

# International IOR Rectifier

## SCHOTTKY RECTIFIER HIGH EFFICIENCY SERIES

# 120LQ045

120 Amp, 45V

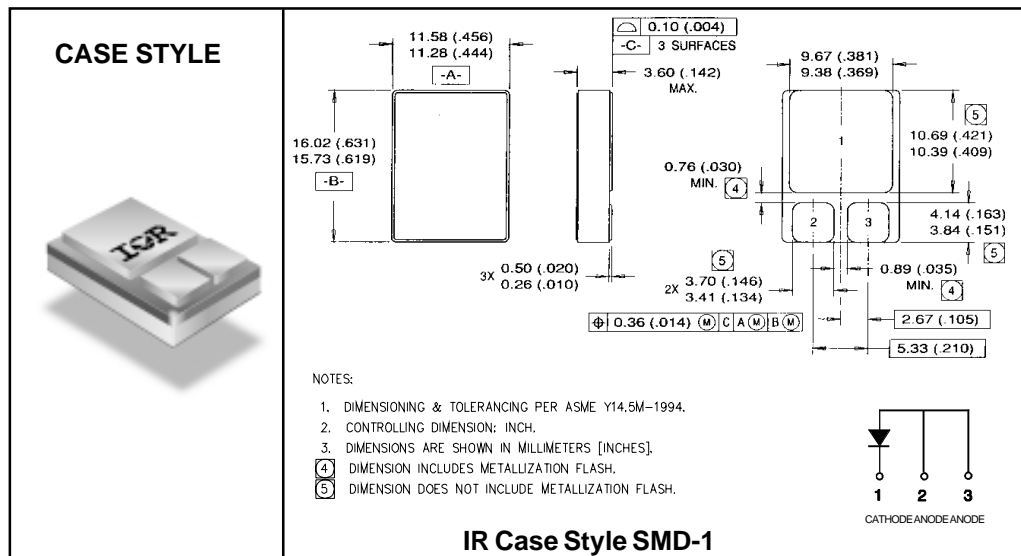
### Major Ratings and Characteristics

Characteristics	120LQ045	Units
$I_{F(AV)}$	120	A
$V_{RRM}$	45	V
$I_{FSM}$ @ $t_p = 8.3ms$ half-sine	800	A
$V_F$ @ 120Apk, $T_J = 125^\circ C$	1.07	V
$T_J, T_{stg}$ Operating and storage	-55 to 150	$^\circ C$

### Description/Features

The 120LQ045 Schottky rectifier has been expressly designed to meet the rigorous requirements of hi-rel 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
- Low Forward Voltage Drop
- High Frequency Operation
- Guard Ring for Enhanced Ruggedness and Long term Reliability
- Surface Mount
- Lightweight



**Voltage Ratings**

Part number	120LQ045
V <sub>R</sub> Max. DC Reverse Voltage (V)	45
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)	

**Absolute Maximum Ratings**

Parameters	Limits	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current See Fig. 5	120	A	50% duty cycle @ T <sub>C</sub> = 64°C, square waveform
I <sub>FSM</sub> Max. Peak One Cycle Non - Repetitive Surge Current	800	A	@ t <sub>p</sub> = 8.3 ms half-sine

**Electrical Specifications**

Parameters	Limits	Units	Conditions
V <sub>FM</sub> Max. Forward Voltage Drop See Fig. 1①	0.73	V	@ 30A
	0.91	V	@ 60A
	1.25	V	@ 120A
	0.57	V	@ 30A
	0.71	V	@ 60A
	0.99	V	@ 120A
	0.51	V	@ 30A
	0.70	V	@ 60A
I <sub>RM</sub> Max. Reverse Leakage Current See Fig. 2①	8.0	mA	T <sub>J</sub> = 25°C
	14	mA	T <sub>J</sub> = 100°C
	75	mA	T <sub>J</sub> = 125°C
C <sub>T</sub> Max. Junction Capacitance	4500	pF	V <sub>R</sub> = 5V <sub>DC</sub> ( 1MHz, 25°C ) ②
L <sub>S</sub> Typical Series Inductance	5.9	nH	Measured from center of cathode pad to center of anode pad

**Thermal-Mechanical Specifications**

Parameters	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	0.8	°C/W	DC operation See Fig. 4
wt Weight (Typical)	2.6	g	
Die Size (Typical)	275X275	mils	
Case Style	SMD-1		

① Pulse Width &lt; 300μs, Duty Cycle &lt; 2%

② Pins 2 and 3 externally tied together

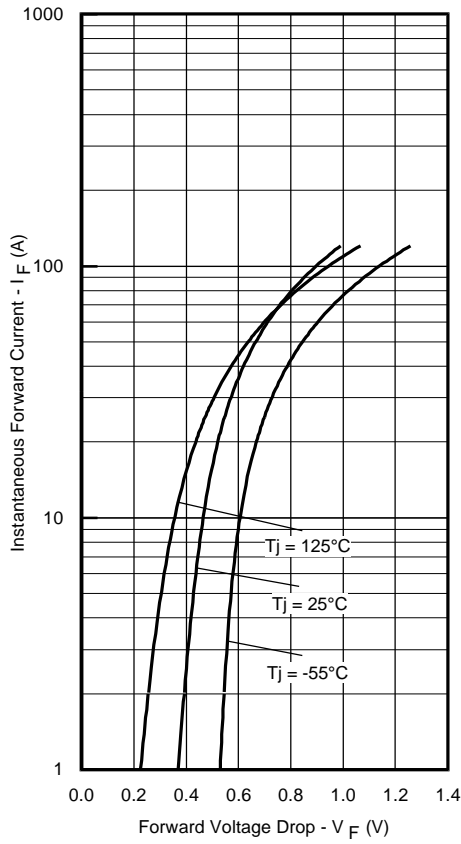


Fig. 1 - Max. Forward Voltage Drop Characteristics

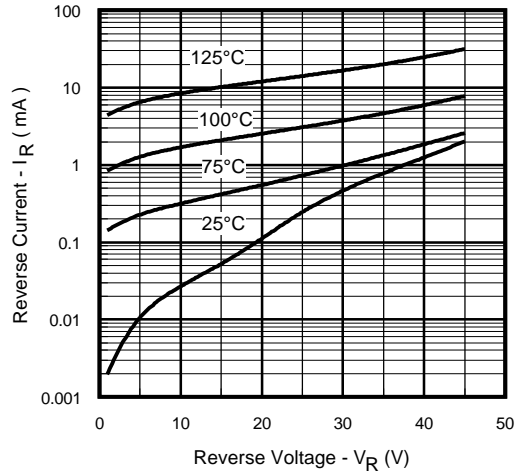


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

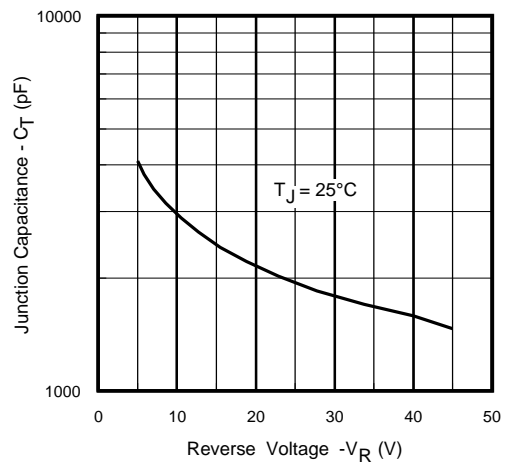


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

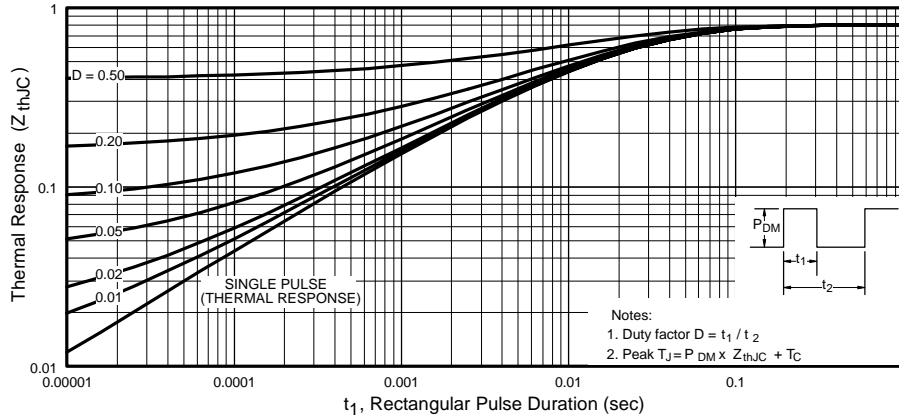


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics

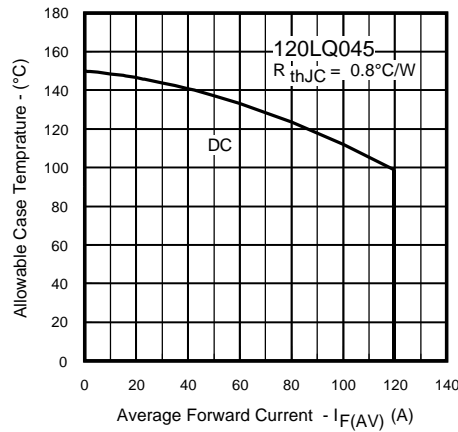


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current