

SCHOTTKY RECTIFIER
HIGH EFFICIENCY SERIES

45CIQ100
45A*, 100V

Major Ratings and Characteristics

Characteristics	45CIQ100	Units
$I_{F(AV)}$ Rectangular waveform	45*	A
V_{RRM} (Per Leg)	100	V
I_{FSM} @ $t_p = 8.3ms$ half-sine (Per Leg)	400	A
V_F @ 25Apk, $T_J = 125^\circ C$ (Per Leg)	0.74	V
T_J, T_{stg} Operating and storage	-55 to 150	$^\circ C$

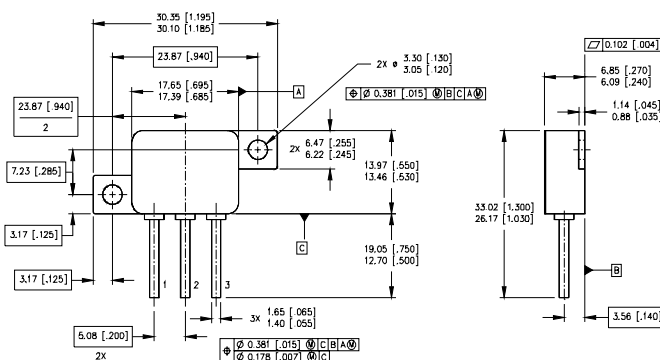
* $I_{F(AV)}$ Current is limited by package

Description/Features

The 45CIQ100 center tap Schottky rectifier has been expressly designed to meet the rigorous requirements of HiRel environments. It is packaged in the hermetic isolated TO-259AA 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 controlled drawings to TX, TXV and S levels.

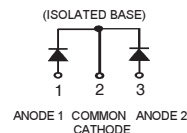
- Hermetically Sealed
- Center Tap
- Low Forward Voltage Drop
- High Frequency Operation
- Guard Ring for Enhanced Ruggedness and Long Term Reliability
- 2 Interdigitated mounting tabs for secured, intimate heatsink contact
- Electrically Isolated
- ESD Rating: Class NS per MIL-STD-750, Method 1020

CASE STYLE



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME 14.5M-1994.
2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
3. CONTROLLING DIMENSION: INCH
4. CONFORMS TO JEDEC OUTLINE TO-259AA.



Case Outline and Dimensions - TO-259AA

Voltage Ratings

Part number	45CIQ100
V_R Max. DC Reverse Voltage (V) (Per Leg)	100
V_{RWM} Max. Working Peak Reverse Voltage (V) (Per Leg)	

Absolute Maximum Ratings

Parameters	Limits	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current See Fig. 5	45*	A	50% duty cycle @ $T_C = 100^\circ\text{C}$, rectangular waveform * $I_{F(AV)}$ Current is limited by package
I_{FSM} Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg)	400	A	@ $t_p = 8.3$ ms half-sine

Electrical Specifications

Parameters	Limits	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) See Fig. 1 ①	0.90	V	@ 25A $T_J = -55^\circ\text{C}$
	1.18	V	@ 45A
	0.89	V	@ 25A $T_J = 25^\circ\text{C}$
	1.13	V	@ 45A
	0.74	V	@ 25A $T_J = 125^\circ\text{C}$
	0.97	V	@ 45A
I_{RM} Max. Reverse Leakage Current (Per Leg) See Fig. 2 ①	0.8	mA	$T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$
	45	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance (Per Leg)	1400	pF	$V_R = 5V_{DC}$ (1MHz, 25°C)
L_S Typical Series Inductance (Per Leg)	8.7	nH	Measured from anode lead to cathode lead 6mm (0.025 in.) from package

Thermal-Mechanical Specifications

Parameters	Limits	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance, Junction to Case (Per Leg)	0.83	$^\circ\text{C/W}$	DC operation See Fig. 4
R_{thJC} Max. Thermal Resistance, Junction to Case (Per Package)	0.42	$^\circ\text{C/W}$	DC operation
wt Weight (Typical)	10.5	g	
Die Size	200X200	mils	
Case Style	TO-259AA		

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

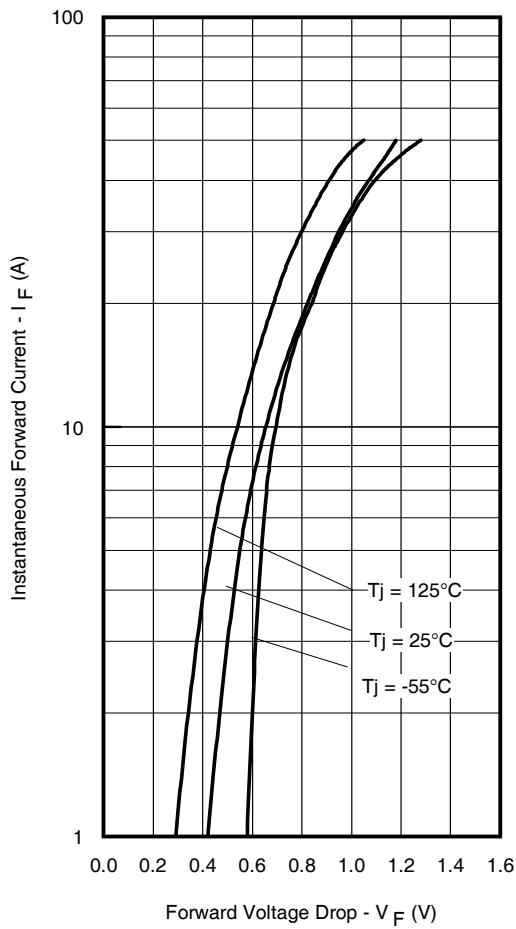


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

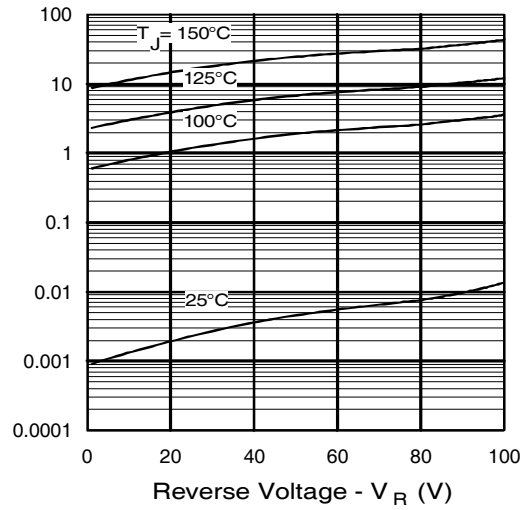


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

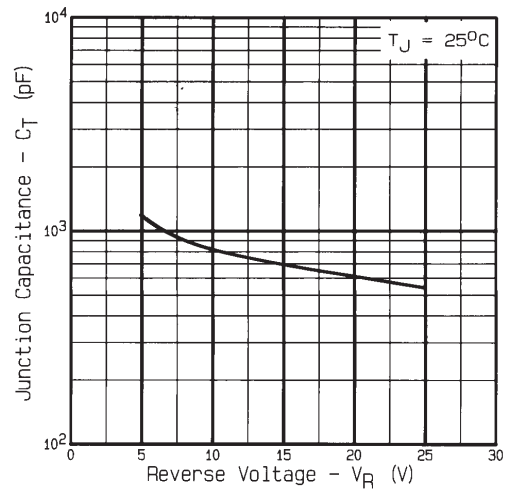


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

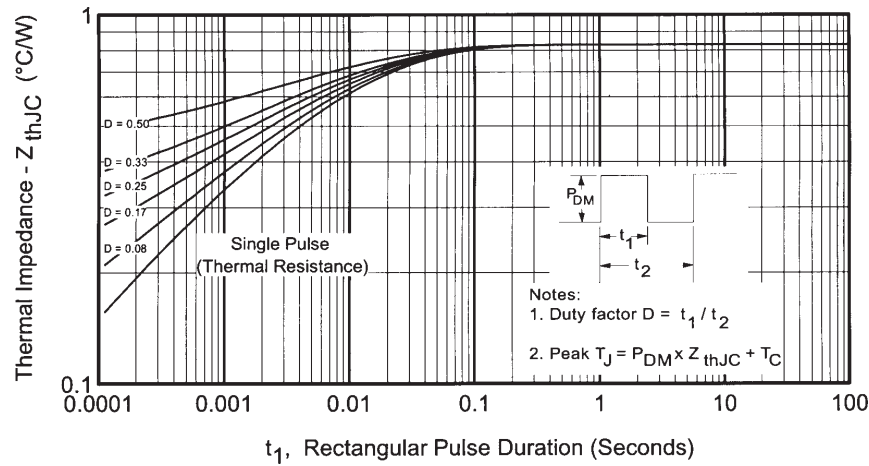


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

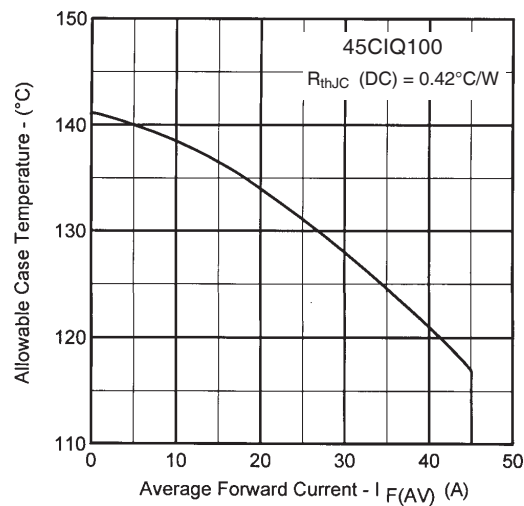


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current