International **tern** Rectifier

SCHOTTKY DIODE

| Characteristics | Value | J |
|--|-------------|----|
| I _{F(AV)} (DC) | 0.5 | |
| V _{RRM} | 40 | N |
| $I_{FSM} @ t_p = 10 \text{ ms sine}$ | 6.0 | A |
| V _F @ 0.5Apk, T _J =100°C | 0.42 | V |
| T _J range | - 65 to 150 | ٥(|

Major Ratings and Characteristics

eally suited for low voltage, high receive and polarity protection. Kage allows proper use in application ize is critical, fitting also the GSM and ment.

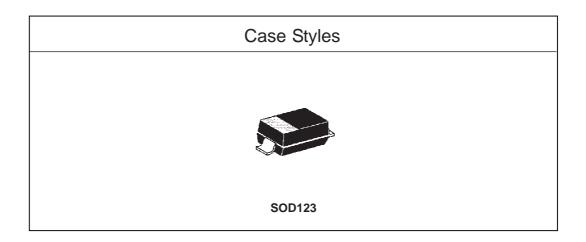
Amp

40V

mountable

low forward voltage drop xtremely fast switching Negligible switching losses Guard ring for enhanced ruggedness and long term reliability

Lead-Free ("PbF" suffix)



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Voltage Ratings

| Part number | Value |
|--|-------|
| V _R Max. DC Reverse Voltage (V) | 10 |
| V _{RWM} Max. Working Peak Reverse Voltage (V) | 40 |

Absolute Maximum Ratings

| | Parameters | Value | Units | Conditions | | |
|------------------|---------------------------------------|-------|-------|------------------------------|--|--|
| I _F | Forward Current | 0.5 | A | DC, T _L = 122°C | | |
| I _{FSM} | Max. Peak One Cycle Non-Repetitive | 50 | Α | 5µs Sine or 3µs Rect. pulse | Following any rated load condition and | |
| | Surge Current, @ T _J =25°C | 6.0 | A | 10ms Sine or 6ms Rect. pulse | with rated V _{RRM} applie | |

Electrical Specifications

| | Parameters | Value | Units | Conditions | |
|-----------------|-------------------------------|-------|-------|---|------------------------|
| V_{FM} | Max. Forward Voltage Drop (1) | 0.480 | V | @ 0.5A | $T_J = 25^{\circ}C$ |
| | | 0.560 | V | @ 1A | |
| $V_{\rm FM}$ | Max. Forward Voltage Drop (1) | 0.420 | V | @ 0.5A | $T_{J} = 100^{\circ}C$ |
| | | 0.520 | V | @ 1A | |
| I _{RM} | Max. Reverse Leakage (1) | 10 | μA | V _R = 20V | $T_J = 25^{\circ}C$ |
| | Current | 5 | mA | V _R = 20V | $T_J = 100^{\circ}C$ |
| | | 20 | μA | $V_R = 40V$ | $T_J = 25^{\circ}C$ |
| | | 13 | mA | $V_R = 40V$ | $T_J = 100^{\circ}C$ |
| CT | Max. Junction Capacitance | 60 | pF | $V_R = 5V_{DC}$ (test signal range 100KHz to 1Mhz), $T_J = 25^{\circ}C$ | |
| dv/dt | Max. Voltage Rate of Change | 10000 | V/µs | | |
| | (Rated V _R) | | | | |

(1) Pulse Width < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

| | Parameters | Value | Units | Conditions |
|---------------------|--|---------------|-------|--|
| Т | Max. Junction Temperature Range (*) | -65 to 150 | °C | |
| T _{stg} | Max. Storage Temperature Range | - 65 to 150 | °C | |
| R _{thJL} | Max. Thermal Resistance Junction to Lead | 150 | °C/W | Mounted on PC board FR4 with minimum pad size |
| R _{th(j-a} | Max. Thermal Resistance Junction | 200 | °C/W | 1 inch square pad size (1 x 0.5 inch for each lead) on |
| | to Ambient | | | FR4 board |
| Wt | Approximate Weight | 0.012 | g | |
| | Case Style | SOD1 | 23 | |
| | Device Marking | C <u>Y</u> WL | C | |
| | | | | |

 $\frac{(*)}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

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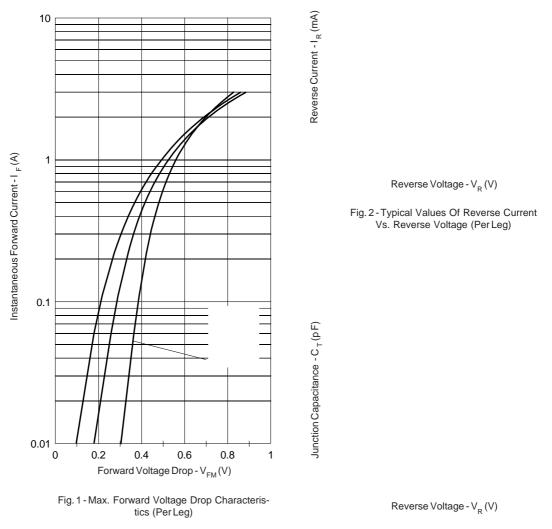
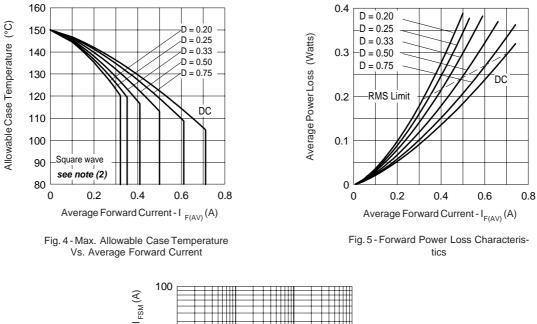


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

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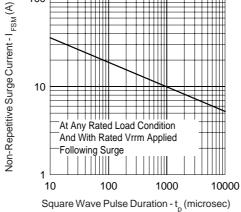
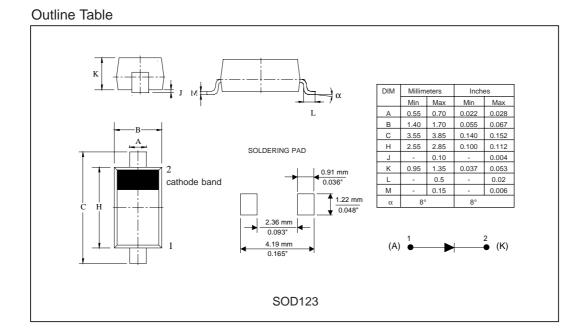


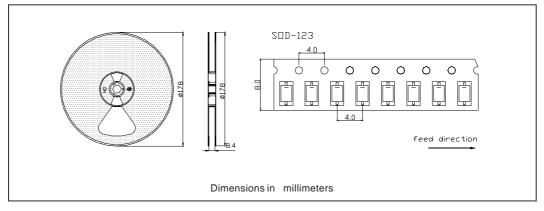
Fig. 6 - Max. Non-Repetitive Surge Current

(2) Formula used: $T_c = T_J - Pd \times R_{thJC}$; Pd=Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 4)

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Tape & Reel Information



Ordering Information Table

| Device | Package | Marking | Base qty | Delivery mode |
|---------|---------|---------|----------|---------------|
| MBR0540 | SOD-123 | CYWLC | 3000 | Tape & Reel |

Document Number: 94283

| MBR0540PbF | | International |
|----------------------|-------------|----------------------|
| Bulletin PD-21132 re | ∋v. A 08/06 | IFR Rectifier |

Data and specifications subject to change without notice. This product has been designed and qualified for Industrial Level for Industrial Level. Qualification Standards can be found on IR's Web site.



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> www.vishay.com 6

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