Bulletin PD-20477 rev. G 07/06

International
IOR Rectifier

20CJQ030

SCHOTTKY RECTIFIER

2 Amp

$I_{F(AV)}$ = 2 Amp
V_R = 30V

Major Ratings and Characteristics

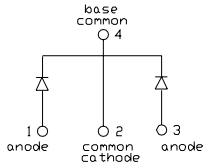
Characteristics		Values	Units
$I_{F(AV)}$	Rectangular waveform	2.0	A
V_{RRM}		30	V
I_{FSM}	@ tp = 5 µs sine	400	A
V_F	@1 Apk, T_J = 125°C (per leg)	0.42	V
T_J	range	- 55 to 150	°C

Description/ Features

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

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

Case Styles



SOT-223

Voltage Ratings

	Part number	20CJQ030
V_R	Max. DC Reverse Voltage (V)	30
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	Values	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward (Per Leg)	2	A	50% duty cycle @ T_C = 132°C, rectangular wave form	
	Current * See Fig. 5 (Per Device)	4		50% duty cycle @ T_C = 117°C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	400	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current (Per Leg) * See Fig. 7	24		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy (Per Leg)	2	mJ	T_J = 25 °C, I_{AS} = 1 Amps, L = 4 mH	
I_{AR}	Repetitive Avalanche Current (Per Leg)	1	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. V_A = 1.5 x V_R typical	

Electrical Specifications

	Parameters	Values	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.50	V	@ 1A	T_J = 25 °C
		0.59	V	@ 2A	
		0.42	V	@ 1A	T_J = 125 °C
		0.52	V	@ 2A	
I_{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	0.1	mA	T_J = 25 °C	V_R = rated V_R
		15	mA	T_J = 125 °C	
C_T	Typ. Junction Capacitance (Per Leg)	120	pF	V_R = 5V_{DC} (test signal range 100Khz to 1Mhz) 25°C	
L_S	Typical Series Inductance (Per Leg)	6	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change	4600	V/ µs	(Rated V_R)	

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

Thermal-Mechanical Specifications

	Parameters	Values	Units	Conditions
T_J	Max. Junction Temperature Range (*)	-55 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-55 to 150	°C	
R_{thJA}	Max. Thermal Resistance Junction to Ambient	65	°C/W	DC operation
R_{thJL}	Max. Thermal Resistance Junction to Lead	25	°C/W	DC operation
wt	Approximate Weight	0.13 (.0045)	g (oz.)	
	Case Style	SOT-223		
	Device Marking	2CJQE		

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

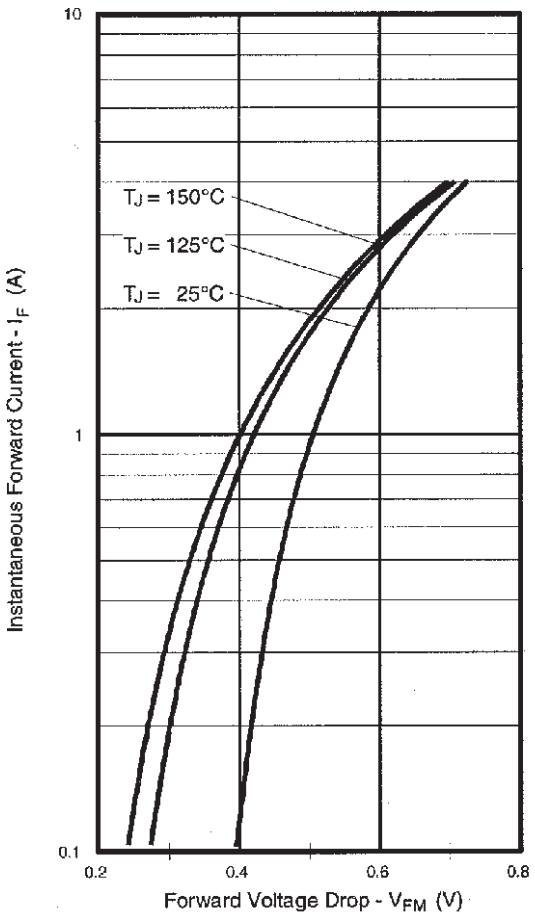


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

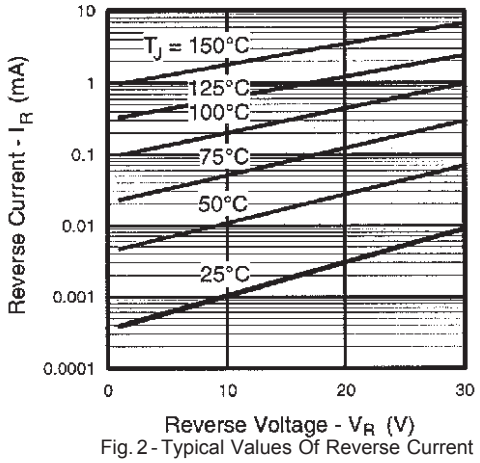


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

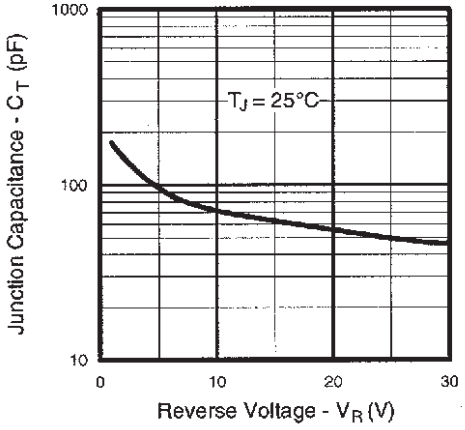


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

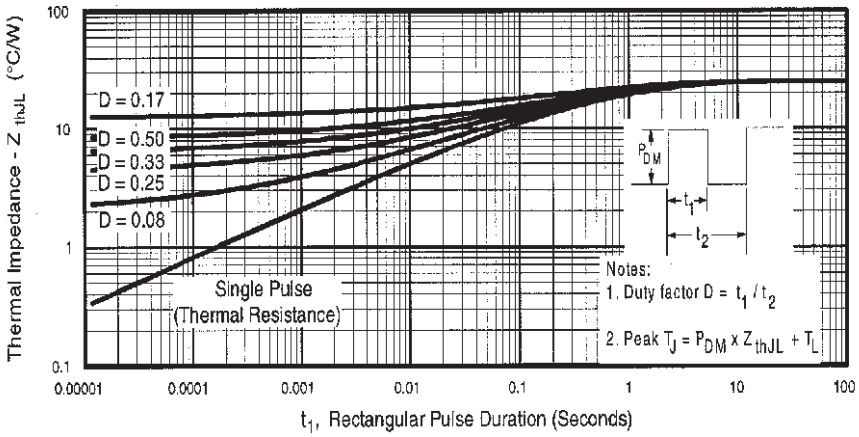


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

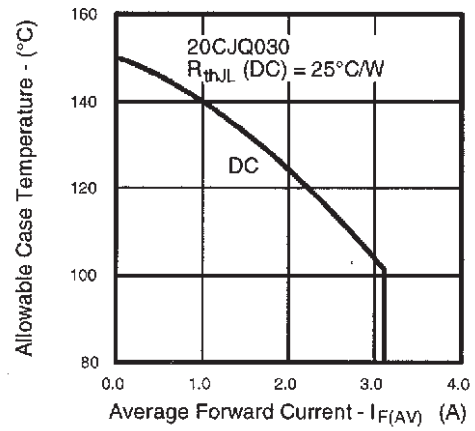


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

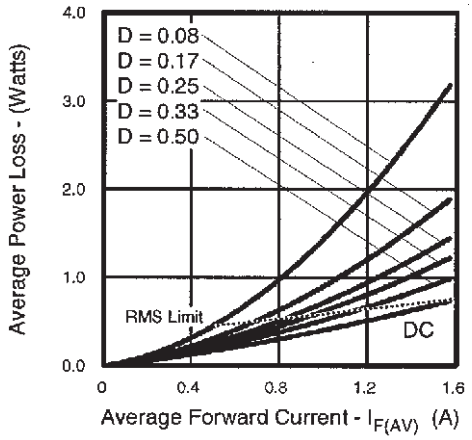


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

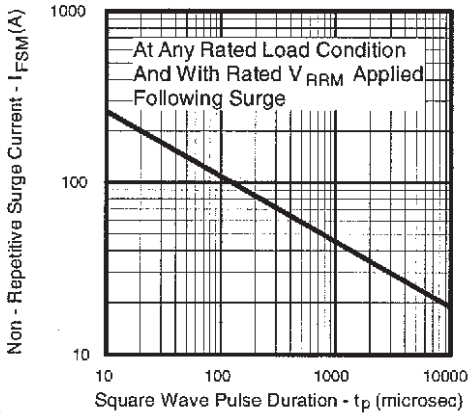


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

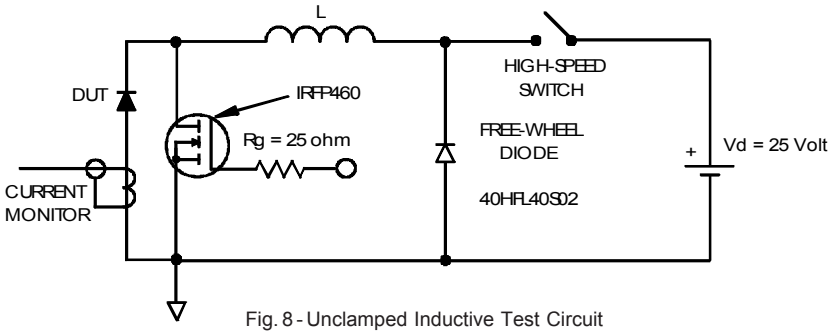
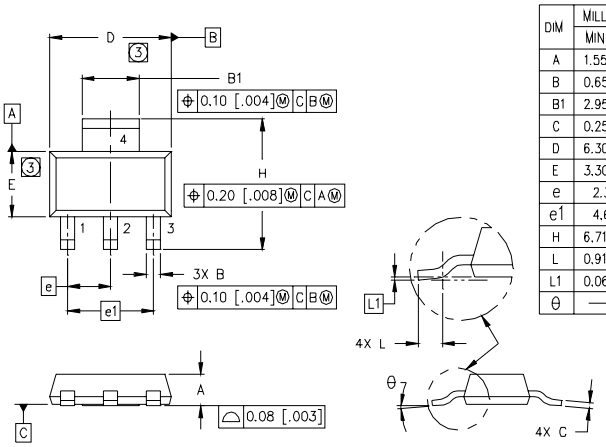


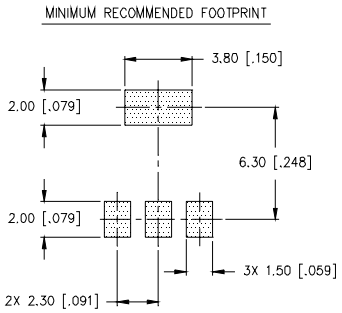
Fig. 8 - Unclamped Inductive Test Circuit

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

Outline Table



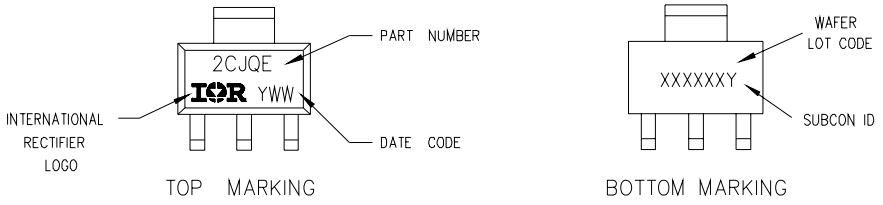
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.55	1.80	.061	.071
B	0.65	0.85	.026	.033
B1	2.95	3.15	.116	.124
C	0.25	0.35	.010	.014
D	6.30	6.70	.248	.264
E	3.30	3.70	.130	.146
e	2.30 BSC		.0905 BSC	
e1	4.60 BSC		.181 BSC	
H	6.71	7.29	.264	.287
L	0.91	—	.036	—
L1	0.061 BSC		.0024 BSC	
θ	—	10°	—	10°



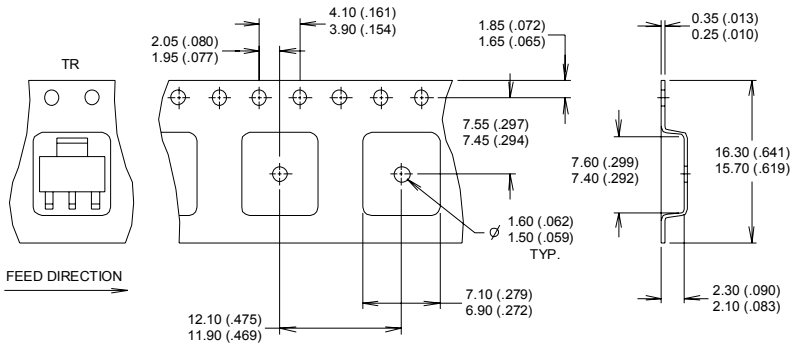
NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M–1994.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS DO NOT INCLUDE MOLD FLASH.
4. OUTLINE CONFORMS TO JEDEC OUTLINE TO-261AA.
5. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].

Conform to JEDEC Outline SOT-223 (TO-261AA)
Dimensions in millimeters and (inches)

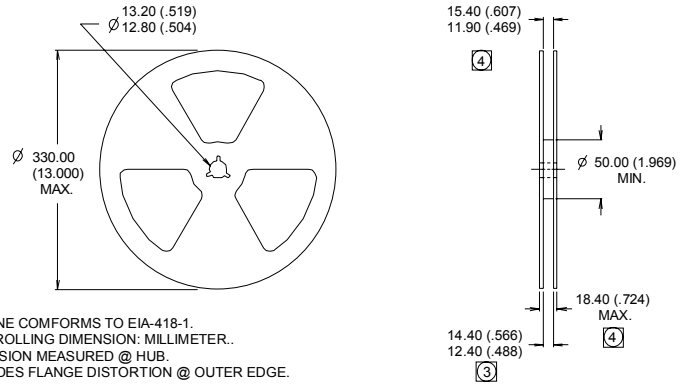
Marking Information



Tape and Reel Information



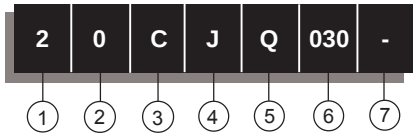
NOTES :
1. CONTROLLING DIMENSION: MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.
3. EACH Ø330.00 (13.00) REEL CONTAINS 2,500 DEVICES.



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

Ordering Information Table

Device Code



1	-	Current Rating (2 = 2A)
2	-	Schottky Rectifier Series
3	-	Circuit Configuration C = Common Cathode
4	-	Package J = SOT-223
5	-	Schottky "Q" Series
6	-	Voltage Rating (030 = 30V)
7	-	• none = Standard Production • PbF = Lead-Free

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
07/06

Notice

The products described herein were acquired by Vishay Intertechnology, Inc., as part of its acquisition of International Rectifier's Power Control Systems (PCS) business, which closed in April 2007. Specifications of the products displayed herein are pending review by Vishay and are subject to the terms and conditions shown below.

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.

International Rectifier®, IR®, the IR logo, HEXFET®, HEXSense®, HEXDIP®, DOL®, INTERO®, and POWIRTRAIN® are registered trademarks of International Rectifier Corporation in the U.S. and other countries. All other product names noted herein may be trademarks of their respective owners.