

**SCHOTTKY RECTIFIER  
HIGH EFFICIENCY SERIES**

**90 Amp. 100V**

**Major Ratings and Characteristics**

Characteristics	90CLQ100	Units
$I_{F(AV)}$	90	A
$V_{RRM}$	100	V
$I_{FSM}$ @ $t_p = 8.3ms$ half-sine	250	A
$V_F$ @ 30Apk, $T_J = 125^\circ C$	0.73	V
$T_J, T_{stg}$ Operating and storage	-55 to 150	$^\circ C$

**Description/Features**

The 90CLQ100 center tap Schottky rectifier has been expressly designed to meet the rigorous requirements of 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.

- Hermetically Sealed
- Center Tap
- Low Forward Voltage Drop
- High Frequency Operation
- Guard Ring for Enhanced Ruggedness and Long term Reliability
- Surface Mount
- Lightweight

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

**CASE STYLE**

REV.	DESCRIPTION	ECN	DATE
A	INITIAL RELEASE	1120_ER6904	4-3-20

**NOTES:**

- DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
- CONTROLLING DIMENSION: INCH.
- DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
- DIMENSION INCLUDES METALLIZATION FLASH.
- DIMENSION DOES NOT INCLUDE METALLIZATION FLASH.
- STANDARD FINAL FINISH ON ALL TERMINALS IS SOLDER ALLOY 63%Sn 37%Pb.

**IOR HiRel**  
An Infineon Technologies Company

ANODE COMMON CATHODE

TITLE: SMD-1 OUTLINE  
DRAWING NO. D100766G-WEB      REV A

**Case Outline and Dimensions - SMD-1**

**Voltage Ratings**

Part Number	90CLQ100
V <sub>R</sub> Max. DC Reverse Voltage (V)	100
V <sub>RRM</sub> Max. Working Peak Reverse Voltage (V)	

**Absolute Maximum Ratings**

Parameter	Limits	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current See Fig. 5	90	A	50% duty cycle @ T <sub>C</sub> = 69°C, square waveform
I <sub>FSM</sub> Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg)	250	A	@ t <sub>p</sub> = 8.3 ms half-sine

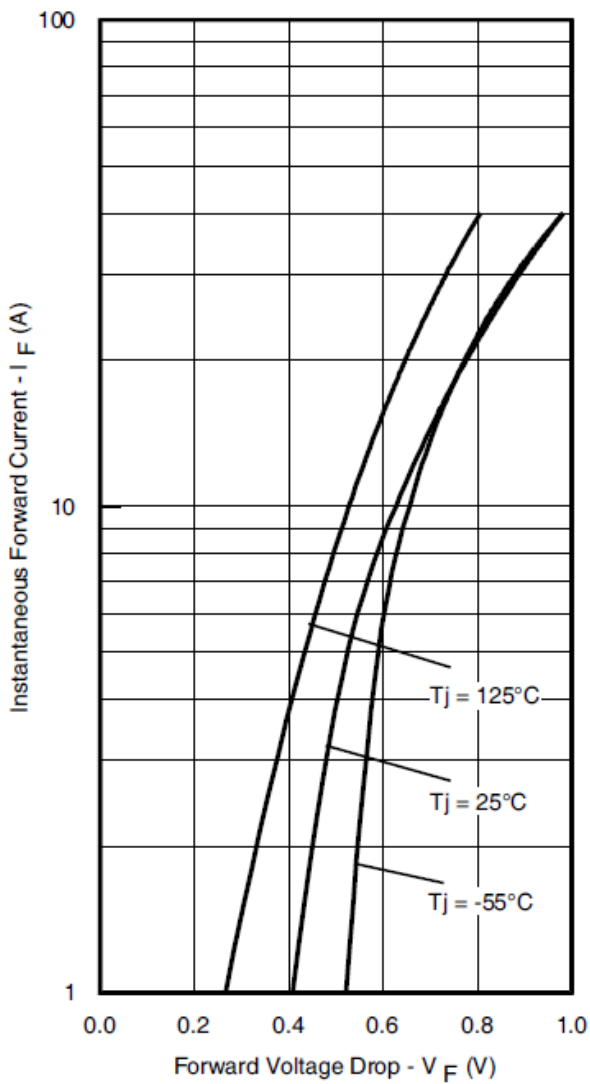
**Electrical Specifications**

Parameter	Limits	Units	Conditions		
V <sub>FM</sub> Max. Forward Voltage Drop (Per Leg) See Fig. 1①	0.86	V	@ I <sub>F</sub> = 15A	T <sub>J</sub> = -55°C	
	0.96	V	@ I <sub>F</sub> = 30A		
	1.03	V	@ I <sub>F</sub> = 40A		
	V <sub>FM</sub> Max. Forward Voltage Drop (Per Leg) See Fig. 1①	0.76	V	@ I <sub>F</sub> = 15A	T <sub>J</sub> = 25°C
		0.89	V	@ I <sub>F</sub> = 30A	
		0.98	V	@ I <sub>F</sub> = 40A	
	V <sub>FM</sub> Max. Forward Voltage Drop (Per Leg) See Fig. 1①	0.61	V	@ I <sub>F</sub> = 15A	T <sub>J</sub> = 125°C
		0.73	V	@ I <sub>F</sub> = 30A	
		0.81	V	@ I <sub>F</sub> = 40A	
I <sub>RM</sub> Max. Reverse Leakage Current (Per Leg) See Fig. 2①	0.05	mA	T <sub>J</sub> = 25°C	V <sub>R</sub> = rated V <sub>R</sub>	
	7.4	mA	T <sub>J</sub> = 100°C		
	15	mA	T <sub>J</sub> = 125°C		
C <sub>T</sub> Max. Junction Capacitance (Per Leg)	1000	pF	V <sub>R</sub> = 5V <sub>DC</sub> (1MHz, 25°C)		
L <sub>S</sub> Typical Series Inductance (Per Leg)	5.9	nH	Measured from center of cathode pad to center of anode pad		

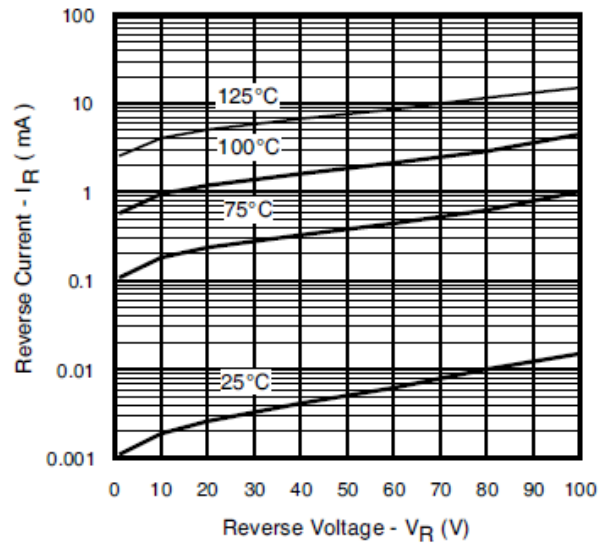
**Thermal-Mechanical Specifications**

Parameter	Limits	Units	Conditions
T <sub>J</sub> Max. Junction Temperature Range	-55 to 150	°C	
T <sub>stg</sub> Max. Storage Temperature Range	-55 to 150	°C	
R <sub>thJC</sub> Max. Thermal Resistance, Junction to Case (Per Leg)	1.25	°C/W	DC operation See Fig. 4
R <sub>thJC</sub> Max. Thermal Resistance, Junction to Case (Per Leg)	0.63	°C/W	DC operation
Wt Weight (Typical)	2.6	g	
Die Size (Typical)	158 x 158	mils	
Case Style	SMD-1		

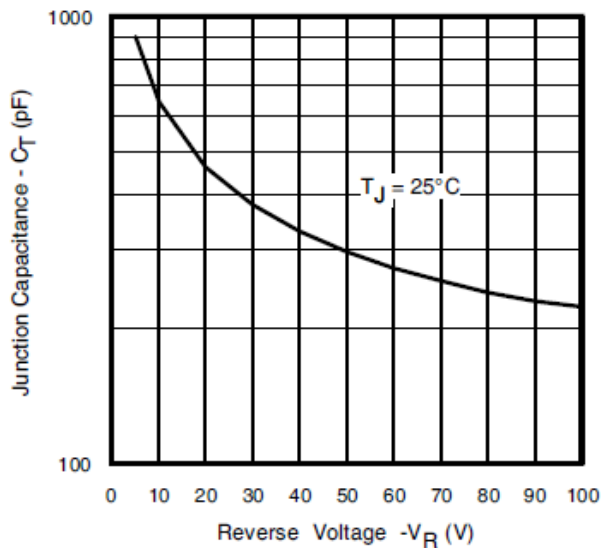
① Pulse Width < 300µs, Duty Cycle < 2%



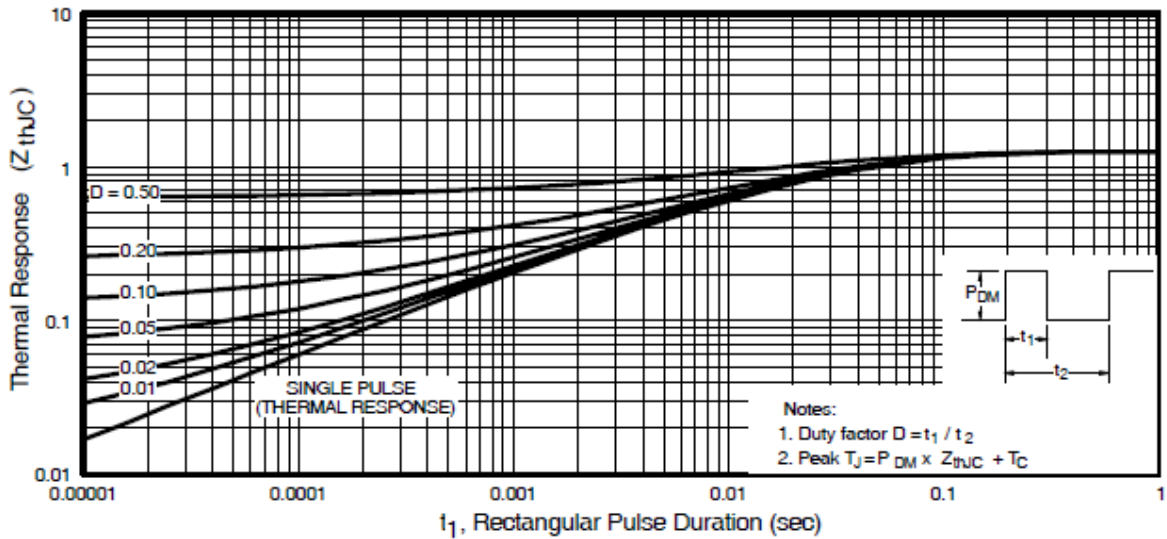
**Fig 1.** Max. Forward Voltage Drop Characteristics (Per Leg)



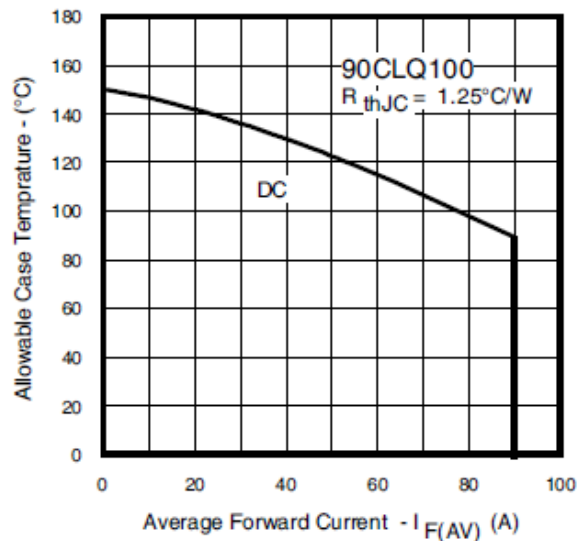
**Fig 2.** Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)



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



**Fig 4.** Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)



**Fig 5.** Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

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The information given in this document shall be in no event regarded as guarantee of conditions or characteristic. The data contained herein is a characterization of the component based on internal standards and is intended to demonstrate and provide guidance for typical part performance. It will require further evaluation, qualification and analysis to determine suitability in the application environment to confirm compliance to your system requirements.

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