

SCHOTTKY RECTIFIER
HIGH EFFICIENCY SERIES

45CKQ100

45A*, 100V

Major Ratings and Characteristics

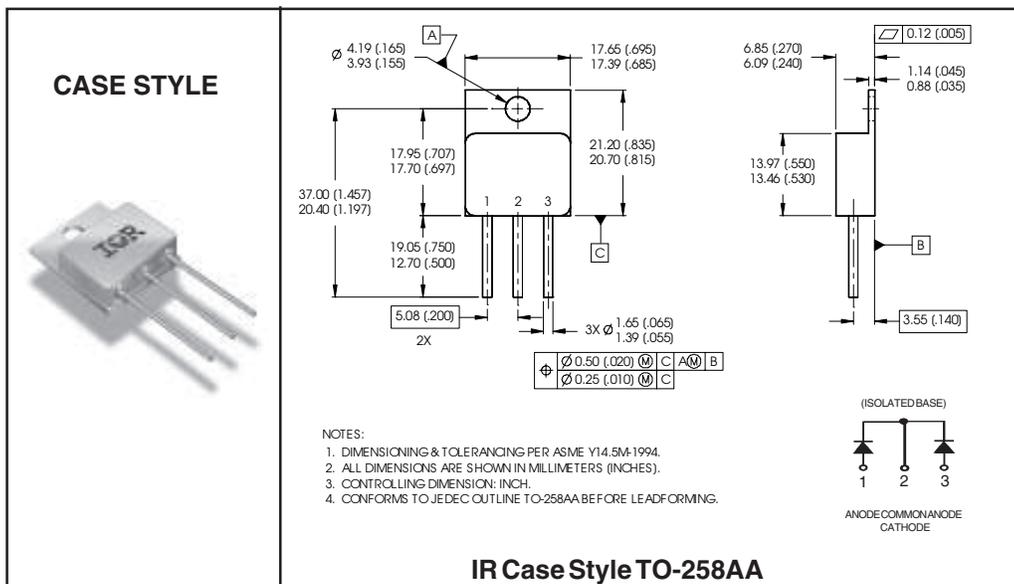
Characteristics	45CKQ100	Units
$I_{F(AV)}$ Rectangular waveform	45*	A
V_{RRM} (Per Leg)	100	V
I_{FSM} @ $t_p = 8.3ms$ half-sine (Per Leg)	400	A
V_f @ 25Apk, $T_J = 125^\circ C$ (Per Leg)	0.74	V
T_J, T_{stg} Operating and storage	-55 to 150	$^\circ C$

* $I_{F(AV)}$ current is limited by pin diameter

Description/Features

The 45CKQ100 center tap Schottky rectifier has been expressly designed to meet the rigorous requirements of hi-rel environments. It is packaged in the hermetic isolated TO-258AA 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
- Electrically Isolated



Voltage Ratings

Part number	45CKQ100
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 pin diameter
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	0.89	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	$^\circ\text{C}/\text{W}$	DC operation See Fig. 4
R_{thJC} Max. Thermal Resistance, Junction to Case (Per Package)	0.42	$^\circ\text{C}/\text{W}$	DC operation
wt Weight (Typical)	10.9	g	
Die Size	150X150	mils	
Case Style	TO-258AA		

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

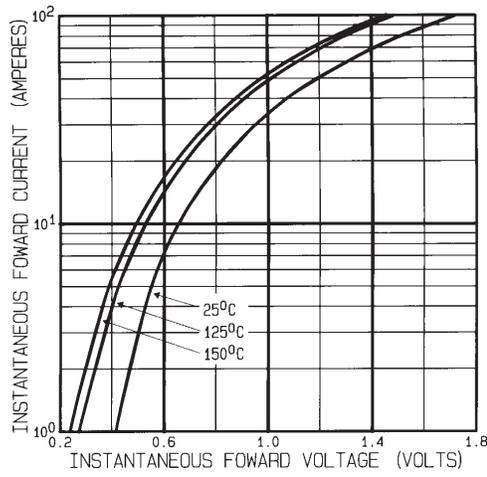


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

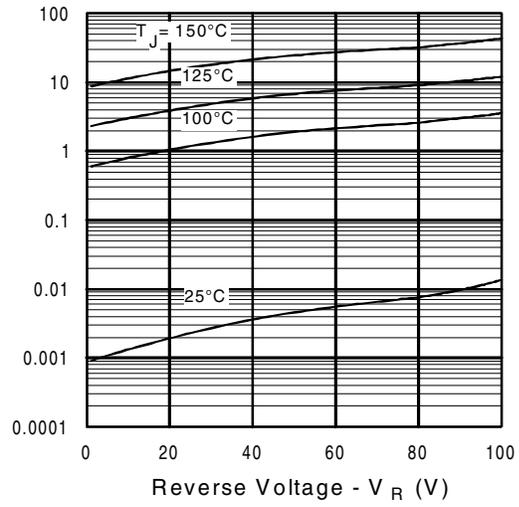


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

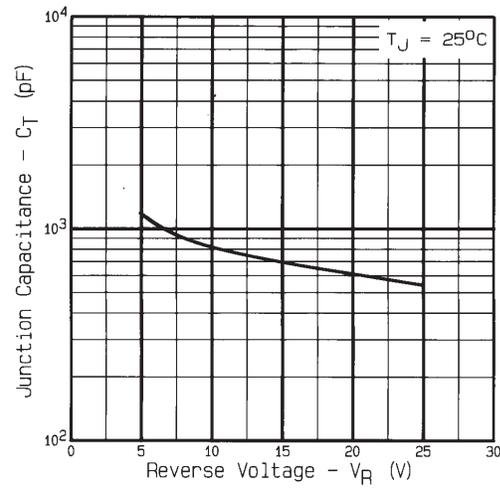


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

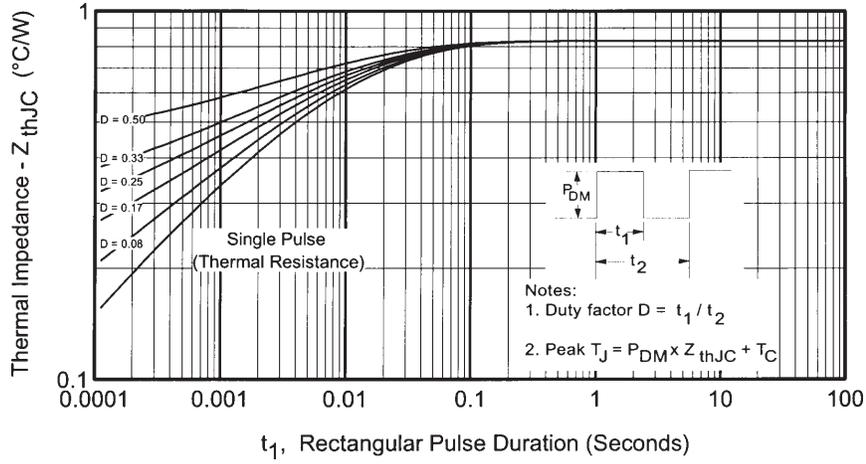


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

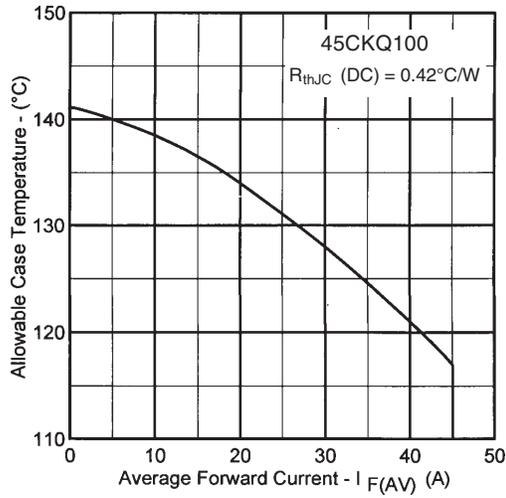


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current