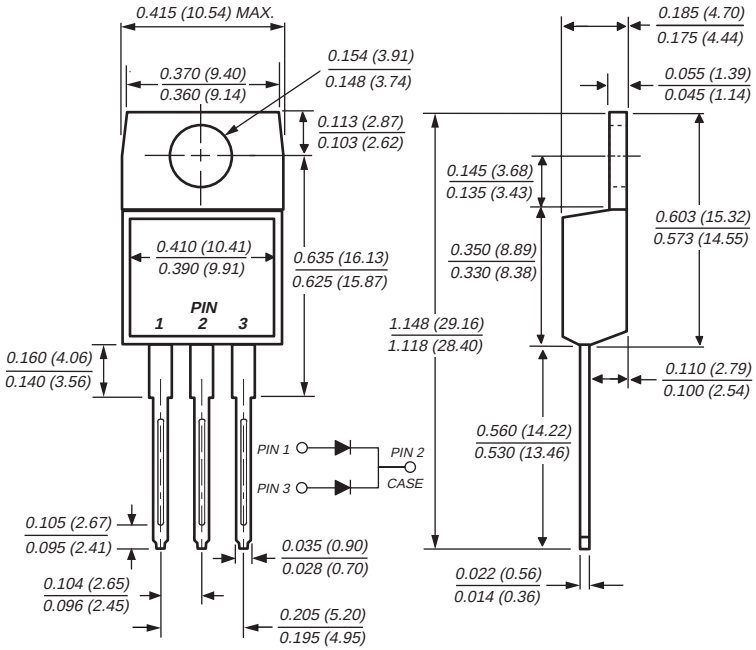
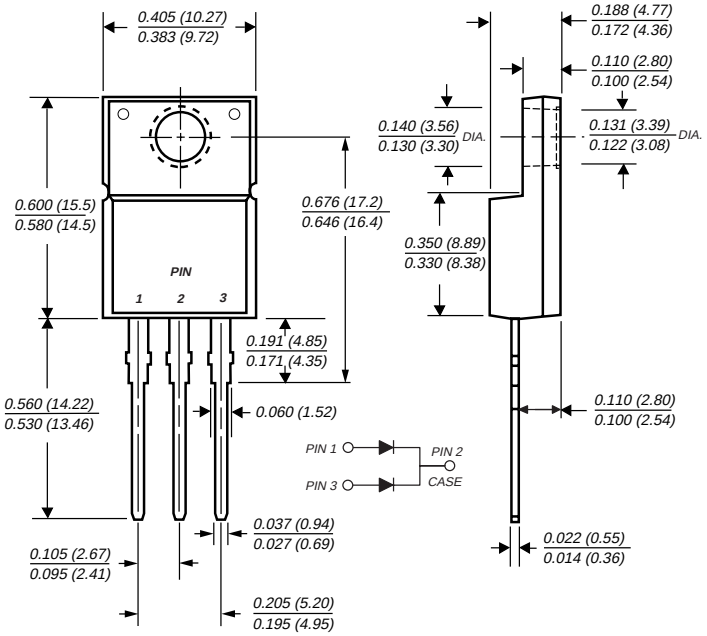
## Dual Schottky Rectifiers

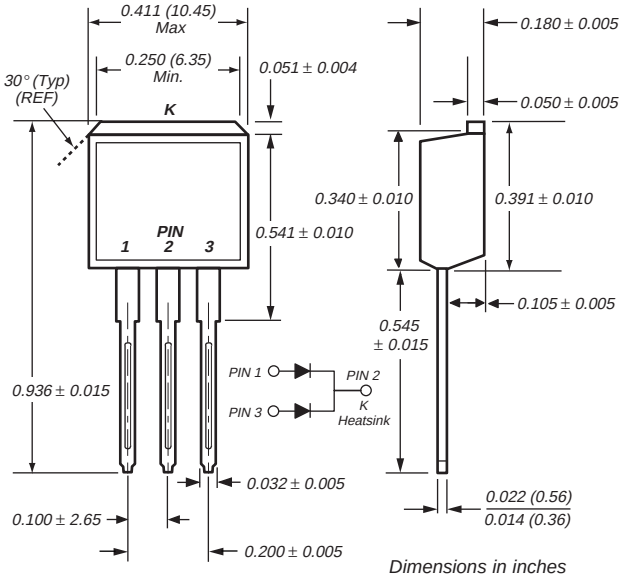
### TO-220AB (MBR3045CT, MBR3045CT)




### ITO-220AB (MBRF3045CT, MBRF3045CT)

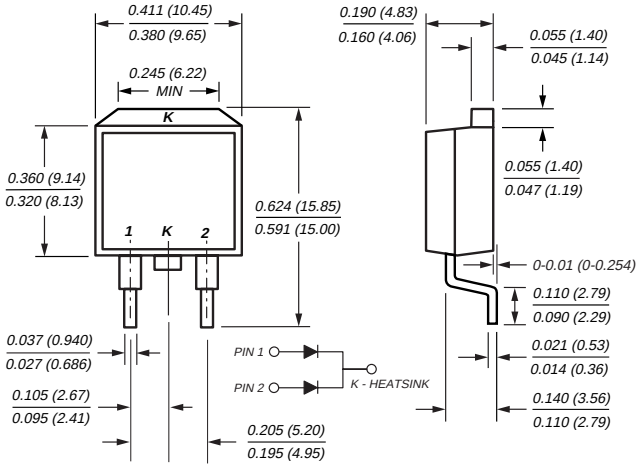


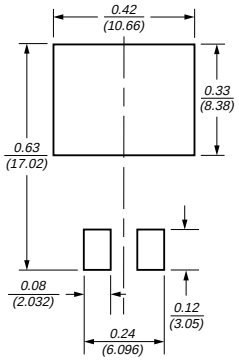

### TO-262AA (MBRB3045CT-1, MBRB3045CT-1)




*Dimensions in inches and (millimeters)*

### TO-263AB (MBRB3045CT, MBRB3045CT)




### Mounting Pad Layout TO-263AB