PD-2.266 rev. A 12/97

International
IOR Rectifier

19TQ015 SERIES

SCHOTTKY RECTIFIER 19 Amp

Major Ratings and Characteristics

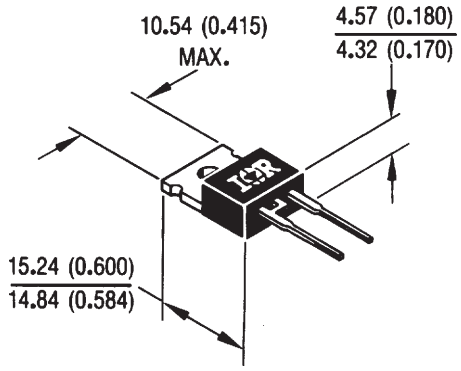
Characteristics	19TQ015	Units
$I_{F(AV)}$ Rectangular waveform	19	A
V_{RRM}	15	V
I_{FSM} @ tp = 5 µs sine	700	A
V_F @ 19 Apk, T_J = 75°C	0.32	V
T_J range	-55 to 100	°C

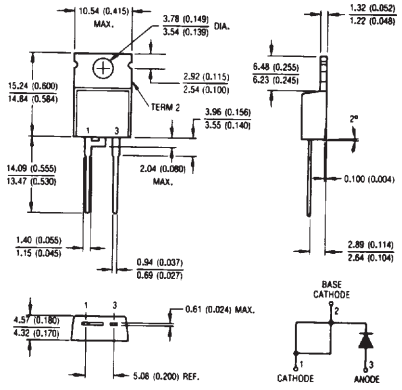
Description/Features

The 19TQ015 Schottky rectifier has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 100° C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 100° C T_J operation
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance

CASE STYLE AND DIMENSIONS





Conforms to JEDEC Outline TO - 220AC

Dimensions in millimeters and inches

Voltage Ratings

	Part number	19TQ015
V_R	Max. DC Reverse Voltage (V)	15
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	19TQ	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current *See Fig. 5	19	A	50% duty cycle @ T_C = 80° C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current *See Fig. 7	700	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		330		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy	6.75	mJ	T_J = 25 °C, I_{AS} = 1.50 Amps, L = 6 mH	
I_{AR}	Repetitive Avalanche Current	1.50	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. V_A = 3 x V_R typical	

Electrical Specifications

	Parameters	19TQ	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1) * See Fig. 1	0.36	V	@ 19A	T_J = 25 °C
		0.46	V	@ 38A	
		0.32	V	@ 19A	T_J = 75 °C
		0.43	V	@ 38A	
I_{RM}	Max. Reverse Leakage Current (1) * See Fig. 2	10.5	mA	T_J = 25 °C	V_R = rated V_R
		522	mA	T_J = 100 °C	
		465	mA	T_J = 100 °C	V_R = 12V
		285	mA	T_J = 100 °C	V_R = 5V
C_T	Max. Junction Capacitance	2000	pF	V_R = 5V_{DC}, (test signal range 100Khz to 1Mhz) 25 °C	
L_S	Typical Series Inductance	8.0	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		19TQ	Units	Conditions
T_J	Max. Junction Temperature Range		-55 to 100	°C	
T_{stg}	Max. Storage Temperature Range		-55 to 100	°C	
R_{thJC}	Max. Thermal Resistance Junction to Case		1.50	°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)		
	Case Style		TO-220AC		JEDEC

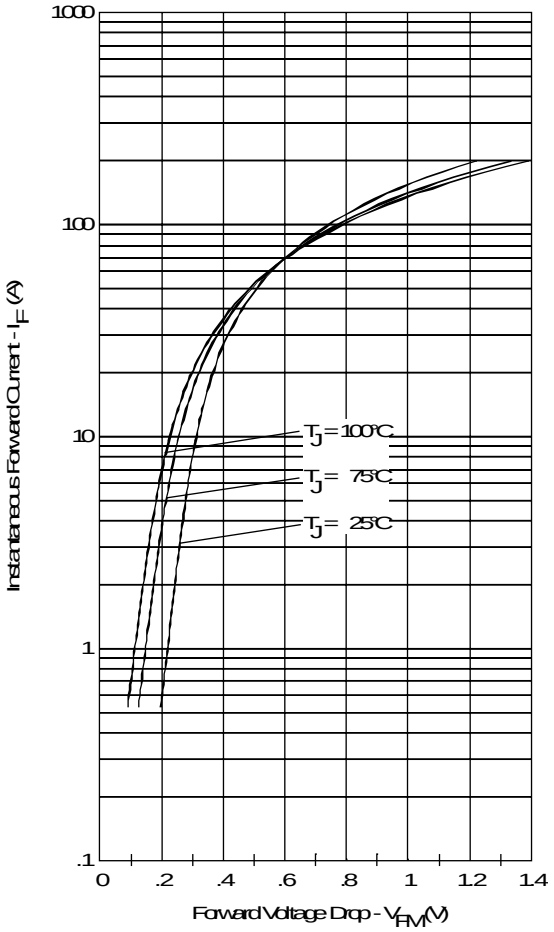


Fig. 1 - Maximum Forward Voltage Drop Characteristics

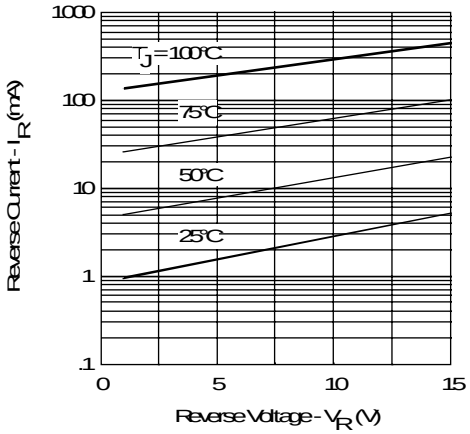


Fig. 2 - Typical Values of Reverse Current
Vs. Reverse Voltage

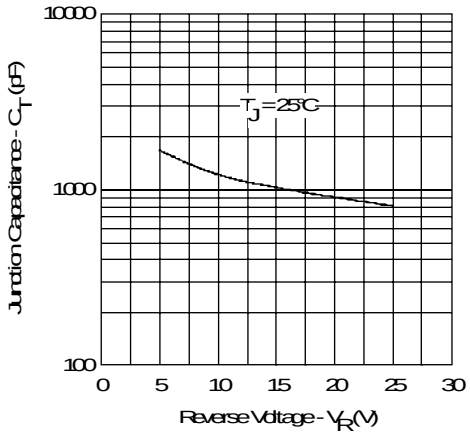


Fig. 3 - Typical Junction Capacitance
Vs. Reverse Voltage

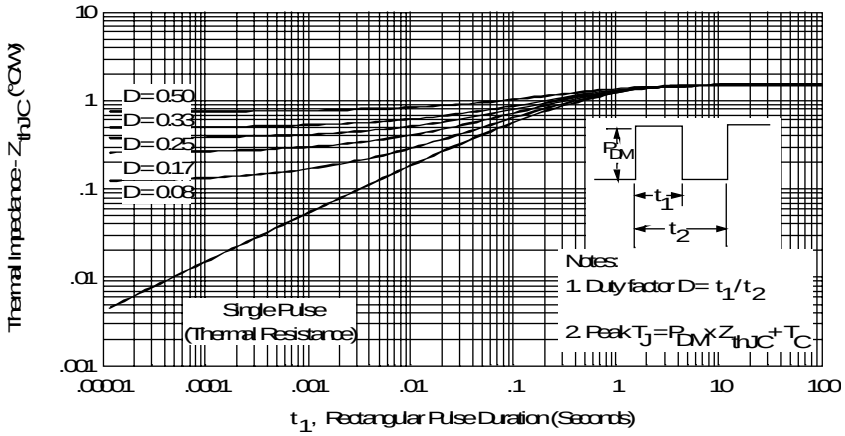


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

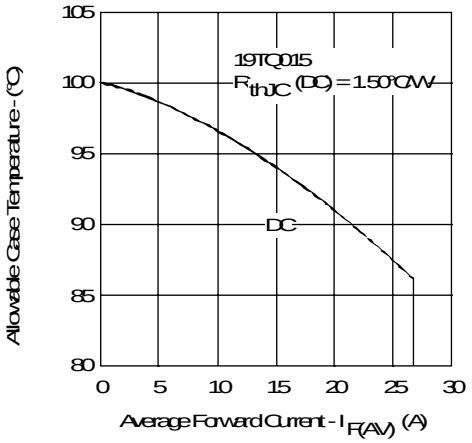


Fig. 5 - Maximum Allowable Case Temperature
Vs. Average Forward Current

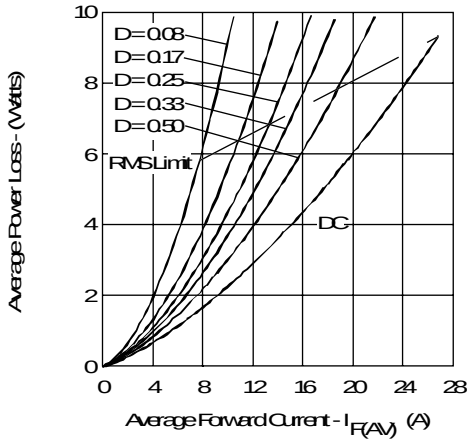


Fig. 6 - Forward Power Loss Characteristics

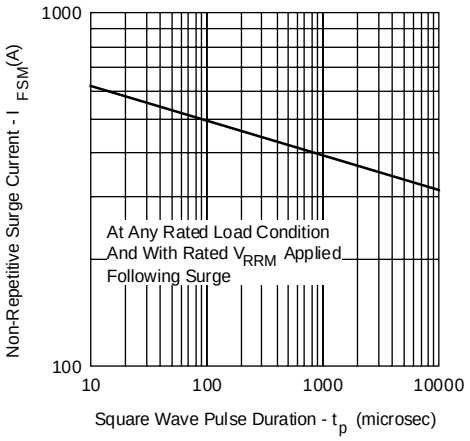


Fig. 7 - Maximum Non-Repetitive Surge Current

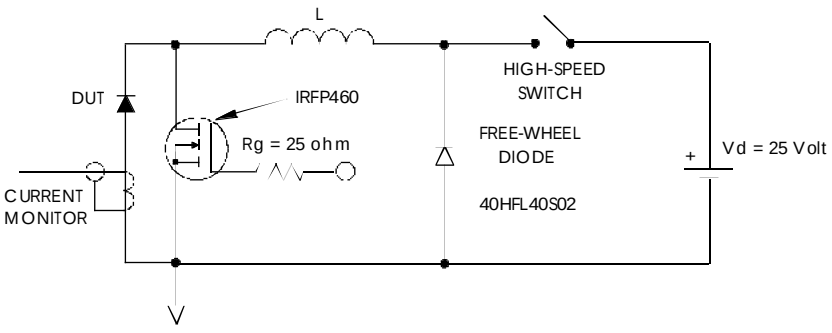


Fig. 8 - Unclamped Inductive Test Circuit