International
IOR Rectifier

PD - 2.479A

# 20CJQ060

SCHOTTKY RECTIFIER

2 Amp

## Major Ratings and Characteristics

| Characteristics | 20CJQ060 | Units |
|---|---|---|
| $I_{F(AV)}$ Rectangular waveform | 2.0 | A |
| $V_{RRM}$ | 60 | V |
| $I_{FSM}$ @ tp = 5µs sine | 385 | A |
| $V_F$ @ 1.0Apk, $T_J$ = 125°C (per leg) | 0.56 | V |
| $T_J$ | -55 to 150 | °C |

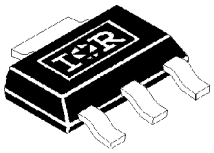
## Description / Features

The 20CJQ060 surface-mount Schottky rectifier 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 systems, free-wheeling diodes, battery charging and reverse battery protection.

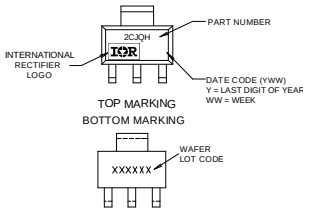
- Small footprint, surface mountable
- Low profile
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long-term reliability
- Common Cathode

## SOT-223

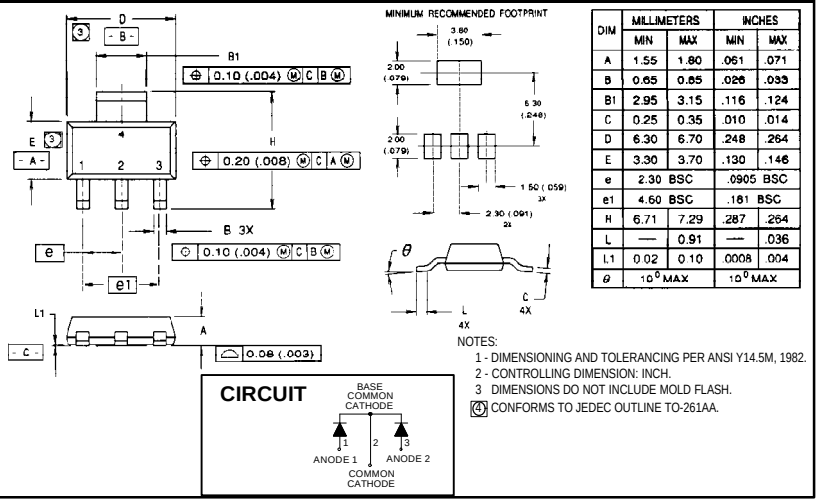
### CASE STYLE



### PART MARKING




### CASE 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 | .287 | .264 |
| L | — | 0.91 | — | .036 |
| L1 | 0.02 | 0.10 | 0008 | .004 |
| θ | 10° MAX | | 10° MAX | |

NOTES:
1 - DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2 - CONTROLLING DIMENSION: INCH.
3 DIMENSIONS DO NOT INCLUDE MOLD FLASH.
4 CONFORMS TO JEDEC OUTLINE TO-261AA.



To Order
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# 20CJQ060

IOR

## Voltage Ratings

| Part number | | 20CJQ060 |
|---|---|---|
| $V_R$ | Max. DC Reverse Voltage (V) | 60 |
| $V_{RWM}$ | Max. Working Peak Reverse Voltage (V) | |

## Absolute Maximum Ratings

| | Parameters | 20CJQ | Units | Conditions |
|---|---|---|---|---|
| $I_{F(AV)}$ | Max. Average Forward Current | 2.0 | A | 50% duty cycle @ $T_C$ = 127°C, rectangular waveform |
| | See Fig. 5 | 4.0 | | 50% duty cycle @ $T_C$ = 109°C, rectangular waveform |
| $I_{FSM}$ | Max. Peak One Cycle Non - Repetitive | 385 | A | 5µs Sine or 3µs Rect. pulse — Following any rated load condition |
| | Surge Current (Per Leg) See Fig. 7 | 22 | | 10ms Sine 0r 6ms Rect. pulse — and with rated $V_{RRM}$ applied. |
| $E_{AS}$ | Non - Repetitive Avalanche Energy (Per Leg) | 10 | mJ | $T_J$ = 25°C, $I_{AS}$ =1.0A, L =20mH |
| $I_{AR}$ | Repetitive Avalanche Current (Per Leg) | 1.0 | A | Current decaying linearly to zero in 1µsec Frequency limited by $T_J$ max. $V_A$ = 1.5 X $V_R$ typical |

## Electrical Specifications

| Parameters | | 20CJQ | Units | | Conditions |
|---|---|---|---|---|---|
| $V_{FM}$ | Max. Forward Voltage Drop | 0.59 | V | @ 1.0A | $T_J$ = 25°C |
| (Per Leg) See Fig. 1 ① | | 0.75 | V | @ 2.0A | |
| | | 0.56 | V | @ 1.0A | $T_J$ = 125°C |
| | | 0.67 | V | @ 2.0A | |
| $I_{RM}$ | Max. Reverse Leakage Current | 0.1 | mA | $T_J$ = 25°C | $V_R$ = rated $V_R$ |
| | (Per Leg) See Fig. 2 ① | 5.0 | mA | $T_J$ = 125°C | |
| $C_T$ | Max. Junction Capacitance (Per Leg) | 60 | pF | $V_R$ = 5$V_{DC}$, (test signal range 100KHz to 1MHz) 25°C | |
| $L_S$ | Typical Series Inductance (Per Leg) | 6.0 | nH | Measured lead to lead 5mm from package body | |
| dv/dt | Max. Voltage Rate of Change (Rated $V_R$) | 10,000 | V/µs | | |

## Thermal-Mechanical Specifications

| | Parameters | 20CJQ | 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 — see Fig. 4. |
| wt | Approximate Weight | 0.13(.0045) | g (oz.) | |
| | Case Style | SOT-223 | | |

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



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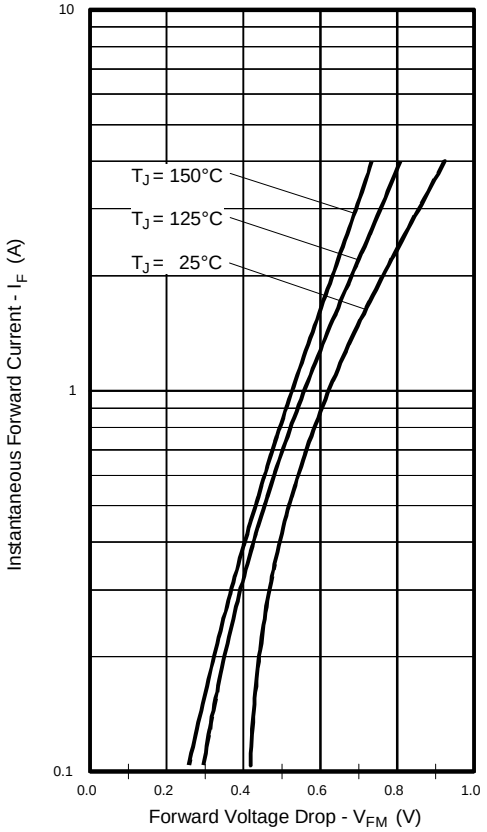



**Fig. 1** Max. Forward Voltage Drop Characteristics (Per Leg)

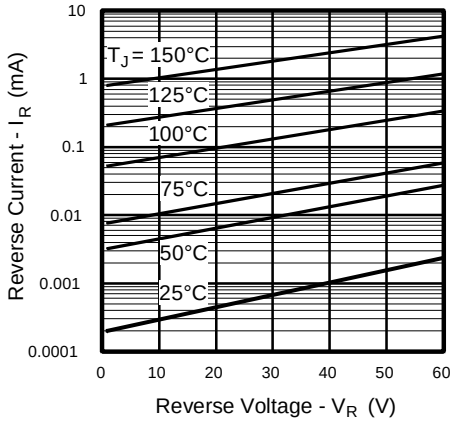



**Fig. 2** Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

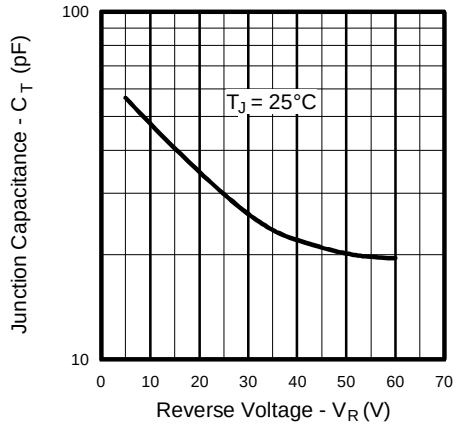



**Fig. 3** Typical Junction CapacitanceVs. Reverse Voltage (Per Leg)

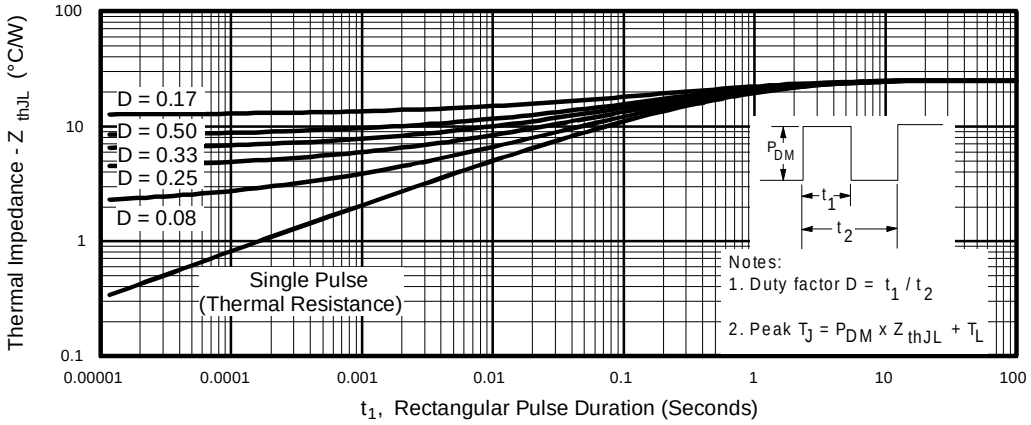



**Fig. 4** Max. Thermal Impedance $Z_{thJL}$ Characteristics (Per Leg)

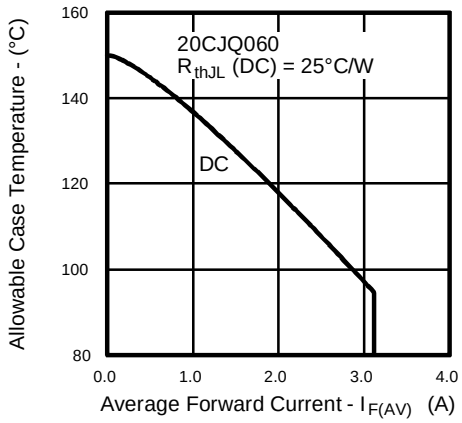



**Fig. 5** Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

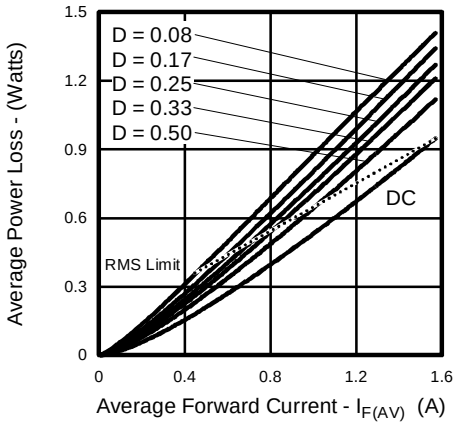



**Fig. 6** Forward Power Loss Characteristics (Per Leg)

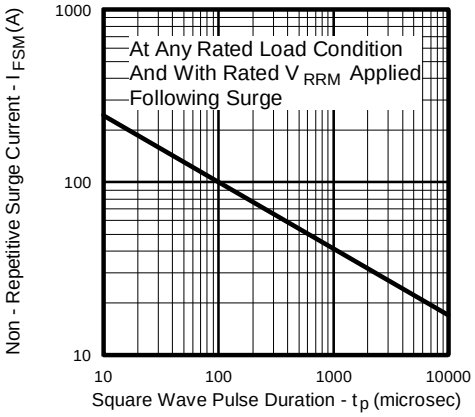



**Fig.7** Max. Non-Repetitive Surge Current (Per Leg)

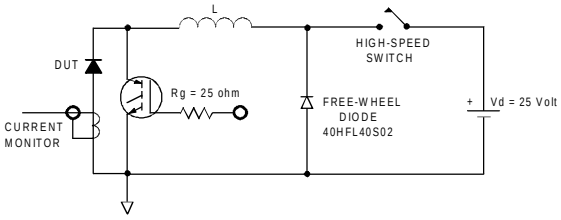



**Fig. 8** Unclamped Inductive Test Circuit

**Refer to the Appendix Section for the following:**

**Appendix D:** Tape and Reel Information — See page 340.