

5A, 200V Ultrafast Rectifier

FEATURES

- High current capability
- High reliability
- High surge current capability
- Low power loss
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter
- On-board DC/AC converter

MECHANICAL DATA

- Case: DO-204AC (DO-15)
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.4g (approximately)

| KEY PARAMETERS | | |
|----------------|-----------------|------|
| PARAMETER | VALUE | UNIT |
| $I_{F(AV)}$ | 5 | A |
| V_{RRM} | 200 | V |
| I_{FSM} | 65 | A |
| $T_{J\ MAX}$ | 175 | °C |
| Package | DO-204AC(DO-15) | |
| Configuration | Single Die | |



DO-204AC (DO-15)

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | |
|---|--------------|-------------|------|
| PARAMETER | SYMBOL | UG54GS | UNIT |
| Marking code on the device | | UG54GS | |
| Repetitive peak reverse voltage | V_{RRM} | 200 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 140 | V |
| Forward current | $I_{F(AV)}$ | 5 | A |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 65 | A |
| Junction temperature | T_J | -55 to +175 | °C |
| Storage temperature | T_{STG} | -55 to +175 | °C |

THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|--|-----------------|-----|------|
| Junction-to-lead thermal resistance | $R_{\theta JL}$ | 14 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 60 | °C/W |
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 16 | °C/W |

Thermal Performance Note: Units mounted on recommended PCB (10mm x 10mm Cu pad test board)

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

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|--|---|----------|------|------|---------------|
| Forward voltage per diode ⁽¹⁾ | $I_F = 2.5\text{A}, T_J = 25^\circ\text{C}$ | V_F | 0.83 | 1.05 | V |
| | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$ | | 0.89 | 1.10 | V |
| | $I_F = 2.5\text{A}, T_J = 150^\circ\text{C}$ | | 0.69 | 0.95 | V |
| | $I_F = 5\text{A}, T_J = 150^\circ\text{C}$ | | 0.76 | 1.00 | V |
| Reverse current @ rated V_R per diode ⁽²⁾ | $T_J = 25^\circ\text{C}$ | I_R | - | 10 | μA |
| | $T_J = 150^\circ\text{C}$ | | - | 100 | μA |
| Junction capacitance | 1 MHz, $V_R = 4.0\text{V}$ | C_J | 45 | - | pF |
| Reverse recovery time | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$ | t_{rr} | - | 20 | ns |

Notes:

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

ORDERING INFORMATION

| PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING |
|--------------------|-----------------|--------------|---------------------|---------|------------------------|
| UG54GS (Note 1) | H | A0 | G | DO-15 | 1,500 / Ammo box |
| | | R0 | | DO-15 | 3,500 / 13" Paper reel |
| | | B0 | | DO-15 | 1,000 / Bulk packing |

Note:

1. Whole series with green compound (halogen-free)

EXAMPLE

| EXAMPLE P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION |
|-------------|----------|-----------------|--------------|---------------------|--------------------------------------|
| UG54GSHA0G | UG54GS | H | A0 | G | AEC-Q101 qualified Green compound |

CHARACTERISTICS CURVES

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

Fig1. Forward Current Derating Curve

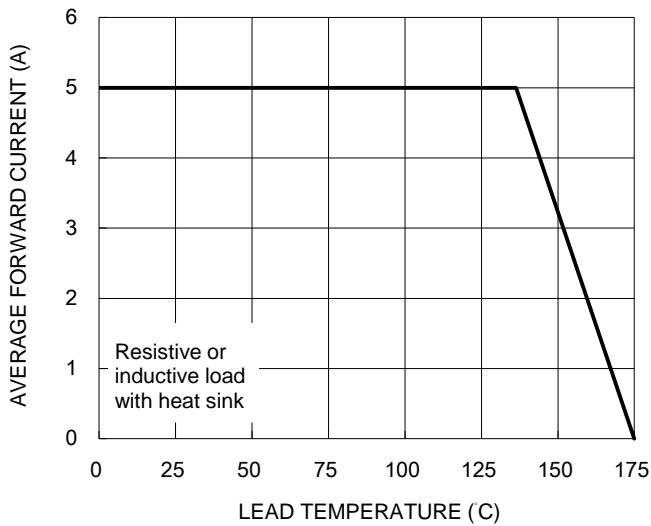


Fig2. Typical Junction Capacitance

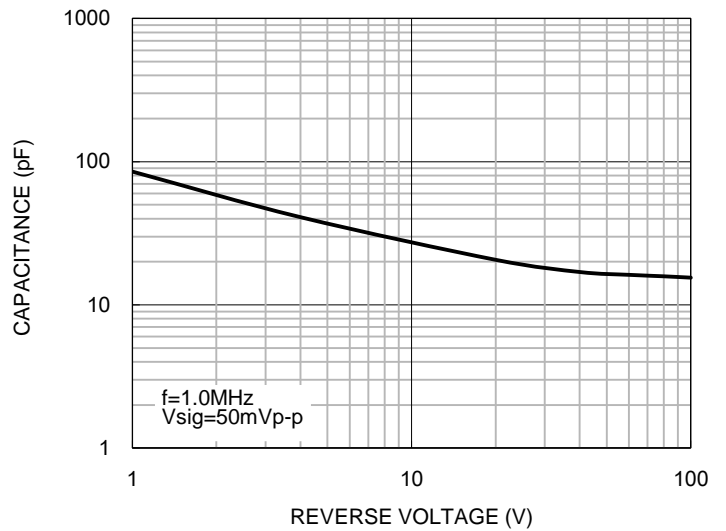


Fig3. Typical Reverse Characteristics

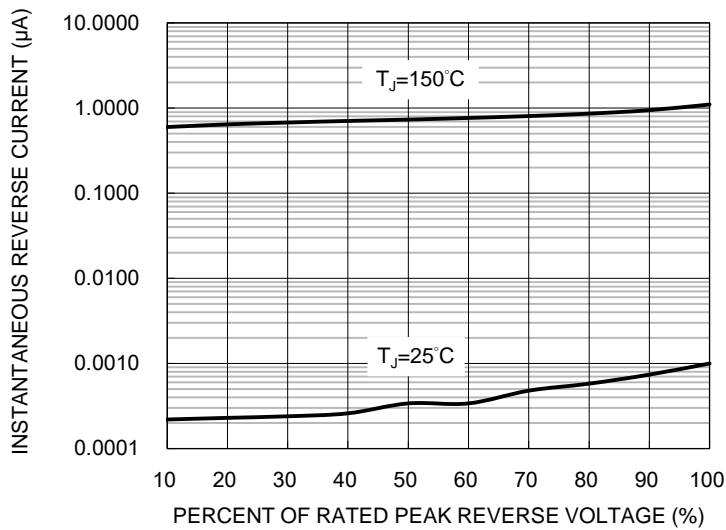
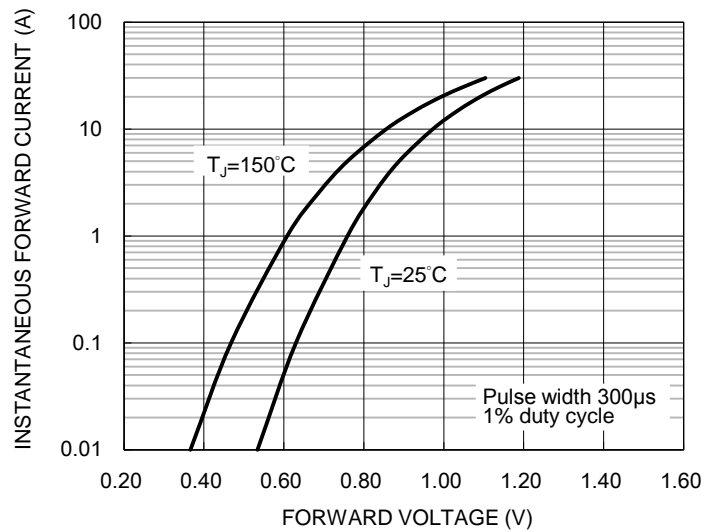
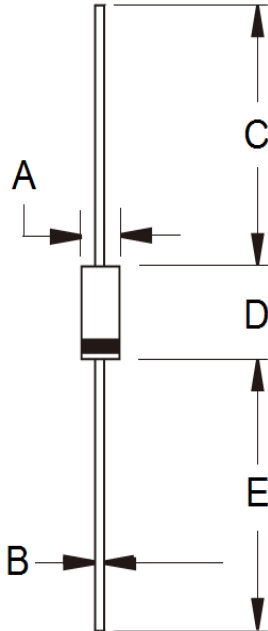


Fig4. Typical Forward Characteristics



PACKAGE OUTLINE DIMENSIONS

DO-204AC(DO-15)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| A | 2.60 | 3.60 | 0.102 | 0.142 |
| B | 0.70 | 0.90 | 0.028 | 0.035 |
| C | 25.40 | - | 1.000 | - |
| D | 5.80 | 7.60 | 0.228 | 0.299 |
| E | 25.40 | - | 1.000 | - |

MARKING DIAGRAM



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

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