

60LQ100

PD-20505B

Schottky Rectifier High Efficiency Series Surface Mount (SMD-1) 100V, 60A

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 3B per MIL-STD-750, Method 1020

Potential Applications

- DC-DC converter
- Protection circuits
- Motor drives

Product Validation

Adhered to JANS screening flow according to MIL-PRF-19500 for space applications

Description

The 60LQ100 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.

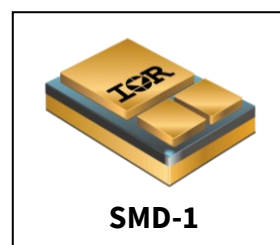
Ordering Information

Table 1 **Ordering options**

Part number	Package	Screening Level
60LQ100	SMD-1	COTS
60LQ100SCS	SMD-1	S-Level
60LQ100SCX	SMD-1	TX-Level
60LQ100SCV	SMD-1	TXV-Level

Product Summary

- V_{RRM} : 100V
- $I_{F(AV)}$: 60A
- $V_F @ 60A_{pk}, T_J = 125^\circ C$: 0.70V
- $I_{FSM} @ t_p = 8.3ms \text{ half-sine}$: 400A



60LQ100

Schottky Rectifier High Efficiency Series Surface Mount (SMD-1)

Table of contents

Table of contents

Features	1
Potential Applications.....	1
Product Validation.....	1
Description	1
Ordering Information.....	1
Table of contents.....	2
1 Absolute Maximum Ratings	3
2 Device Characteristics	4
2.1 Electrical Characteristics	4
2.2 Thermal-Mechanical Specifications	4
3 Electrical Characteristics Curves.....	5
4 Package Outline.....	7
Revision history.....	8

Absolute Maximum Ratings

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	60	A
I_{FSM}	Max. peak one cycle non-repetitive surge current ^{1 2}	400	A
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C
	Weight	2.6 (Typical)	g

¹ $t_p = 8.3$ ms half-sine² Pins 2 and 3 externally tied together

Device Characteristics

2 Device Characteristics

2.1 Electrical Characteristics

Table 3 Electrical Characteristics

Symbol	Parameter	Max.	Unit	Test Conditions	
V _F	Max. Forward Voltage Drop	0.68	V	@ 10A	T _J = 25°C ²
		0.95	V	@ 60A	
		1.15	V	@ 120A	
	See Fig. 1 ¹	0.78	V	@ 10A	T _J = -55°C ²
		0.70	V	@ 60A	T _J = 125°C ²
		0.97	V	@ 120A	
I _R	Max. Reverse Leakage Current (See Fig. 2 ¹)	0.8	mA	T _J = 25°C	V _R = rated V _R ²
		45	mA	T _J = 125°C	
C _J	Max. Junction Capacitance	1400	pF	V _R = 5V _{DC} (1MHz, 25°C) ²	
L _S	Series Inductance	2.8 (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	1.0	$^\circ\text{C}/\text{W}$	DC operation See Fig. 4
$R_{\theta JC}$	Max. Thermal Resistance, Junction to Case	0.50	$^\circ\text{C}/\text{W}$	DC operation
	Die Size (Typical)	196 x 196	mils	

¹ Pulse Width < 300 μs , Duty Cycle < 2%² Pins 2 and 3 externally tied together

3 Electrical Characteristics Curves

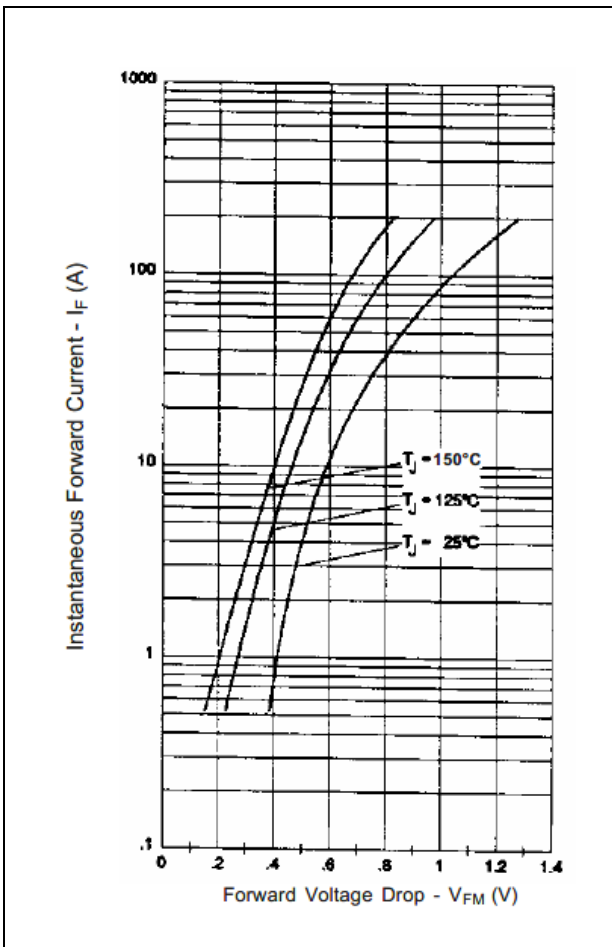


Figure 1 Maximum Forward Voltage Drop Characteristics

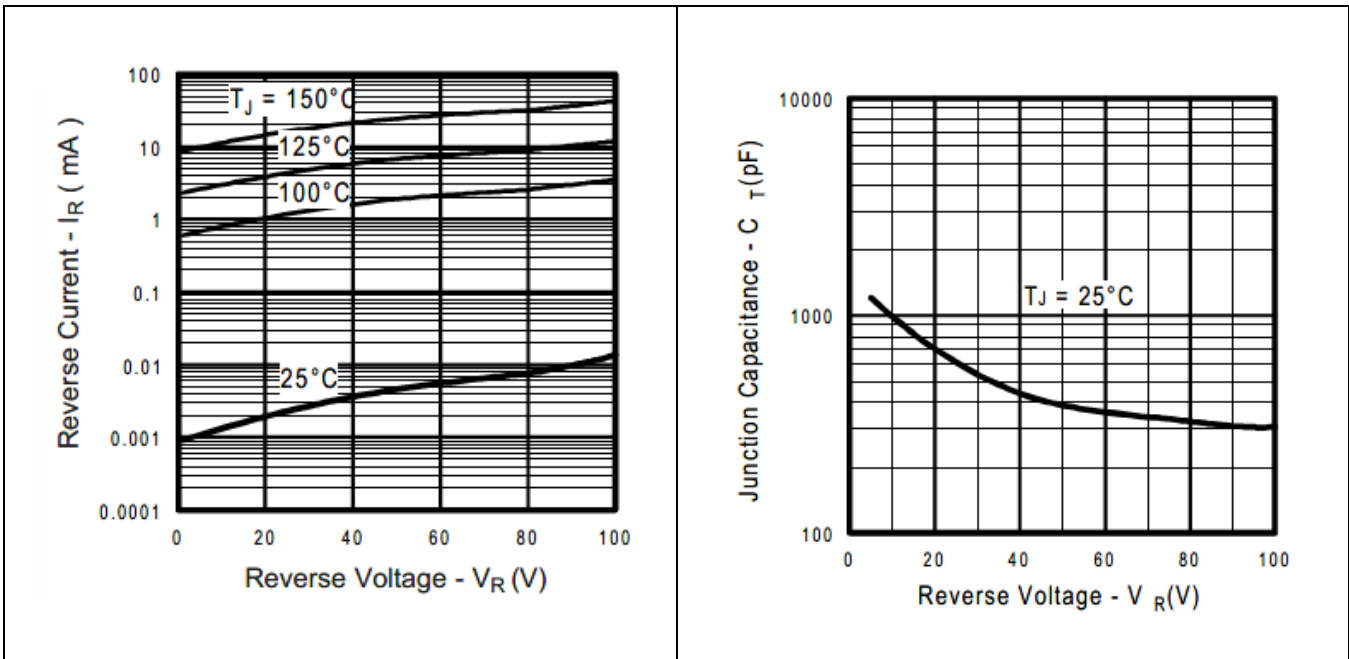


Figure 2 Typical Values of Reverse Current Vs. Reverse Voltage

Figure 3 Typical Junction Capacitance Vs. Reverse Voltage

60LQ100

Schottky Rectifier High Efficiency Series Surface Mount (SMD-1)

Electrical Characteristics Curves

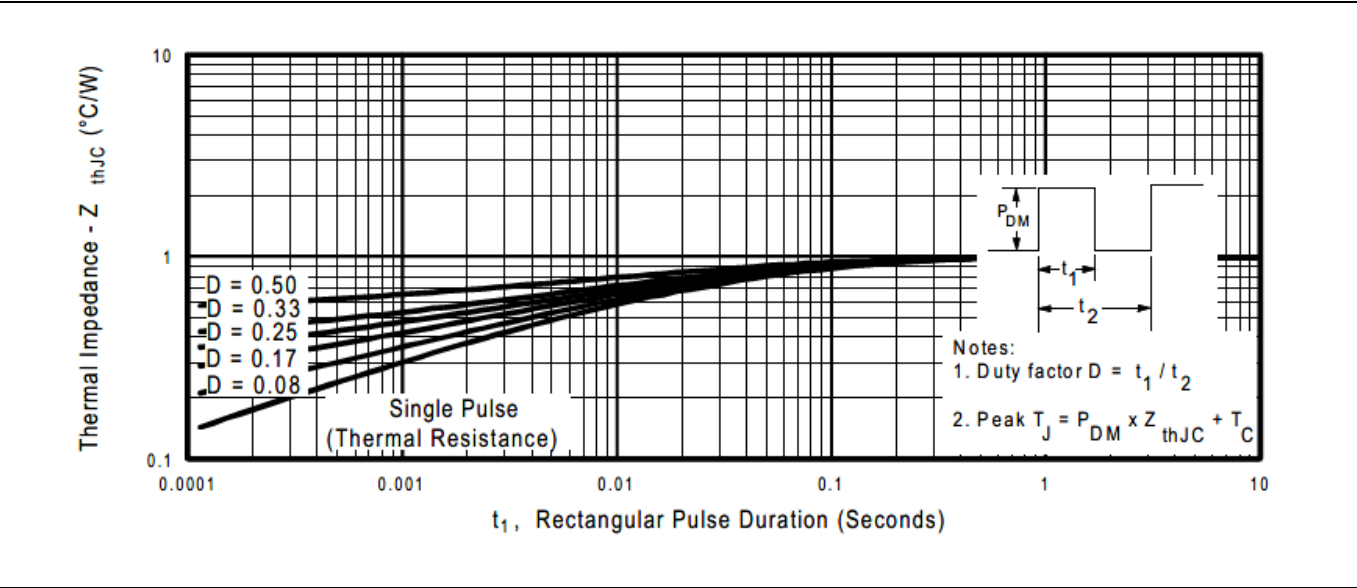


Figure 4 Maximum Thermal Impedance Z_{thJC} Characteristics

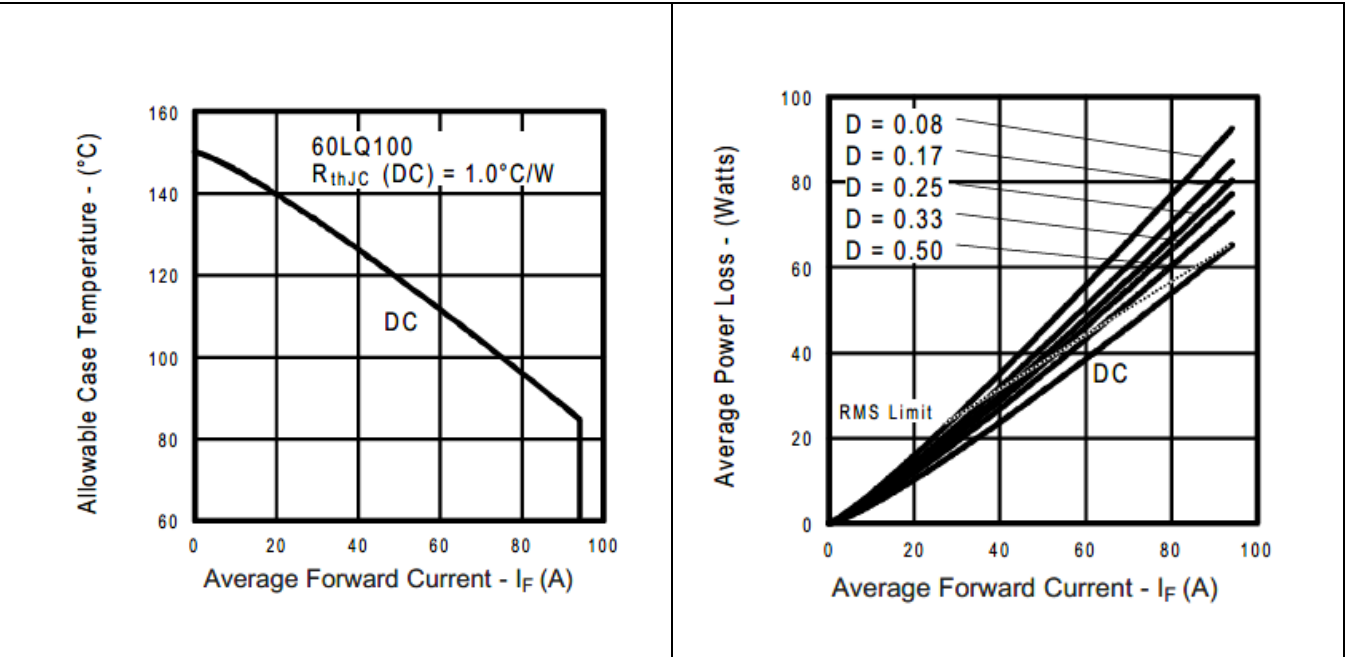


Figure 5

Maximum Allowable Case Temperature Vs. Average Forward Current

Figure 6

Forward Power Loss Characteristics

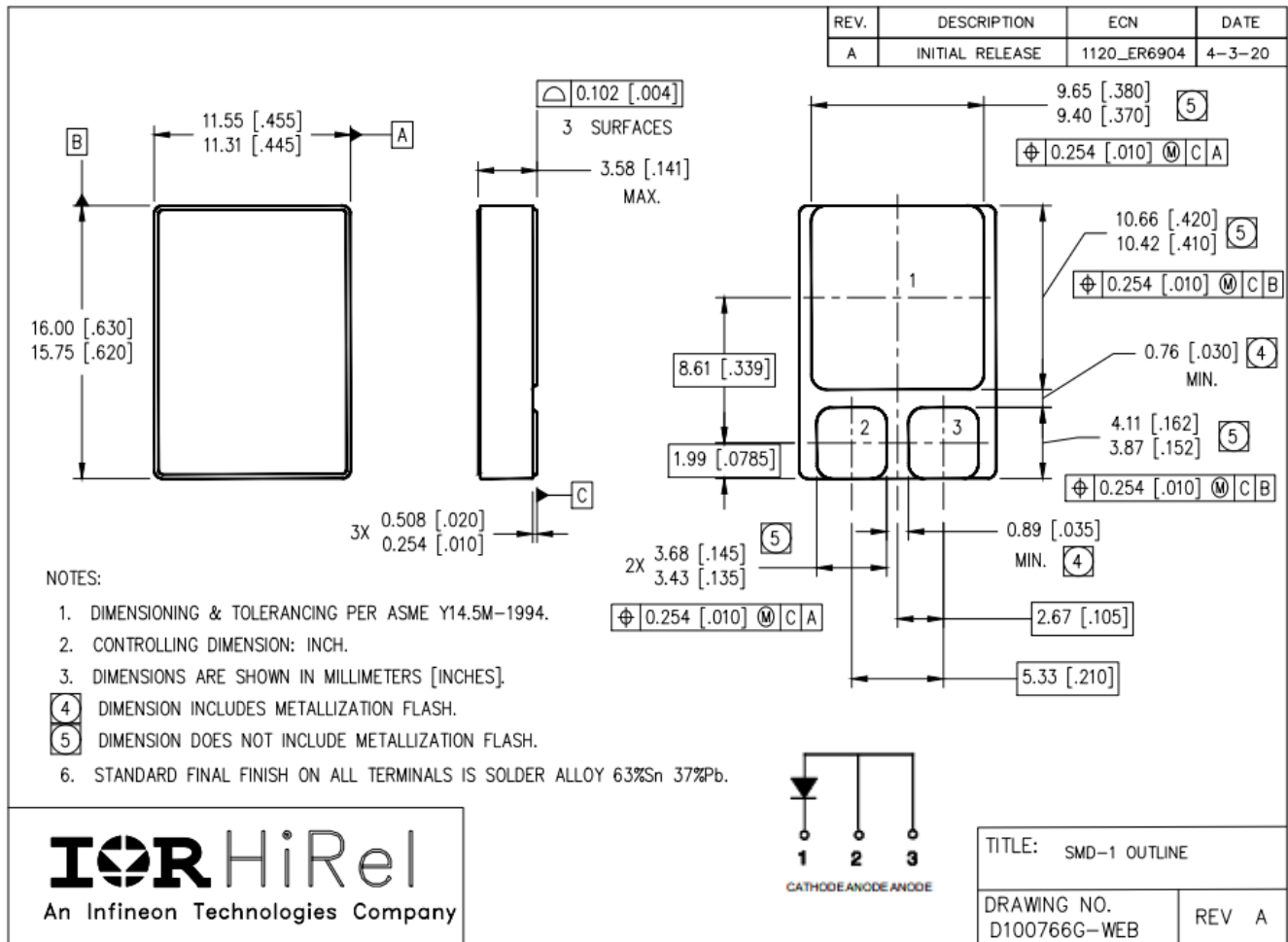
60LQ100

Schottky Rectifier High Efficiency Series Surface Mount (SMD-1)

Package Outline

4 Package Outline

Note: For the most updated package outline, please see the website: [SMD-1](#)



60LQ100

Schottky Rectifier High Efficiency Series Surface Mount (SMD-1)

Revision history

Revision history

Document version	Date of release	Description of changes
	02/25/1999	Final datasheet (PD-20505)
Rev A	03/01/1999	Updated with New Format
Rev B	01/20/2025	Updated per ECN-1120_10144

Trademarks

All referenced product or service names and trademarks are the property of their respective owners.

Edition 2025-01-20

Published by

**International Rectifier HiRel Products,
Inc.**

**An Infineon Technologies company
El Segundo, California 90245 USA**

**© 2025 Infineon Technologies AG.
All Rights Reserved.**

**Do you have a question about this
document?**

Email: erratum@infineon.com

Document reference

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenhheitsgarantie").

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest International Rectifier HiRel Products, Inc., an Infineon Technologies company, office.

International Rectifier HiRel Components may only be used in life-support devices or systems with the expressed written approval of International Rectifier HiRel Products, Inc., an Infineon Technologies company, if failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety and effectiveness of that device or system.

Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.