

International
IOR Rectifier

10BQ030

SCHOTTKY RECTIFIER

1 Amp

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

$$V_R = 30V$$

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 @ $1.0A_{pk}$, $T_J = 125^\circ\text{C}$	0.30	V
T_J range	- 55 to 150	$^\circ\text{C}$

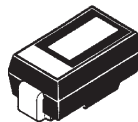
Description/ Features

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



SMB



Voltage Ratings

Part number	10BQ030
V _R Max. DC Reverse Voltage (V)	30
V _{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	10BQ	Units	Conditions
I _{F(AV)} Max. Average Forward Current	1.0	A	50% duty cycle @ T _L = 106 °C, rectangular wave form.
I _{FSM} 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 _{AS} Non-Repetitive Avalanche Energy	3.0	mJ	T _J = 25 °C, I _{AS} = 1A, L = 6mH
I _{AR} Repetitive Avalanche Current	1.0	A	Current decaying linearly to zero in 1 μsec Frequency limited by T _J max. Va = 1.5 x Vr typical

Electrical Specifications

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

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

Thermal-Mechanical Specifications

Parameters	10BQ	Units	Conditions
T _J Max. Junction Temperature Range (*)	-55 to 150	°C	
T _{stg} Max. Storage Temperature Range	-55 to 150	°C	
R _{thJL} Max. Thermal Resistance Junction to Lead (**)	25	°C/W	DC operation
R _{thJA} 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

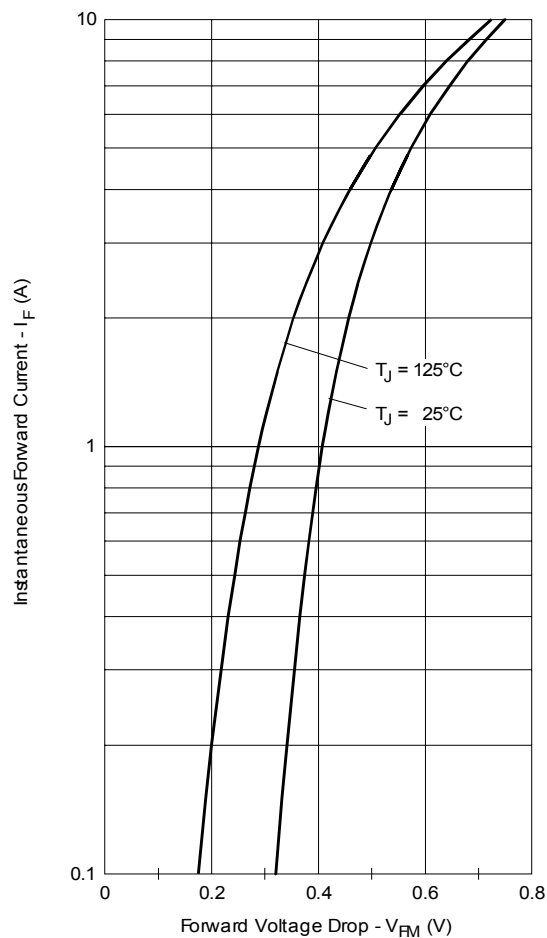


Fig. 1 - Maximum Forward Voltage Drop Characteristics

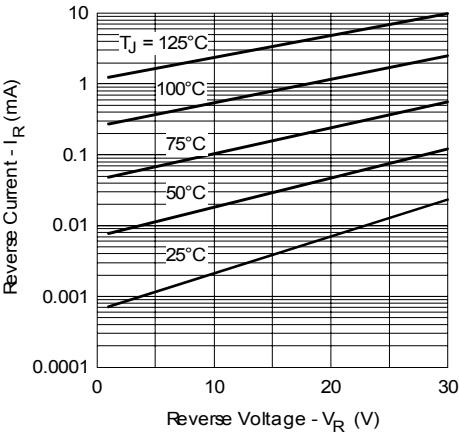


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

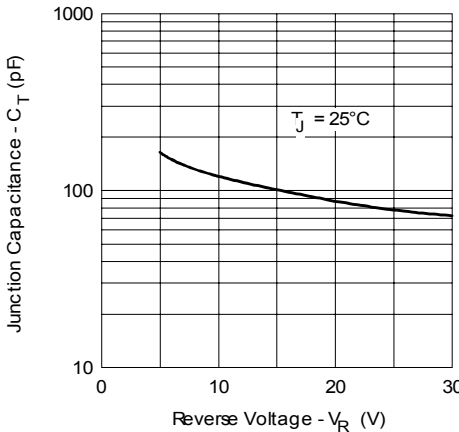


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

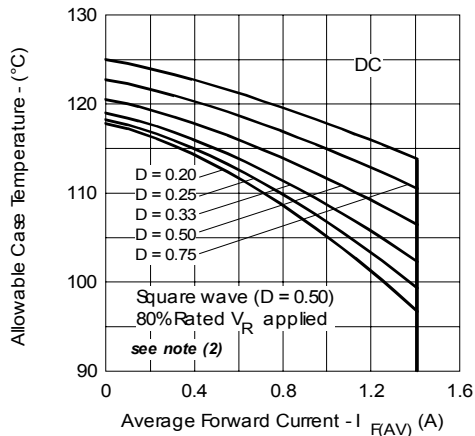


Fig. 4 - Maximum Average Forward Current Vs. Allowable Lead Temperature

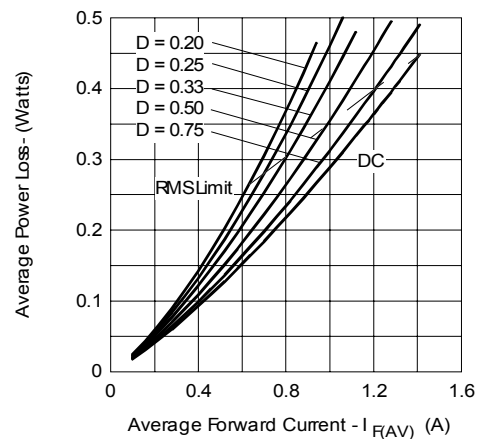


Fig. 5 - Maximum Average Forward Dissipation Vs. Average Forward Current

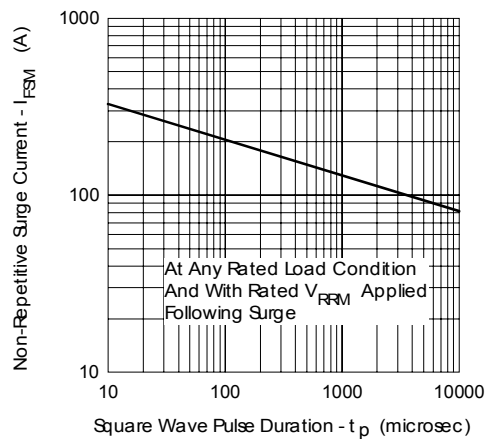


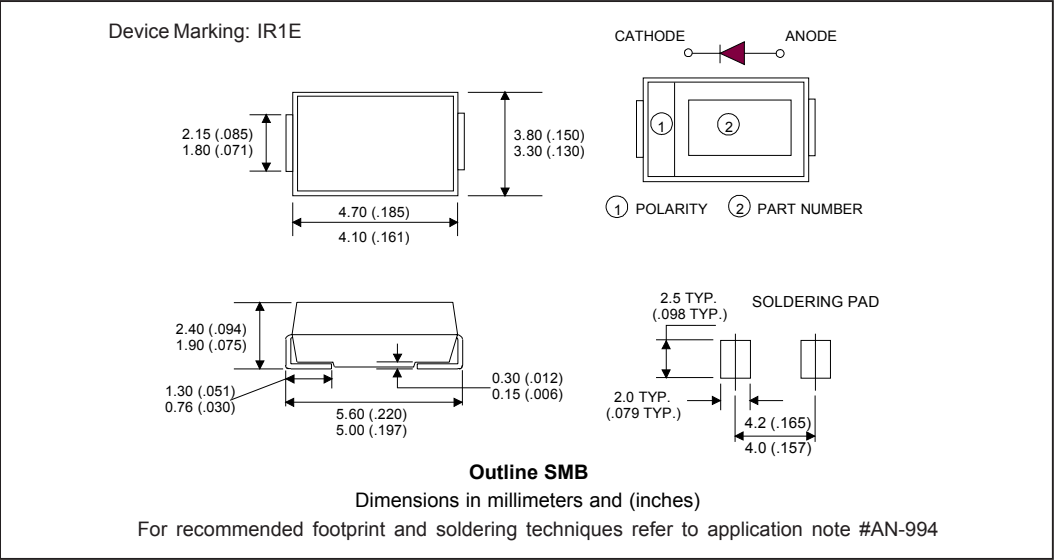
Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

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

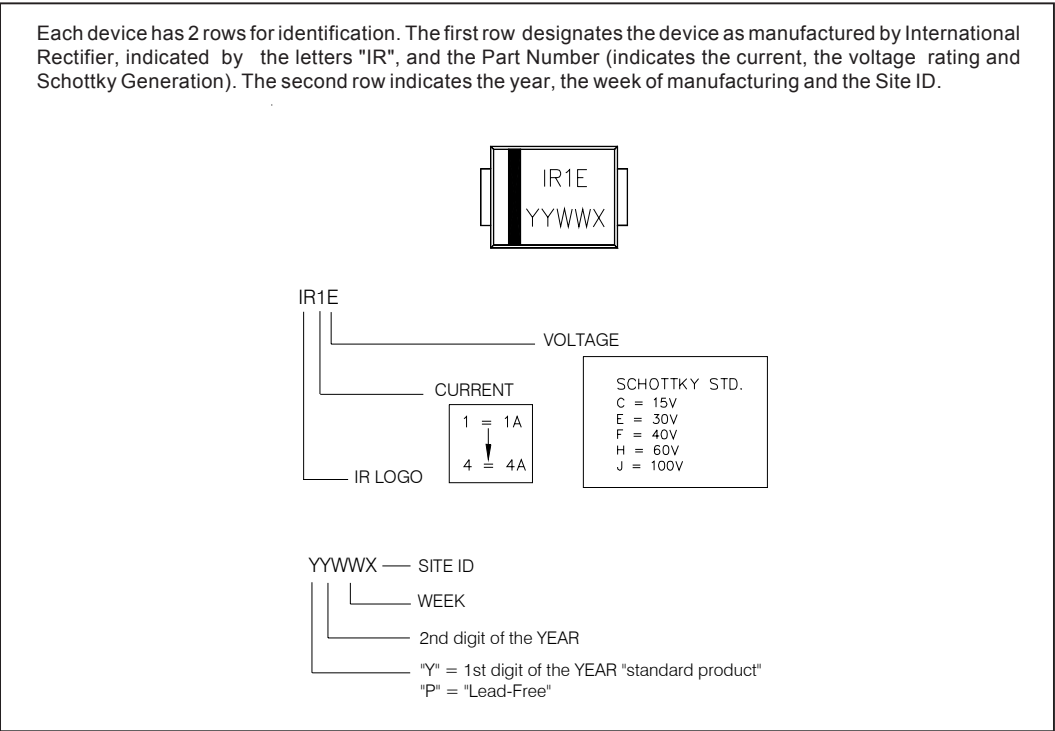
P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\% \text{ rated } V_R$

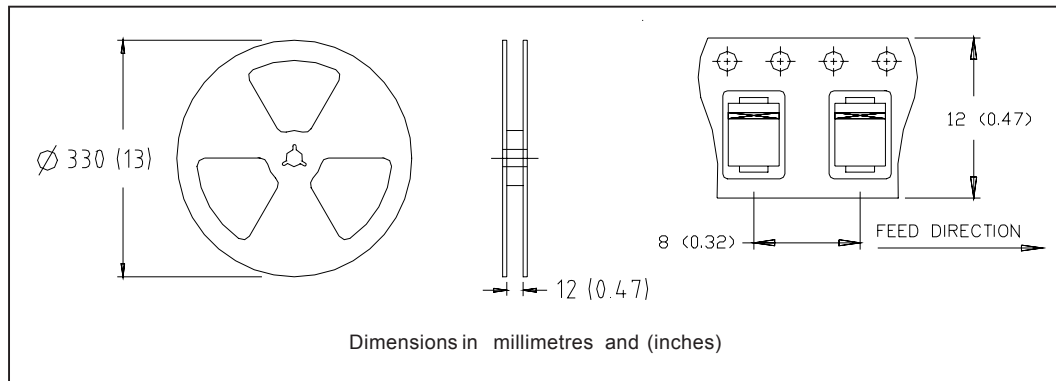
Outline Table



Marking & Identification



Tape & Reel Information



Ordering Information Table

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