

# International IOR Rectifier

## 1N5817

### SCHOTTKY RECTIFIER

### 1.0 Amp

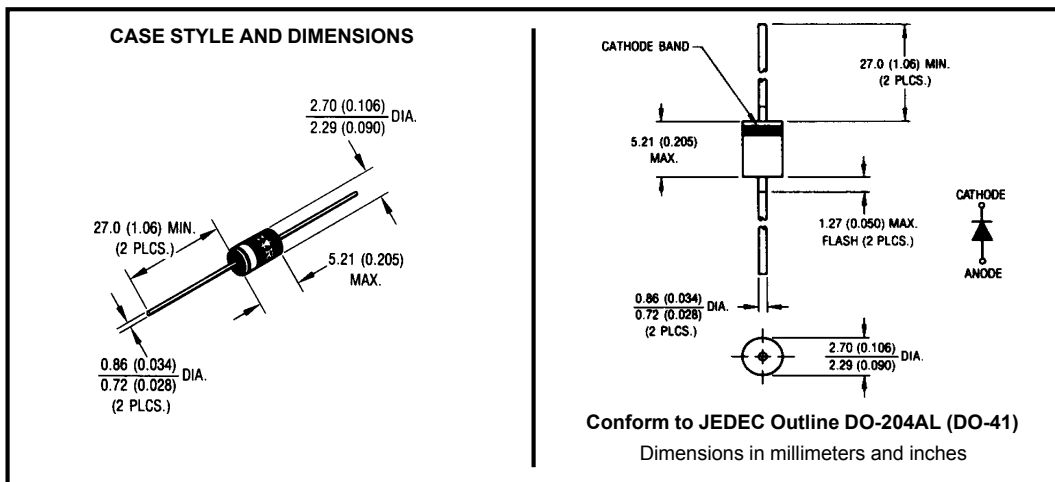
#### Major Ratings and Characteristics

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

#### 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



## Voltage Ratings

Part number	1N5817
V <sub>R</sub> Max. DC Reverse Voltage (V)	20
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)	

## Absolute Maximum Ratings

Parameters	1N5817	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current	1.0	A	50% duty cycle @ T <sub>L</sub> = 138 °C, rectangular wave form
I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current, @ T <sub>J</sub> = 25 °C	240	A	5µs Sine or 3µs Rect. pulse
	40		10ms Sine or 6ms Rect. pulse

Following any rated load condition and with rated V<sub>RRM</sub> applied

## Electrical Specifications

Parameters	Typ.	Max.	Units	Conditions
V <sub>FM</sub> Max. Forward Voltage Drop (1)	0.42	0.45	V	@ 1A
	0.50	0.75	V	@ 3A
I <sub>RM</sub> Max. Reverse Leakage Current (1)	0.012	1.0	mA	T <sub>J</sub> = 25 °C
	2.0	10	mA	T <sub>J</sub> = 100 °C
C <sub>T</sub> Typical Junction Capacitance	110	-	pF	V <sub>R</sub> = 5V <sub>DC</sub> (test signal range 100kHz to 1Mhz), @ 25 °C
L <sub>S</sub> 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 <sub>R</sub> )

(1) Pulse Width &lt; 300µs, Duty Cycle &lt; 2%

## Thermal-Mechanical Specifications

Parameters	1N5817	Units	Conditions
T <sub>J</sub> Max. Junction Temperature Range (2)	-65 to 150	°C	
T <sub>stg</sub> Max. Storage Temperature Range	-65 to 150	°C	
R <sub>thJL</sub> Max. Thermal Resistance Junction to Lead	32	°C/W	DC operation, Lead length = 1/8 inch.
R <sub>thJA</sub> 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)  $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink

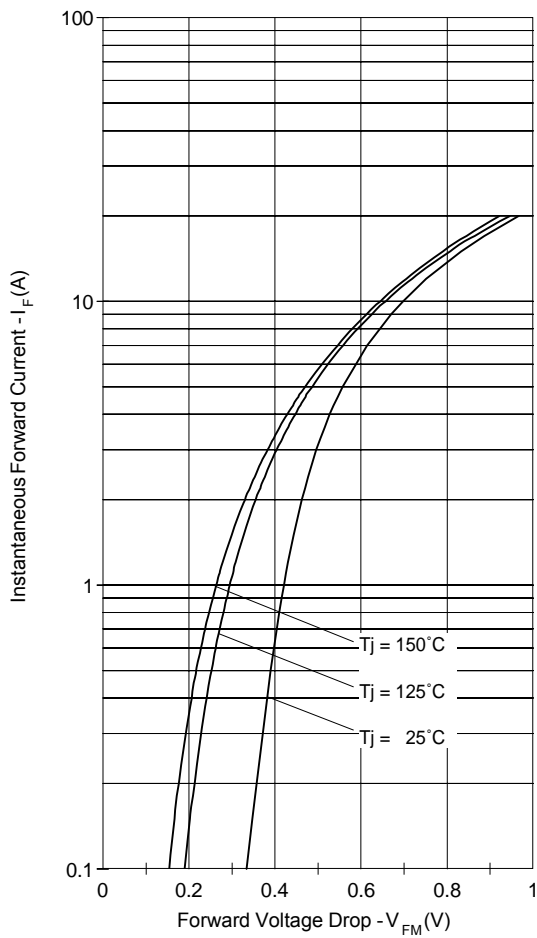


Fig. 1 - Typical Forward Voltage Drop Characteristics

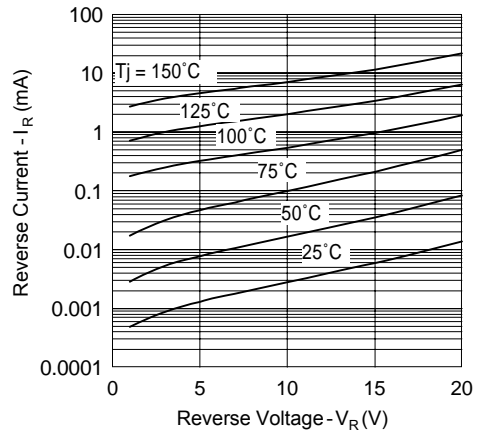


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

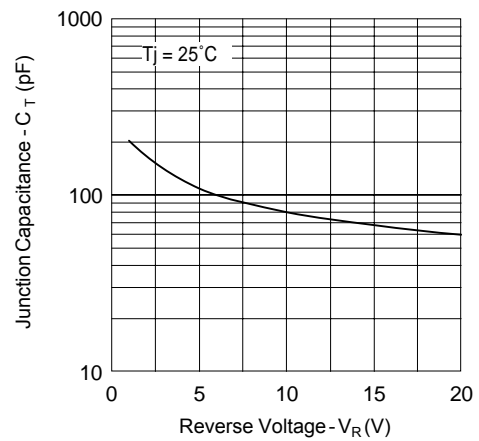


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

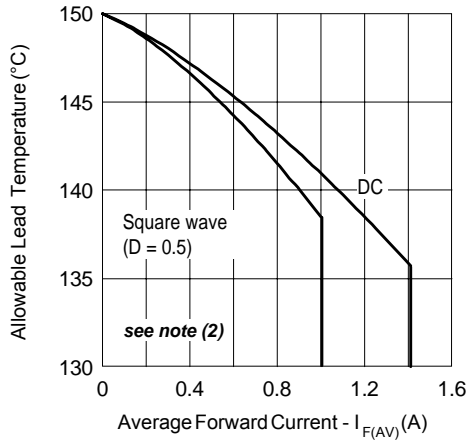


Fig. 4 - Maximum Average Forward Current Vs. Allowable Lead Temperature

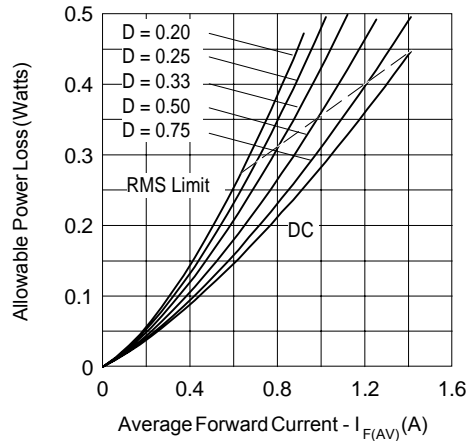


Fig. 5 - Maximum Average Forward Dissipation Vs. Average Forward Current

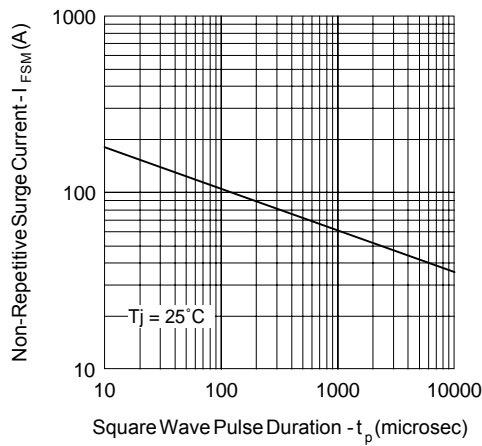


Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

- (2) Formula used:  $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$ ;  
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$  (see Fig. 6);  
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D)$

### Ordering Information Table

<b>Device Code</b>	<b>1N5817</b>	<b>TR</b>
	①	②
<b>1</b>	-	Part Number:1A, 20V
<b>2</b>	-	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  
**IOR** Rectifier

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