

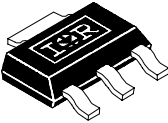
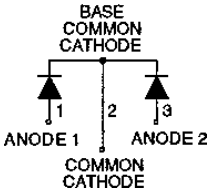
**Major Ratings and Characteristics**

Characteristics	20CJQ100	Units
$I_{F(AV)}$ Rectangular waveform	2.0	A
$V_{RRM}$	100	V
$I_{FSM}$ @ $t_p = 5 \mu s$ sine	380	A
$V_F$ @ 1.0Apk, $T_J = 125^\circ C$ ( Per Leg )	0.67	V
$T_J$	-55 to 175	$^\circ C$

**Description / Features**

The 20CJQ100 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

<p><b>CASE STYLE</b></p> 	<p><b>CIRCUIT</b></p> 
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**Voltage Ratings**

Part number		20CJQ0100
V <sub>R</sub>	Max. DC Reverse Voltage (V)	100
V <sub>RWM</sub>	Max. Working Peak Reverse Voltage (V)	

**Absolute Maximum Ratings**

Parameters	20CJQ100	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current See Fig. 5	2.0	A	50% duty cycle @ T <sub>C</sub> = 152°C, rectangular waveform
	4.0		50% duty cycle @ T <sub>C</sub> = 132°C, rectangular waveform
I <sub>FSM</sub> Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg) See Fig. 7	380	A	Following any rated load condition and rated V <sub>RWM</sub>
	22		
E <sub>AS</sub> Max. Average Forward Current ( Per Leg )	13	mJ	T <sub>J</sub> = 25°C, I <sub>AS</sub> = 1.0A, L = 26mH
I <sub>AR</sub> Repetitive Avalanche Current ( Per Leg )	1.0	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

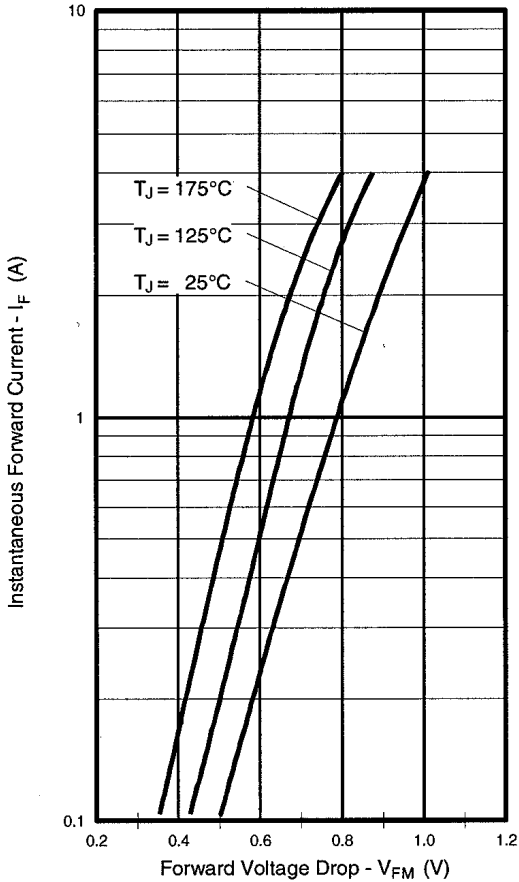
**Electrical Specifications**

Parameters	20CJQ100	Units	Conditions
V <sub>FM</sub> Max. Forward Voltage Drop (Per Leg) See Fig. 1 ①	0.79	V	@ 1.0A
	0.89	V	@ 2.0A
	0.67	V	@ 1.0A
	0.76	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
	1.0	mA	T <sub>J</sub> = 125°C
C <sub>T</sub> Max. Junction Capacitance (Per Leg)	45	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> )	10,000	V/µs	

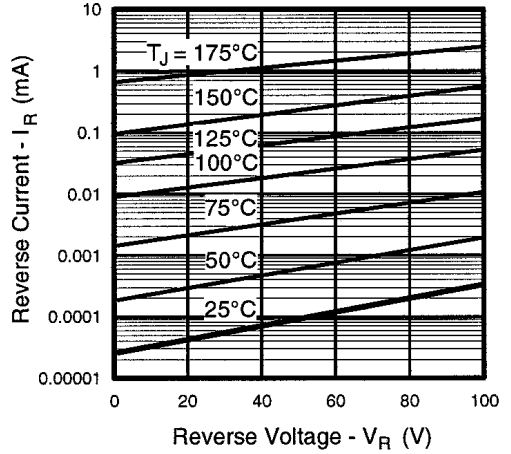
**Thermal-Mechanical Specifications**

Parameters	20CJQ100	Units	Conditions
T <sub>J</sub> Max. Junction Temperature Range	-55 to 175	°C	
T <sub>stg</sub> Max. Storage Temperature Range	-55 to 175	°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		

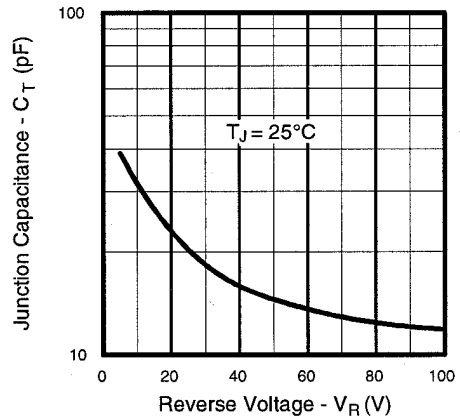
① Pulse Width &lt; 300µs, Duty Cycle &lt; 2%



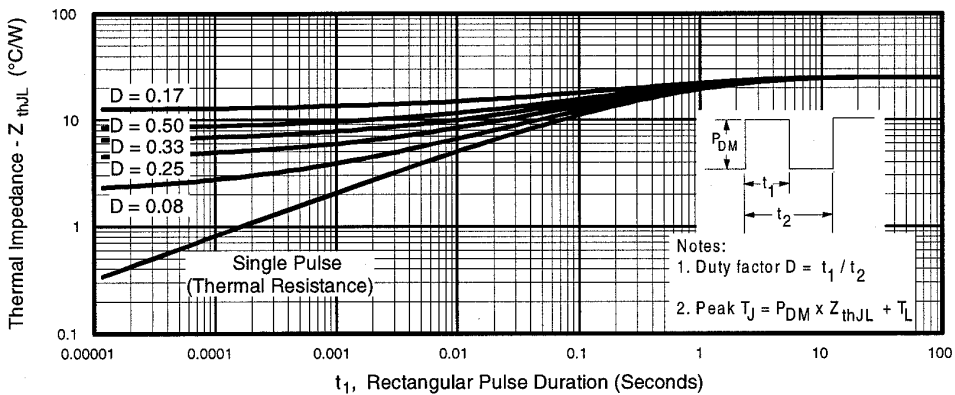
**Fig. 1** Max. Forward Voltage Drop Characteristics (Per Leg)



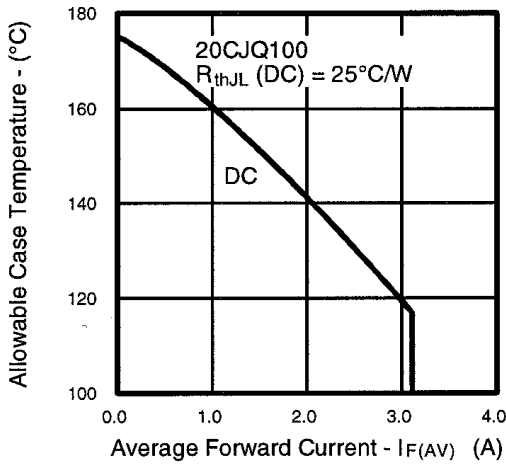
**Fig. 2** Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)



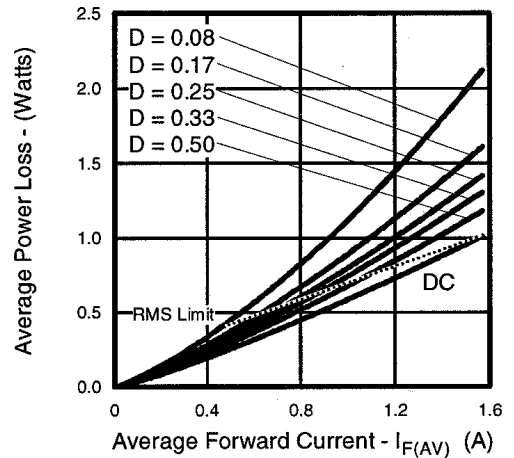
**Fig. 3** Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)



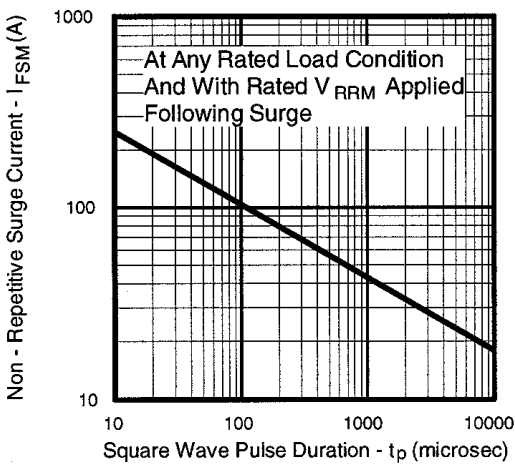
**Fig. 4** Max. Thermal Impedance  $Z_{thJL}$  Characteristics (Per Leg)



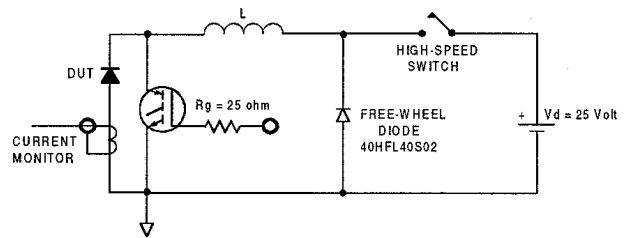
**Fig. 5** Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)



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



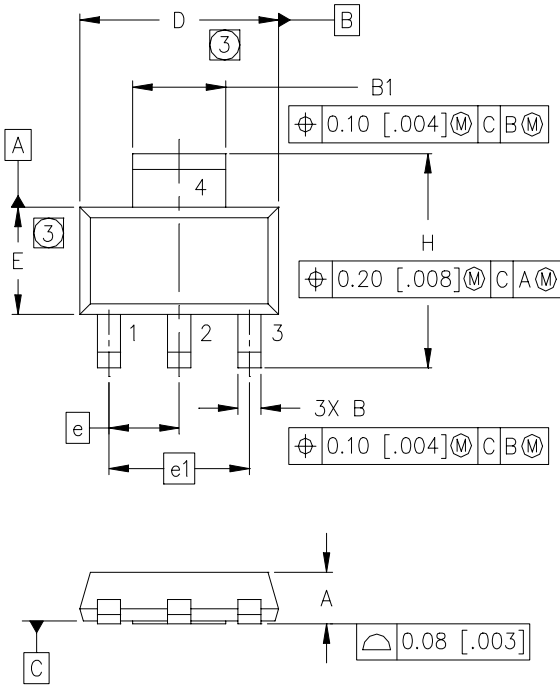
**Fig.7** Max. Non-Repetitive Surge Current (Per Leg)



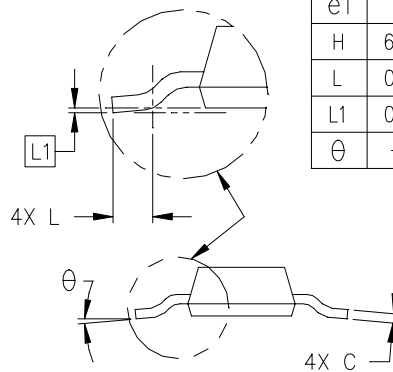
**Fig. 8** Unclamped Inductive Test Circuit

# Package Outline

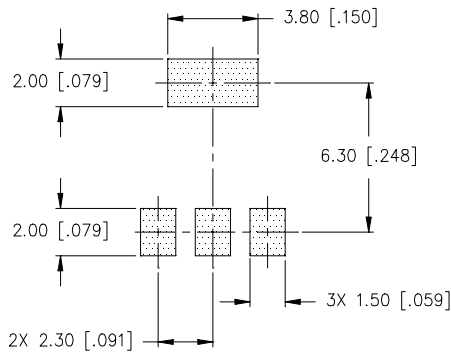
## SOT-223 (TO-261AA) Outline



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

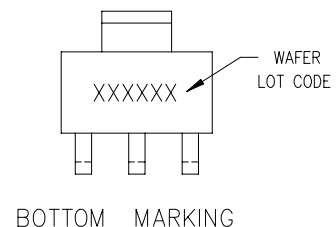
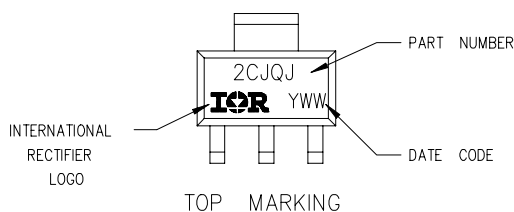
- 1 = ANODE
- 2 = CATHODE
- 3 = ANODE

### NOTES:

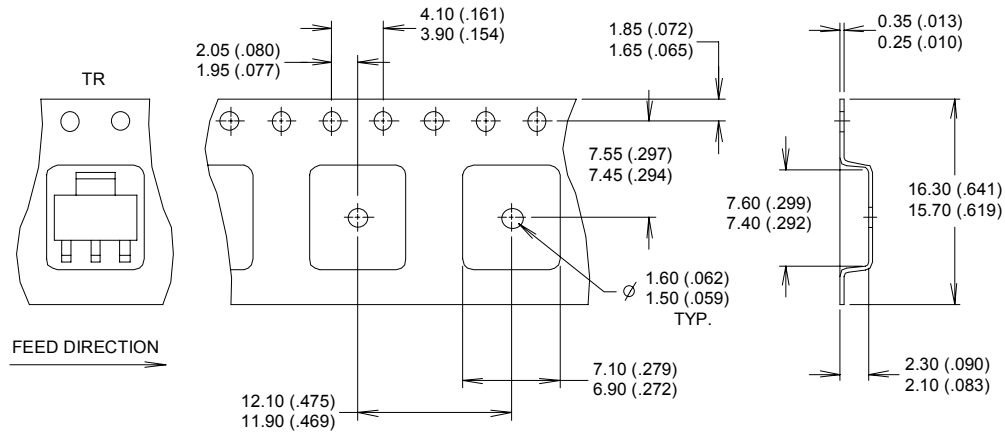
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: INCH.
- ③ DIMENSIONS DO NOT INCLUDE MOLD FLASH.
4. OUTLINE CONFORMS TO JEDEC OUTLINE TO-261AA.
5. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].

## Part Marking Information

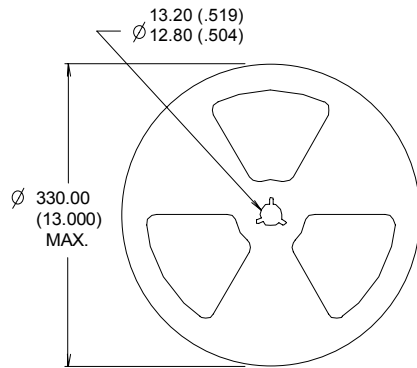
### SOT-223



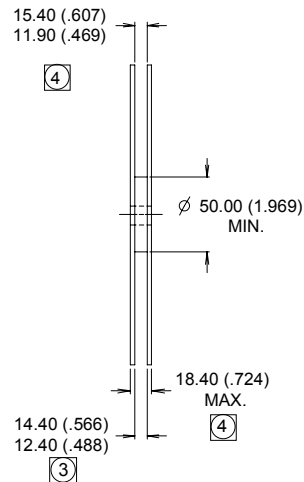
Tape & Reel Information  
SOT-223 Outline



- 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 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.