

$I_{F(AV)} = 19\text{Amp}$
 $V_R = 15\text{V}$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	19	A
V_{RRM}	15	V
I_{FSM} @tp = 5 μ s sine	700	A
V_F @19Apk, $T_J = 75^\circ\text{C}$	0.32	V
T_J range	-55 to 125	$^\circ\text{C}$

Description/ Features

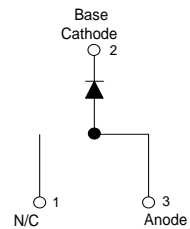
The 19TQ015.. Schottky rectifier has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 $^\circ\text{C}$ junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125 $^\circ\text{C}$ T_J operation ($V_R < 5\text{V}$)
- 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
- Lead-Free ("PbF" suffix)

Case Styles



D²PAK



Voltage Ratings

Part number	19TQ015PbF
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 @ $T_C = 80^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	700	A	5 μs Sine or 3 μs Rect. pulse
	330		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy	6.75	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1.50\text{Amps}$, $L = 6\text{mH}$
I_{AR} Repetitive Avalanche Current	1.50	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J , max. $V_A = 3 \times V_R$ typical

Electrical Specifications

Parameters	19TQ	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) * See Fig. 1	0.36	V	@ 19A
	0.46	V	@ 38A
	0.32	V	@ 19A
	0.43	V	@ 38A
I_{RM} Max. Reverse Leakage Current (1) * See Fig. 2	10.5	mA	$T_J = 25^\circ\text{C}$
	522	mA	$T_J = 100^\circ\text{C}$
	465	mA	$T_J = 100^\circ\text{C}$, $V_R = 12\text{V}$
	285	mA	$T_J = 100^\circ\text{C}$, $V_R = 5\text{V}$
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)	10000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	19TQ	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	1.50	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.50	$^\circ\text{C/W}$	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)	
Marking Device	19TQ015S		Case style D ² Pak

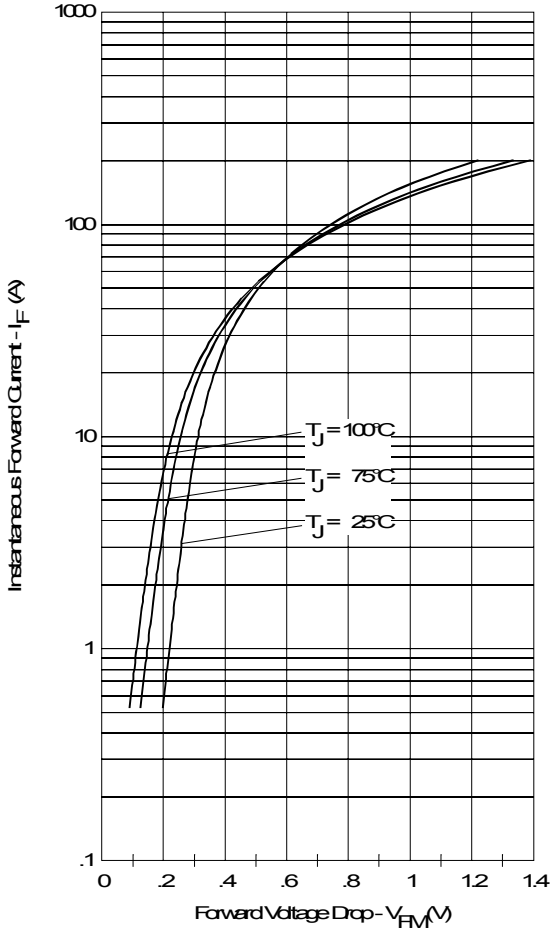


Fig. 1 - Maximum Forward Voltage Drop Characteristics

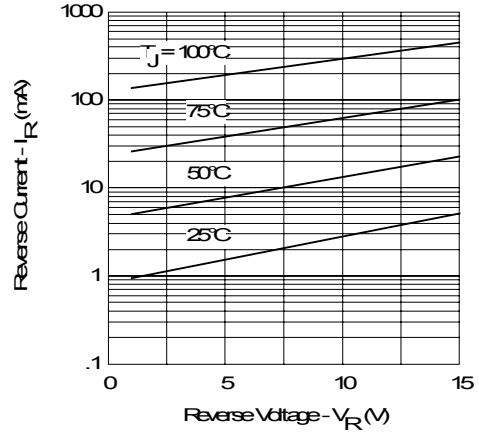


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

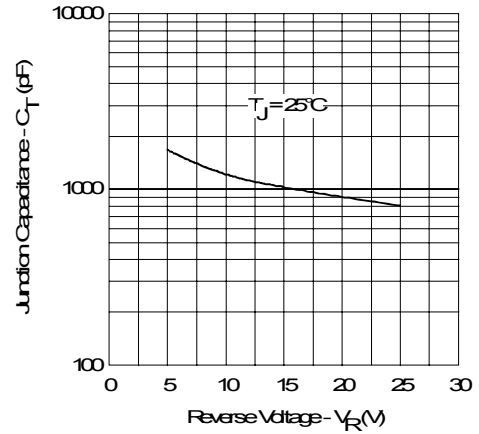


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

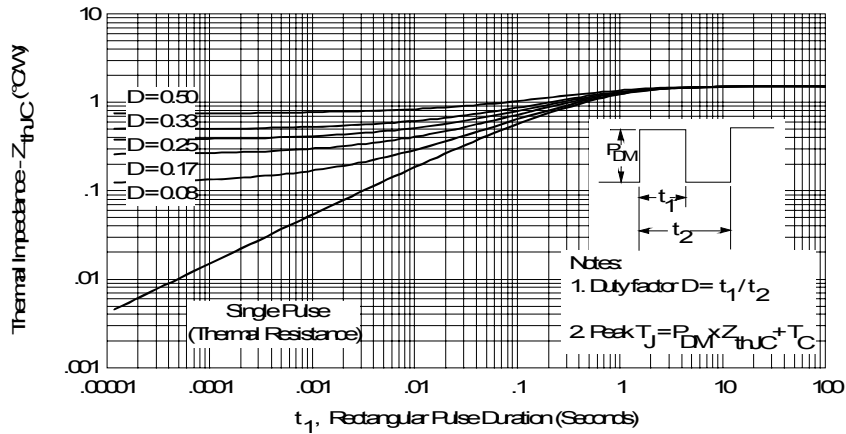


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

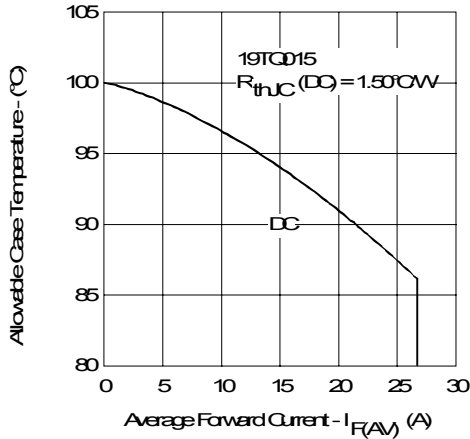


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

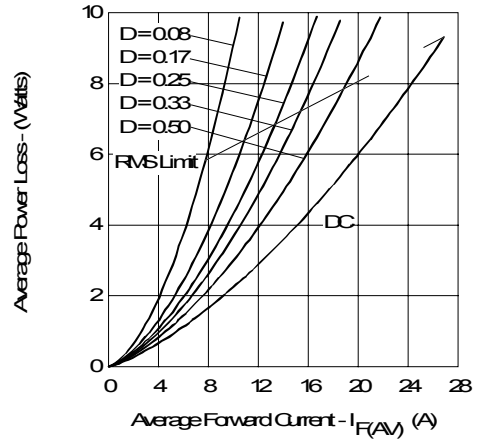


Fig. 6 - Forward Power Loss Characteristics

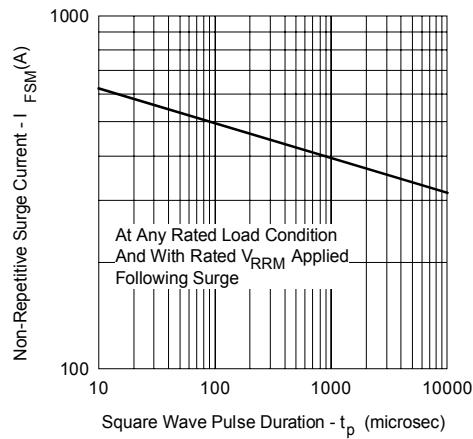


Fig. 7 - Maximum Non-Repetitive Surge Current

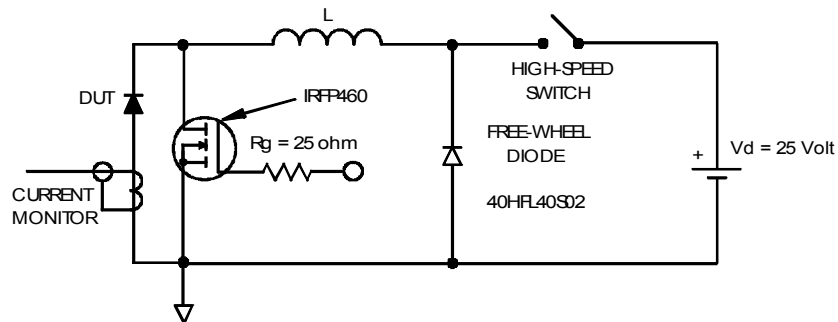


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table

NOTES:
 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994
 2. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
 3. DIMENSION D & E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.127 [.005"] PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTMOST EXTREMES OF THE PLASTIC BODY.
 4. DIMENSION b1 AND c1 APPLY TO BASE METAL ONLY.
 5. CONTROLLING DIMENSION: INCH.

SYMBOL	DIMENSIONS				NOTES
	MILLIMETERS		INCHES		
	MIN.	MAX.	MIN.	MAX.	
A	4.06	4.83	.160	.190	
A1	0.00	0.254	.000	.010	
b	0.51	0.99	.020	.039	
b1	0.51	0.89	.020	.035	4
b2	1.14	1.78	.045	.070	
c	0.38	0.74	.015	.029	
c1	0.38	0.58	.015	.023	4
c2	1.14	1.65	.045	.065	
D	8.51	9.65	.335	.380	3
D1	6.86		.270		
E	9.65	10.67	.380	.420	3
E1	6.22		.245		
e	2.54 BSC		.100 BSC		
H	14.61	15.88	.575	.625	
L	1.78	2.79	.070	.110	
L1		1.65		.065	
L2	1.27	1.78	.050	.070	
L3	0.25 BSC		.010 BSC		
L4	4.78	5.28	.188	.208	
m	17.78		.700		
m1	8.89		.350		
n	11.43		.450		
o	2.08		.082		
p	3.81		.150		
R	0.51	0.71	.020	.028	
θ	90°	93°	90°	93°	

LEAD ASSIGNMENTS

HEXFET
 1.- GATE
 2, 4.- DRAIN
 3.- SOURCE

IGBTs, CoPACK
 1.- GATE
 2, 4.- COLLECTOR
 3.- EMITTER

DIODES
 1.- ANODE *
 2, 4.- CATHODE
 3.- ANODE

* PART DEPENDENT.

Conform to JEDEC outline D²Pak (SMD-220)
 Dimensions in millimeters and (inches)

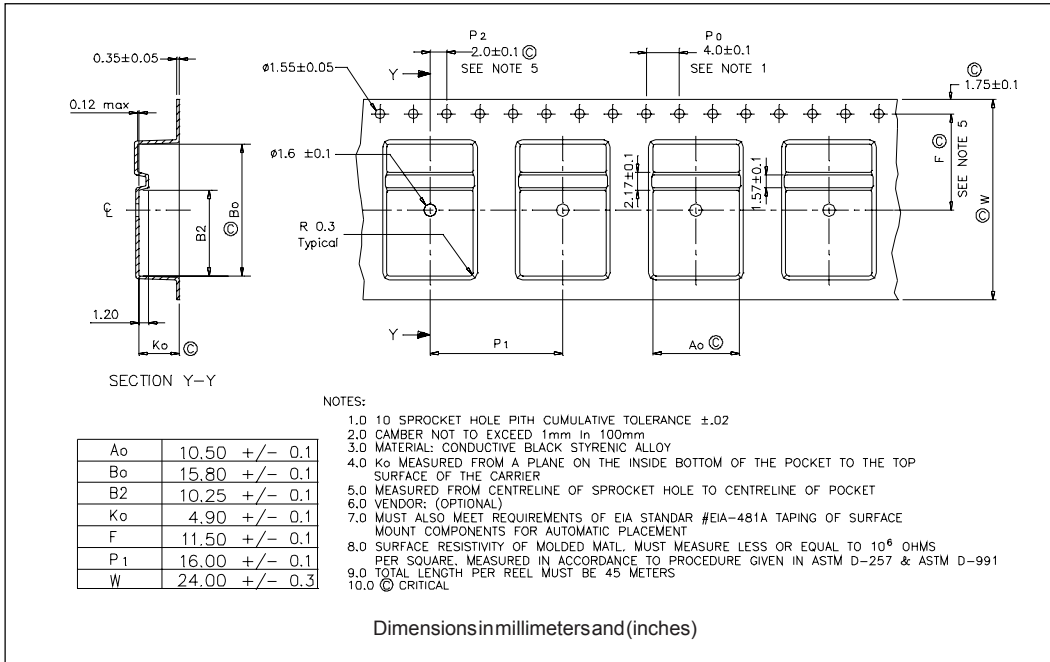
Part Marking Information

EXAMPLE: THIS IS A 19TQ015S
 LOT CODE 8024
 ASSEMBLED ON WW 02, 2000

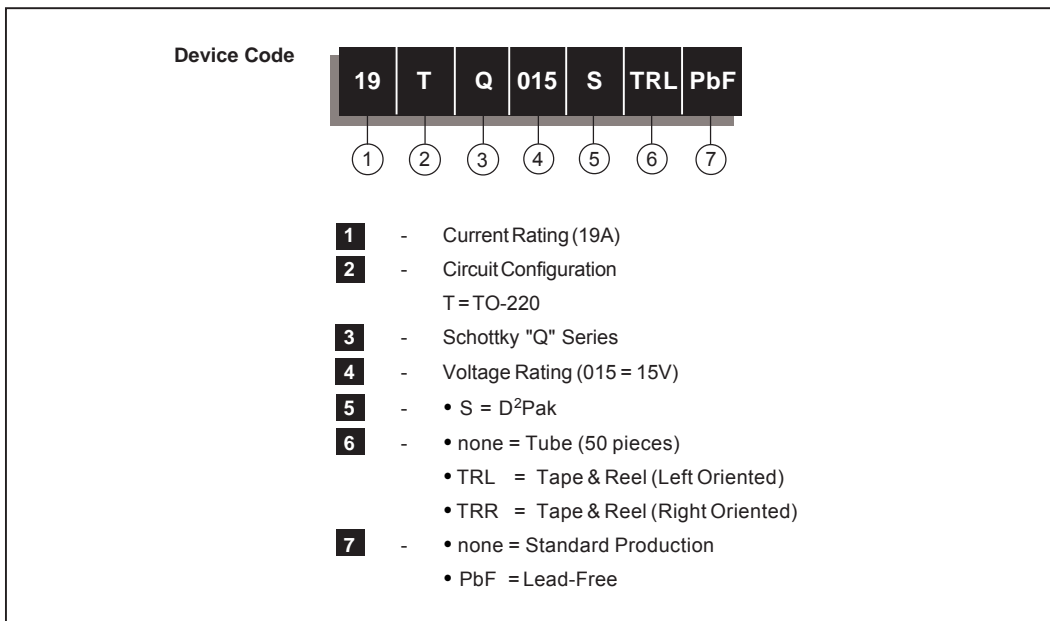
Note: "P" in assembly line position indicates "Lead-Free"

INTERNATIONAL RECTIFIER LOGO
 PART NUMBER
 DATE CODE
 YEAR 0 = 2000
 WEEK 02
 P = LEAD-FREE
 ASSEMBLY LOT CODE

Tape & Reel Information



Ordering Information Table



Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 06/06