35SCGQ045

PD-93965D

Schottky Rectifier High Efficiency Series
Thru-Hole (TO-254AA)
45V, 35A

Features

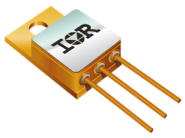
- Hermetically sealed
- Center tap
- Low forward voltage drops
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- ESD rating: Class NS per MIL-STD-750, Method 1020

Product Summary

- **V_{RRM} (per leg):** 45V
- **$I_{F(AV)}$:** 35A
- **V_F @ 30Apk, T_J =125°C (per leg):** 0.74V
- **I_{FSM} @ t_p = 8.3ms half-sine (per leg):** 200A

Potential Applications

- DC-DC converter
- Protection circuits
- Motor drives



TO-254AA

Product Validation

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

Description

The 35SCGQ045 center tap 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
35SCGQ045	TO-254AA	COTS
35SCGQ045SCV	TO-254AA	JANTXV-equivalent
35SCGQ045SCS	TO-254AA	S-level

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1 Absolute Maximum Ratings

Table 2 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_R	DC reverse voltage (per leg)	45	V
V_{RWM}	Working peak reverse voltage (per leg)	45	V
$I_{F(AV)}$	Max. average forward current (per package) - Refer to Fig. 5[1]	35	A
I_{FSM}	Max. peak one cycle non–repetitive surge current (per leg)[2]	200	A
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C
	Weight	9.3 (Typical)	g

[1] 50% duty cycle @ TC = 116°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]	0.61	V	@ 15A	T_J = -55°C
		0.74	V	@ 30A	
		0.54	V	@ 15A	T_J = 25°C
		0.73	V	@ 30A	
		0.47	V	@ 15A	T_J = 125°C
		0.74	V	@ 30A	
I_R	Reverse Leakage Current (Per Leg) See Fig. 2[1]	0.70	mA	T_J = 25°C	V_R = rated V_R
		75	mA	T_J = 100°C	
		195	mA	T_J = 125°C	
C_J	Junction Capacitance (Per Leg)	2000	pF	V_R = 5V_{DC} (1MHz, 25°C)	
L_S	Series Inductance (Per Leg)	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
$R_{\theta JC}$	Thermal Resistance, Junction to Case (Per Leg)	1.25	°C/W	DC operation See Fig. 4
$R_{\theta JC}$	Thermal Resistance, Junction to Case (Per Package)	0.63	°C/W	DC operation
	Die Size (Typical)	150 x 180	mils	

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

3 Electrical Characteristics Curves

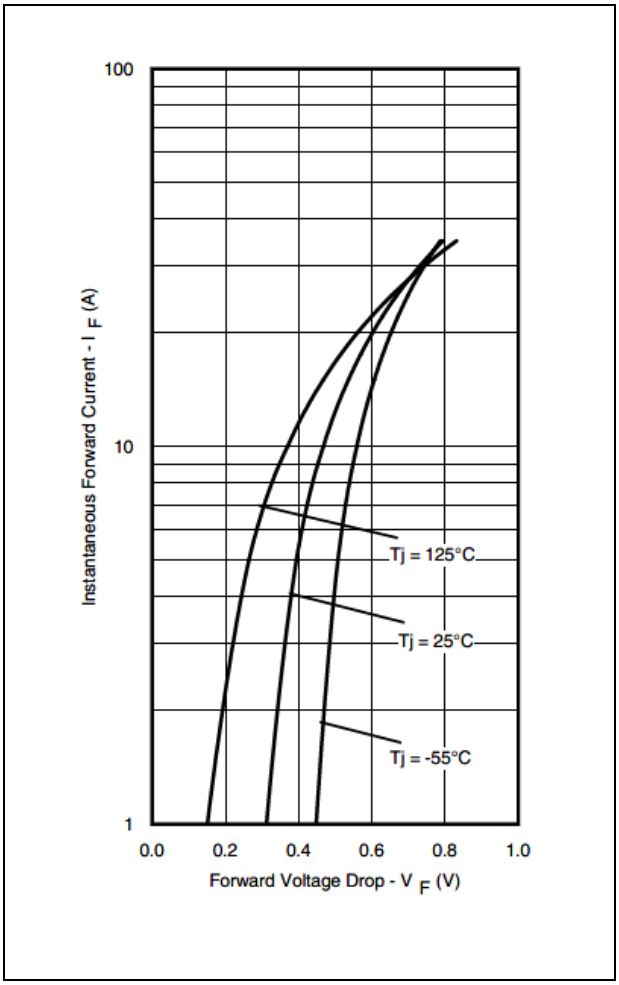


Figure 1 Maximum Forward Voltage Drop Characteristics (Per Leg)

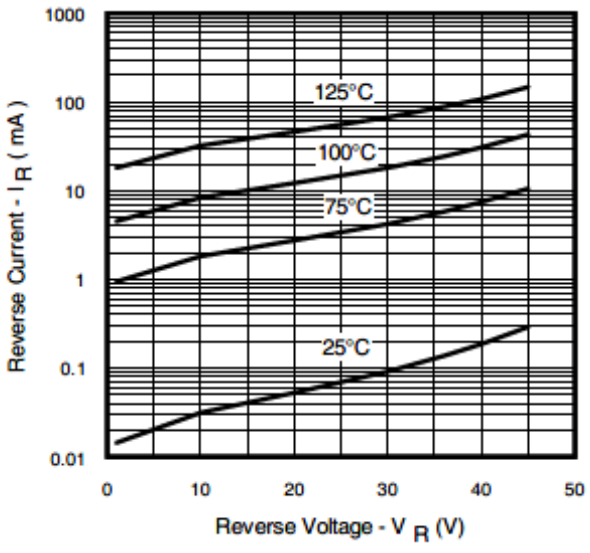


Figure 2 Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

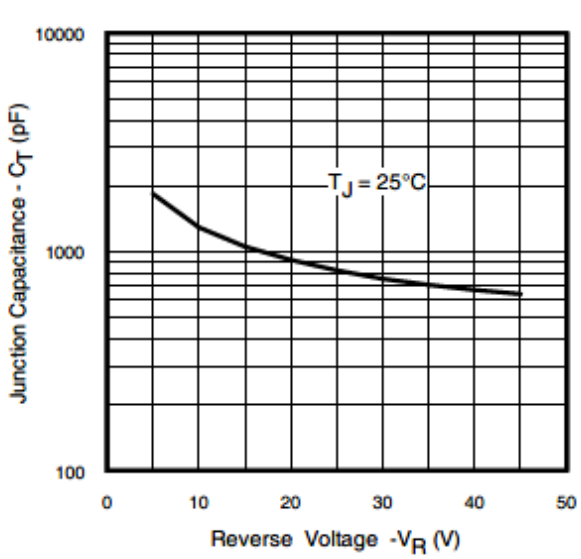


Figure 3 Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

Electrical Characteristics Curves

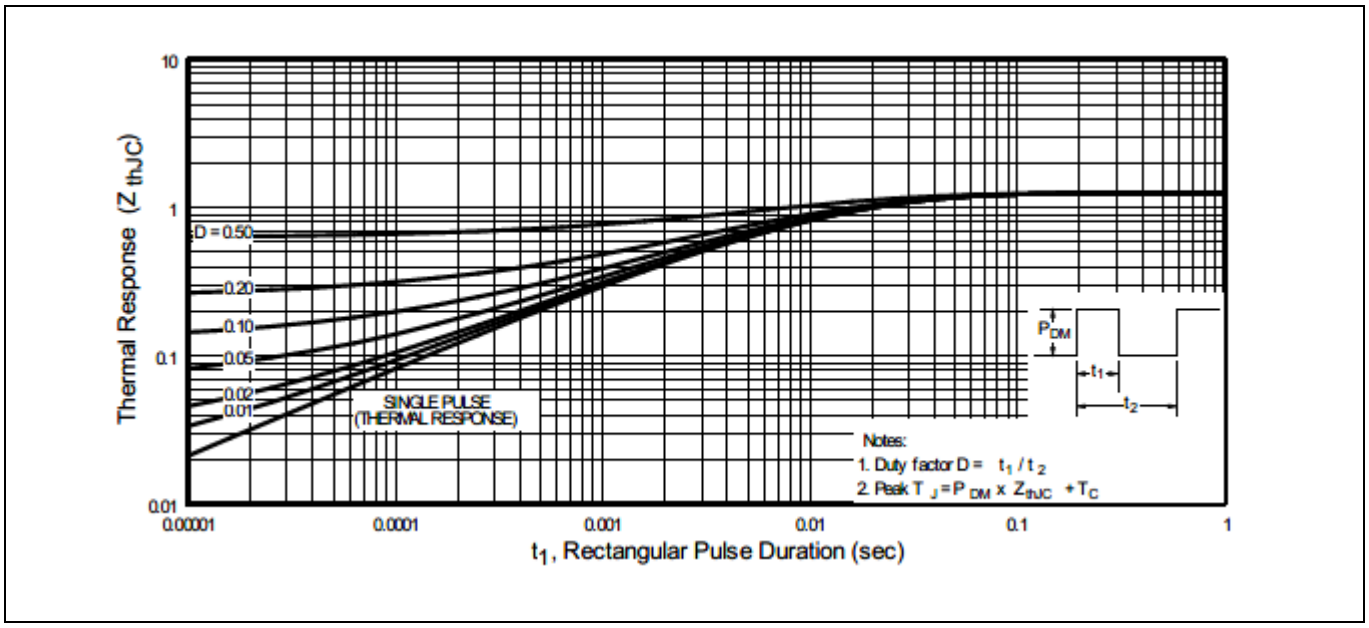


Figure 4 Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

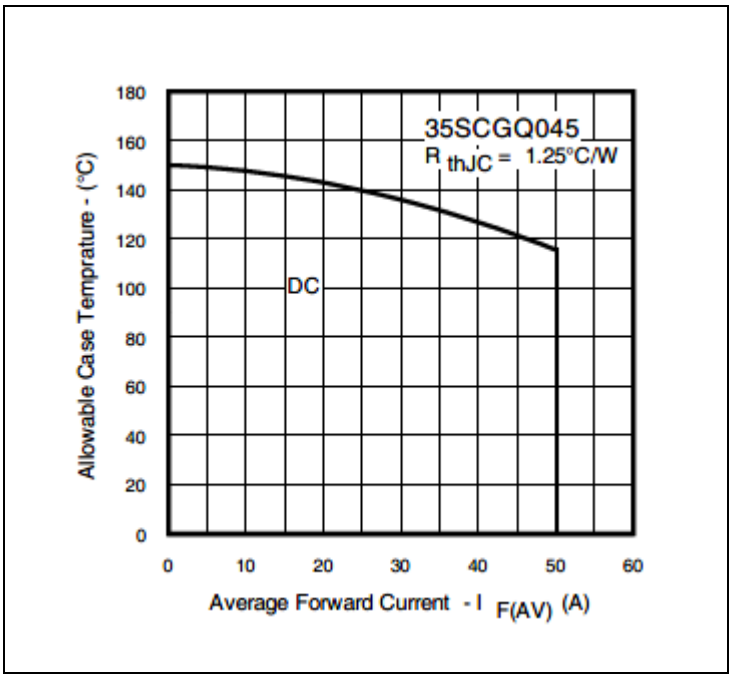
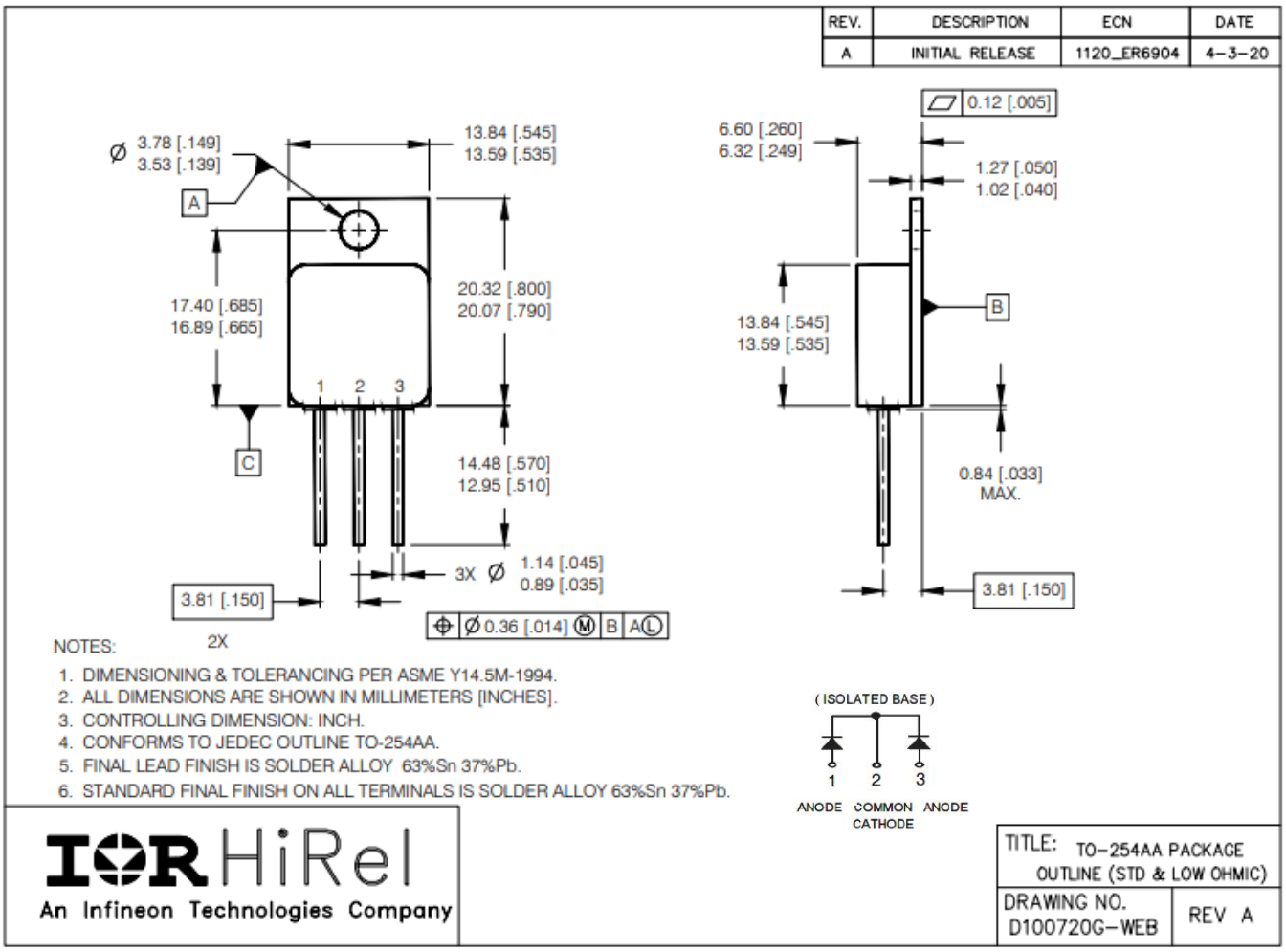


Figure 5 Maximum Allowable Case Temperature Vs. Average Forward Current (Per Package)

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
	10/04/2000	Final datasheet (PD-93965)
Rev A	07/05/2005	Updated per ECN-13177
Rev B	10/19/2016	Updated per ECN-1120-04401
Rev C	2/20/2016	Updated per ECN-1120-4953
Rev D	08/24/2022	Updated per ECN- 1120_09204

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