75LQ150

PD-94190F

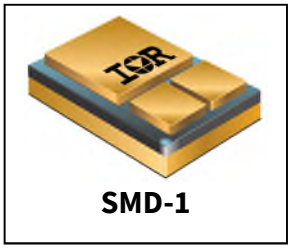
Schottky Rectifier High Efficiency Series
Surface Mount (SMD-1)
150V, 75A

Features

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

Product Summary

- **V_{RRM}:** 150V
- **$I_{F(AV)}$:** 75A
- **V_F @ 75Apk, T_J =125°C:** 0.78V
- **I_{FSM} @ t_p = 8.3ms half-sine:** 700A



SMD-1

Potential Applications

- DC-DC converter
- Protection circuits
- Motor drives

Product Validation

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

Description

The 75LQ150 Schottky rectifier has been expressly designed to meet the rigorous requirements of IR HiRel 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 control drawings to TX, TXV and S quality levels.

Ordering Information

Table 1 Ordering options

Part number	Package	Screening Level
75LQ150	SMD-1	COTS
75LQ150SCS	SMD-1	JANS

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1 Absolute Maximum Ratings

Table 2 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_R	DC reverse voltage	150	V
V_{RWM}	Working peak reverse voltage	150	V
$I_{F(AV)}$	Max. average forward current - Refer to Fig. 5 [1]	75	A
I_{FSM}	Max. peak one cycle non–repetitive surge current [2]	700	A
T_J T_{STG}	Operating Junction and Storage Temperature Range	-65 to 150	°C
	Weight	2.6 (Typical)	g

[1] 50% duty cycle @ T_C = 95°C, square waveform

[2] t_p = 8.3 ms half-sine

2 Device Characteristics

2.1 Electrical Characteristics

Table 3 Electrical Characteristics

Symbol	Parameter	Max.	Unit	Test Conditions	
V_F	Forward Voltage Drop (Per Leg) See Fig. 1[1]	1.18	V	@ 75A	T_J = -55°C
		1.45	V	@ 150A	
		1.06	V	@ 75A	T_J = 25°C
		1.44	V	@ 150A	
		0.78	V	@ 75A	T_J = 125°C
		0.96	V	@ 150A	
I_R	Reverse Leakage Current (Per Leg) See Fig. 2[1]	0.2	mA	T_J = 25°C	V_R = rated V_R
		36	mA	T_J = 125°C	
C_J	Junction Capacitance (Per Leg)	1600	pF	V_R = 5V_{DC} (1MHz, 25°C)	
L_S	Series Inductance (Per Leg)	5.9 (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
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.75	°C/W	DC operation See Fig. 4
	Die Size (Typical)	158 x 158	mils	

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

3 Electrical Characteristics Curves

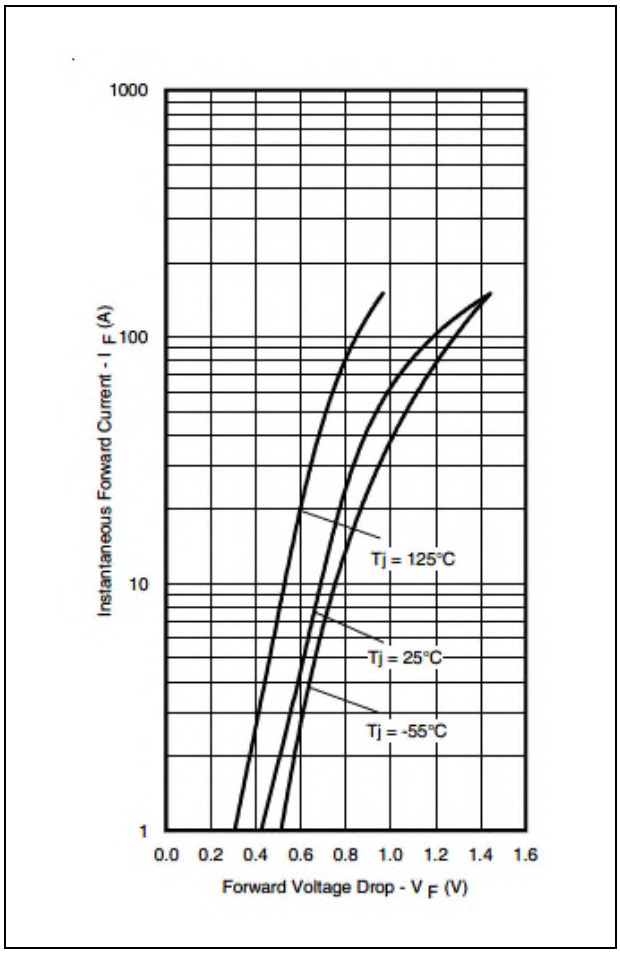


Figure 1 Maximum Forward Voltage Drop Characteristics

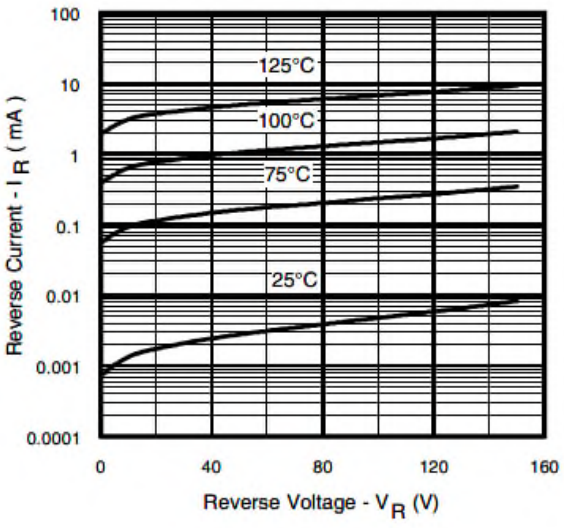


Figure 2 Typical Values of Reverse Current Vs. Reverse Voltage

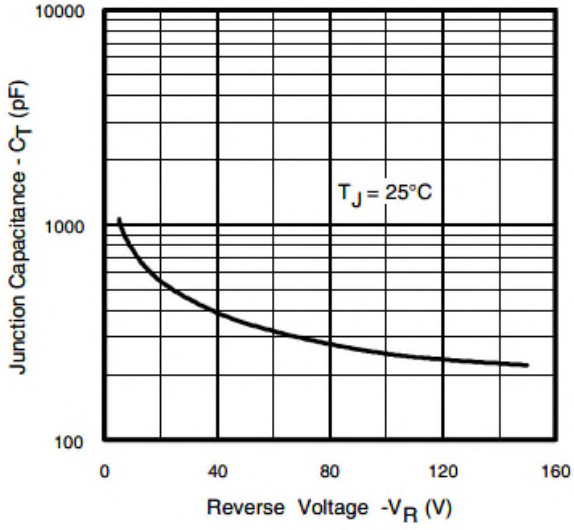


Figure 3 Typical Junction Capacitance Vs. Reverse Voltage

Electrical Characteristics Curves

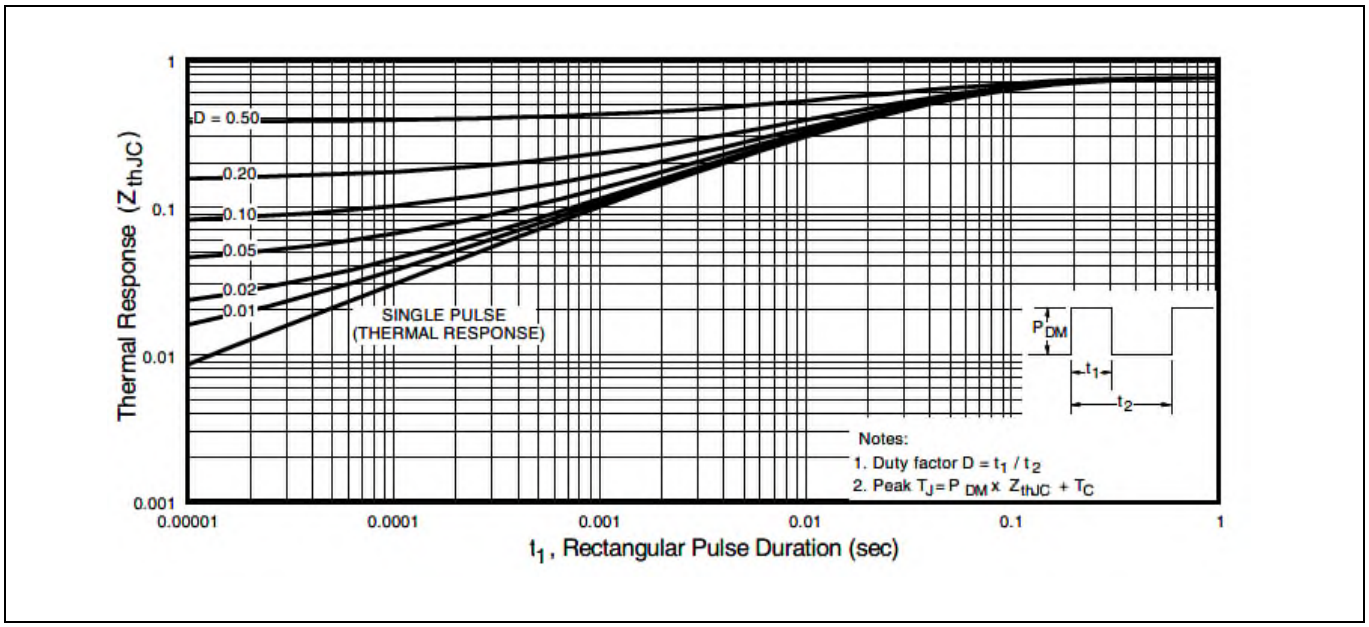


Figure 4 Maximum Thermal Impedance Z_{thJC} Characteristics

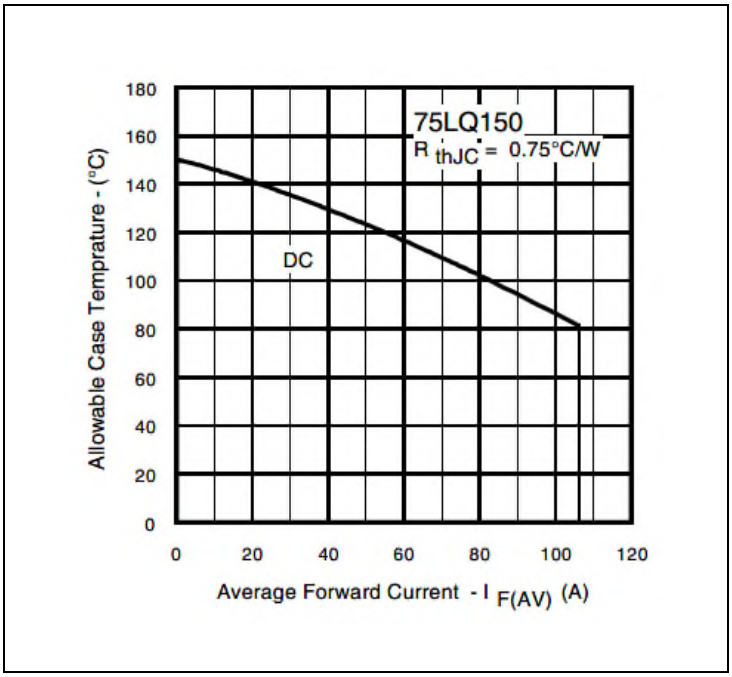
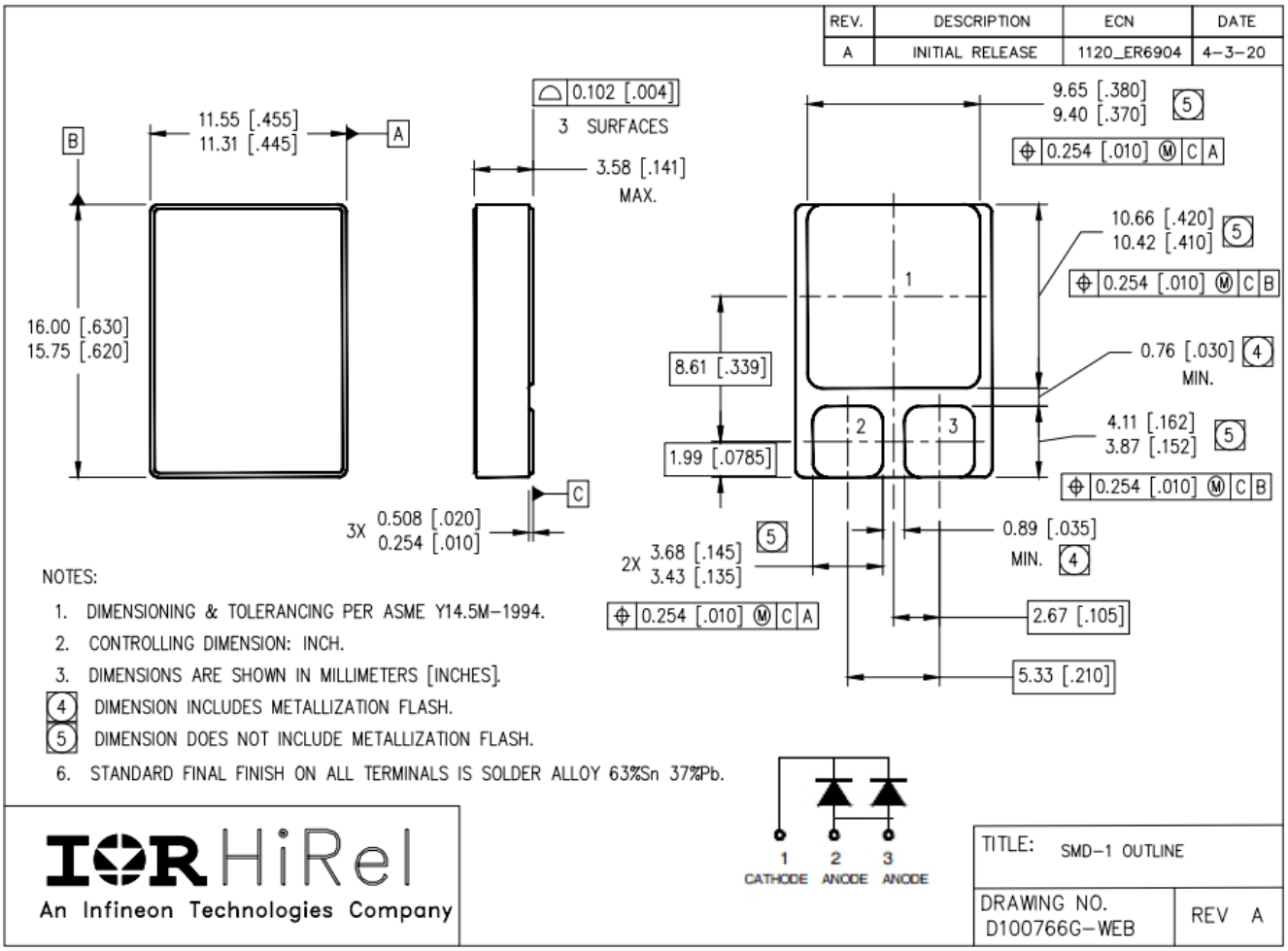


Figure 5 Maximum Allowable Case Temperature Vs. Average Forward Current

4 Package Outline

Note: For the most updated package outline, please see the website: SMD-1



Revision history

Document version	Date of release	Description of changes
	05/31/2001	Final datasheet (PD-94190)
Rev A	09/20/2001	Updated Package outline
Rev B	02/27/2002	Updated Pin lay out
Rev C	04/26/2002	Corrected Irm
Rev D	12/12/2005	Updated per ECN-13168
Rev E	07/23/2010	Updated per ECN-17689
Rev F	12/20/2022	Updated per ECN-1120-09314

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