

# 1A, 20V - 40V Schottky Barrier Rectifier

#### **FEATURES**

- AEC-Q101 qualified available
- Low forward voltage drop
- Guard ring for overvoltage protection
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### **APPLICATIONS**

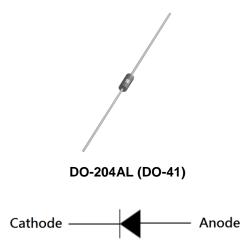
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

### **MECHANICAL DATA**

- Case: DO-204AL (DO-41)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.330g (approximately)

KEY PARAMETERS				
PARAMETER	VALUE	UNIT		
I <sub>F</sub>	1	Α		
$V_{RRM}$	20 - 40	V		
I <sub>FSM</sub>	30	Α		
T <sub>J MAX</sub>	125	°C		
Package	DO-204AL (DO-41)			
Configuration	Single die			





ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)						
PARAMETER	SYMBOL	1N5817	1N5818	1N5819	UNIT	
Marking code on the device		1N5817	1N5818	1N5819		
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	V	
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	V	
Forward current	I <sub>F</sub>	1		А		
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I <sub>FSM</sub>	30			А	
Critical rate of rise of off-state voltage	dv/dt	10,000			V/µs	
Junction temperature	TJ	-55 to +125			°C	
Storage temperature	$T_{STG}$	-55 to +125			°C	

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THERMAL PERFORMANCE					
PARAMETER	SYMBOL	TYP	UNIT		
Junction-to-ambient thermal resistance	R <sub>OJA</sub>	100	°C/W		
Junction-to-case thermal resistance	R <sub>eJC</sub>	45	°C/W		

ELECTRICAL SPECIFICATIONS (T <sub>A</sub> = 25°C unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	1N5817	I <sub>F</sub> = 1A, T <sub>J</sub> = 25°C	V <sub>F</sub>		0.45	V
	1N5818			-	0.55	V
	1N5819			-	0.60	V
Reverse current @ rated V <sub>R</sub> <sup>(2)</sup>		T <sub>J</sub> = 25°C	I <sub>R</sub>	-	1	mA
		T <sub>J</sub> = 100°C		-	10	mA
Junction capacitance		$1MHz, V_R = 4.0V$	С	55	-	pF

### Notes:

- 1. Pulse test with PW = 0.3ms
- 2. Pulse test with PW = 30ms

RDERING INFORMATION					
ORDERING CODE <sup>(1)(2)</sup>	PACKAGE	PACKING			
1N581x	DO-204AL (DO-41)	5,000 / Tape & Reel			
1N581x A0G	DO-204AL (DO-41)	3,000 / Ammo box			
1N581xH	DO-204AL (DO-41)	5,000 / Tape & Reel			
1N581xHA0G	DO-204AL (DO-41)	3,000 / Ammo box			

## Notes:

- 1. "x" defines voltage from 20V (1N5817) to 40V (1N5819)
- 2. "H" means AEC-Q101 qualified



### **CHARACTERISTICS CURVES**

 $(T_A = 25^{\circ}C \text{ unless otherwise noted})$ 

**Fig.1 Forward Current Derating Curve** 

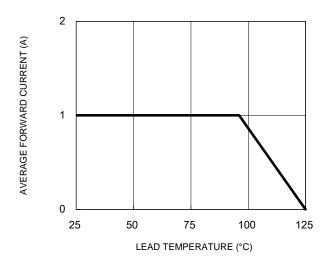


Fig.3 Typical Reverse Characteristics

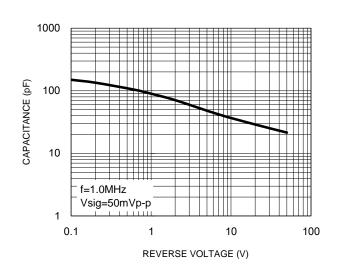
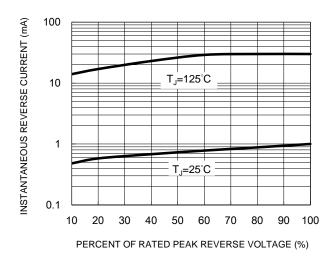


Fig.2 Typical Junction Capacitance

**Fig.4 Typical Forward Characteristics** 



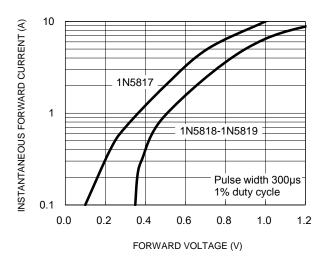
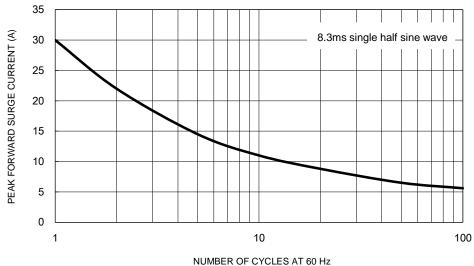


Fig.5 Maximum Non-Repetitive Forward Surge Current



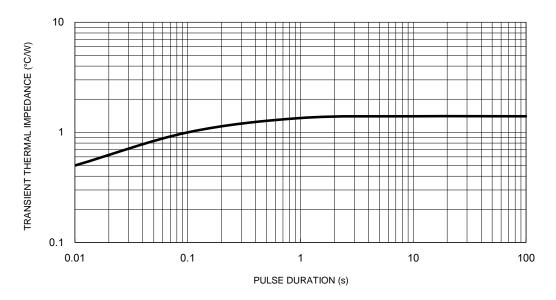
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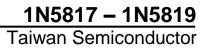


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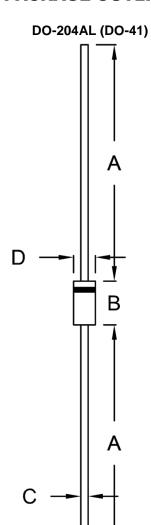
Fig.6 Typical Transient Thermal Characteristics







## **PACKAGE OUTLINE DIMENSIONS**



DIM.	Unit (mm)		Unit (inch)	
Dilvi.	Min.	Max.	Min.	Max.
А	25.40	-	1.000	-
В	4.20	5.20	0.165	0.205
С	0.71	0.86	0.028	0.034
D	2.00	2.70	0.079	0.106

### **MARKING DIAGRAM**



= Marking Code P/N G = Green Compound

YWW = Date Code = Factory Code F



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