35GQ100 (JANS1N7069T1)

PD-94232E

Schottky Rectifier High Efficiency Series
Thru-Hole (TO-254AA)
100V, 35A

Features

- Hermetically sealed
- Low forward voltage drops
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Light weight
- ESD rating: Class 3B per MIL-STD-750, Method 1020

Product Summary

- **V_{RRM}:** 100V
- **$I_{F(AV)}$:** 35A
- **V_F @ 35Apk, T_J =125°C:** 1.0V
- **I_{FSM} @ t_p = 8.3ms half-sine:** 270A
- **REF:** MIL-PRF-19500/761

TO-254AA

Potential Applications

- DC-DC converter
- Protection circuits
- Motor drives

Product Validation

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

Description

The 35GQ100 (1N7069T1) Schottky rectifier has been expressly designed to meet the rigorous requirements of IR HiRel environments. It is packaged in the hermetic isolated TO-254AA 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
35GQ100	TO-254AA	COTS
35GQ100SCS	TO-254AA	S-Level
35GQ100SCX	TO-254AA	TX-Level
35GQ100SCV	TO-254AA	TXV-Level
JANS1N7069T1	TO-254AA	JANS
JANTX1N7069T1	TO-254AA	JANTX
JANTXV1N7069T1	TO-254AA	JANTXV

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1 Absolute Maximum Ratings

Table 2 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_R	Max. DC reverse voltage	100	V
V_{RWM}	Max. Working peak reverse voltage	100	V
$I_{F(AV)}$	Max. average forward current - Refer to Fig. 5 [1]	35	A
I_{FSM}	Max. peak one cycle non–repetitive surge current [2]	270	A
T_J T_{STG}	Operating Junction and Storage Temperature Range	-65 to 150	°C
	Weight	9.3 (Typical)	g

[1] 50% duty cycle @ T_C = 81°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 See Fig. 1[1]	1.0	V	@ 35A	T_J = -55°C
		1.42	V	@ 70A	
		1.05	V	@ 35A	T_J = 25°C
		1.52	V	@ 70A	
		1.0	V	@ 35A	T_J = 125°C
		1.47	V	@ 70A	
I_R	Reverse Leakage Current See Fig. 2[1]	0.036	mA	T_J = 25°C	V_R = rated V_R
		7.5	mA	T_J = 100°C	
		28	mA	T_J = 125°C	
C_J	Junction Capacitance	1375	pF	V_R = 5V_{DC} (1MHz, 25°C)	
L_S	Series Inductance	7.8 (Typical)	nH	Measured from anode lead to cathode lead 6mm (0.25 in) from package	

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	1.1	°C/W	DC operation See Fig. 4
	Die Size (Typical)	196 x 196	mils	

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

3 Electrical Characteristics Curves

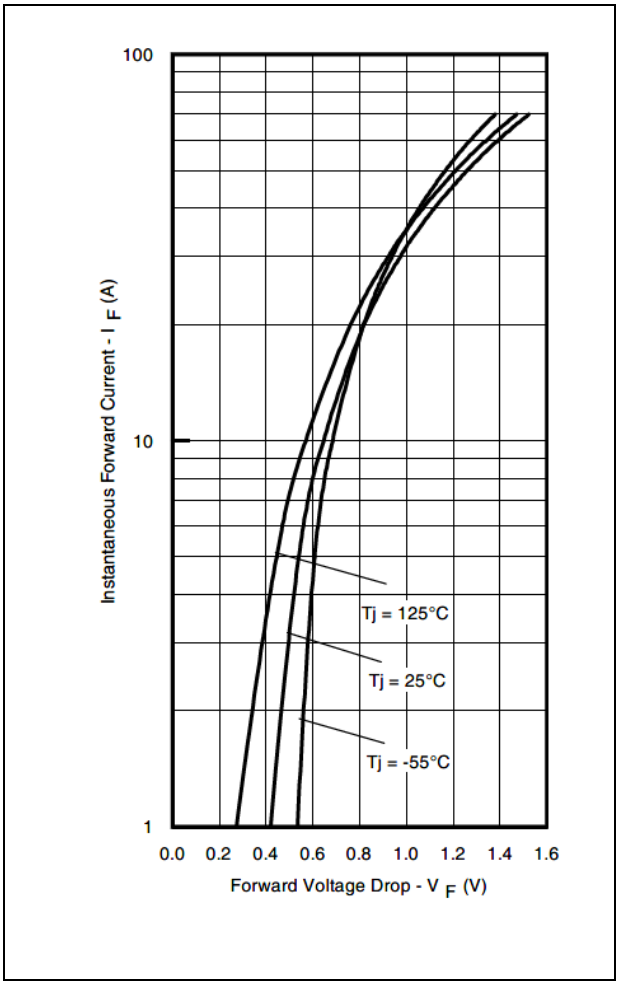


Figure 1 Maximum Forward Voltage Drop Characteristics

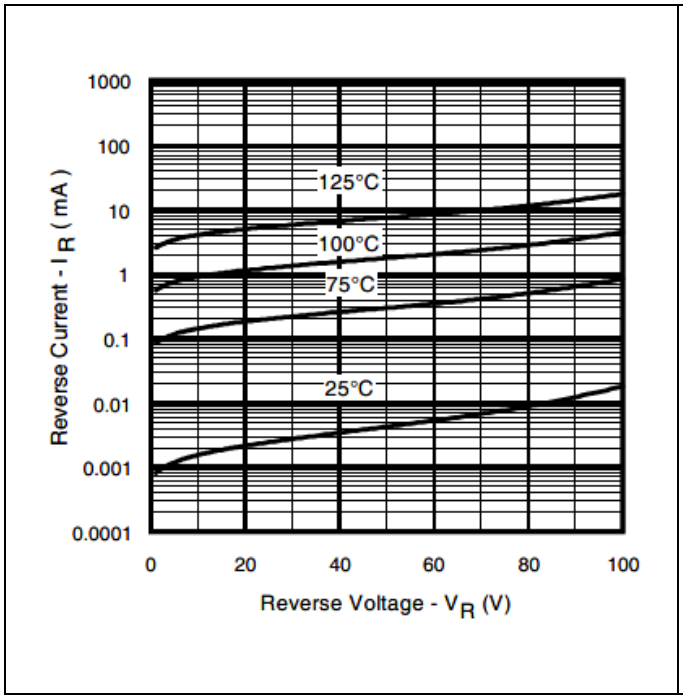


Figure 2 Typical Values of Reverse Current Vs. Reverse Voltage

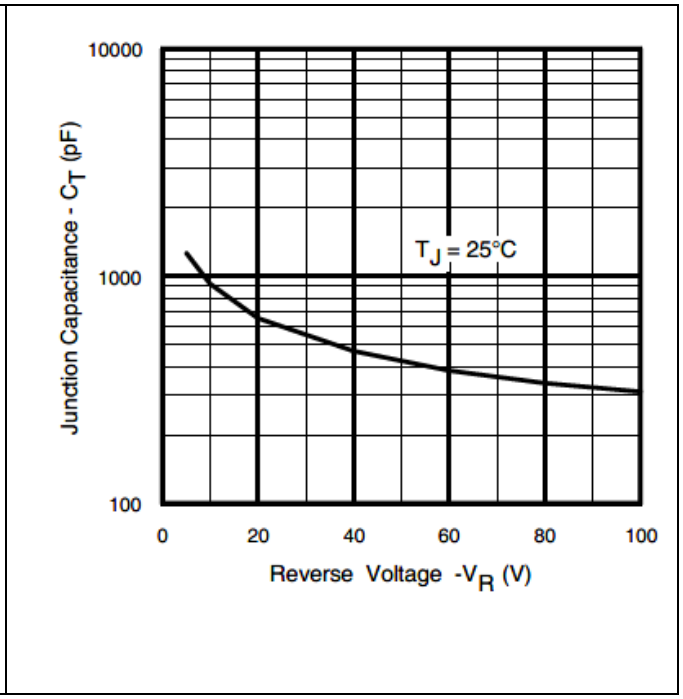


Figure 3 Typical Junction Capacitance Vs. Reverse Voltage

Electrical Characteristics Curves

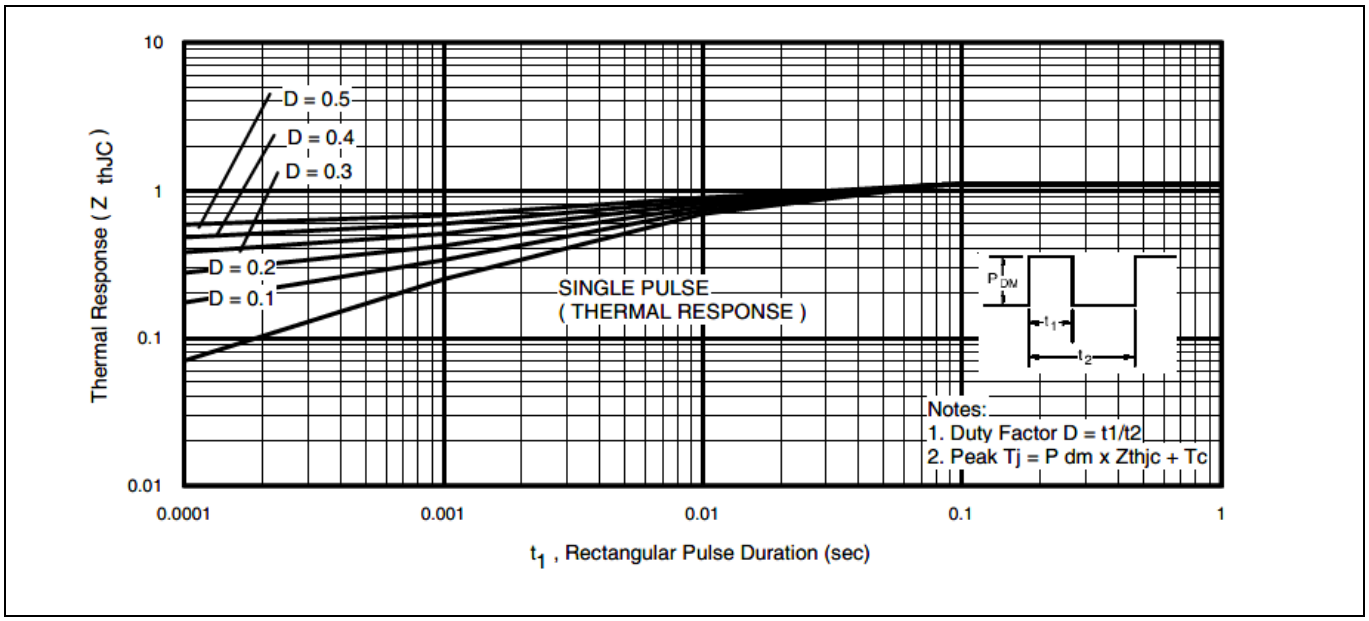


Figure 4 Maximum Thermal Impedance Z_{thJC} Characteristics

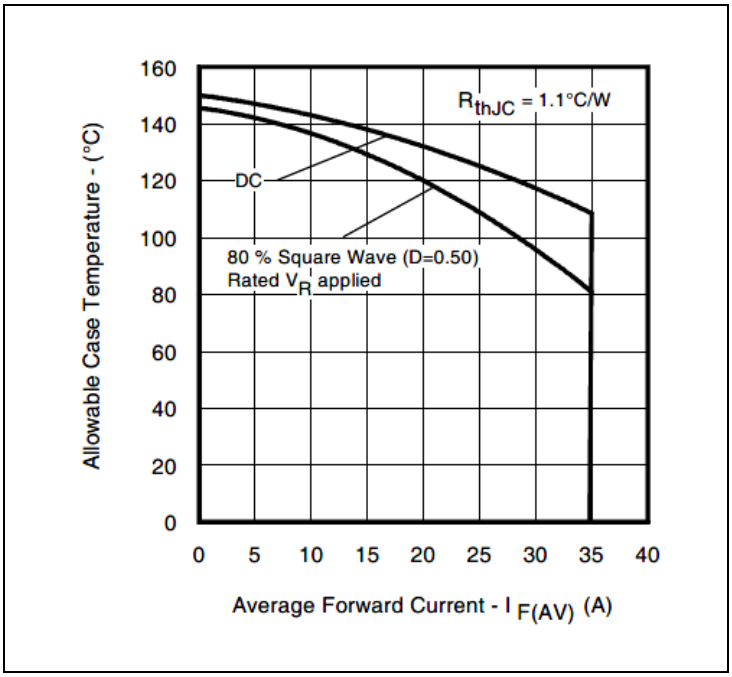
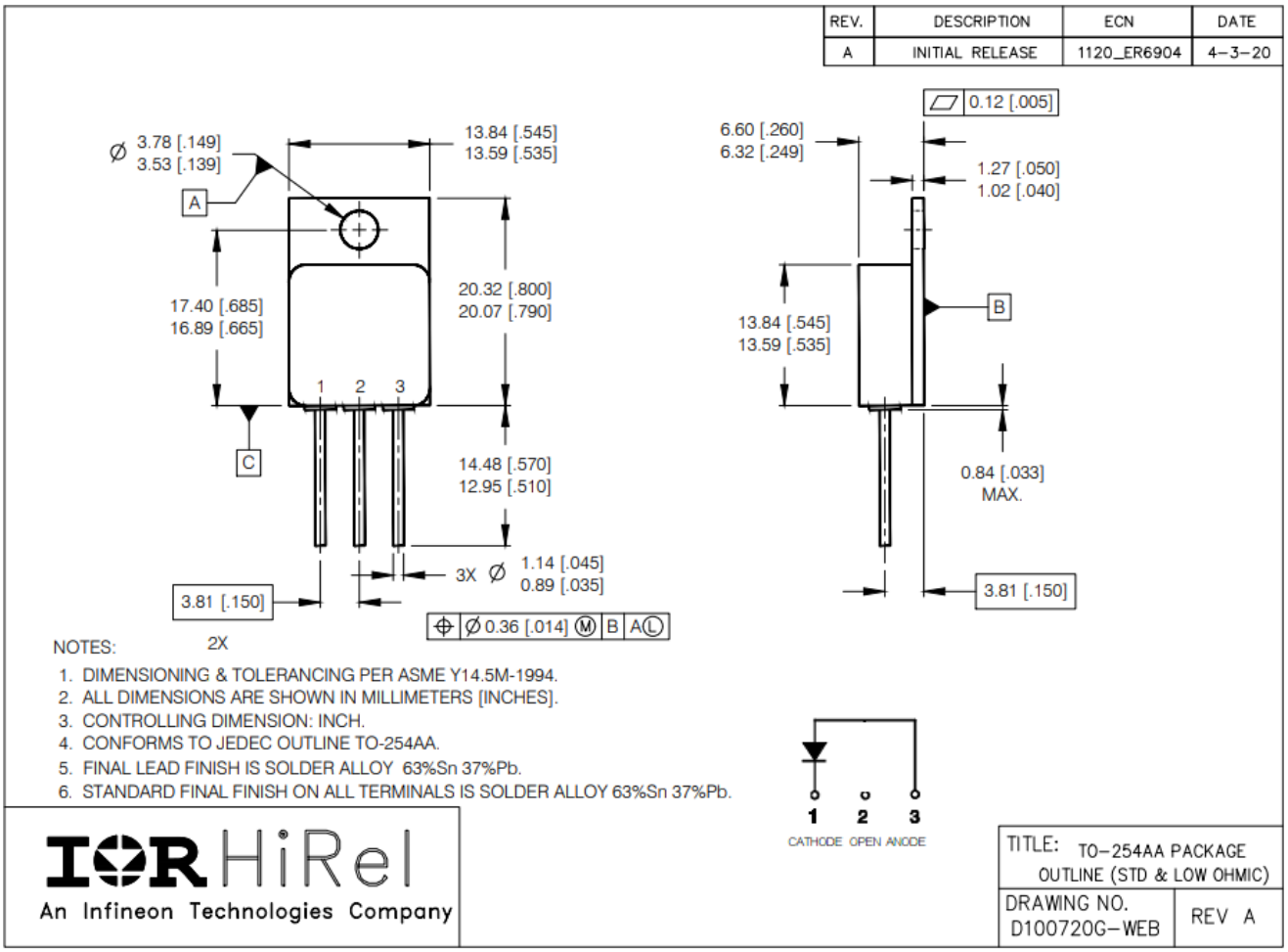


Figure 5 Maximum Allowable Case Temperature Vs. Average Forward Current

4 Package Outline

Note: For the most updated package outline, please see the website: TO-254AA



Revision history

Document version	Date of release	Description of changes
	06/19/2001	Final datasheet (PD-94232)
Rev A	07/13/2001	Updaated Vfm @ -55C-from 1.38V to 1.42V
Rev B	11/22/2010	Updated per ECN # 18018
Rev C	12/24/2010	Updated Rthjc from 1.1C/W to 1.0C/W
Rev D	10/30/2012	Added ESD rating – Class NS
Rev E	01/20/2025	Updated per ECN-1120_10144

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