

$I_{F(AV)} = 1 \text{ Amp}$   
 $V_R = 30V$

**Major Ratings and Characteristics**

Characteristics	10BQ030	Units
$I_{F(AV)}$ Rectangular waveform	1.0	A
$V_{RRM}$	30	V
$I_{FSM}$ @ $t_p = 5 \text{ ms}$ sine	430	A
$V_F$ @ $1.0A_{pk}, T_J = 125^\circ C$	0.30	V
$T_J$ range	- 55 to 150	$^\circ C$

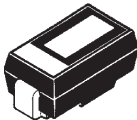
**Description/ Features**


The 10BQ030 surface-mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Small foot print, surface mountable
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

**Case Styles**

10BQ030



Cathode  Anode

SMB

## Voltage Ratings

Part number	10BQ030
V <sub>R</sub> Max. DC Reverse Voltage (V)	30
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)	

## Absolute Maximum Ratings

Parameters	10BQ	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current	1.0	A	50% duty cycle @ T <sub>L</sub> = 106 °C, rectangular wave form.
I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	430		5µs Sine or 3µs Rect. pulse
	90		10ms Sine or 6ms Rect. pulse
E <sub>AS</sub> Non-Repetitive Avalanche Energy	3.0	mJ	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 1A, L = 6mH
I <sub>AR</sub> Repetitive Avalanche Current	1.0	A	Current decaying linearly to zero in 1 µsec Frequency limited by T <sub>J</sub> max. Va = 1.5 x Vr typical

## Electrical Specifications

Parameters	10BQ	Units	Conditions
V <sub>FM</sub> Max. Forward Voltage Drop (1)	0.420	V	@ 1A
	0.470	V	@ 2A
V <sub>FM</sub> Max. Forward Voltage Drop (1)	0.300	V	@ 1A
	0.370	V	@ 2A
I <sub>RM</sub> Max. Reverse Leakage Current (1)	0.5	mA	T <sub>J</sub> = 25 °C
	5.0	mA	T <sub>J</sub> = 100 °C
	15	mA	T <sub>J</sub> = 125 °C
C <sub>T</sub> Max. Junction Capacitance	200	pF	V <sub>R</sub> = 5V <sub>DC</sub> , (test signal range 100KHz to 1Mhz) 25°C
L <sub>S</sub> Typical Series Inductance	2.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V <sub>R</sub> )	10000	V/µs	

(1) Pulse Width &lt; 300µs, Duty Cycle &lt; 2%

## Thermal-Mechanical Specifications

Parameters	10BQ	Units	Conditions
T <sub>J</sub> Max. Junction Temperature Range (*)	-55 to 150	°C	
T <sub>stg</sub> Max. Storage Temperature Range	-55 to 150	°C	
R <sub>thJL</sub> Max. Thermal Resistance Junction to Lead (**)	25	°C/W	DC operation
R <sub>thJA</sub> Max. Thermal Resistance Junction to Ambient	80	°C/W	
wt Approximate Weight	0.10(0.003)	g(oz.)	
Case Style	SMB		Similar DO-214AA
Device Marking	IR1E		

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

(\*\*) Mounted 1 inch square PCB

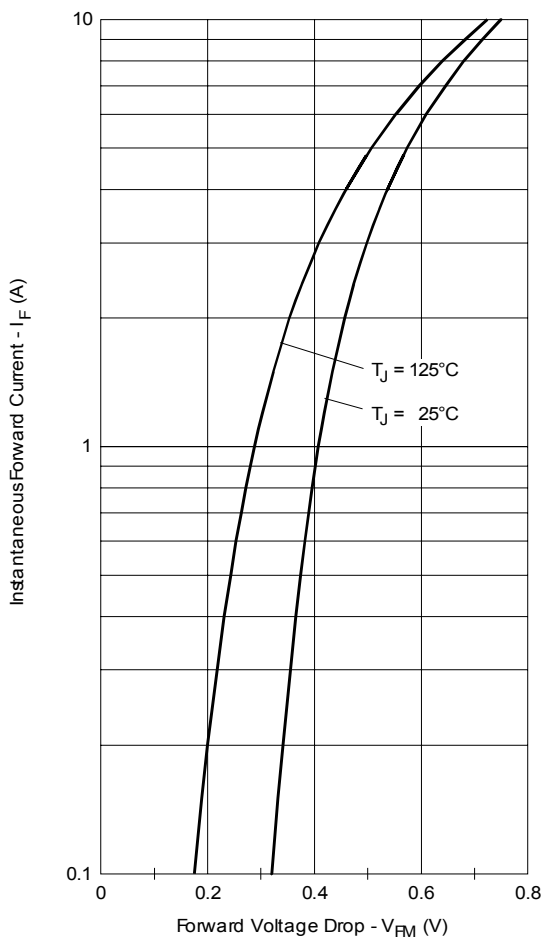


Fig. 1 - Maximum Forward Voltage Drop Characteristics

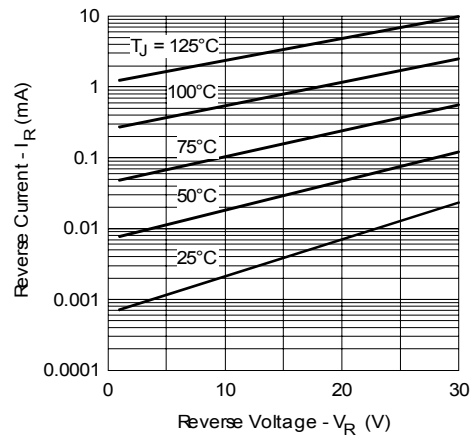


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

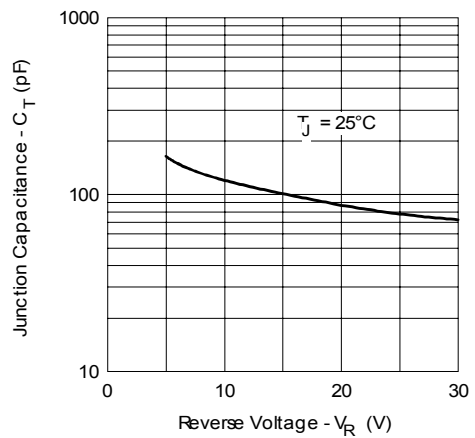


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

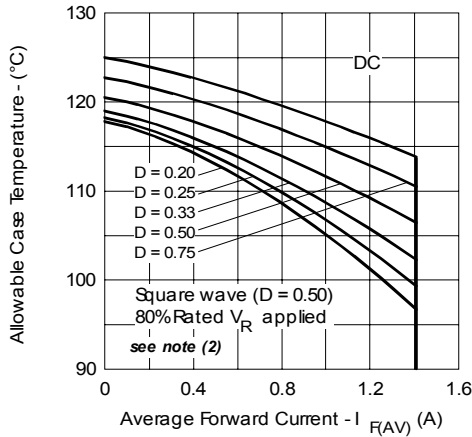


Fig. 4 - Maximum Average Forward Current Vs. Allowable Lead Temperature

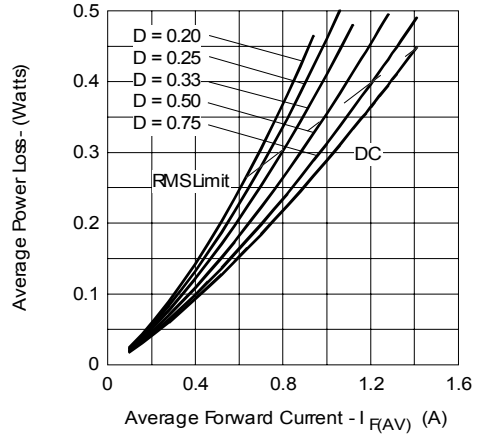


Fig. 5 - Maximum Average Forward Dissipation Vs. Average Forward Current

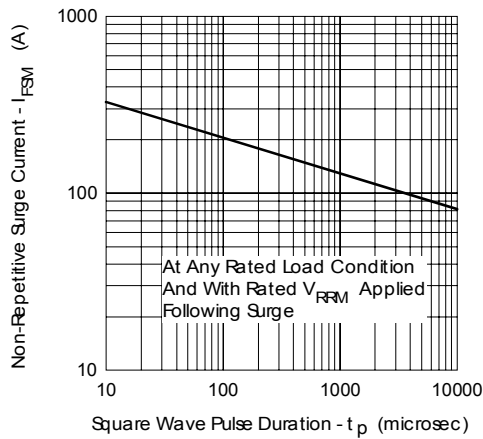
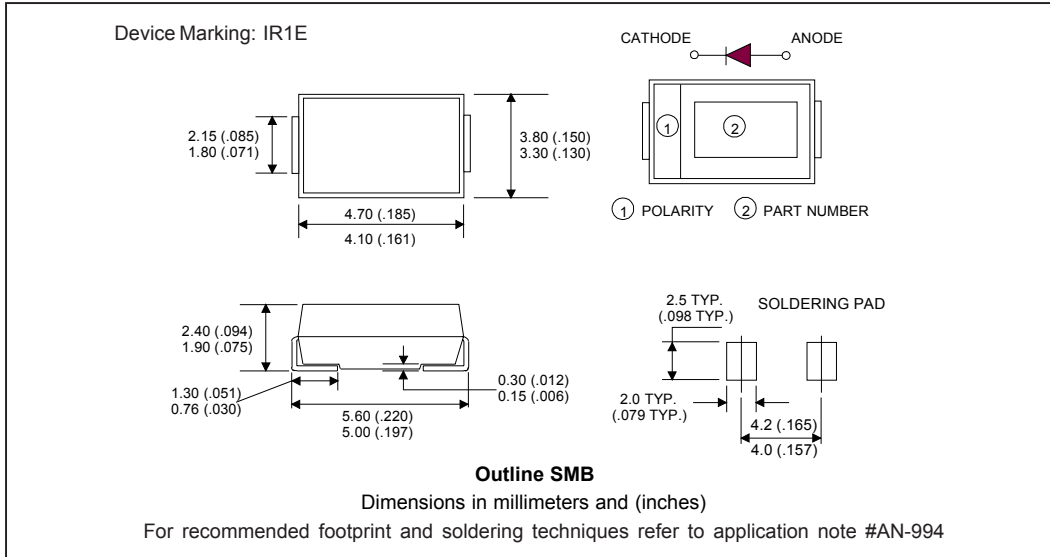


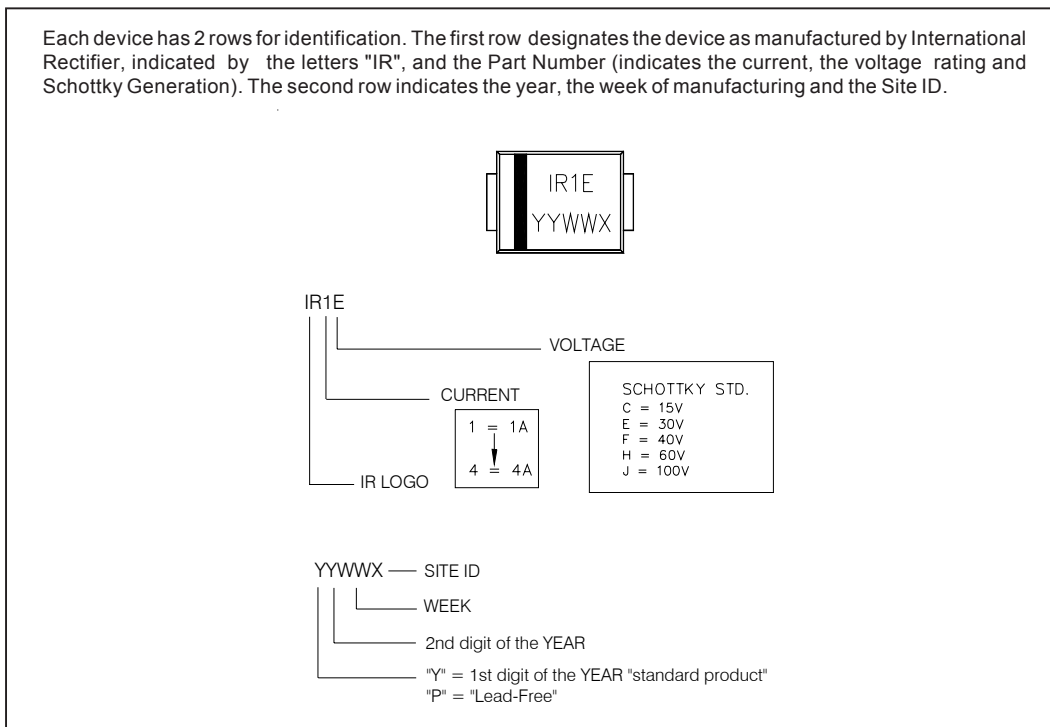
Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

- (2) Formula used:  $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$ ;  
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$  (see Fig. 6);  
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D); I_R @ V_{R1} = 80\% \text{ rated } V_R$

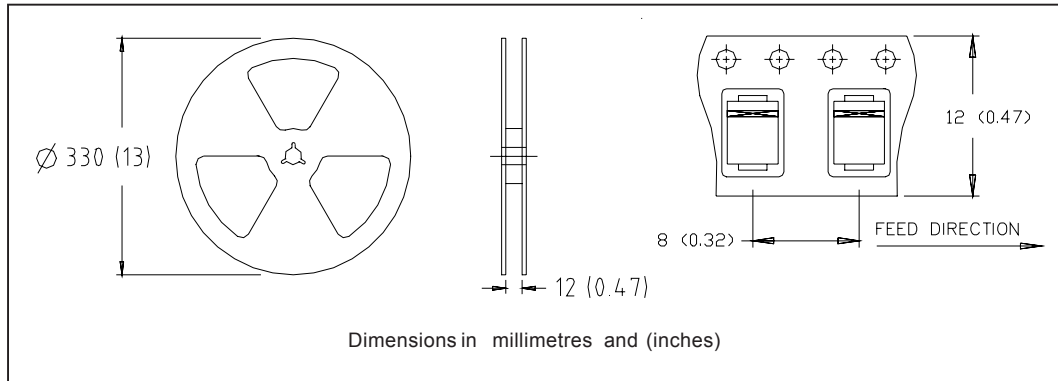
Outline Table



Marking & Identification



Tape & Reel Information



Ordering Information Table

Device Code					
<b>10</b>	<b>B</b>	<b>Q</b>	<b>030</b>	<b>TR</b>	<b>-</b>
①	②	③	④	⑤	⑥
<b>1</b>	- Current Rating				
<b>2</b>	- B = Single Lead Diode				
<b>3</b>	- Q = Schottky Q Series				
<b>4</b>	- Voltage Rating (030 = 30V)				
<b>5</b>	- • none = Box (1000 pieces) • TR = Tape & Reel (3000 pieces)				
<b>6</b>	• none = Standard Production • PbF = Lead-Free				

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