

International
IR Rectifier

20L15T
20L15TS

SCHOTTKY RECTIFIER

20 Amps

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	20	A
V_{RRM}	15	V
I_{FSM} @ $t_p = 5 \mu s$ sine	700	A
V_F @ 19A pk, $T_J = 125^\circ C$ (Typical)	0.25	V
T_J range	-55 to 125	$^\circ C$

Description/Features

This Schottky rectifier has been optimized for ultra low forward voltage drop. This device has been specifically designed to be the best solution as OR-ing diode in fault tolerant power supplies equipment.

- TO-220 and D²Pak package
- High efficiency
- Ultra low forward voltage drop
- Optimized for OR-ing application

Case Styles

20L15T  TO-220AC	20L15TS  D²PAK
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Voltage Ratings

Part number	Values
V_R Max. DC Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$	15
V_{RWM} Max. Working Peak Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$	

Absolute Maximum Ratings

Parameters	Values	Units	Conditions		
I _{F(AV)} Max. Average Forward Current * See Fig. 5	20	A	50% duty cycle @ T _C = 85°C, rectangular waveform		
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	10	mJ	T _J = 25 °C, I _{AS} = 2 Amps, L = 6 mH		
I _{AR} Repetitive Avalanche Current	2	A	Current decaying linearly to zero in 1 µsec Frequency limited by T _J max. V _A = 1.5 x V _R typical		

Electrical Specifications

Parameters		Values		Units	Conditions	
V _{FM} Forward Voltage Drop * See Fig. 1 (1)		Typ.	Max.			
		-	0.41	V	@ 19A	T _J = 25 °C
		-	0.52	V	@ 40A	
		0.25	0.33	V	@ 19A	T _J = 125 °C
		0.37	0.50	V	@ 40A	
I _{RM} Reverse Leakage Current * See Fig. 2 (1)		-	10	mA	T _J = 25 °C	V _R = rated V _R
		-	600	mA	T _J = 100 °C	
V _{F(TO)} Threshold Voltage		0.182		V	T _J = T _J max.	
r _f Forward Slope Resistance		7.6		mΩ		
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	-	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 < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	Values	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	1.5	$^\circ\text{C/W}$	DC Operation * See Fig. 4
R_{thCS} Typical Thermal Resistance Case to Heatsink	0.50	$^\circ\text{C/W}$	Mounting surface, smooth and greased For TO-220
R_{thJA} Max. Thermal Resistance Junction to Ambient	40	$^\circ\text{C/W}$	DC Operation For D ² Pak
wt Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Non-lubricated threads
	Max.	12(10)	

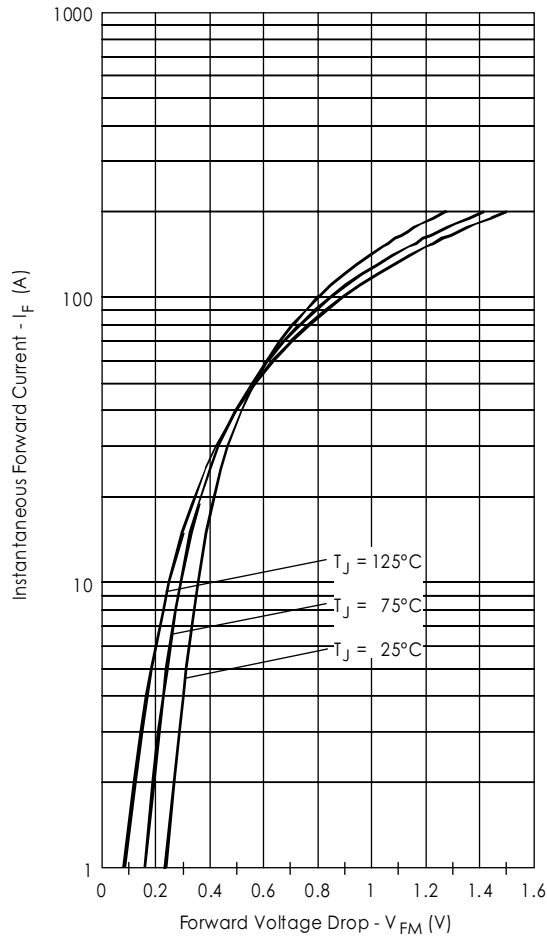


Fig. 1 - Maximum Forward Voltage Drop Characteristics

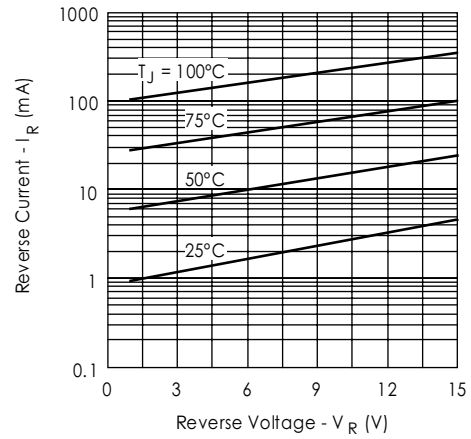


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

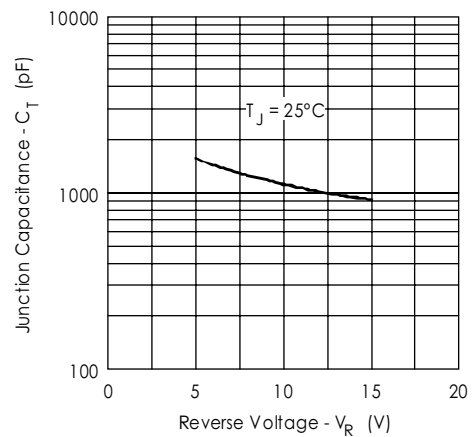


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

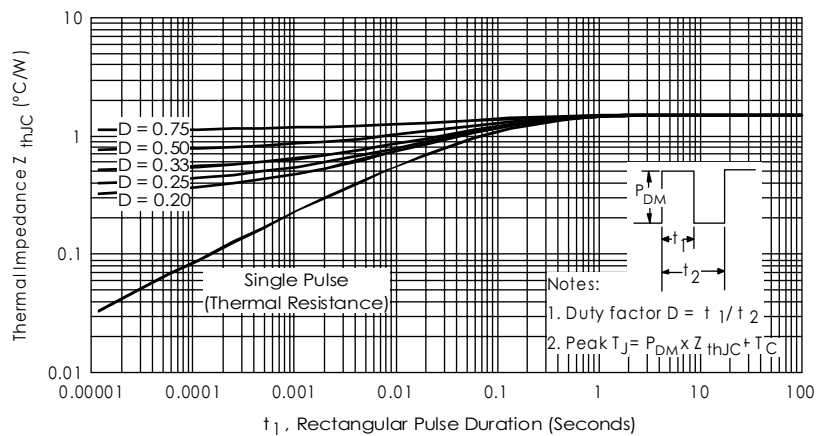


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

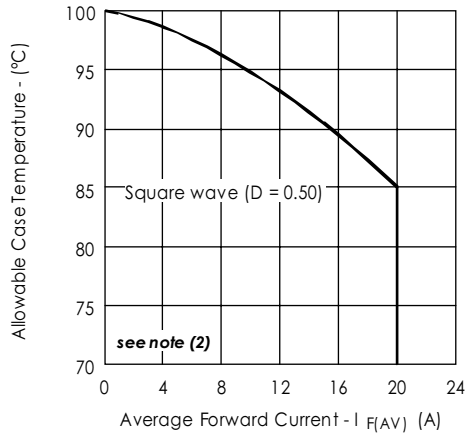


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

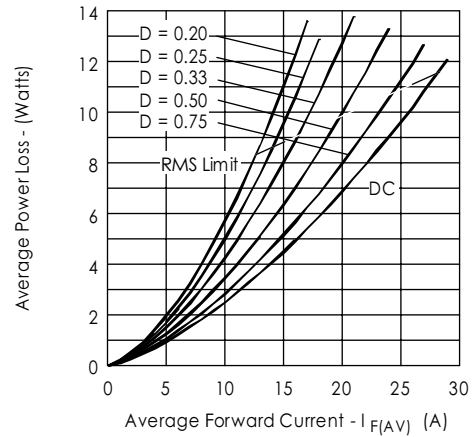


Fig. 6 - Forward Power Loss Characteristics

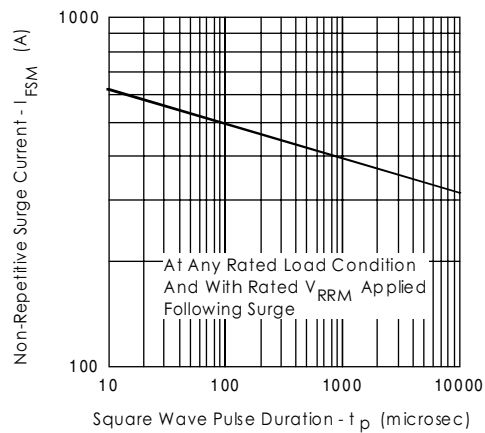


Fig. 7 - Maximum Non-Repetitive Surge Current

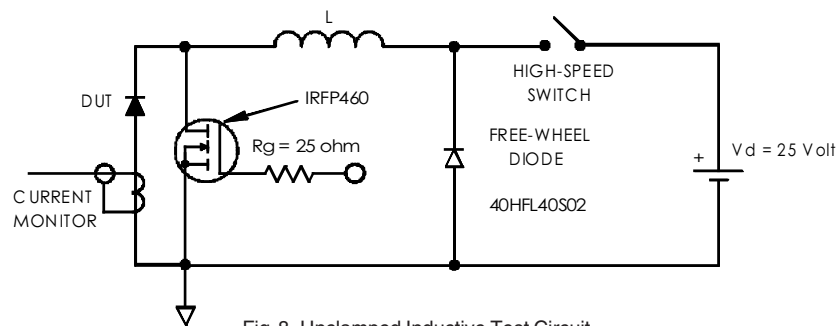


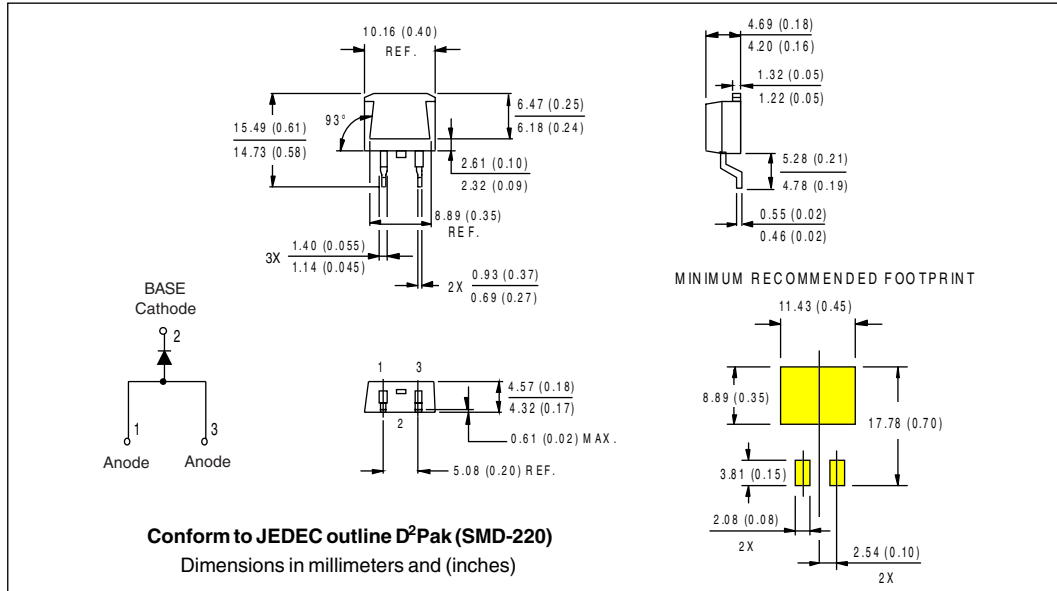
Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_c = T_j - (P_d + P_{d_{REV}}) \times R_{thJC}$;

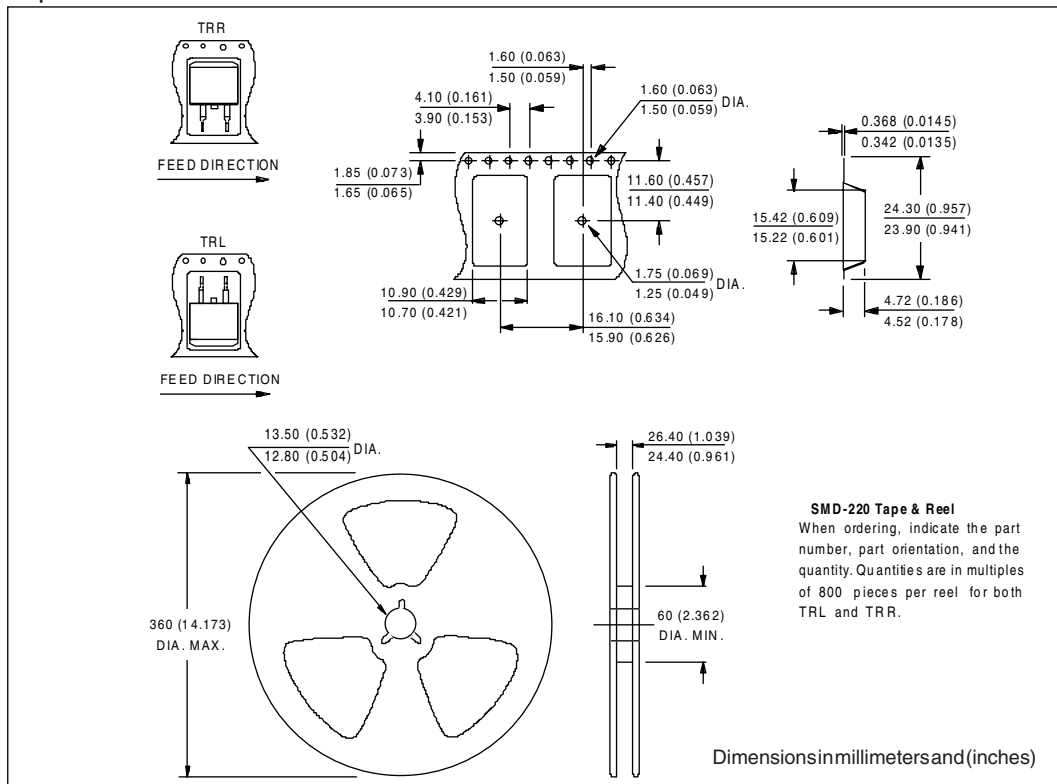
P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ $(I_{F(AV)} / D)$ (see Fig. 6);

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

Outline Table



Tape & Reel Information



Outline Table

