

1A, 50V - 1000V High Efficient Bridge Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for printed circuit board
- Reliable low cost construction utilizing molded plastic technique
- High surge current capability
- UL Recognized File # E-326854
- AEC-Q101 qualified available
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

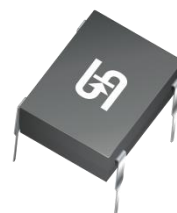
APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application

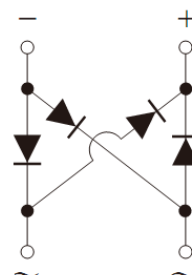
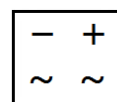
MECHANICAL DATA

- Case: DBL
- 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
- Polarity: As marked
- Weight: 0.360g (approximately)

| KEY PARAMETERS | | |
|----------------|-----------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 1 | A |
| V_{RRM} | 50 - 1000 | V |
| I_{FSM} | 50 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | DBL | |
| Configuration | Quad | |



DBL



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

| PARAMETER | SYMBOL | HDBL 101G | HDBL 102G | HDBL 103G | HDBL 104G | HDBL 105G | HDBL 106G | HDBL 107G | UNIT |
|--|--------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------|
| Marking code on the device | | HDBL 101G | HDBL 102G | HDBL 103G | HDBL 104G | HDBL 105G | HDBL 106G | HDBL 107G | |
| Repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Forward current | I_F | 1 | | | | | | | A |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 50 | | | | | | | A |
| Rating for fusing ($t < 8.3\text{ms}$) | I^2t | 10.3 | | | | | | | A^2s |
| Junction temperature | T_J | - 55 to +150 | | | | | | | °C |
| Storage temperature | T_{STG} | - 55 to +150 | | | | | | | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|------------|-------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-lead thermal resistance | $R_{\theta JL}$ | 15 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 40 | °C/W |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|--|--|---------------|------------|------------|---------------|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | HDBL101G HDBL102G HDBL103G | $I_F = 1\text{A}, T_J = 25^\circ\text{C}$ | V_F | - | 1.0 | V |
| | HDBL104G | | | - | 1.3 | V |
| | HDBL105G HDBL106G HDBL107G | | | - | 1.7 | V |
| | | | | | | |
| Reverse current @ rated V_R per diode ⁽²⁾ | | $T_J = 25^\circ\text{C}$ | I_R | - | 5 | μA |
| | | $T_J = 125^\circ\text{C}$ | | - | 500 | μA |
| Reverse recovery time | HDBL101G HDBL102G HDBL103G HDBL104G | $I_F = 0.5\text{A}, I_R = 1.0\text{A},$ $I_{rr} = 0.25\text{A}$ | t_{rr} | - | 50 | ns |
| | HDBL105G HDBL106G HDBL107G | | | - | 75 | 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 |
| HDBL10xG | DBL | 50 / Tube |
| HDBL10xGH | DBL | 50 / Tube |

Notes:

1. "x" defines voltage from 50V(HDBL101G) to 1000V(HDBL107G)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

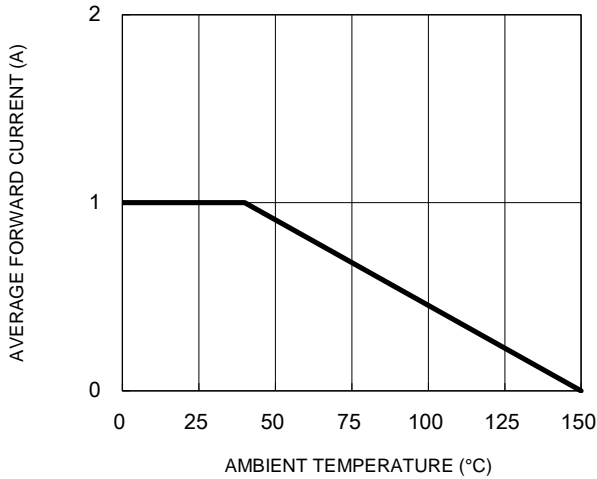


Fig.2 Typical Junction Capacitance

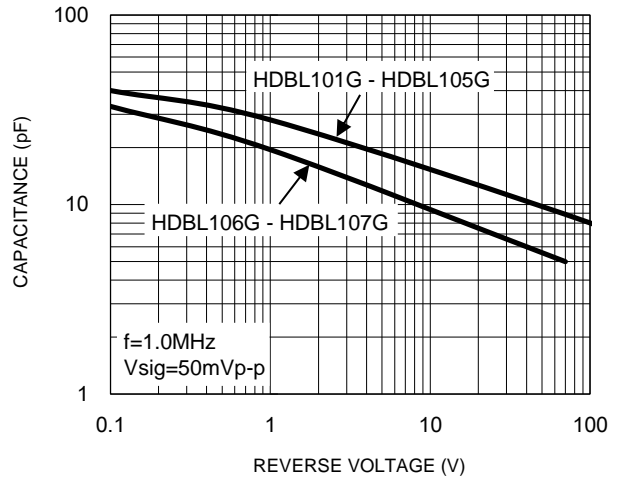


Fig.3 Typical Reverse Characteristics

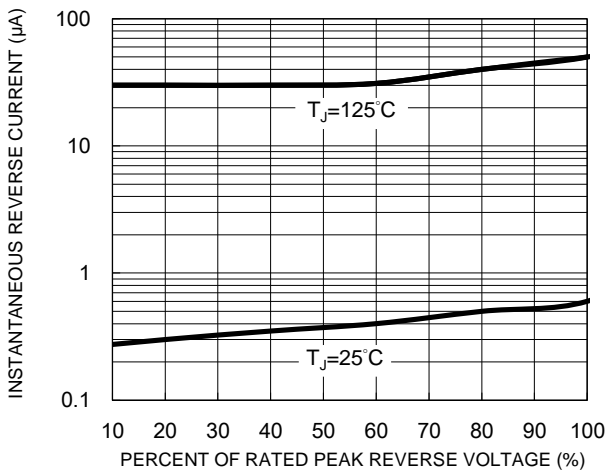


Fig.4 Typical Forward Characteristics

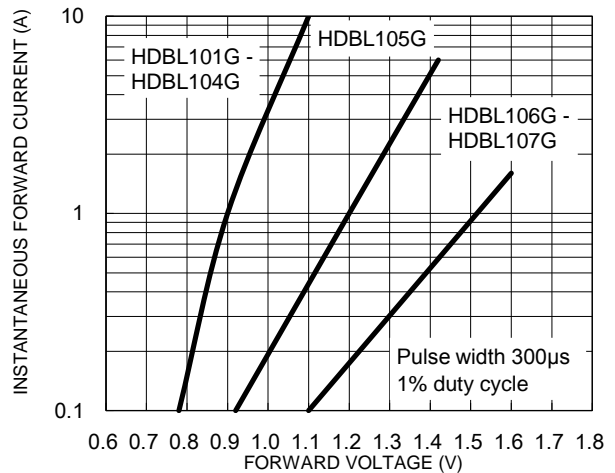
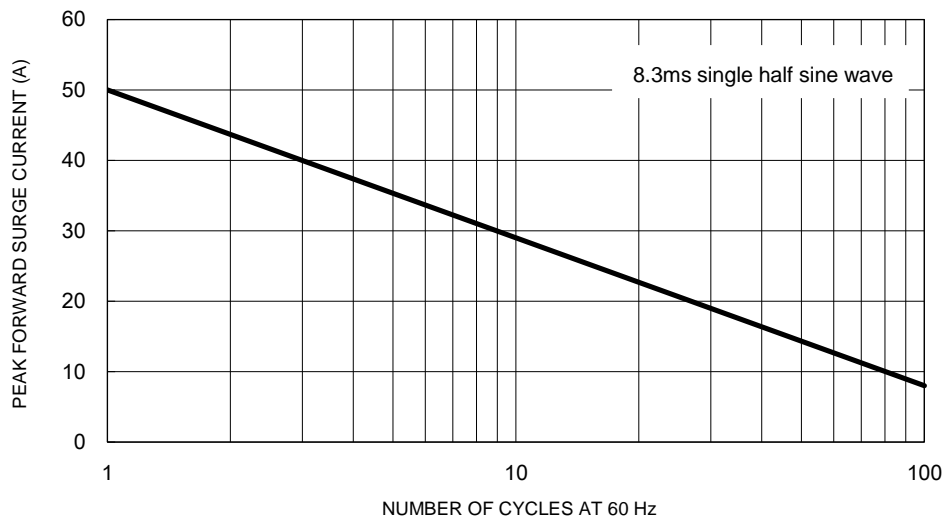


Fig.5 Maximum Non-Repetitive Forward Surge Current



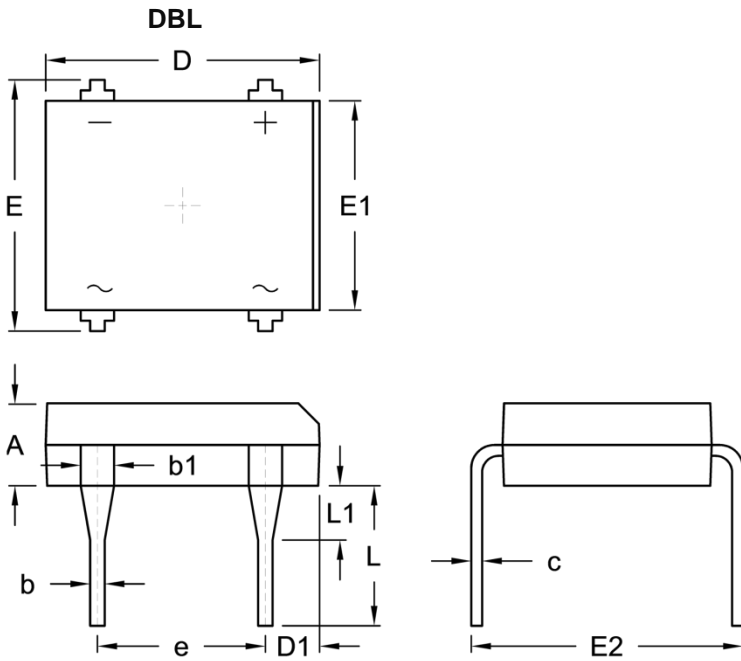
CHARACTERISTICS CURVES

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Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.40 | 2.60 | 0.094 | 0.102 |
| b | 0.46 | 0.58 | 0.018 | 0.023 |
| b1 | 0.89 | 1.14 | 0.035 | 0.045 |
| c | 0.22 | 0.33 | 0.009 | 0.013 |
| D | 8.12 | 8.51 | 0.320 | 0.335 |
| D1 | 1.39 | 1.90 | 0.055 | 0.075 |
| e | 5.00 | 5.20 | 0.197 | 0.205 |
| E | 7.24 | 8.00 | 0.285 | 0.315 |
| E1 | 6.20 | 6.50 | 0.244 | 0.256 |
| E2 | 7.60 | 8.90 | 0.299 | 0.350 |
| L | 3.81 | 4.69 | 0.150 | 0.185 |
| L1 | 1.27 | 2.03 | 0.050 | 0.080 |

MARKING DIAGRAM



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