

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_F	1	A
V_{RRM}	20 - 40	V
I_{FSM}	30	A
$T_{J\ MAX}$	125	°C
Package	DO-204AL (DO-41)	
Configuration	Single die	



DO-204AL (DO-41)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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_F	1			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	30			A
Critical rate of rise of off-state voltage	dv/dt	10,000			V/ μs
Junction temperature	T_J	-55 to +125			°C
Storage temperature	T_{STG}	-55 to +125			°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	100	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	45	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	1N5817	V_F	-	0.45	V
	1N5818		-	0.55	V
	1N5819		-	0.60	V
Reverse current @ rated V_R ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	1	mA
	$T_J = 100^\circ\text{C}$		-	10	mA
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	C_J	55	-	pF

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾⁽²⁾	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

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

Fig.1 Forward Current Derating Curve

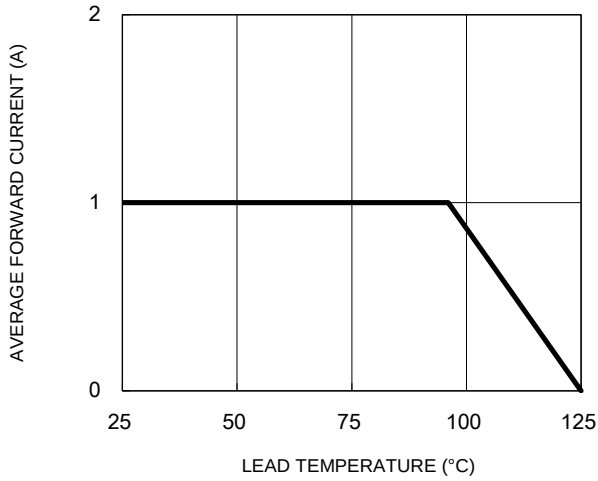


Fig.2 Typical Junction Capacitance

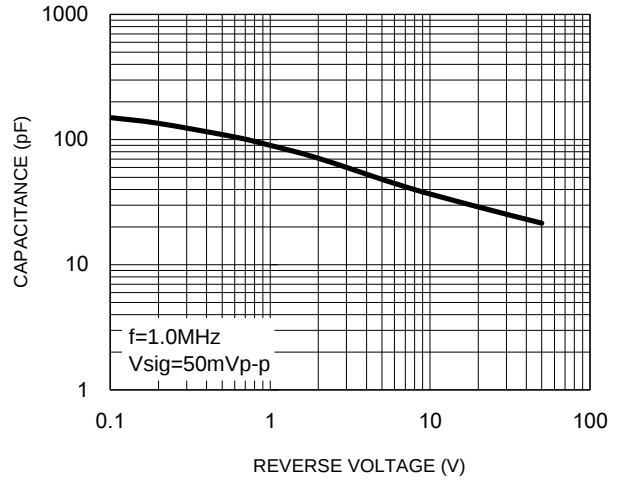


Fig.3 Typical Reverse Characteristics

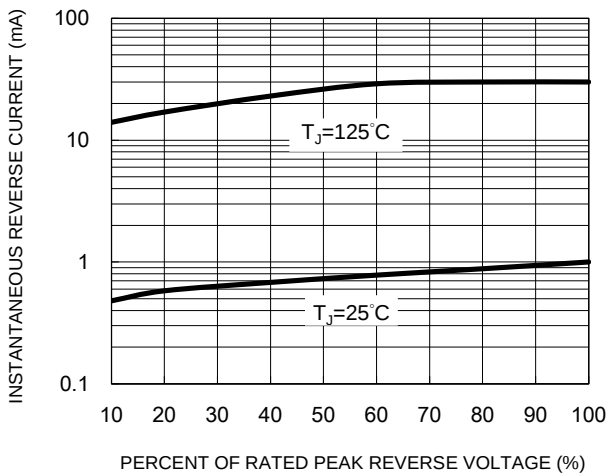


Fig.4 Typical Forward Characteristics

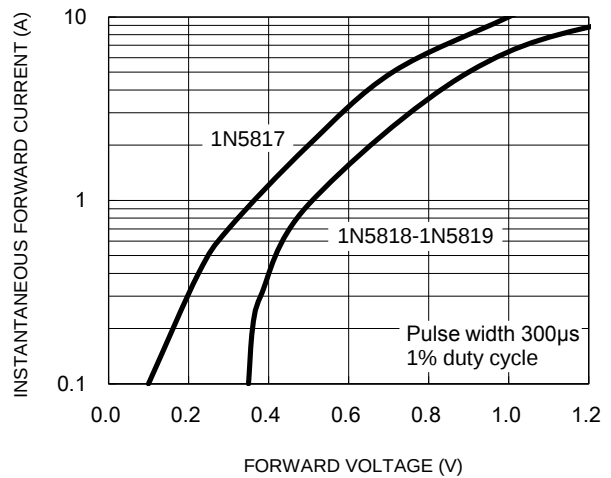
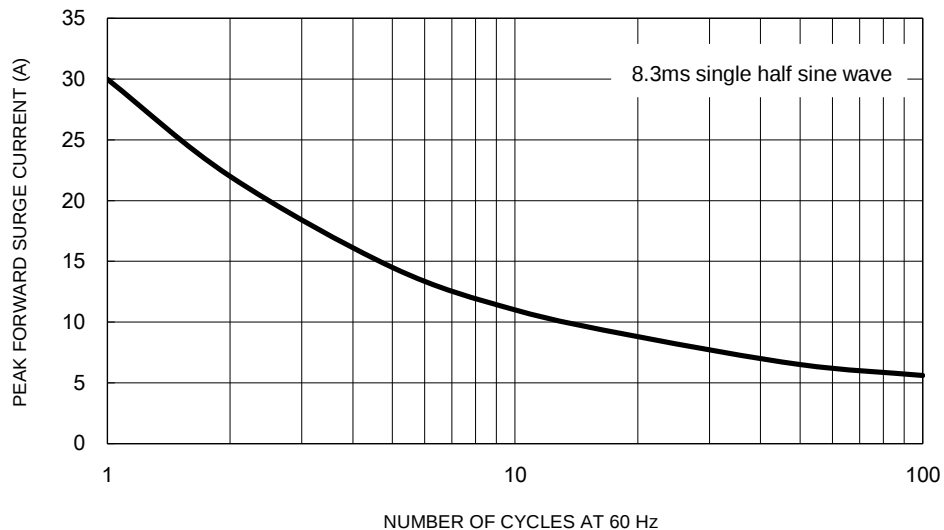


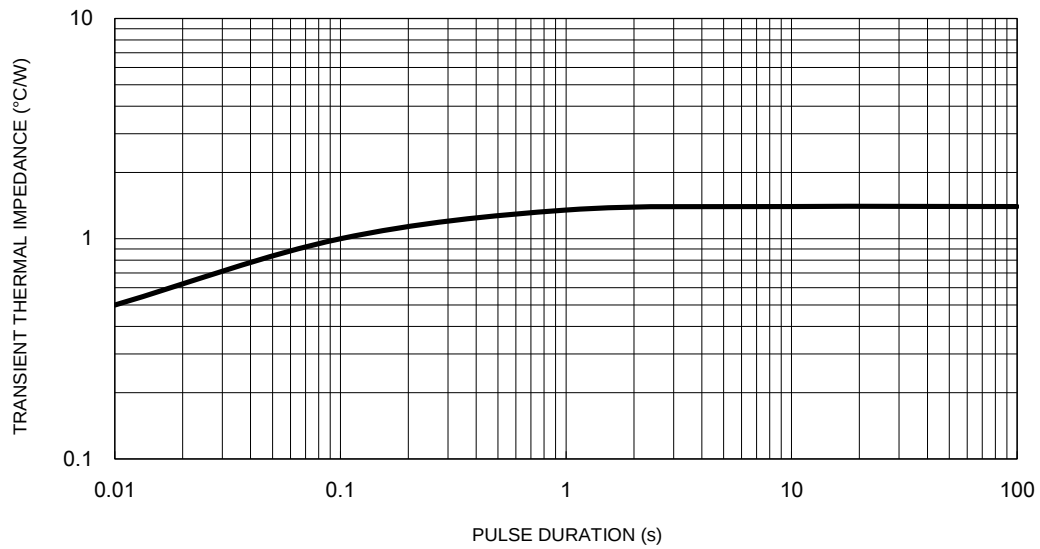
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

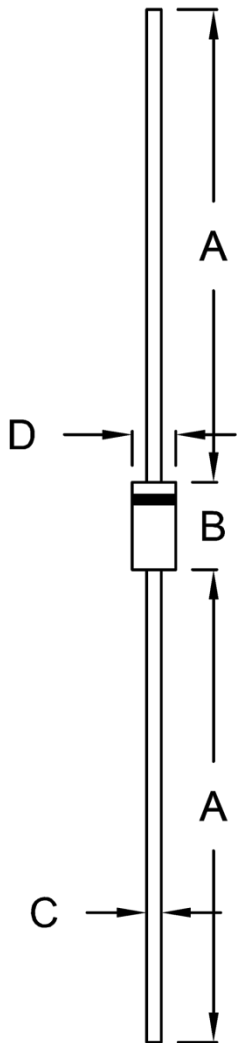
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Typical Transient Thermal Characteristics



PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	4.20	5.20	0.165	0.205
C	0.71	0.86	0.028	0.034
D	2.00	2.70	0.079	0.106

MARKING DIAGRAM



P/N = Marking Code
G = Green Compound
YWW = Date Code
F = Factory Code

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