

16A, 50V - 1000V High Efficient Rectifier

FEATURES

- AEC-Q101 qualified available
- Low forward voltage, high current capability
- Low thermal resistance
- Low power loss, high efficiency
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

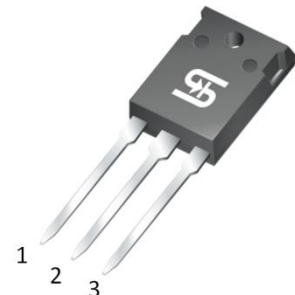
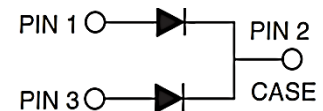
APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Lighting application
- Snubber
- Freewheeling application

MECHANICAL DATA

- Case: TO-247AD (TO-3P)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Mounting torque: 1.13 N·m maximum
- Polarity: As marked
- Weight: 5.60g (approximately)

| KEY PARAMETERS | | |
|----------------|------------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 16 | A |
| V_{RRM} | 50 - 1000 | V |
| I_{FSM} | 200 | A |
| T_{JMAX} | 150 | °C |
| Package | TO-247AD (TO-3P) | |
| Configuration | Dual dies | |


TO-247AD (TO-3P)


| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | | | |
|---|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| PARAMETER | SYMBOL | HER 1601 PT | HER 1602 PT | HER 1603 PT | HER 1604 PT | HER 1605 PT | HER 1606 PT | HER 1607 PT | HER 1608 PT | UNIT |
| Marking code on the device | | HER 1601 PT | HER 1602 PT | HER 1603 PT | HER 1604 PT | HER 1605 PT | HER 1606 PT | HER 1607 PT | HER 1608 PT | |
| Repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 300 | 400 | 600 | 800 | 1000 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 35 | 70 | 140 | 210 | 280 | 420 | 560 | 700 | V |
| Forward current | I_F | 16 | | | | | | | | A |
| Surge peak forward current 8.3ms single half sine wave superimposed on rated load | I_{FSM} | 200 | | | | | | | | A |
| Junction temperature | T_J | -55 to +150 | | | | | | | | °C |
| Storage temperature | T_{STG} | -55 to +150 | | | | | | | | °C |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | | |
|---|---|---|---------------|---|---|-------------|---------------|----|----|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT | | | |
| Forward voltage per diode ⁽¹⁾ | HER1601PT HER1602PT HER1603PT HER1604PT | $I_F = 8\text{A}, T_J = 25^\circ\text{C}$ | V_F | - | 1.0 | V | | | |
| | HER1605PT | | | - | 1.3 | V | | | |
| | HER1606PT HER1607PT HER1608PT | | | - | 1.7 | V | | | |
| | Reverse current @ rated V_R per diode ⁽²⁾ | | | I_R | - | 10 | μA | | |
| | | | | | - | 500 | μA | | |
| Junction capacitance per diode | HER1601PT HER1602PT HER1603PT HER1604PT HER1605PT | 1MHz, $V_R = 4.0\text{V}$ | C_J | 85 | - | pF | | | |
| | HER1606PT HER1607PT HER1608PT | | | 60 | - | pF | | | |
| | Reverse recovery time | | | HER1601PT HER1602PT HER1603PT HER1604PT HER1605PT | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$ | t_{rr} | - | 50 | ns |
| | | | | HER1606PT HER1607PT HER1608PT | | | - | 80 | ns |

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 |
| HER16xPT | TO-247AD (TO-3P) | 30 / Tube |
| HER16xPTH | TO-247AD (TO-3P) | 30 / Tube |

Notes:

1. "x" defines voltage from 50V(HER1601PT) to 1000V(HER1608PT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

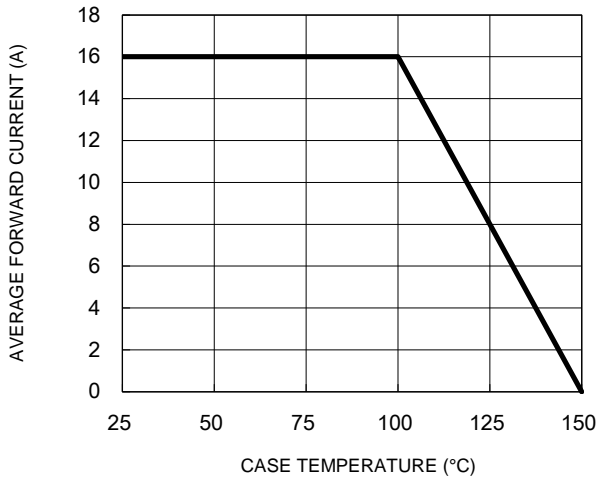


Fig.2 Typical Junction Capacitance

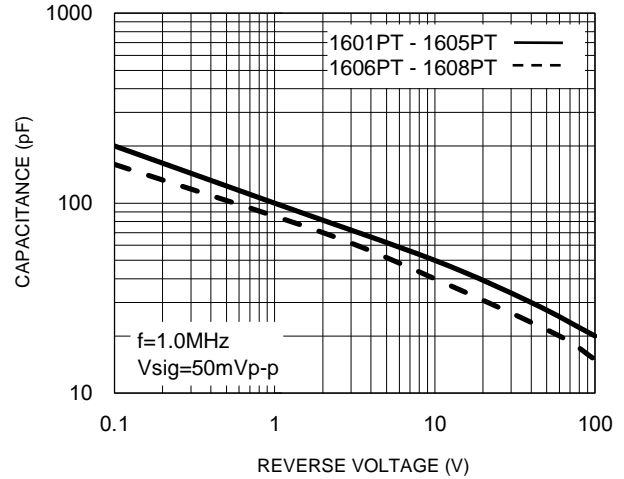


Fig.3 Typical Reverse Characteristics

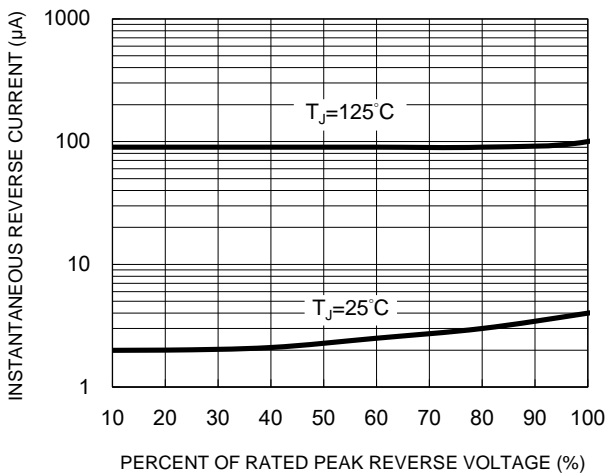


Fig.4 Typical Forward Characteristics

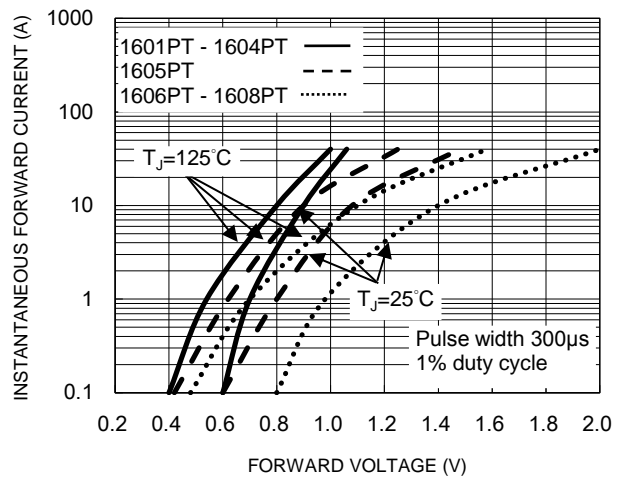
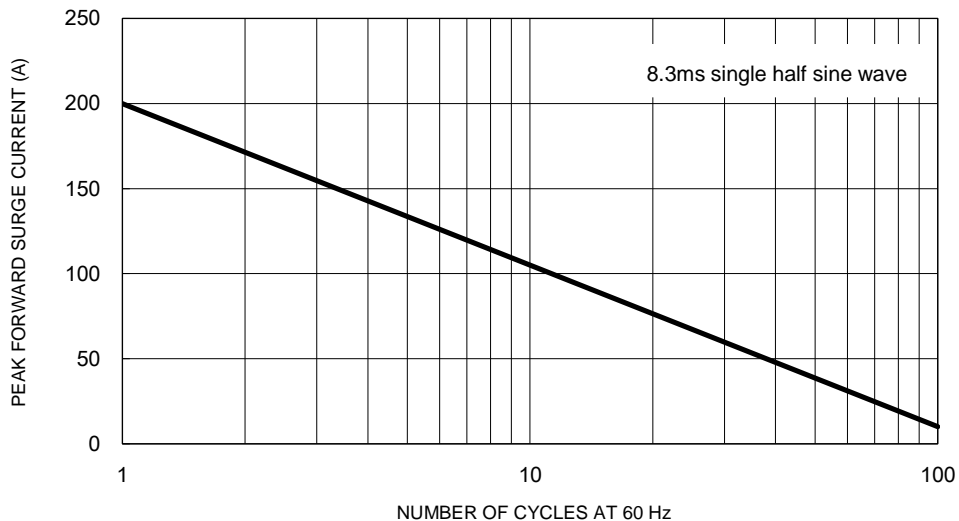


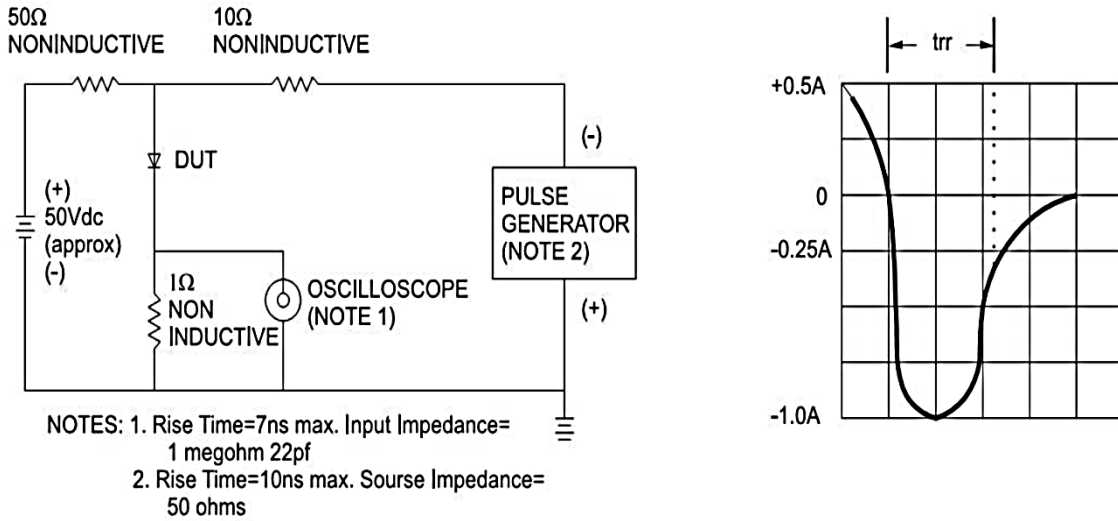
Fig.5 Maximum Non-Repetitive Forward Surge Current



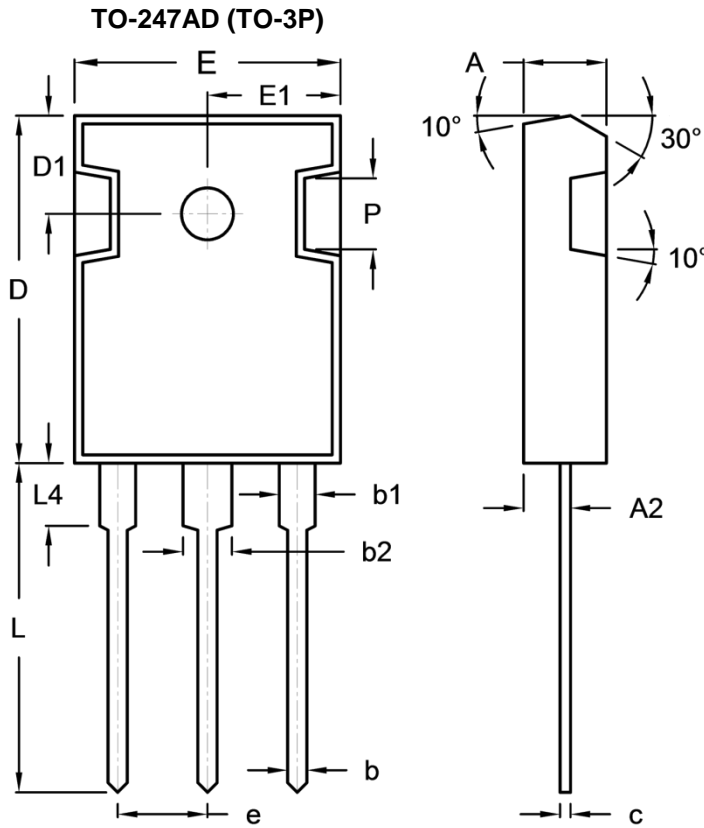
CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram

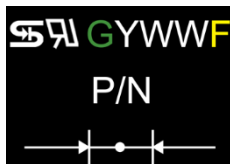


PACKAGE OUTLINE DIMENSIONS



| DIM | Unit (mm) | | Unit (inch) | |
|-----|-----------|-------|-------------|-------|
| | Min | Max | Min | Max |
| A | 4.90 | 5.16 | 0.193 | 0.203 |
| A2 | 2.70 | 3.00 | 0.106 | 0.118 |
| b | 1.12 | 1.22 | 0.044 | 0.048 |
| b1 | 1.93 | 2.18 | 0.076 | 0.086 |
| b2 | 2.97 | 3.22 | 0.117 | 0.127 |
| c | 0.51 | 0.76 | 0.020 | 0.030 |
| D | 20.80 | 21.30 | 0.819 | 0.839 |
| D1 | 5.70 | 6.20 | 0.224 | 0.244 |
| E | 15.90 | 16.40 | 0.626 | 0.646 |
| E1 | 7.90 | 8.20 | 0.311 | 0.323 |
| e | 5.20 | 5.70 | 0.205 | 0.224 |
| H | 2.90 | 3.40 | 0.114 | 0.134 |
| L | 19.70 | 20.20 | 0.776 | 0.795 |
| L4 | 3.50 | 4.10 | 0.138 | 0.161 |
| P | - | 4.30 | - | 0.169 |

MARKING DIAGRAM



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

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