

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_{JMAX} | 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 | $I_F = 1\text{A}, T_J = 25^\circ\text{C}$ | 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 = 0.3ms
2. Pulse test with PW = 30ms

| 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

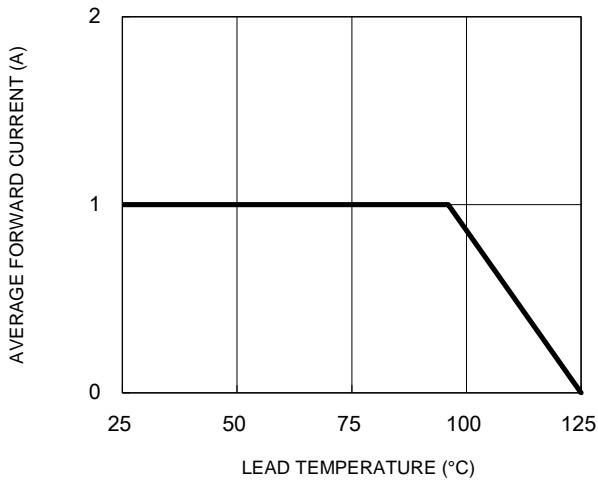


Fig.2 Typical Junction Capacitance

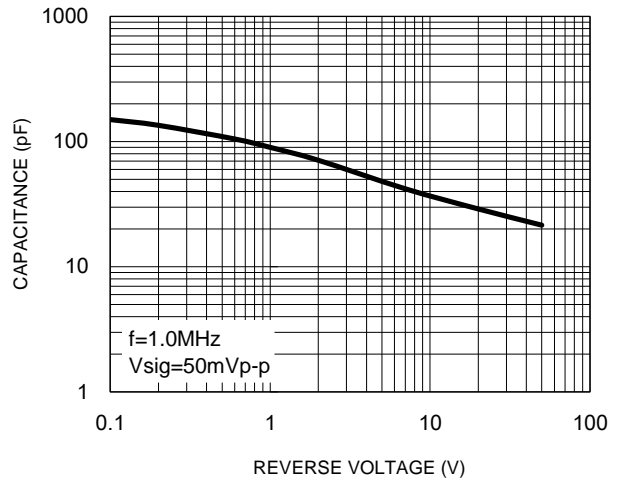


Fig.3 Typical Reverse Characteristics

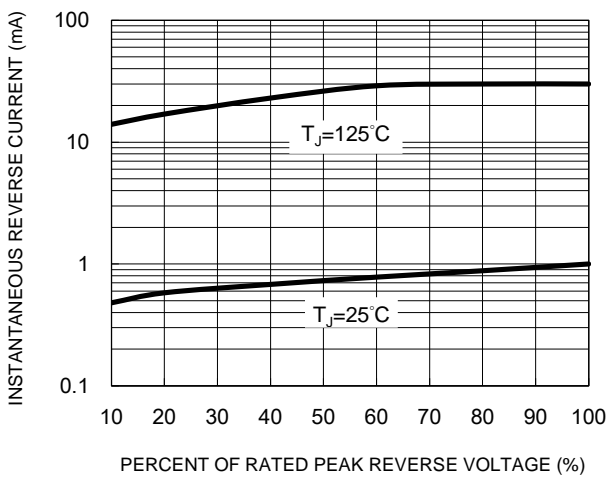


Fig.4 Typical Forward Characteristics

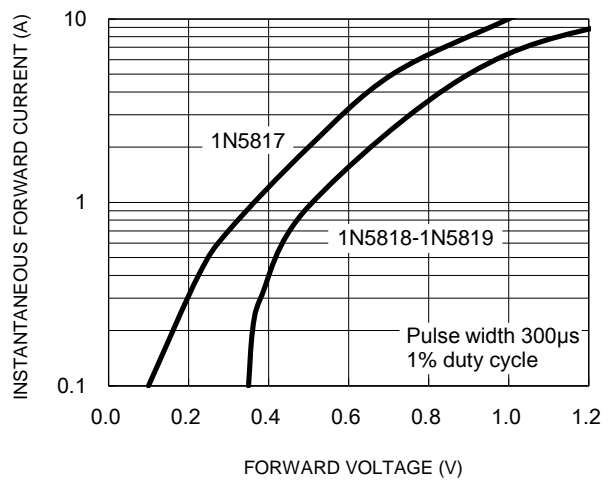
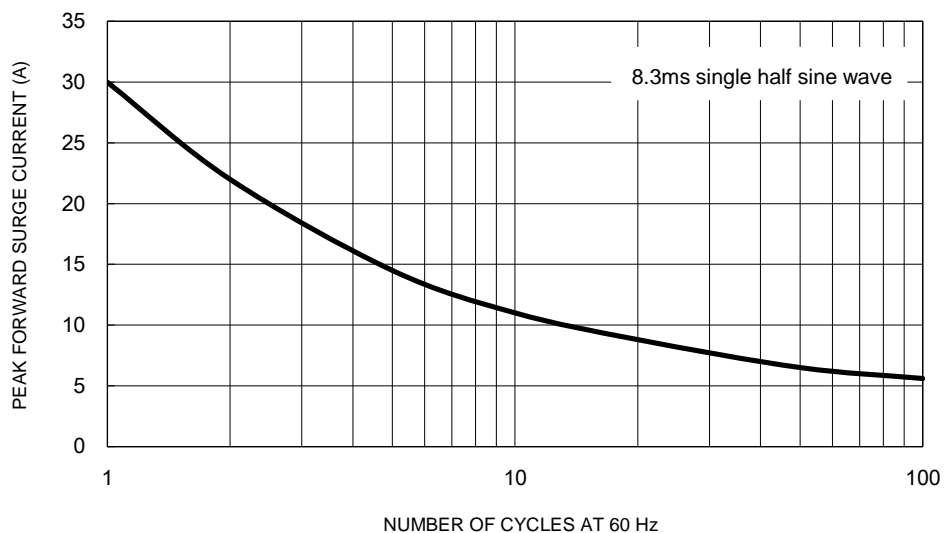


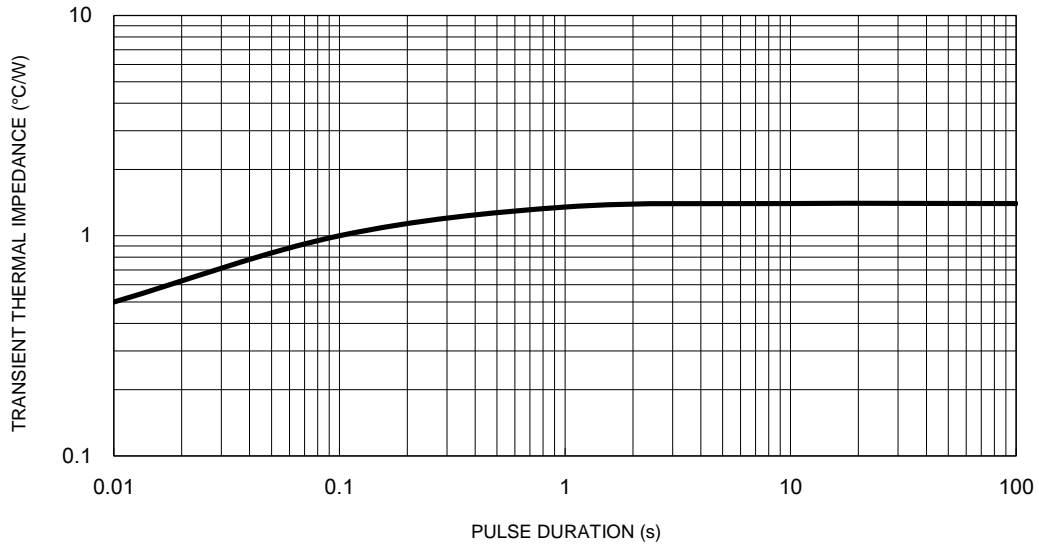
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

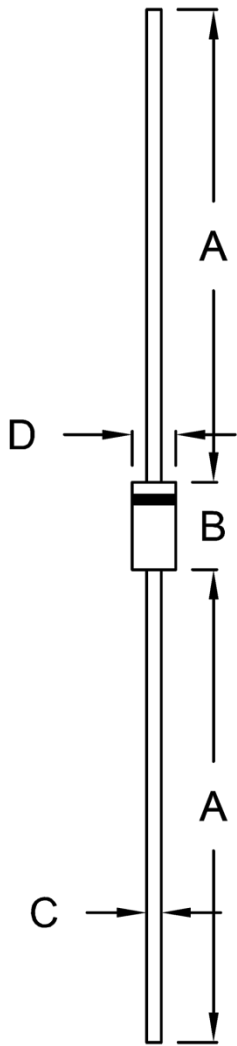
($T_A = 25^\circ\text{C}$ unless otherwise noted)

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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