

SCHOTTKY RECTIFIER
HIGH EFFICIENCY SERIES

10YQ045

10 Amp, 45V

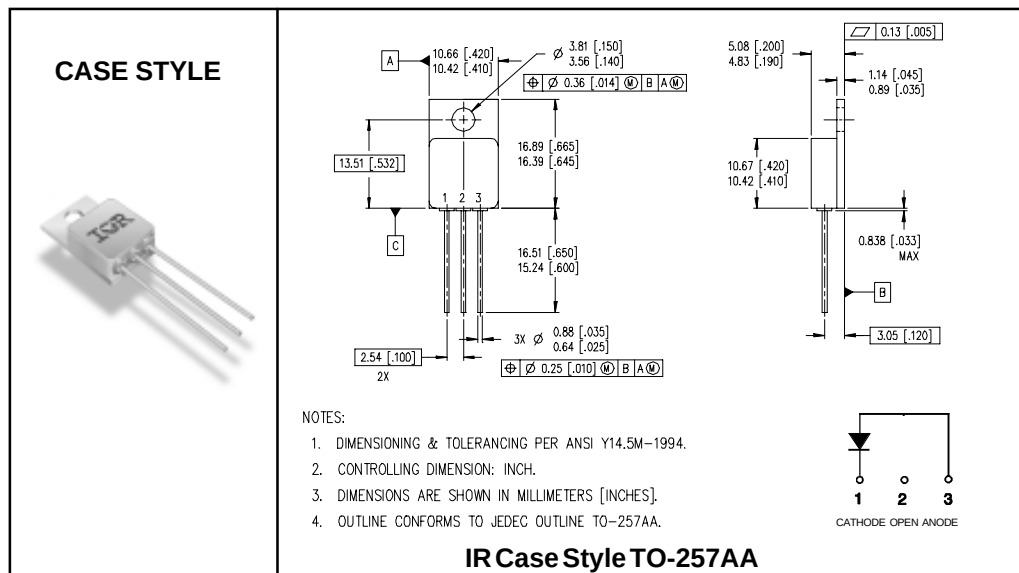
Major Ratings and Characteristics

Characteristics	10YQ045	Units
$I_{F(AV)}$	10	A
V_{RRM}	45	V
I_{FSM} @ $t_p = 8.3ms$ half-sine	110	A
V_F @ $10A_{pk}$, $T_J = 125^\circ C$	0.70	V
T_J, T_{stg} Operating and storage	-55 to 150	$^\circ C$

Description/Features

The 10YQ045 Schottky rectifier has been expressly designed to meet the rigorous requirements of hi-rel environments. It is packaged in the hermetic isolated TO-257AA 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 levels.

- Hermetically Sealed
- Low Forward Voltage Drop
- High Frequency Operation
- Guard Ring for Enhanced Ruggedness and Long term Reliability
- Lightweight
- Glass Eyelets



Voltage Ratings

Part number	10YQ045
V_R Max. DC Reverse Voltage (V)	45
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Limits	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current See Fig. 5	10	A	50% duty cycle @ $T_C = 109^\circ\text{C}$, square waveform
I_{FSM} Max. Peak One Cycle Non - Repetitive Surge Current	110	A	@ $t_p = 8.3$ ms half-sine

Electrical Specifications

Parameters	Limits	Units	Conditions
V_{FM} Max. Forward Voltage Drop See Fig. 1①	0.74	V	@ 10A $T_J = -55^\circ\text{C}$
	0.95	V	@ 20A
	0.73	V	@ 10A $T_J = 25^\circ\text{C}$
	1.02	V	@ 20A
	0.70	V	@ 10A $T_J = 125^\circ\text{C}$
	1.10	V	@ 20A
I_{RM} Max. Reverse Leakage Current See Fig. 2①	0.50	mA	$T_J = 25^\circ\text{C}$
	23	mA	$T_J = 100^\circ\text{C}$
	67	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance	775	pF	$V_R = 5V_{DC}$ (1MHz, 25°C)
L_S Typical Series Inductance	9.8	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	2.6	$^\circ\text{C/W}$	DC operation See Fig. 4
wt Weight (Typical)	3.3	g	
Die Size (Typical)	125X125	mils	
Case Style	TO-257AA		

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

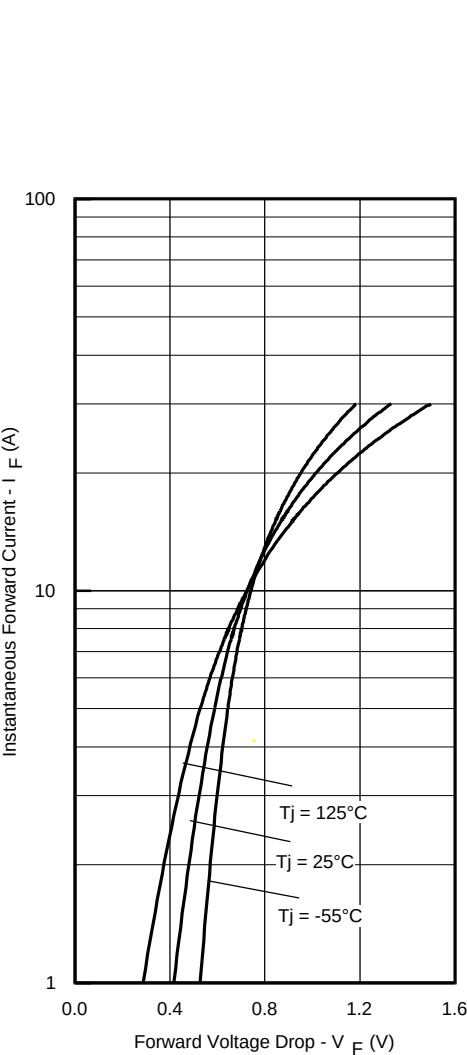


Fig. 1 - Max. Forward Voltage Drop Characteristics

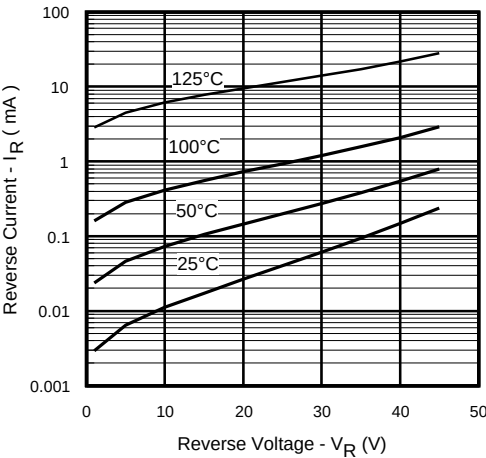


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

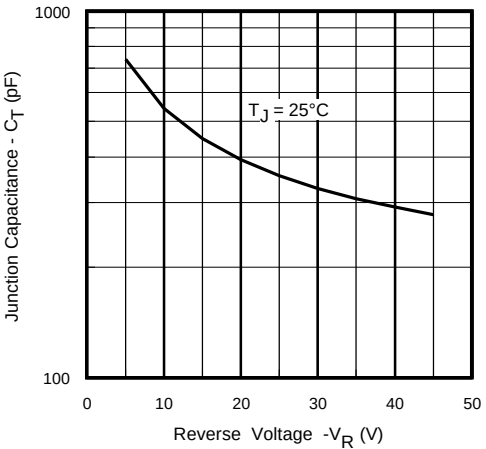
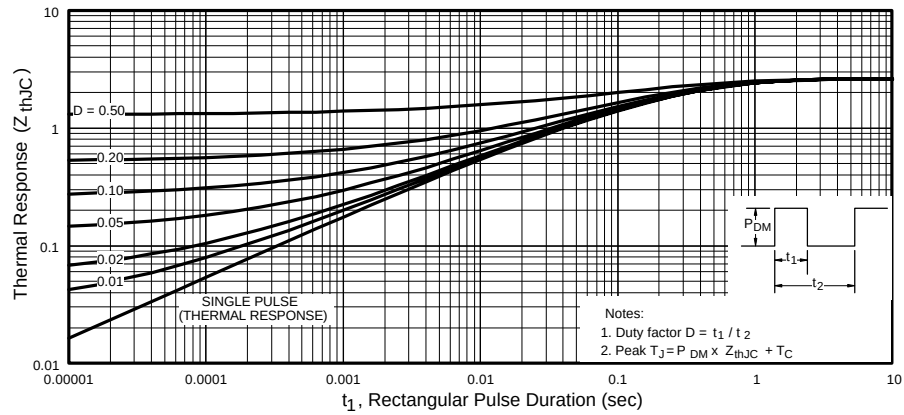
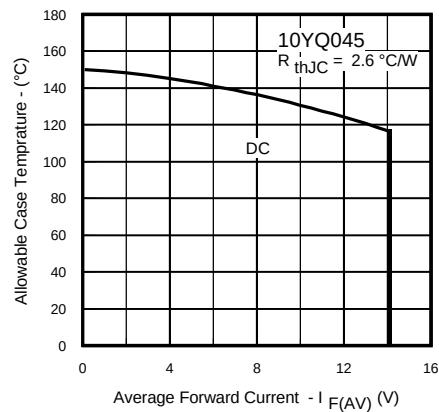


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

Fig. 4 - Max. Thermal Impedance Z_{thJC} CharacteristicsFig. 5 - Max. Allowable Case Temperature Vs.
Average Forward Current