Bulletin PD-20646 rev. B 05/02

International
IOR Rectifier

1N5817

SCHOTTKY RECTIFIER 1.0 Amp

Major Ratings and Characteristics

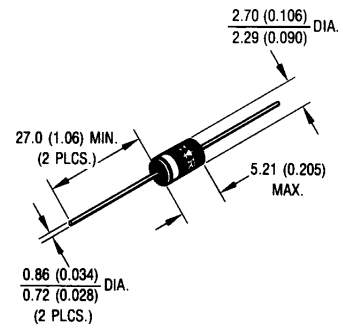
Characteristics	1N5817	Units
$I_{F(AV)}$ Rectangular waveform	1.0	A
V_{RRM}	20	V
I_{FSM} @tp = 5 µs sine	240	A
V_F @1 Apk, T_J = 25°C	0.45	V
T_J range	-65 to 150	°C

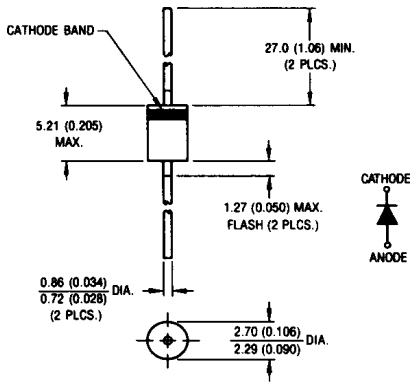
Description/Features

The 1N5817 axial leaded Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- Low profile, axial leaded outline
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

CASE STYLE AND DIMENSIONS





Conform to JEDEC Outline DO-204AL (DO-41)

Dimensions in millimeters and inches

Voltage Ratings

	Part number	1N5817
V_R	Max. DC Reverse Voltage (V)	20
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	1N5817	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current	1.0	A	50% duty cycle @ T_L = 138 °C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current, @ T_J = 25°C	240	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		40		10ms Sine or 6ms Rect. pulse	

Electrical Specifications

	Parameters	Typ.	Max.	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1)	0.42	0.45	V	@ 1A	T_J = 25 °C
		0.50	0.75	V	@ 3A	
I_{RM}	Max. Reverse Leakage Current (1)	0.012	1.0	mA	T_J = 25 °C	V_R = rated V_R
		2.0	10	mA	T_J = 100 °C	
C_T	Typical Junction Capacitance	110	-	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	-	10000	V/ µs	(Rated V_R)	

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

Thermal-Mechanical Specifications

	Parameters	1N5817	Units	Conditions
T_J	Max. Junction Temperature Range (2)	-65 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-65 to 150	°C	
R_{thJL}	Max. Thermal Resistance Junction to Lead	32	°C/W	DC operation, Lead lenght = 1/8 inch.
R_{thJA}	Max. Thermal Resistance Junction to Ambient	100	°C/W	DC operation, without cooling fin
Wt	Approximate Weight	0.33(0.012)	gr (oz)	
	Case Style	DO-204AL (DO-41)		

(2) $\frac{dPtot}{dTj} < \frac{1}{Rth(j\text{-}a)}$ thermal runaway condition for a diode on its own heatsink

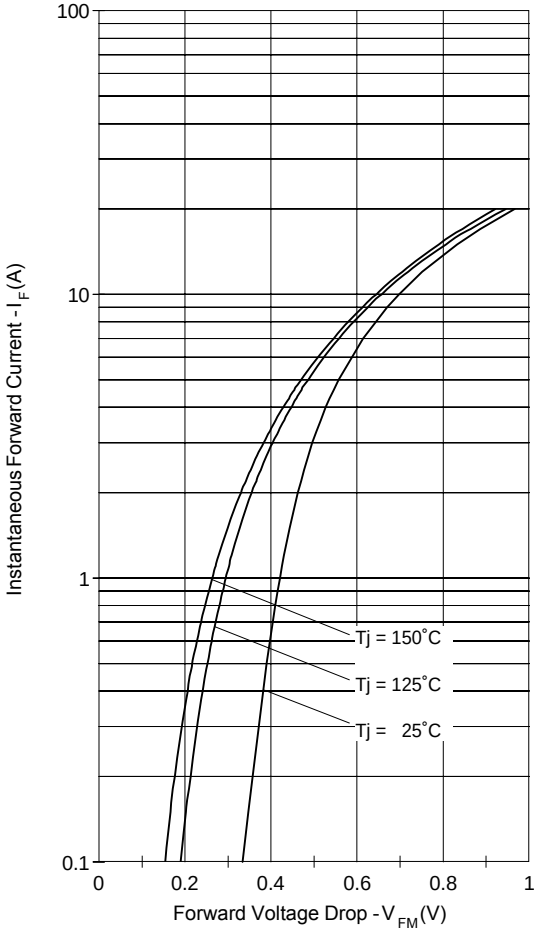


Fig. 1 - Typical Forward Voltage Drop Characteristics

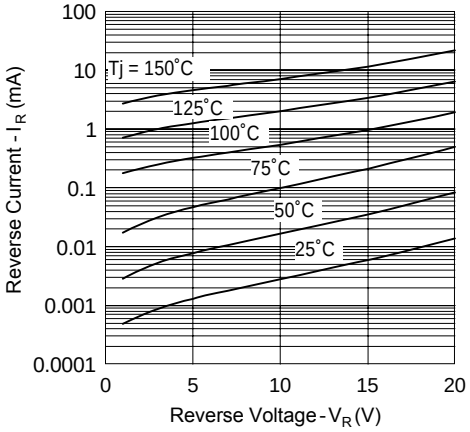


Fig. 2 - Typical Peak Reverse Current
Vs. Reverse Voltage

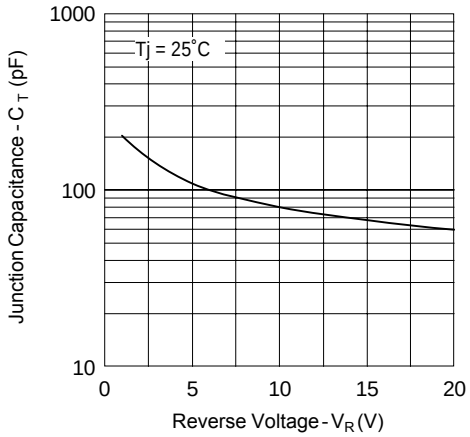


Fig. 3 - Typical Junction Capacitance
Vs. Reverse Voltage

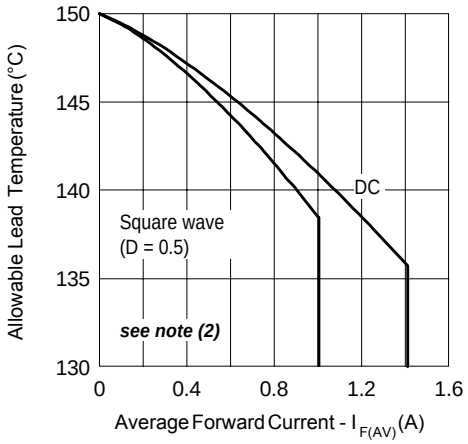


Fig. 4 - Maximum Average Forward Current
Vs. Allowable Lead Temperature

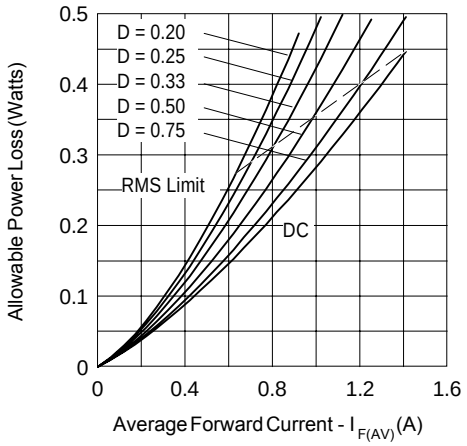


Fig. 5 - Maximum Average Forward Dissipation
Vs. Average Forward Current

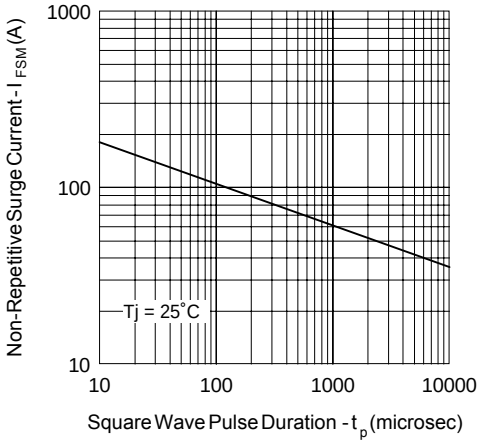
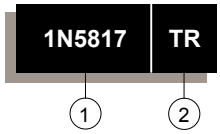


Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

(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 = $V_{R1} \times I_R (1 - D)$

Ordering Information Table

Device Code



1 - Part Number:1A, 20V

2 - TR= Tape & Reel package (5000 pcs)

\- = Box package (1000 pcs)

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

International
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