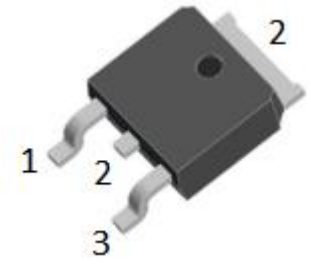
Technical Data
Data Sheet N0803, Rev. A

# MBRD1045 SCHOTTKY RECTIFIER

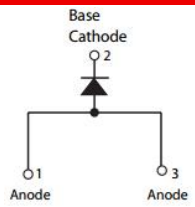



DPAK

## Features

- 150℃ $T_J$ operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- "-A" is an AEC-Q101 qualified device
- This is a Pb − Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

## Circuit Diagram




## Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Battery charging

## Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | - | 45 | V |
| Average Rectified Forward Current | $I_{F\ (AV)}$ | 50% duty cycle @Tc=105°C, rectangular wave form | 10 | A |
| Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$ | 8.3ms, Half Sine pulse | 150 | A |

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Forward Voltage Drop* | $V_{F1}$ | @10A, Pulse, $T_J$ = 25 °C | 0.58 | 0.7 | V |
| | $V_{F2}$ | @10A, Pulse, $T_J$ = 125 °C | 0.55 | 0.6 | V |
| Reverse Current * | $I_{R1}$ | @$V_R$ = rated $V_R$, $T_J$ = 25 °C | 0.3 | 1.0 | mA |
| | $I_{R2}$ | @$V_R$ = rated $V_R$, $T_J$ = 125 °C | 9 | 15 | mA |
| Junction Capacitance | $C_T$ | @$V_R$ = 5.0V, $T_C$ = 25 °C<br>$f_{SIG}$ = 1MHz | 280 | 400 | pF |

* Pulse width < 300 μs, duty cycle < 2%

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RoHS

## Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|---|---|---|---|
| Junction Temperature | $T_J$ | - | -55 to +150 | °C |
| Storage Temperature | $T_{stg}$ | - | -55 to +150 | °C |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | - | 5 | °C/W |
| Approximate Weight | wt | - | 0.39 | g |
| Case Style | DPAK | | | |

## Ratings and Characteristics Curves

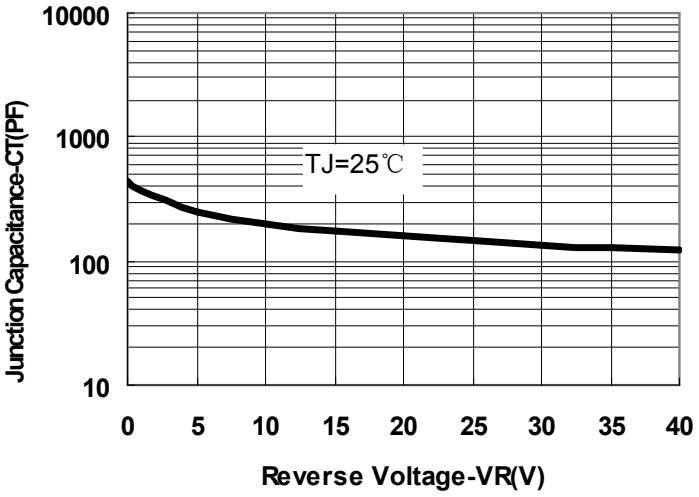


Fig.1-Typical Junction Capacitance

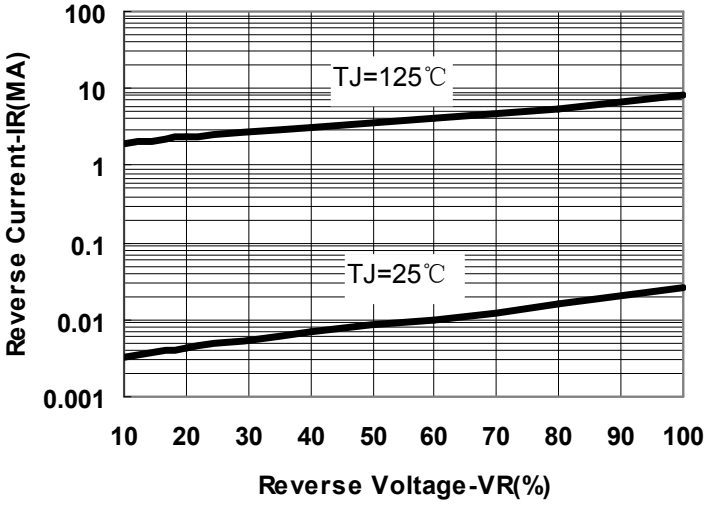


Fig.2-Typical Reverse Characteristics

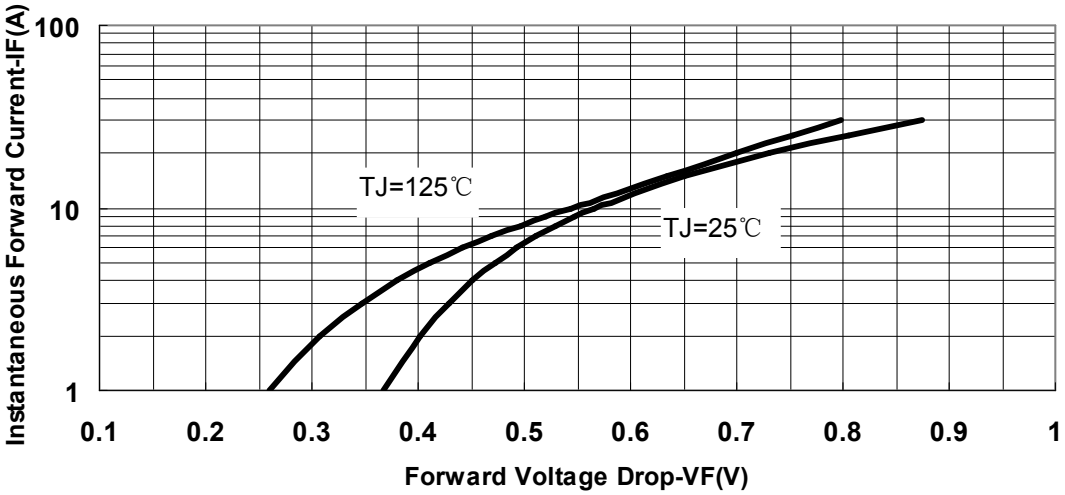


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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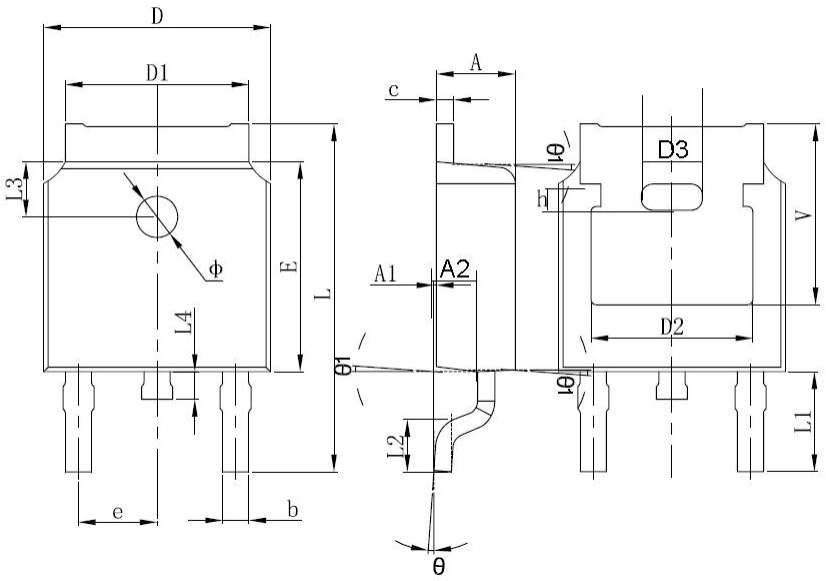
## Mechanical Dimensions DPAK




| SYMBOL | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.20 | 2.40 | 0.087 | 0.094 |
| A1 | 0.00 | 0.127 | 0.000 | 0.005 |
| b | 0.66 | 0.86 | 0.026 | 0.034 |
| c | 0.46 | 0.60 | 0.018 | 0.024 |
| D | 6.50 | 6.70 | 0.256 | 0.264 |
| D1 | 5.13 | 5.46 | 0.202 | 0.215 |
| D2 | 4.83 REF. | | 0.190 REF. | |
| E | 6.00 | 6.20 | 0.236 | 0.244 |
| e | 2.186 | 2.386 | 0.086 | 0.094 |
| L | 9.70 | 10.40 | 0.381 | 0.409 |
| L1 | 2.90 REF. | | 0.144 REF. | |
| L2 | 1.40 | 1.70 | 0.055 | 0.067 |
| L3 | 1.60 REF. | | 0.063 REF. | |
| L4 | 0.60 | 1.00 | 0.024 | 0.039 |
| Φ | 1.10 | 1.30 | 0.043 | 0.051 |
| Θ | 0° | 8° | 0° | 8° |
| h | 0.00 | 0.30 | 0.000 | 0.012 |
| V | 5.35 REF. | | 0.211 REF. | |

## Ordering Information

| Device | Package | Shipping |
|---|---|---|
| MBRD1045 | DPAK (Pb-Free) | 2500pcs / reel |
| MBRD1045TR | DPAK (Pb-Free) | 2500pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

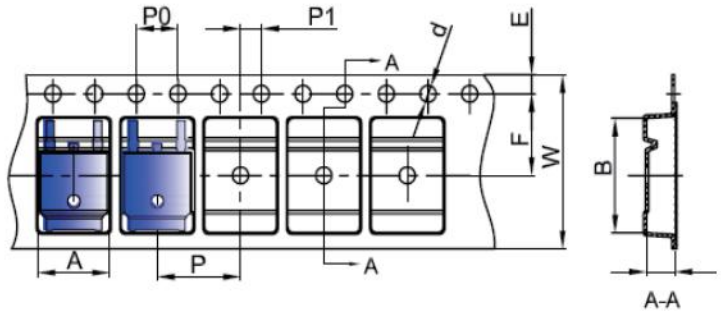
## Marking Diagram


Where XXXXX is YYWWL

MBRD1045 = Part Name
SSG = SSG
YY = Year
WW = Week
L = Lot Number

**Cautions:** Molding resin
Epoxy resin UL:94V-0

## Carrier Tape & Reel Specification DPAK




| SYMBOL | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 6.80 | 7.00 |
| B | 10.40 | 10.60 |
| C | 2.60 | 2.80 |
| d | Φ1.45 | Φ1.65 |
| E | 1.65 | 1.85 |
| F | 7.40 | 7.60 |
| P0 | 3.90 | 4.10 |
| P | 7.90 | 8.10 |
| P1 | 1.90 | 2.10 |
| W | 15.90 | 16.30 |

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