

International  
**IR** Rectifier

**20CJQ030**

**SCHOTTKY RECTIFIER**

**2 Amp**

**Major Ratings and Characteristics**

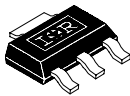
Characteristics	20CJQ030	Units
$I_{F(AV)}$ Rectangular waveform	2.0	A
$V_{RRM}$	30	V
$I_{FSM}$ @ $t_p = 5 \mu s$ sine	400	A
$V_F$ @ 1.0Apk, $T_J = 125^\circ C$ ( Per Leg )	0.42	V
$T_J$	-55 to 150	$^\circ C$

**Description / Features**

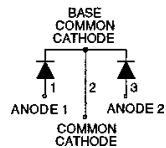
The 20CJQ030 surface-mount Schottky rectifier has been designed for applications requiring very low forward drop and very small foot prints. Typical applications are in portable, switching power supplies, converters, automotive systems, free-wheeling diodes, battery charging and reverse battery protection.

- Small footprints, surface mountable
- Low profile
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long-term reliability
- Common Cathode

**CASE STYLE**



**CIRCUIT**



**Voltage Ratings**

Part number		20CJQ030
V <sub>R</sub>	Max. DC Reverse Voltage (V)	30
V <sub>RWM</sub>	Max. Working Peak Reverse Voltage (V)	

**Absolute Maximum Ratings**

Parameters	20CJQ030	Units	Conditions	
I <sub>F(AV)</sub>	Max. Average Forward Current See Fig. 5	2.0	A	50% duty cycle @ T <sub>C</sub> = 132°C, rectangular waveform 50% duty cycle @ T <sub>C</sub> = 117°C, rectangular waveform
		4.0		
I <sub>FSM</sub>	Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg) See Fig. 7	400	A	5μs Sine or 3μs Rect. pulse 10ms Sine or 6ms Rect pulse
		24		
E <sub>AS</sub>	Max. Average Forward Current ( Per Leg )	17	mJ	T <sub>J</sub> = 25°C, I <sub>AS</sub> = 0.2A, L = 850mH
I <sub>AR</sub>	Repetitive Avalanche Current ( Per Leg )	0.2	A	Current decaying linearly to zero in 1μsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> = 1.5 X V <sub>R</sub> typical

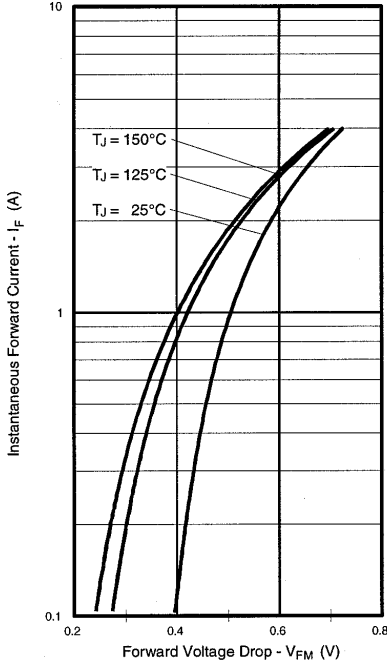
**Electrical Specifications**

Parameters	20CJQ030	Units	Conditions	
V <sub>FM</sub>	Max. Forward Voltage Drop (Per Leg) See Fig. 1 ①	0.50	V @ 1.0A	T <sub>J</sub> = 25°C
		0.59	V @ 2.0A	
		0.42	V @ 1.0A	T <sub>J</sub> = 125°C
		0.52	V @ 2.0A	
I <sub>RM</sub>	Max. Reverse Leakage Current (Per Leg) See Fig. 2 ①	0.1	mA	T <sub>J</sub> = 25°C
		15	mA	T <sub>J</sub> = 125°C
C <sub>T</sub>	Max. Junction Capacitance (Per Leg)	120	pF	V <sub>R</sub> = 5V <sub>DC</sub> , (test signal range 100KHz to 1MHz) 25°C
L <sub>S</sub>	Typical Series Inductance (Per Leg)	6.0	nH	Measured lead to lead 5mm from package body
dv/dt	Max. Voltage Rate of Change (Rated V <sub>R</sub> )	4600	V/μs	

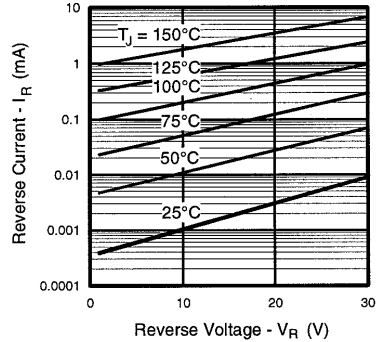
**Thermal-Mechanical Specifications**

Parameters	20CJQ030	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>thJA</sub>	Max. Thermal Resistance, Junction to Ambient	65	°C/W	DC operation
R <sub>thJL</sub>	Max. Thermal Resistance, Junction to Lead	25	°C/W	DC operation -See Fig. 4
wt	Weight (Typical)	0.13(.0045)	g (oz.)	
	Case Style	SOT-223		

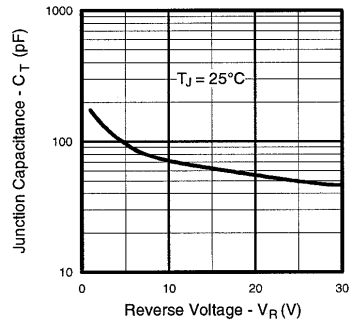
① Pulse Width &lt; 300μs, Duty Cycle &lt; 2%



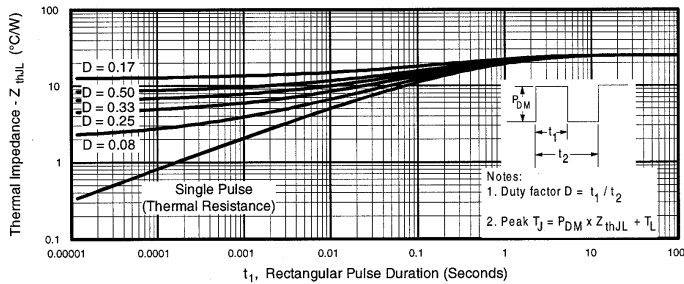
**Fig. 1** Max. Forward Voltage Drop Characteristics (Per Leg)



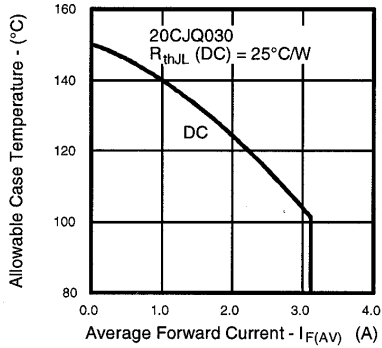
**Fig. 2** Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)



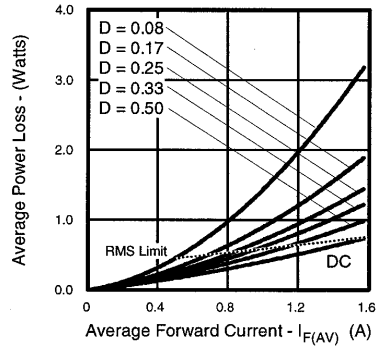
**Fig. 3** Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)



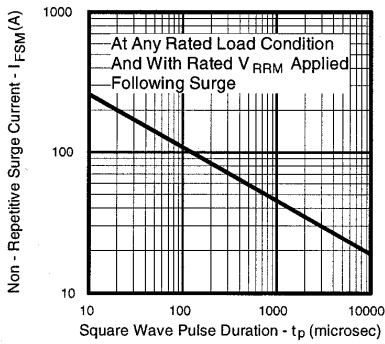
**Fig. 4** Max. Thermal Impedance  $Z_{thJL}$  Characteristics (Per Leg)



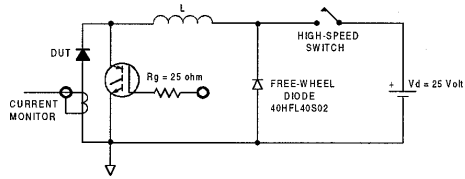
**Fig. 5** Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)



**Fig. 6** Forward Power Loss Characteristics (Per Leg)



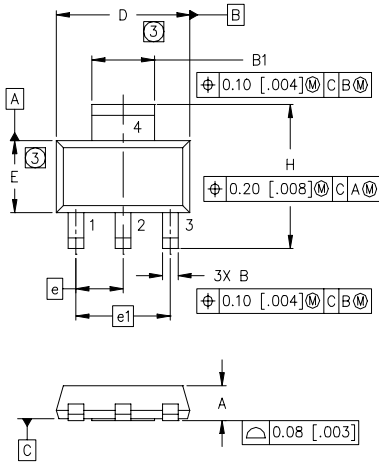
**Fig.7** Max. Non-Repitative Surge Current (Per Leg)



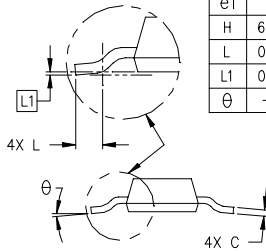
**Fig. 8** Unclamped Inductive Test Circuit

International  
**IRF** Rectifier  
**Package Outline**  
**SOT-223 (TO-261AA) Outline**

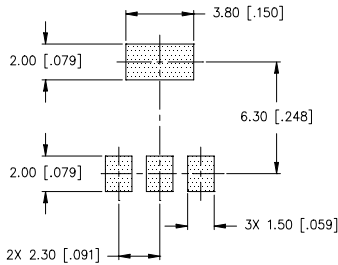
20CJQ030



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.55	1.80	.061	.071
B	0.65	0.85	.026	.033
B1	2.95	3.15	.116	.124
C	0.25	0.35	.010	.014
D	6.30	6.70	.248	.264
E	3.30	3.70	.130	.146
e	2.30	BSC	.0905	BSC
e1	4.60	BSC	.181	BSC
H	6.71	7.29	.264	.287
L	0.91	—	.036	—
L1	0.061	BSC	.0024	BSC
θ	—	10°	—	10°



MINIMUM RECOMMENDED FOOTPRINT



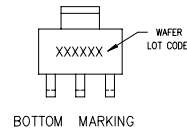
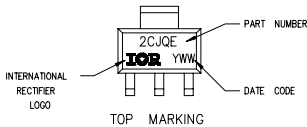
LEAD ASSIGNMENTS

- 1 = ANODE
- 2 = CATHODE
- 3 = ANODE

NOTES:

1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS DO NOT INCLUDE MOLD FLASH.
4. OUTLINE CONFORMS TO JEDEC OUTLINE TO-261AA.
5. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].

**Part Marking Information**  
**SOT-223**

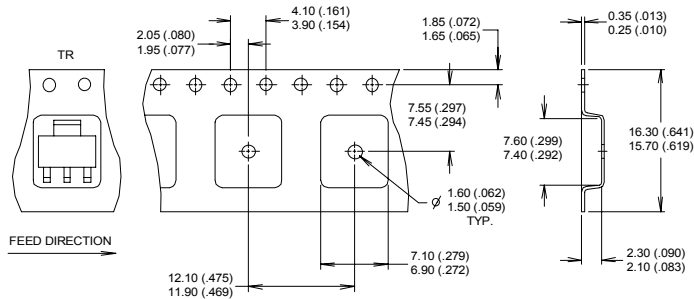


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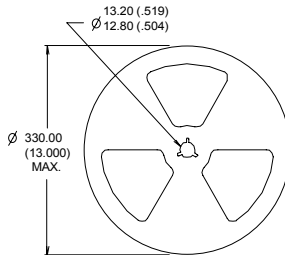
## Tape & Reel Information

### SOT-223 Outline



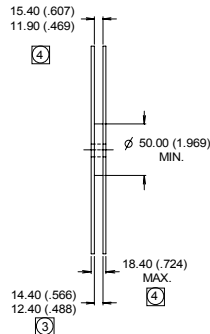
#### NOTES :

1. CONTROLLING DIMENSION: MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.
3. EACH  $\varnothing 330.00$  (13.00) REEL CONTAINS 2,500 DEVICES.



#### NOTES :

1. OUTLINE CONFORMS TO EIA-418-1.
2. CONTROLLING DIMENSION: MILLIMETER.
- ③ DIMENSION MEASURED @ HUB.
- ④ INCLUDES FLANGE DISTORTION @ OUTER EDGE.



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.

International  
**IR** Rectifier

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