

Major Ratings and Characteristics

| Characteristics                                      | Value       | Units            |
|------------------------------------------------------|-------------|------------------|
| $I_{F(AV)}$ (DC)                                     | 0.5         | A                |
| $V_{RRM}$                                            | 30          | V                |
| $I_{FSM}$ @ $t_p = 10\text{ ms}$ sine                | 10          | A                |
| $V_F$ @ $0.5\text{ Apk}$ , $T_J = 125^\circ\text{C}$ | 0.35        | V                |
| $T_J$ range                                          | - 65 to 150 | $^\circ\text{C}$ |

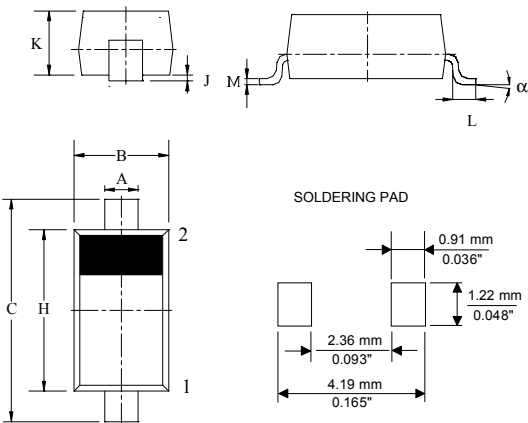
Description/ Features

This Schottky diode is ideally suited for low voltage, high frequency operation, as freewheeling and polarity protection. Small size of the package allows proper use in application where compact size is critical, fitting also the GSM and PCMCIA requirement.

- Surface mountable
- Very low forward voltage drop
- Extremely fast switching
- Negligible switching losses
- Guard ring for enhanced ruggedness and long term reliability

Case Styles

Device Marking: IR530



| DIM      | Millimeters |      | Inches |       |
|----------|-------------|------|--------|-------|
|          | Min         | Max  | Min    | Max   |
| A        | 0.55        | 0.70 | 0.022  | 0.028 |
| B        | 1.40        | 1.70 | 0.055  | 0.067 |
| C        | 3.55        | 3.85 | 0.140  | 0.152 |
| H        | 2.55        | 2.85 | 0.100  | 0.112 |
| J        | -           | 0.10 | -      | 0.004 |
| K        | 0.95        | 1.35 | 0.037  | 0.053 |
| L        | -           | 1.35 | -      | 0.053 |
| M        | -           | 0.15 | -      | 0.006 |
| $\alpha$ | 8°          |      | 8°     |       |



## Voltage Ratings

| Part number                                     | Value |
|-------------------------------------------------|-------|
| $V_R$ Max. DC Reverse Voltage (V)               | 30    |
| $V_{RWM}$ Max. Working Peak Reverse Voltage (V) |       |

## Absolute Maximum Ratings

| Parameters                                                                             | Value | Units | Conditions                                          |
|----------------------------------------------------------------------------------------|-------|-------|-----------------------------------------------------|
| $I_F$ Forward Current                                                                  | 0.5   | A     | DC, $T_L = 126^\circ\text{C}$                       |
| $I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current, @ $T_J = 25^\circ\text{C}$ | 75    | A     | 5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse |
|                                                                                        | 10    | A     | 10ms Sine or 6ms Rect. pulse                        |

Following any rated load condition and with rated  $V_{RRM}$  applied

## Electrical Specifications

| Parameters                                         | Value | Units            | Conditions                                                                   |
|----------------------------------------------------|-------|------------------|------------------------------------------------------------------------------|
| $V_{FM}$ Max. Forward Voltage Drop (1)             | 0.375 | V                | @ 0.1A                                                                       |
|                                                    | 0.430 | V                | @ 0.5A                                                                       |
| $V_{FM}$ Max. Forward Voltage Drop (1)             | 0.250 | V                | @ 0.1A                                                                       |
|                                                    | 0.350 | V                | @ 0.5A                                                                       |
| $I_{RM}$ Max. Reverse Leakage Current (1)          | 20    | $\mu\text{A}$    | $V_R = 15\text{V}$                                                           |
|                                                    | 130   | $\mu\text{A}$    | $V_R = 30\text{V}$                                                           |
| $C_T$ Max. Junction Capacitance                    | 90    | pF               | $V_R = 5V_{DC}$ (test signal range 100KHz to 1Mhz), $T_J = 25^\circ\text{C}$ |
| $dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ ) | 10000 | V/ $\mu\text{s}$ |                                                                              |

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

## Thermal-Mechanical Specifications

| Parameters                                                | Value      | Units                     | Conditions                                                       |
|-----------------------------------------------------------|------------|---------------------------|------------------------------------------------------------------|
| $T_J$ Max. Junction Temperature Range (*)                 | -65 to 150 | $^\circ\text{C}$          |                                                                  |
| $T_{stg}$ Max. Storage Temperature Range                  | -65 to 150 | $^\circ\text{C}$          |                                                                  |
| $R_{thJL}$ Max. Thermal Resistance Junction to Lead       | 150        | $^\circ\text{C}/\text{W}$ | Mounted on PC board FR4 with minimum pad size                    |
| $R_{th(j-a)}$ Max. Thermal Resistance Junction to Ambient | 200        | $^\circ\text{C}/\text{W}$ | 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board |
| Wt Approximate Weight                                     | 0.012      | gr                        |                                                                  |
| Case Style                                                | SOD123     |                           |                                                                  |
| Device Marking                                            | IR530      |                           |                                                                  |

(\*)  $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink

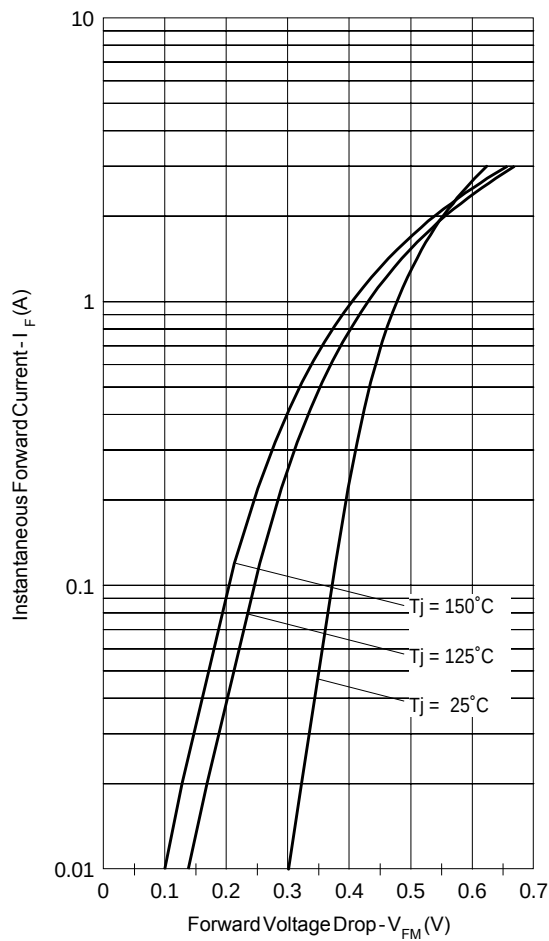


Fig. 1 - Max. Forward Voltage Drop Characteristics  
(Per Leg)

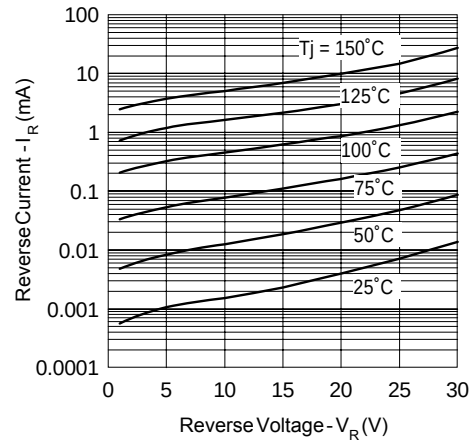


Fig. 2 - Typical Values Of Reverse Current  
Vs. Reverse Voltage (Per Leg)

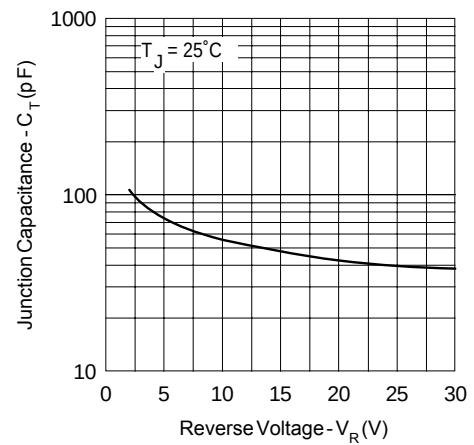


Fig. 3 - Typical Junction Capacitance  
Vs. Reverse Voltage (Per Leg)

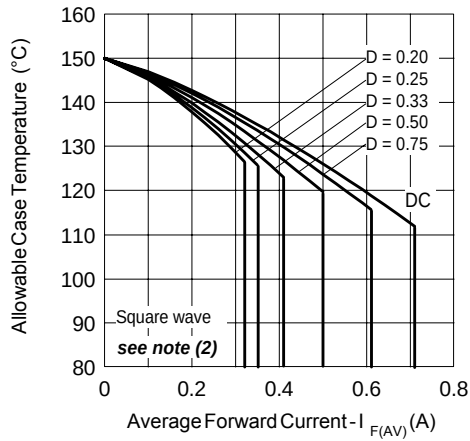


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

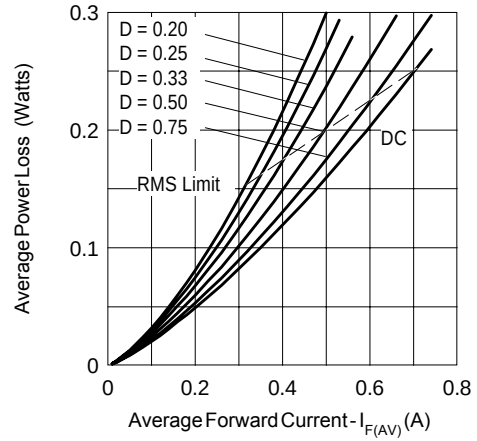


Fig. 5 - Forward Power Loss Characteristics

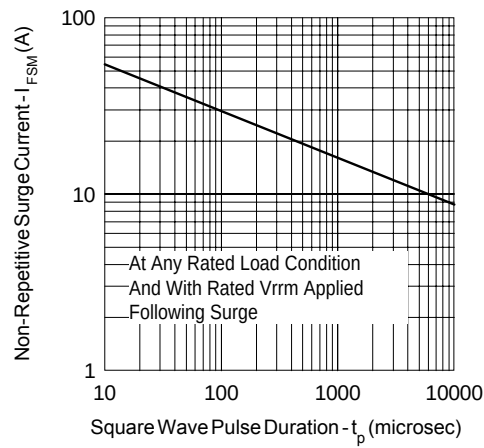
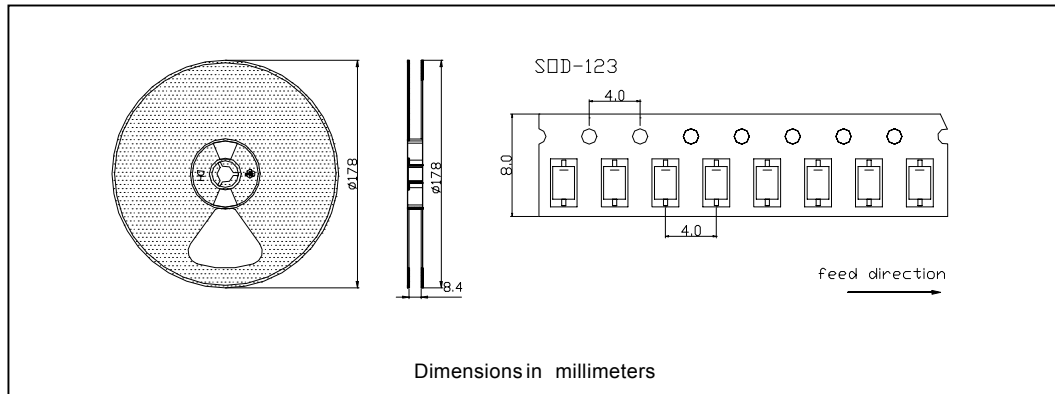


Fig. 6 - Max. Non-Repetitive Surge Current

(2) Formula used:  $T_C = T_J - P_d \times R_{thJC}$ ;

$P_d$  = Forward Power Loss =  $I_{F(AV)} \times V_{FM} @ (I_{F(AV)}/D)$  (see Fig. 4)

### Tape & Reel Information



### Ordering Information Table

| Device  | Package | Marking | Base qty | Delivery mode |
|---------|---------|---------|----------|---------------|
| MBR0530 | SOD-123 | IR530   | 3000     | Tape & Reel   |

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

International  
**IR** Rectifier

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