Bulletin PD-20561 rev. C 01/01

International
IOR Rectifier

8TQ...
8TQ...S

SCHOTTKY RECTIFIER

8 Amp

$I_{F(AV)}$ = 8 Amp
V_R = 80 - 100V

Major Ratings and Characteristics

Characteristics	8TQ	Units
$I_{F(AV)}$ Rectangular waveform	8	A
V_{RRM} range	80 - 100	V
I_{FSM} @ tp = 5 μs sine	850	A
V_F @ 8 Apk, T_J = 125°C	0.58	V
T_J range	- 55 to 175	°C

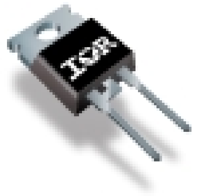
Description/Features

The 8TQ Schottky rectifier series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 175° C T_J operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

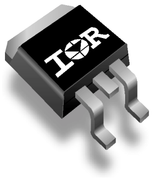
Case Styles

8TQ...



TO-220

8TQ... S



D^2PAK

Voltage Ratings

	Part number	8TQ080	8TQ100
V_R	Max. DC Reverse Voltage (V)	80	100
V_{RWM}	Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

	Parameters	8TQ	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current * See Fig. 5	8	A	50% duty cycle @ T_C = 157° C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	850	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current * See Fig. 7	230		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy	7.50	mJ	T_J = 25 °C, I_{AS} = 0.50 Amps, L = 60 mH	
I_{AR}	Repetitive Avalanche Current	0.50	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical	

Electrical Specifications

	Parameters	8TQ	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1) * See Fig. 1	0.72	V	@ 8A	T_J = 25 °C
		0.88	V	@ 16A	
		0.58	V	@ 8A	T_J = 125 °C
		0.69	V	@ 16A	
I_{RM}	Max. Reverse Leakage Current (1) * See Fig. 2	0.55	mA	T_J = 25 °C	V_R = rated V_R
		7	mA	T_J = 125 °C	
C_T	Max. Junction Capacitance	500	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25 °C	
L_S	Typical Series Inductance	8	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change (Rated V_R)	10,000	V/ µs		

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

Thermal-Mechanical Specifications

	Parameters		8TQ	Units	Conditions
T_J	Max. Junction Temperature Range		-55 to 175	°C	
T_{stg}	Max. Storage Temperature Range		-55 to 175	°C	
R_{thJC}	Max. Thermal Resistance Junction to Case		2.0	°C/W	DC operation * See Fig. 4
R_{thCS}	Typical Thermal Resistance, Case to Heatsink		0.50	°C/W	Mounting surface , smooth and greased
wt	Approximate Weight		2 (0.07)	g (oz.)	
T	Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)	
		Max.	12 (10)		

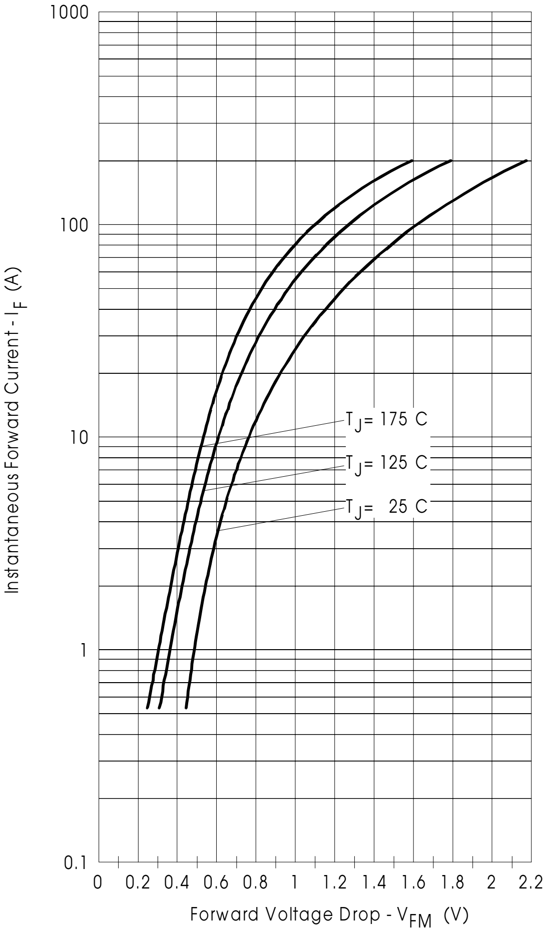


Fig. 1 - Maximum Forward Voltage Drop Characteristics

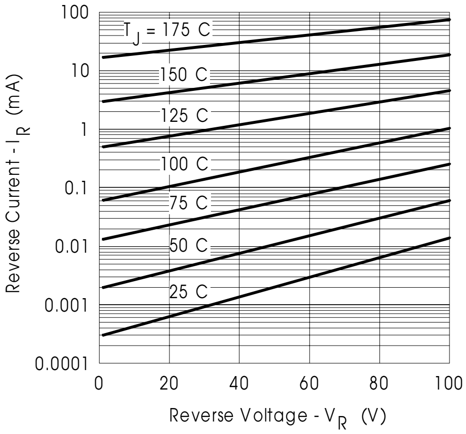


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

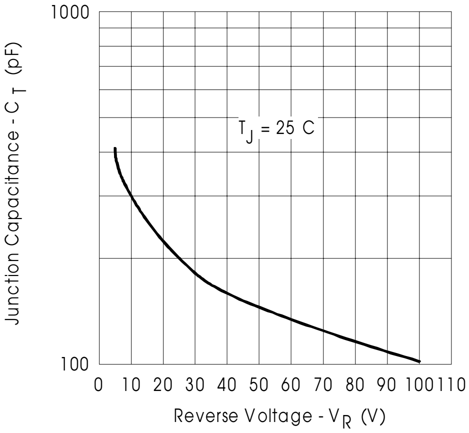


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

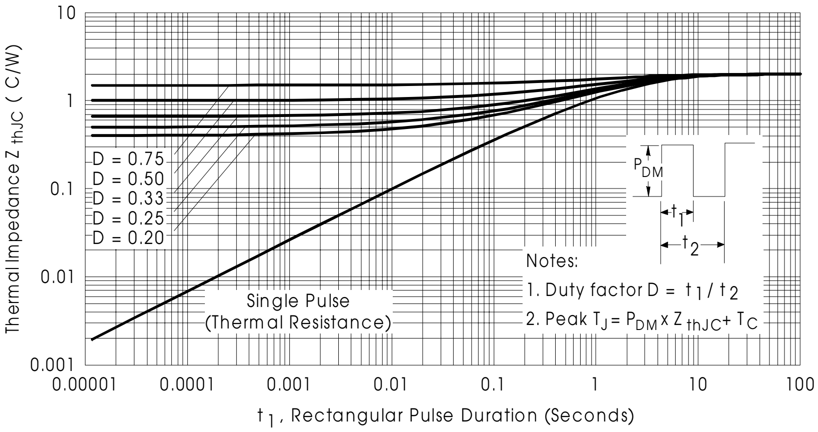


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

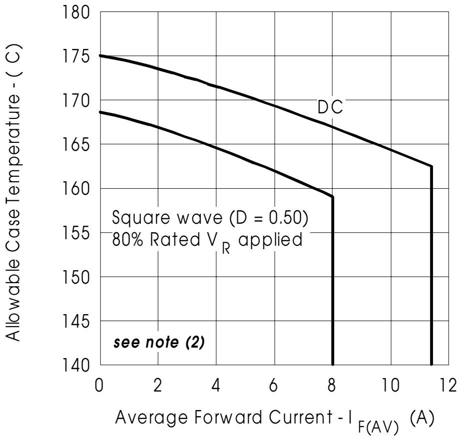


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

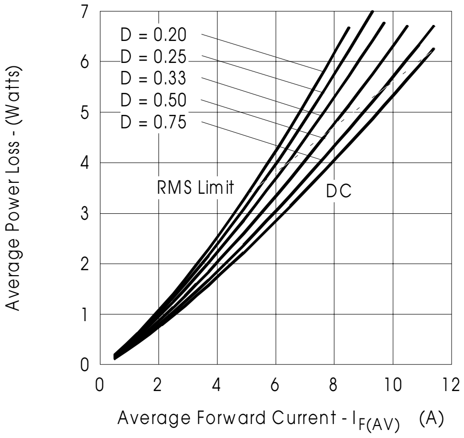


Fig. 6 - Forward Power Loss Characteristics

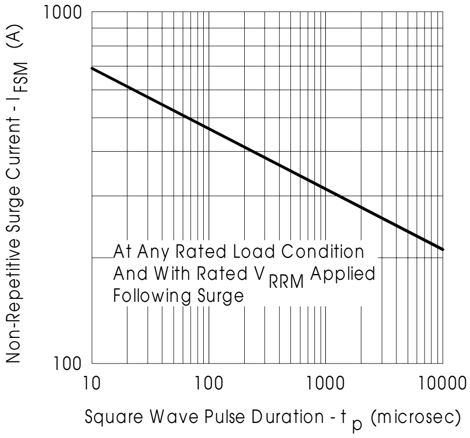


Fig. 7 - Maximum Non-Repetitive Surge Current

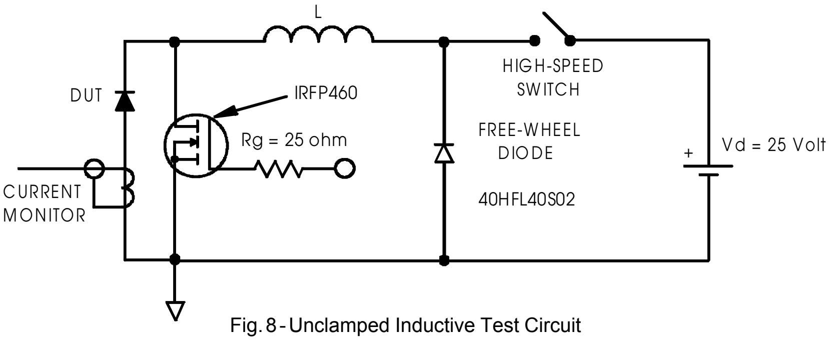


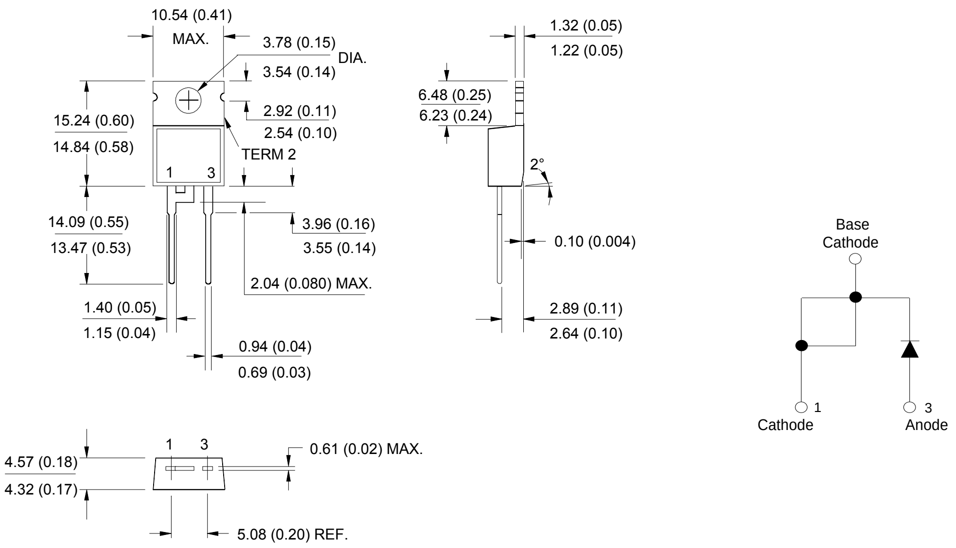
Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;

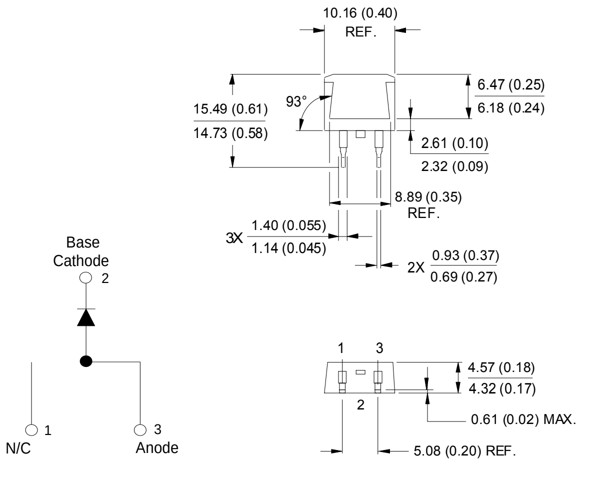
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ $(I_{F(AV)} / D)$ (see Fig. 6);

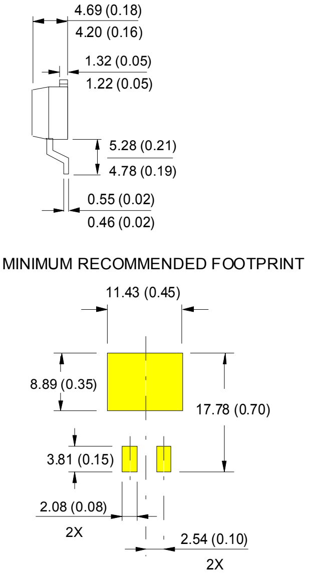
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; I_R @ V_{R1} = 80% rated V_R

Outline Table



Conform to JEDEC outline TO-220AC
Dimensions in millimeters and (inches)

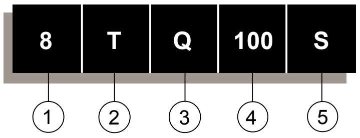




Conform to JEDEC outline D^2Pak (SMD-220)
Dimensions in millimeters and (inches)

Ordering Information Table

Device Code



- **1** - Essential Part Number
- **2** - T = TO-220
- **3** - Q = Schottky Q Series
- **4** - Voltage Rating
- **5** - S = D^{2}Pak

080 = 80V
100 = 100V

International
IOR Rectifier

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