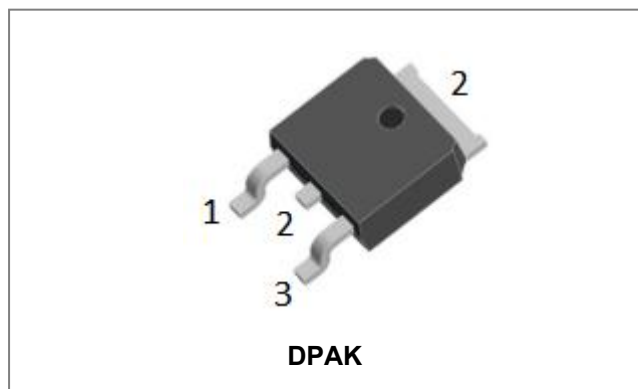


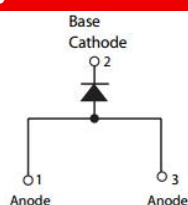
## MBRD1045 SCHOTTKY RECTIFIER



### Features

- 150°C T<sub>J</sub> 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             | V <sub>RRM</sub>    | -                                                            | 45   | V     |
| Working Peak Reverse Voltage                | V <sub>RWM</sub>    |                                                              |      |       |
| DC Blocking Voltage                         | V <sub>R</sub>      |                                                              |      |       |
| Average Rectified Forward Current           | I <sub>F (AV)</sub> | 50% duty cycle @T <sub>C</sub> =105°C, rectangular wave form | 10   | A     |
| Peak One Cycle Non-Repetitive Surge Current | I <sub>FSM</sub>    | 8.3ms, Half Sine pulse                                       | 150  | A     |

### Electrical Characteristics:

| Characteristics       | Symbol          | Condition                                                                 | Typ. | Max. | Units |
|-----------------------|-----------------|---------------------------------------------------------------------------|------|------|-------|
| Forward Voltage Drop* | V <sub>F1</sub> | @10A, Pulse, T <sub>J</sub> = 25 °C                                       | 0.58 | 0.7  | V     |
|                       | V <sub>F2</sub> | @10A, Pulse, T <sub>J</sub> = 125 °C                                      | 0.55 | 0.6  | V     |
| Reverse Current *     | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C           | 0.3  | 1.0  | mA    |
|                       | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C          | 9    | 15   | mA    |
| Junction Capacitance  | C <sub>T</sub>  | @V <sub>R</sub> = 5.0V, T <sub>C</sub> = 25 °C<br>f <sub>SIG</sub> = 1MHz | 280  | 400  | pF    |

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

### 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

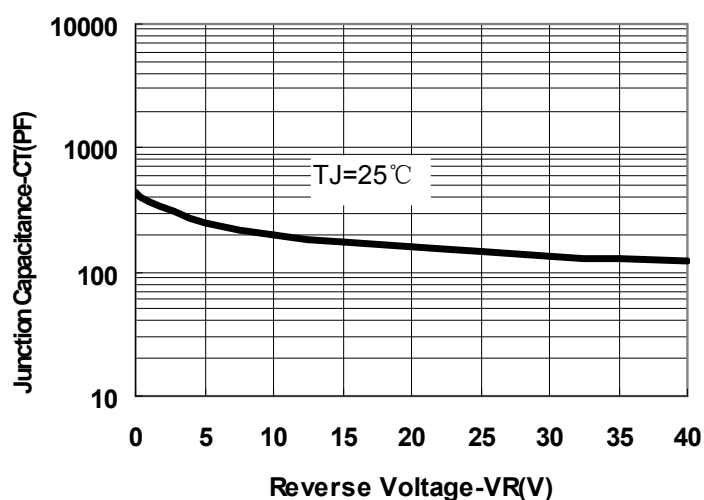


Fig.1-Typical Junction Capacitance

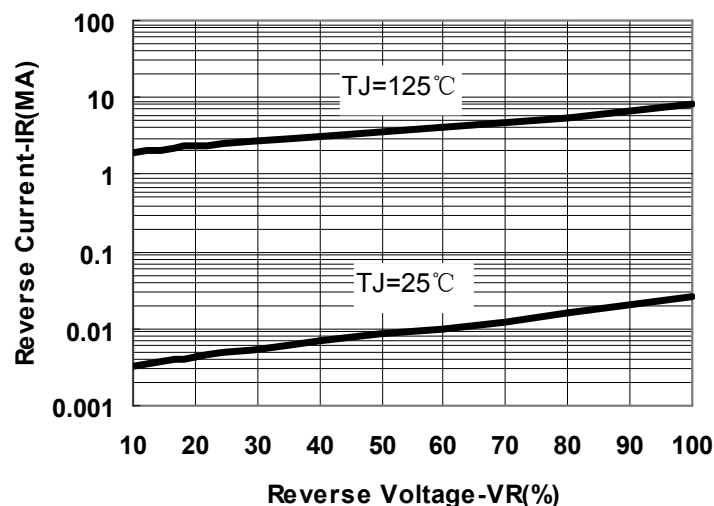


Fig.2-Typical Reverse Characteristics

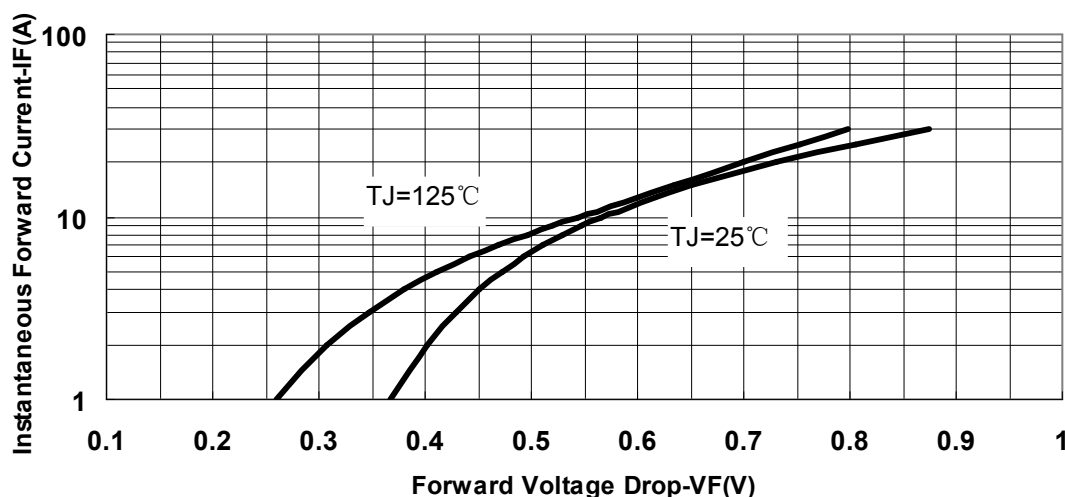
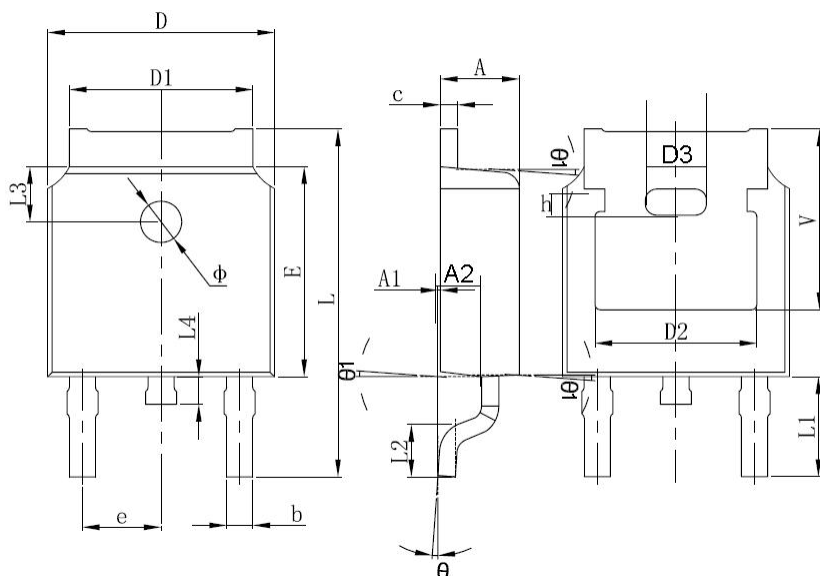


Fig.3-Typical Instantaneous Forward Voltage Characteristics

**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<br>(Pb-Free) | 2500pcs / reel |
| MBRD1045TR | DPAK<br>(Pb-Free) | 2500pcs / reel |

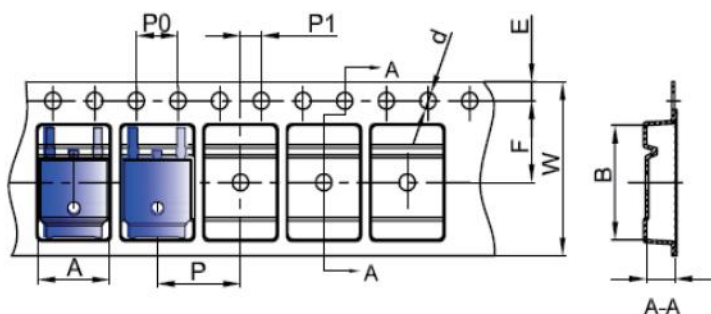
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**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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