

Major Ratings and Characteristics

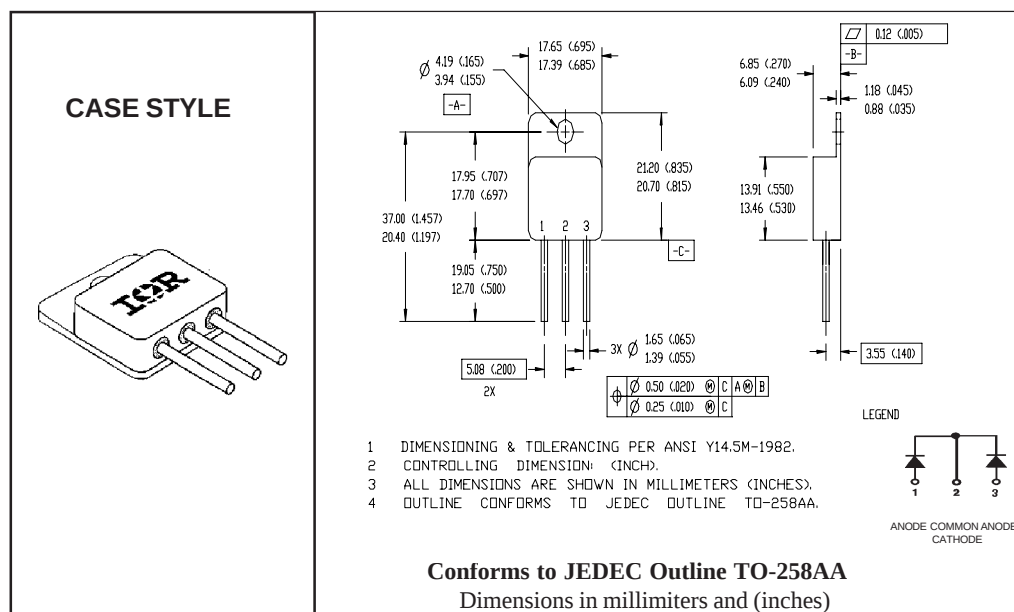
Characteristics	45CKQ100	Units
$I_{F(AV)}$ Rectangular waveform	45*	A
V_{RRM}	100	V
I_{FSM} @ $t_p = 8.3ms$ sine	400	A
V_F @ 25Apk, $T_J = 125^\circ C$ (Per Leg)	0.74	V
T_J, T_{stg} Operating and storage	-55 to 150	$^\circ C$

* $I_{F(AV)}$ current 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-258 package and has extremely low reverse leakage at high temperature. Full MIL-PRF-19500 quality conformance testing is available on source controlled drawings to JANTX, JANTXV, or JANS levels. Typical applications include switching power supplies and resonant power converters.

- Hermetically sealed
- Low forward voltage drop
- Center tap
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Electrically isolated
- Ceramic eyelets



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	45CKQ100	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current See Fig. 4	45*	A	50% duty cycle @ $T_C = 100^\circ\text{C}$, rectangular waveform * $I_{F(AV)}$ current limited by pin diameter
I_{FSM} Max. Peak One Cycle Non - Repetitive Surge Current (Per Leg)	400	A	@ $t_p = 8.3$ ms sine

Electrical Specifications

Parameters	45CKQ100	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	$V_R = 5V_{DC}$, (test signal range 100KHz to 1MHz) 25°C
L_S Typical Series Inductance (Per Leg)	8.7	nH	Measured lead to lead 5mm from package body

Thermal-Mechanical Specifications

Parameters	45CKQ100	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. 5
R_{thJC} Max. Thermal Resistance, Junction to Case (Per Package)	0.42	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.21	$^\circ\text{C/W}$	Mounting surface, smooth and greased
w_t Weight (Typical)	10.9	g	
Die Description (Square)	0.200	inches	
Case Style	TO-258AA		JEDEC

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

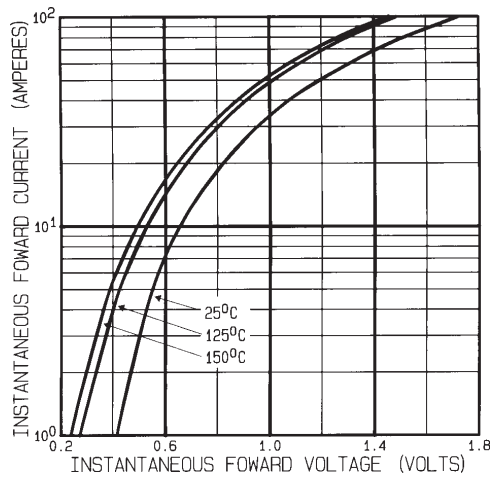


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

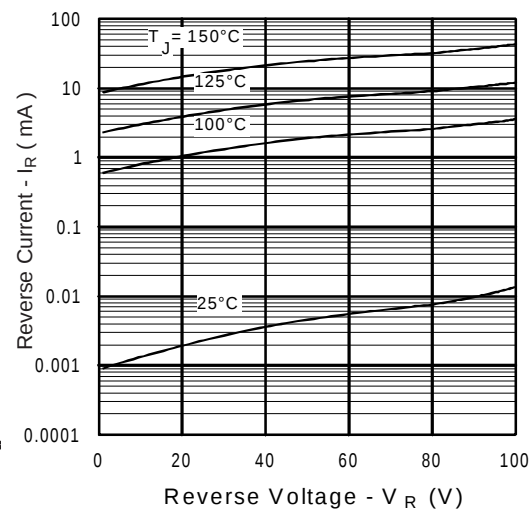


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

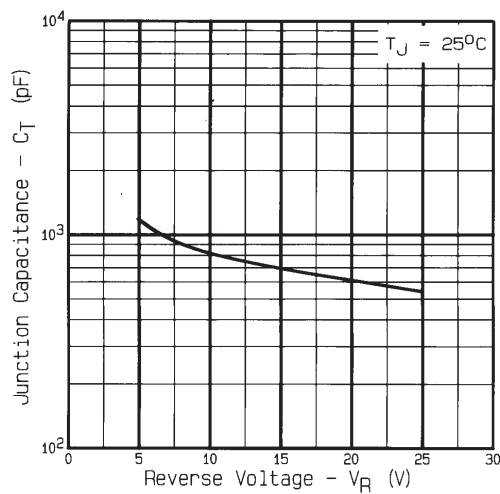


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

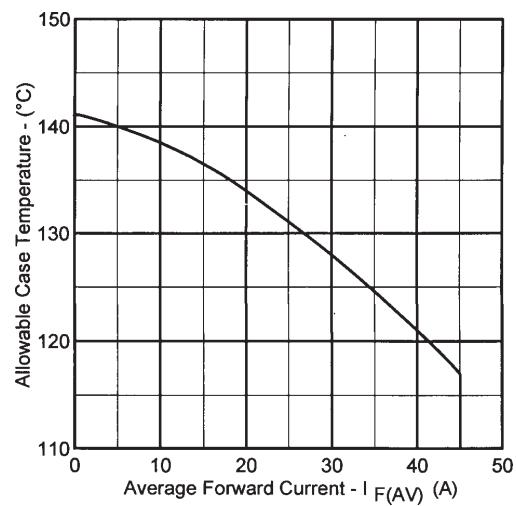
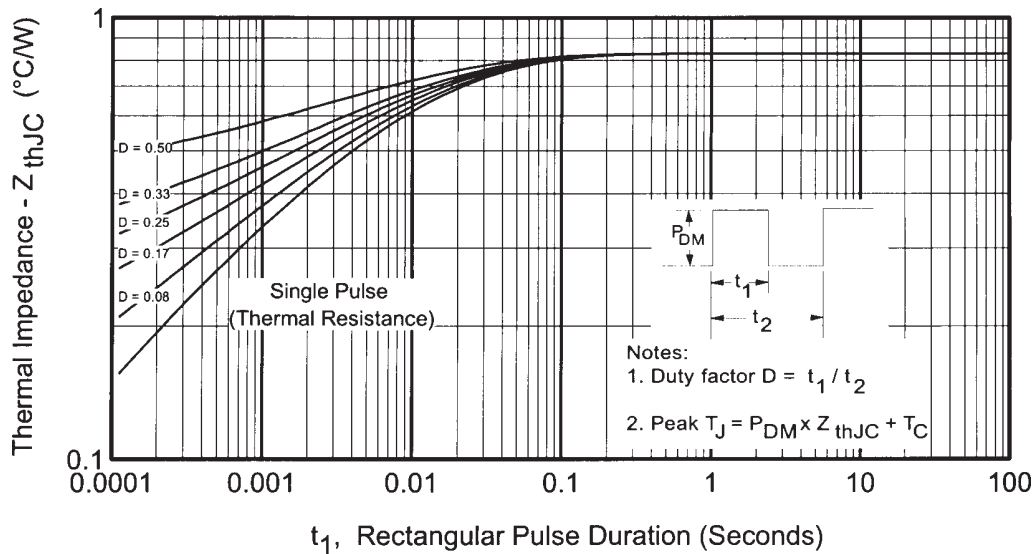


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

Fig.5 - Max. Thermal Impedance Z_{thJC} characteristics (Per Leg)International
IR Rectifier**WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245, Tel: (310) 322 3331**IR GREAT BRITAIN:** Hurst Green, Oxted, Surrey RH8 9BB, UK Tel: ++ 44 1883 732020**IR CANADA:** 15 Lincoln Court, Brampton, Ontario L6T3Z2, Tel: (905) 453 2200**IR GERMANY:** Saalburgstrasse 157, 61350 Bad Homburg Tel: ++ 49 6172 96590**IR ITALY:** Via Liguria 49, 10071 Borgaro, Torino Tel: ++ 39 11 451 0111**IR FAR EAST:** K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo Japan 171 Tel: 81 3 3983 0086**IR SOUTHEAST ASIA:** 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994 Tel: ++ 65 838 4630**IR TAIWAN:** 16 Fl. Suite D. 207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan Tel: 886-2-2377-9936<http://www.irf.com/> Data and specifications subject to change without notice. 3/99