

International
IR Rectifier
 SCHOTTKY RECTIFIER
 HIGH EFFICIENCY SERIES

PD-20352J

20CLQ045
 JANS1N7041CCU1
 JANTX1N7041CCU1
 JANTXV1N7041CCU1

20Amp, 45V

Ref: MIL-PRF-19500/735

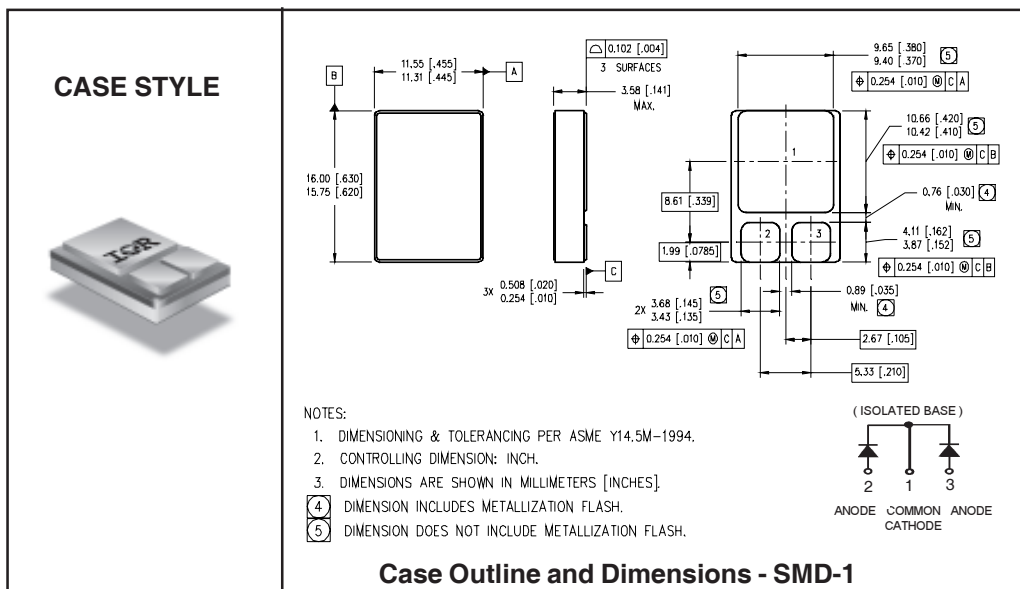
Major Ratings and Characteristics

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 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 (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 (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°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	$^\circ\text{C/W}$	DC operation	See Fig. 4
R_{thJC} Max. Thermal Resistance, Junction to Case (Per Package)	0.83	$^\circ\text{C/W}$	DC operation	
wt Weight (Typical)	2.6	g		
Die Size	125X125	mils		
Case Style	SMD-1			

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

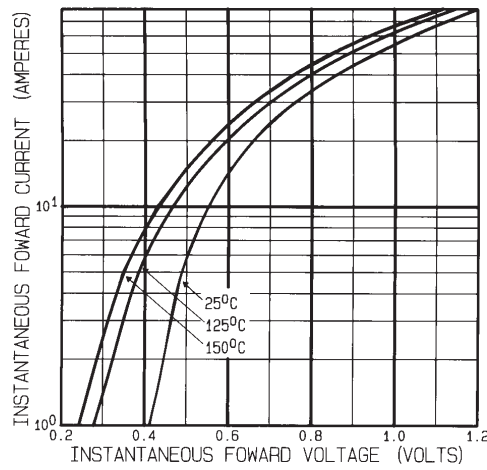


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

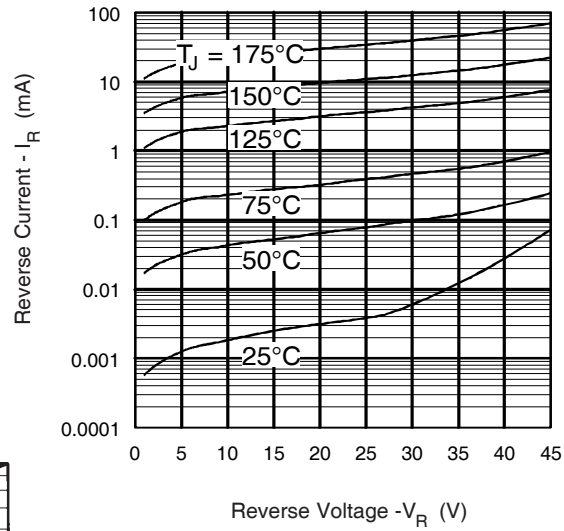


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

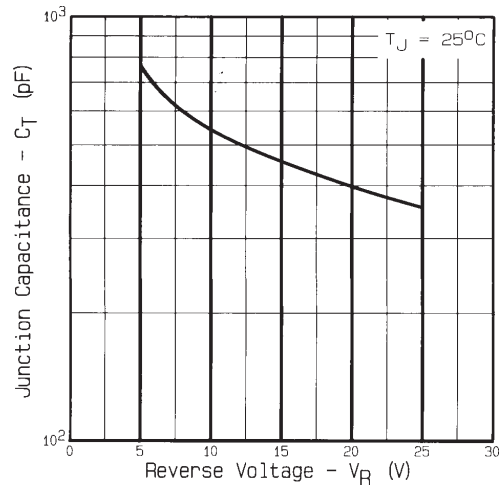


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

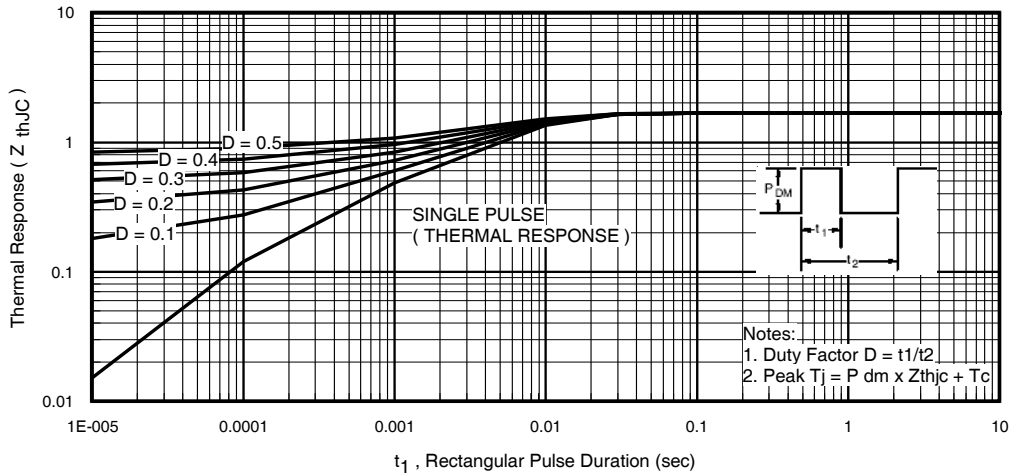


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

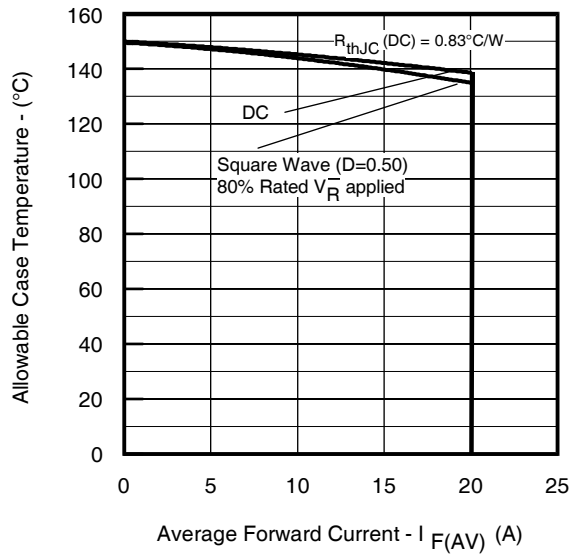


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Package)