30LJQ150

PD-94063D

Schottky Rectifier High Efficiency Series
Surface Mount (SMD-0.5)
150V, 30A

Features

- Hermetically sealed
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Surface mount
- Light weight
- ESD rating: Class 1B per MIL-STD-750, Method 1020

Product Summary

- **V_{RRM} :** 150V
- **$I_{F(AV)}$:** 30A
- **V_F @ 30Apk, T_J =125°C:** 0.92V
- **I_{FSM} @ t_p = 8.3ms half-sine:** 140A
- **REF**: MIL-PRF-19500/731

SMD-0.5

Potential Applications

- DC-DC converter
- Protection circuits

Product Validation

Fully qualified according to MIL-PRF-19500 for space applications

Description

The 1N7038U3 Schottky rectifier has been expressly designed to meet the rigorous requirements of high reliability environments. It is packaged in the hermetic surface mount SMD-0.5 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 control drawings to TX, TXV and S quality levels.

Ordering Information

Table 1 Ordering options

Part number	Package	Screening Level
30LJQ150	SMD-0.5	COTS
JANTX1N7038U3	SMD-0.5	JANTX
JANTXV1N7038U3	SMD-0.5	JANTXV
JANS1N7038U3	SMD-0.5	JANS

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1 Absolute Maximum Ratings

Table 2 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_R	Max. DC reverse voltage	150	V
V_{RWM}	Max. Working peak reverse voltage)	150	V
$I_{F(AV)}$	Max. average forward current - Refer to Fig. 5 [1]	30	A
I_{FSM}	Max. peak one cycle non–repetitive surge current [2]	140	A
T_J T_{STG}	Operating Junction and Storage Temperature Range	-65 to 150	°C
	Weight	1.0 (Typical)	g

[1] 50% duty cycle @ T_C = 83°C, square waveform

[2] @ tp = 8.3ms half-sine

2 Device Characteristics

2.1 Electrical Characteristics

Table 3 Electrical Characteristics

Symbol	Parameter	Max.	Unit	Test Conditions	
V_F	Max. Forward Voltage Drop See Fig. 1[1]	1.07	V	@15A	T_J = -55°C [2]
		1.26	V	@30A	
		0.96	V	@15A	T_J = 25°C [2]
		1.18	V	@30A	
		0.75	V	@15A	T_J = 125°C [2]
		0.92	V	@30A	
I_R	Max. Reverse Leakage Current See Fig. 2 [1]	0.12	mA	T_J = 25°C	V_R = rated V_R
		6.0	mA	T_J = 125°C	
C_J	Max. Junction Capacitance	405	pF	V_R = 5V_{DC} (1MHz, 25°C)	
L_S	Series Inductance	4.8(Typical)	nH	Measured from center of cathode pad to center of anode pad	

2.2 Thermal-Mechanical Specifications

Table 4 Thermal-Mechanical Specifications

Symbol	Parameter	Max.	Unit	Test Conditions
$R_{\theta JC}$	Max. Thermal Resistance, Junction to Case	1.82	°C/W	DC operation See Fig. 4
	Die Size (Typical)	125 x 125	mils	

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

[2] Pins 2 and 3 externally tied together

3 Electrical Characteristics Curves

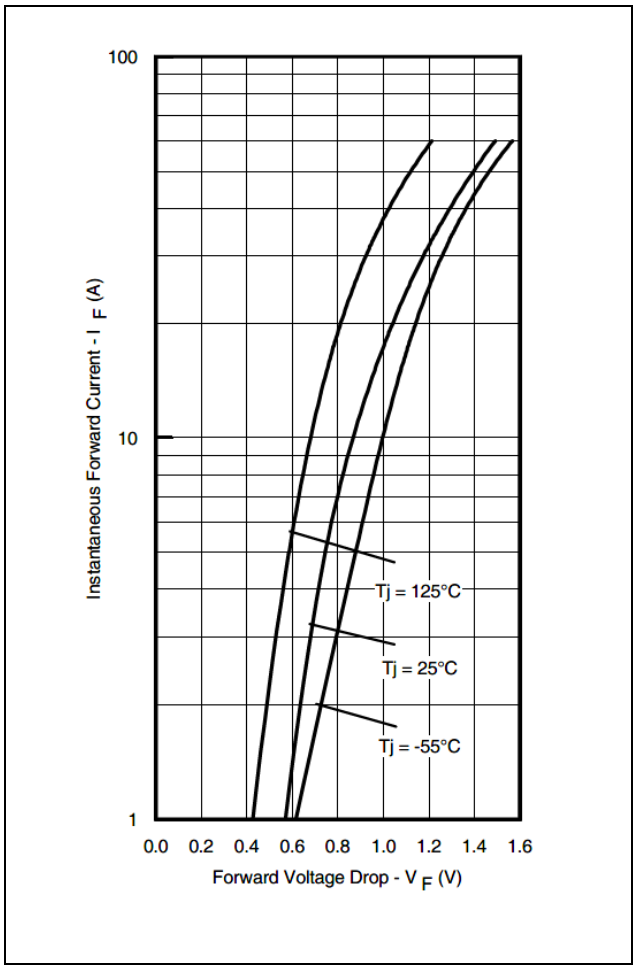


Figure 1 Maximum Forward Voltage Drop Characteristics

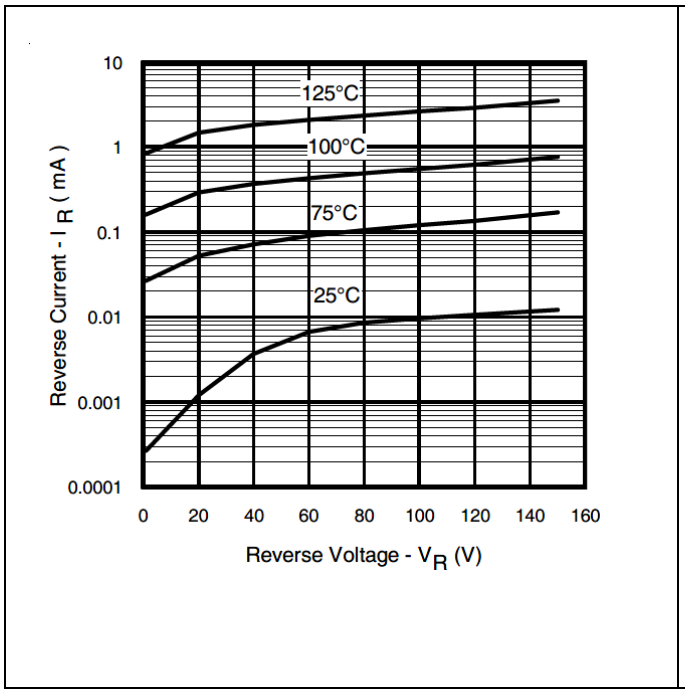


Figure 2 Typical Values of Reverse Current Vs. Reverse Voltage

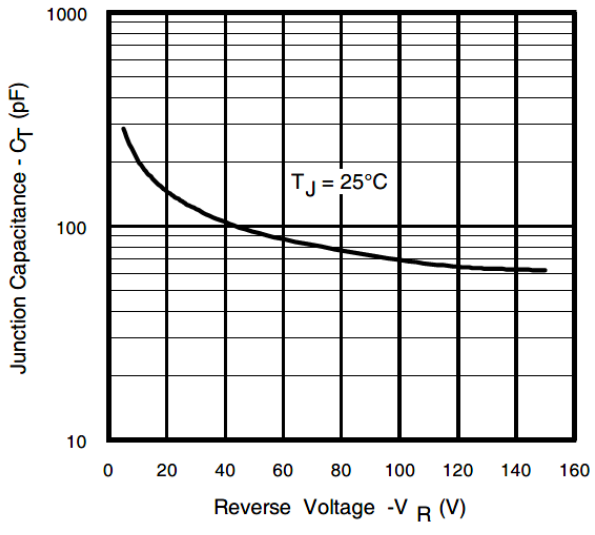


Figure 3 Typical Junction Capacitance Vs. Reverse Voltage

Electrical Characteristics Curves

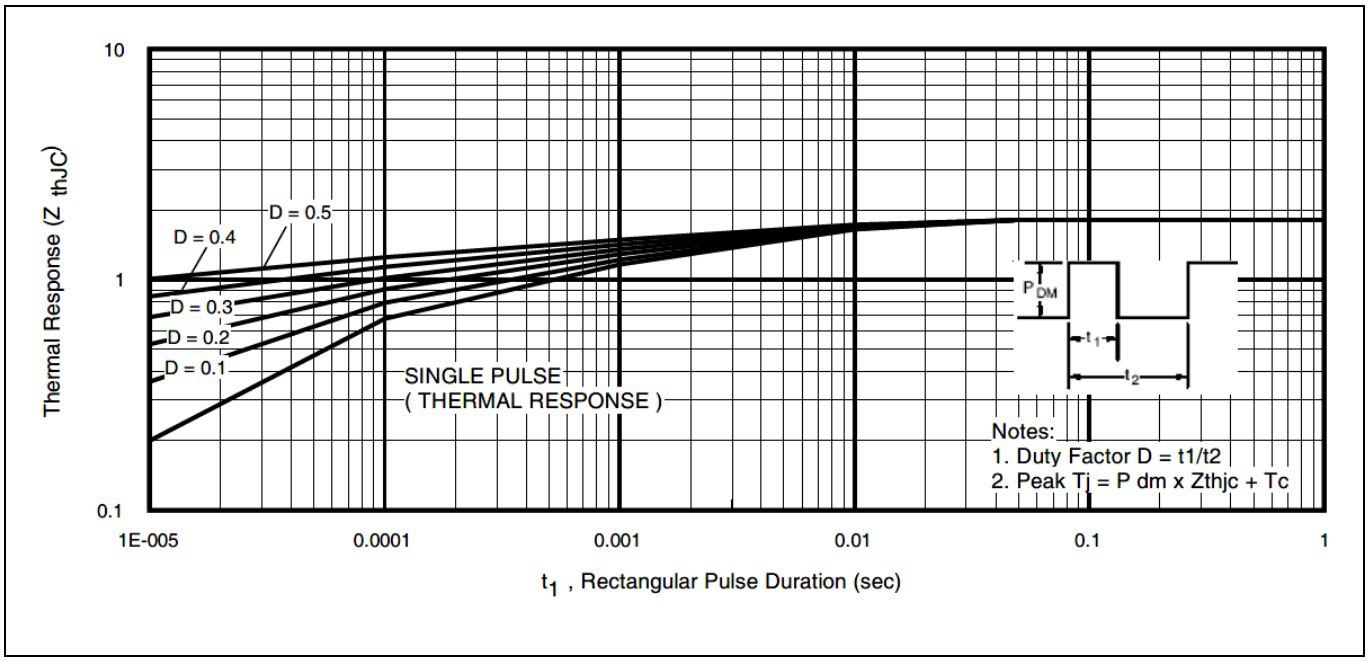


Figure 4 Maximum Thermal Impedance Z_{thJC} Characteristics

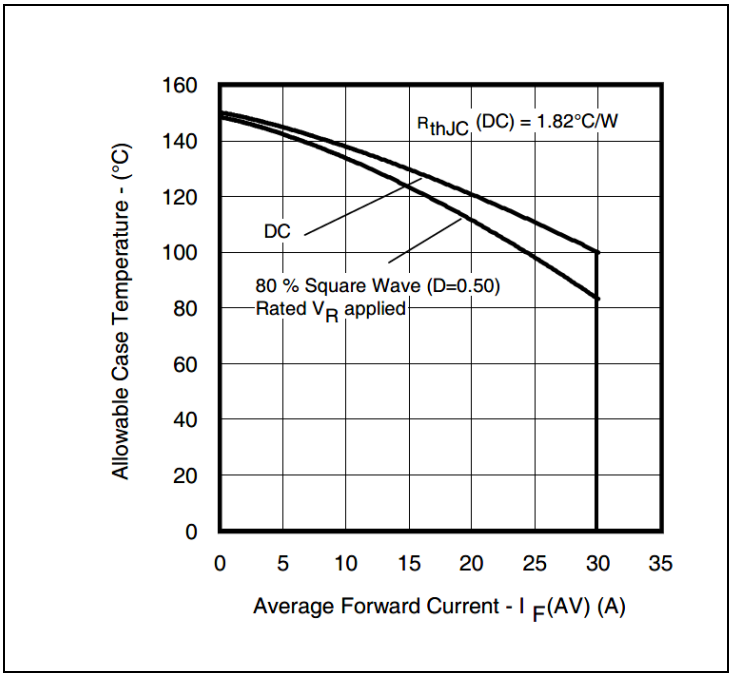
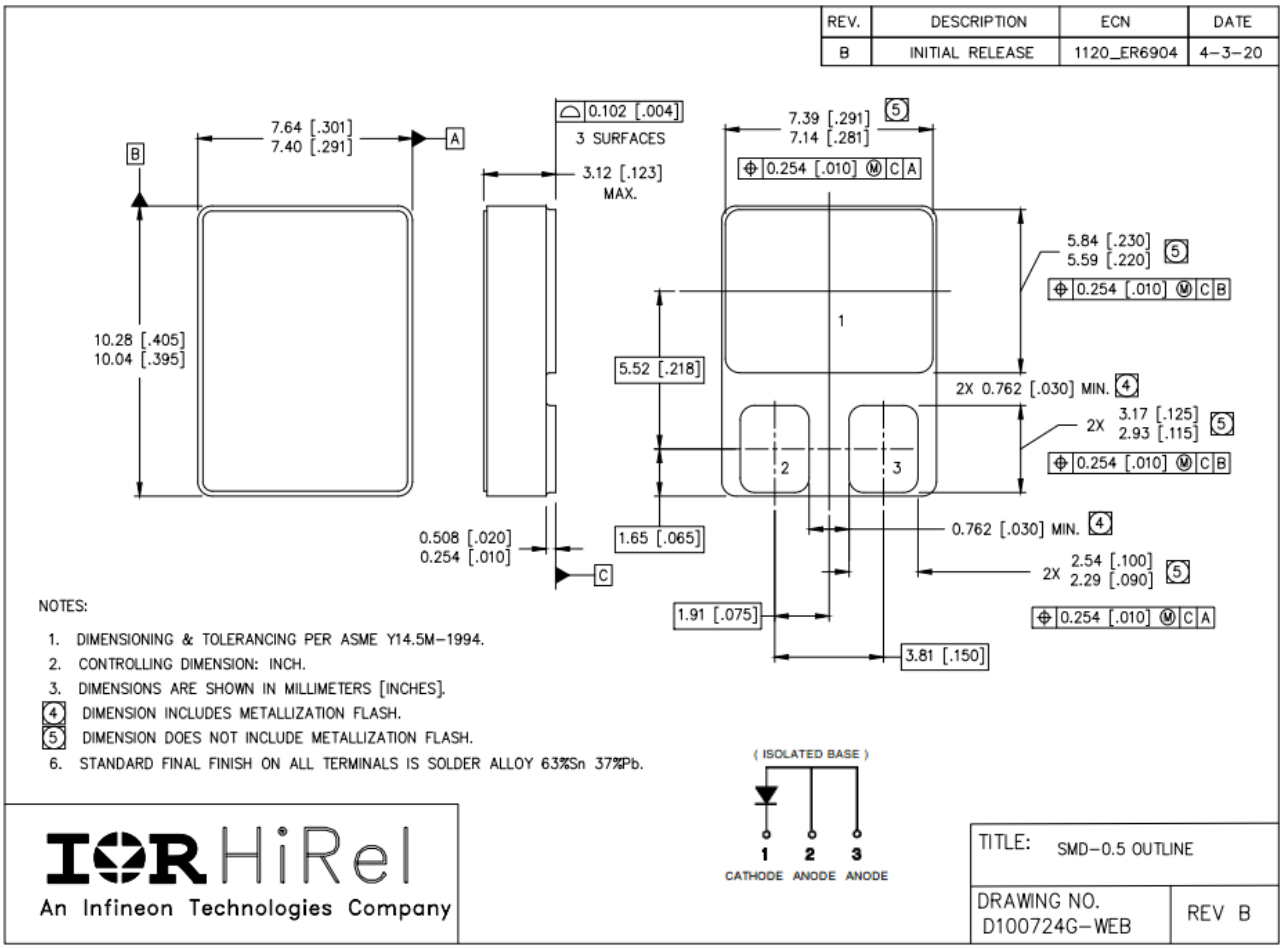


Figure 5 Maximum Allowable Case Temperature Vs. Average Forward Current

4 Package Outline

Note: For the most updated package outline, please see the website: SMD-0.5



Revision history

Document version	Date of release	Description of changes
	12/28/2000	Final datasheet (PD-94063)
Rev A	06/28/2001	Updated Capacitance –page2
Rev B	07/29/2008	Updated per ECN-16187
Rev C	10/03/2012	Added ESD rating –page1
Rev D	04/17/2024	Updated per ECN-1120-09917

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