

International  
**IR** Rectifier  
 SCHOTTKY RECTIFIER  
 HIGH EFFICIENCY SERIES

PD-20352J

20CLQ045  
 JANS1N7041CCU1  
 JANTX1N7041CCU1  
 JANTXV1N7041CCU1

20Amp, 45V

Ref: MIL-PRF-19500/735

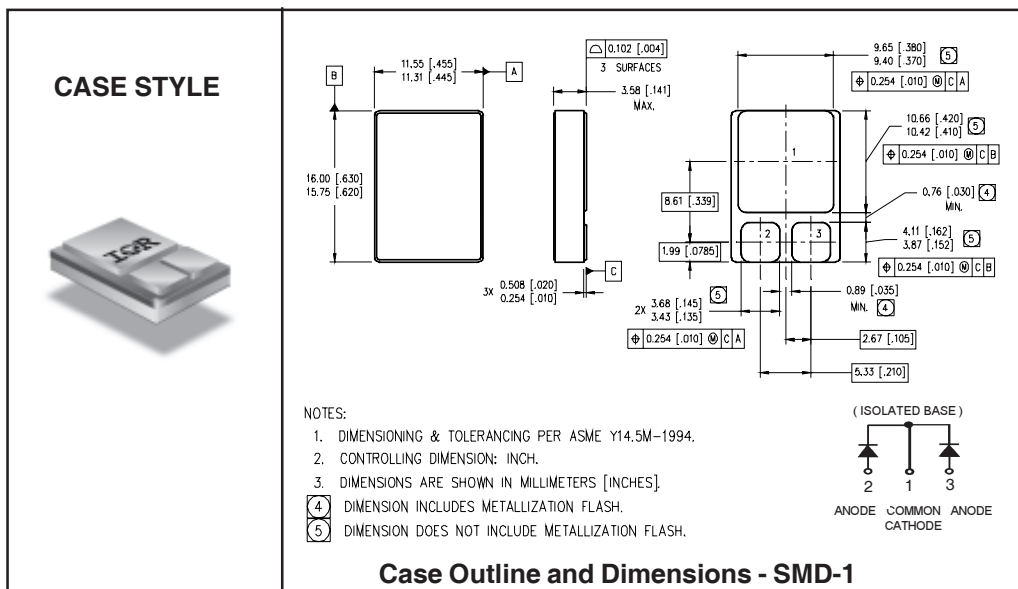
**Major Ratings and Characteristics**

| Characteristics                               | 1N7041CCU1 | Units      |
|---|------------|------------|
| $I_{F(AV)}$ Rectangular waveform              | 20         | A          |
| $V_{RRM}$ (Per Leg)                           | 45         | V          |
| $I_{FSM}$ @ $t_p = 8.3ms$ half-sine (Per Leg) | 250        | A          |
| $V_F$ @ 10Apk, $T_J = 125^\circ C$ (Per Leg)  | 0.48       | V          |
| $T_J, T_{stg}$ Operating and storage          | -65 to 150 | $^\circ C$ |

**Description/Features**

The 1N7041CCU1 center tap Schottky rectifier has been expressly designed to meet the rigorous requirements of high reliability environments. It is packaged in the hermetic surface mount SMD-1 ceramic package. The device's forward voltage drop and reverse leakage current are optimized for the lowest power loss and the highest circuit efficiency for typical high frequency switching power supplies and resonant power converters. Full MIL-PRF-19500 quality conformance testing is available on source controlled drawings to TX, TXV and S levels.

- Hermetically Sealed
- Center Tap
- Low Forward Voltage Drop
- High Frequency Operation
- Guard Ring for Enhanced Ruggedness and Long Term Reliability
- Surface Mount
- Lightweight
- ESD Rating: Class 3A per MIL-STD-750, Method 1020



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**Voltage Ratings**

| Part number   | 1N7041CCU1 |
|---|------------|
| $V_R$ Max. DC Reverse Voltage (V) (Per Leg)             | 45         |
| $V_{RWM}$ Max. Working DC Reverse Voltage (V) (Per Leg) |            |

**Absolute Maximum Ratings**

| Parameters   | Limits | Units | Conditions  |
|--|--------|-------|---|
| $I_{F(AV)}$ Max. Average Forward Current<br>See Fig. 5                 | 20     | A     | 50% duty cycle @ $T_C = 135^\circ\text{C}$ , rectangular waveform |
| $I_{FSM}$ Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg) | 250    | A     | @ $t_p = 8.3$ ms half-sine  |

**Electrical Specifications**

| Parameters  | Limits | Units | Conditions   |                           |
|---|--------|-------|--|---------------------------|
| $V_{FM}$ Max. Forward Voltage Drop<br>(Per Leg) See Fig. 1 ①    | 0.65   | V     | @ 10A  | $T_J = -55^\circ\text{C}$ |
|   | 0.74   | V     | @ 20A  |                           |
|   | 0.57   | V     | @ 10A  | $T_J = 25^\circ\text{C}$  |
|   | 0.69   | V     | @ 20A  |                           |
|   | 0.48   | V     | @ 10A  | $T_J = 125^\circ\text{C}$ |
|   | 0.61   | V     | @ 20A  |                           |
| $I_{RM}$ Max. Reverse Leakage Current<br>(Per Leg) See Fig. 2 ① | 0.5    | mA    | $T_J = 25^\circ\text{C}$                                   | $V_R = \text{rated } V_R$ |
|   | 67     | mA    | $T_J = 125^\circ\text{C}$                                  |                           |
| $C_T$ Max. Junction Capacitance (Per Leg)                       | 900    | pF    | $V_R = 5V_{DC}$ ( 1MHz, $25^\circ\text{C}$ )               |                           |
| $L_S$ Typical Series Inductance (Per Leg)                       | 5.9    | nH    | Measured from center of cathode pad to center of anode pad |                           |

**Thermal-Mechanical Specifications**

| Parameters   | Limits     | Units                     | Conditions   |            |
|--|------------|---------------------------|--------------|------------|
| $T_J$ Max. Junction Temperature Range                              | -65 to 150 | $^\circ\text{C}$          |              |            |
| $T_{stg}$ Max. Storage Temperature Range                           | -65 to 150 | $^\circ\text{C}$          |              |            |
| $R_{thJC}$ Max. Thermal Resistance, Junction to Case (Per Leg)     | 1.67       | $^\circ\text{C}/\text{W}$ | DC operation | See Fig. 4 |
| $R_{thJC}$ Max. Thermal Resistance, Junction to Case (Per Package) | 0.83       | $^\circ\text{C}/\text{W}$ | DC operation |            |
| wt Weight (Typical)  | 2.6        | g                         |              |            |
| Die Size   | 125X125    | mils                      |              |            |
| Case Style   | SMD-1      |                           |              |            |

① Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

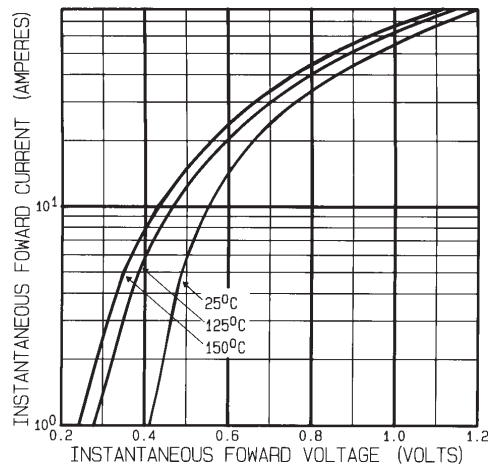


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

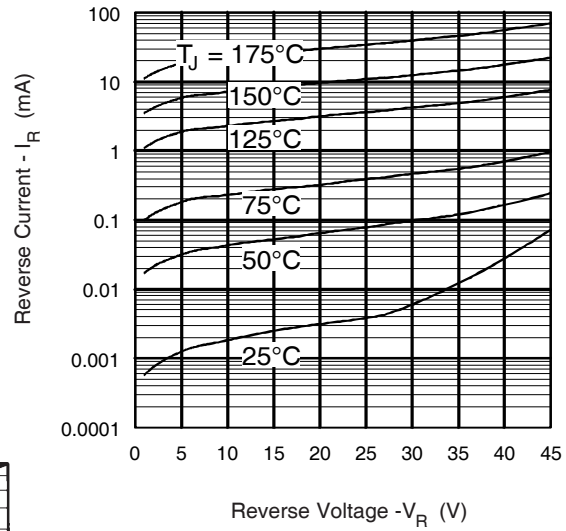


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

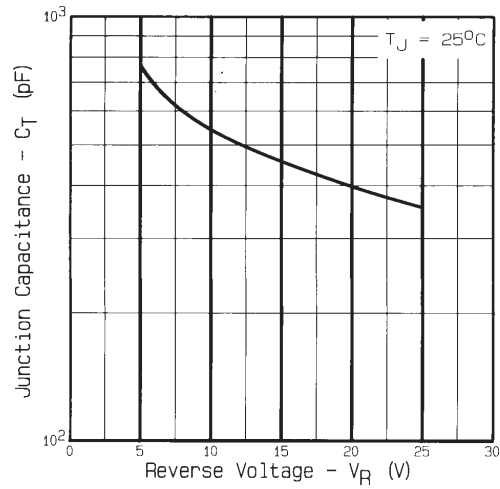


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

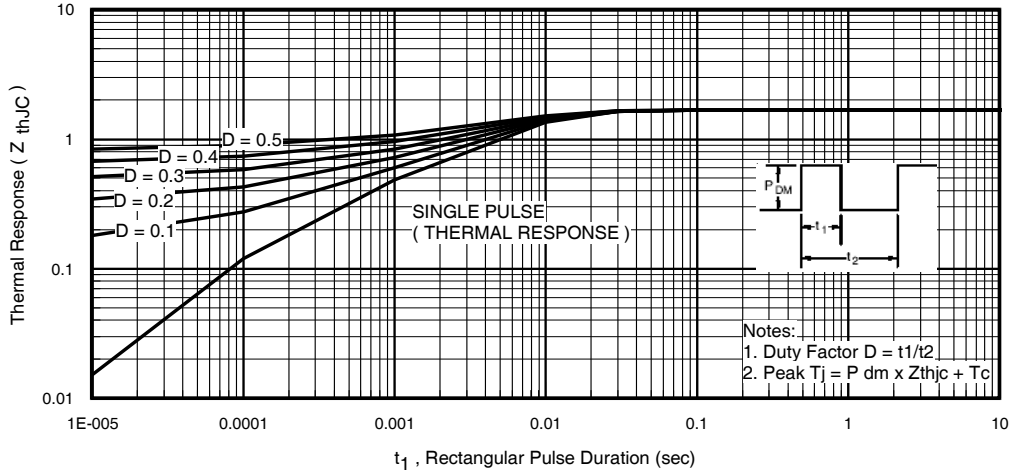


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

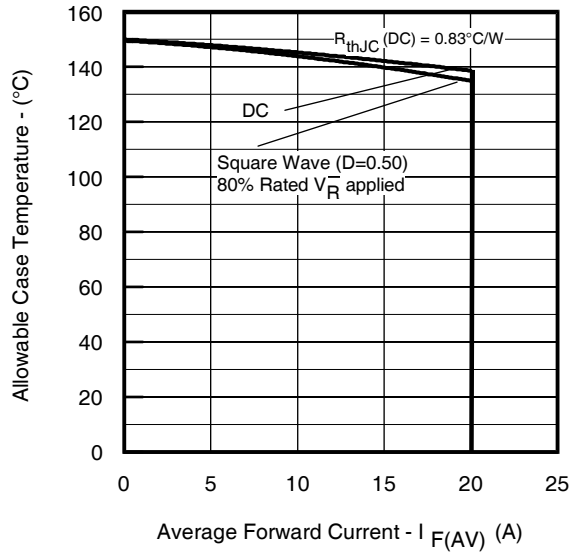


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Package)