



# 1A, 50 - 1000V Surface Mount Rectifier

## **FEATURES**

- Plastic package has carries underwriters
- Ideal for automated placement
- Surge overload rating to 30A peak
- · Reliable low cost construction utilizing molded
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

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- Inverters and Converters
- Free Wheeling diodes

## **MECHANICAL DATA**

· Case: MELF

• Molding compound meets UL 94V-0 flammability rating

Meet JESD 201 class 1A whisker test
Polarity: Indicated by cathode band
Weight: 120.00mg (approximately)

| KEY PARAMETERS     |           |      |  |  |
|--------------------|-----------|------|--|--|
| PARAMETER          | VALUE     | UNIT |  |  |
| l <sub>F</sub>     | 1         | Α    |  |  |
| $V_{RRM}$          | 50 - 1000 | V    |  |  |
| I <sub>FSM</sub>   | 30        | Α    |  |  |
| T <sub>J MAX</sub> | 150       | °C   |  |  |
| Package            | MEL       | F    |  |  |









**MELF** 

| ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)                 |                  |             |        |        |           |        |        |        |      |
|---|------------------|-------------|--------|--------|-----------|--------|--------|--------|------|
| PARAMETER   | SYMBOL           | LL4001      | LL4002 | LL4003 | LL4004    | LL4005 | LL4006 | LL4007 | UNIT |
| PARAMETER   | STRIBOL          | G           | G      | G      | G         | G      | G      | G      |      |
| 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    |
| DC blocking voltage   | $V_{DC}$         | 50          | 100    | 200    | 400       | 600    | 800    | 1000   | V    |
| Forward current   | I <sub>F</sub>   | 1           |        |        |           |        |        |        | Α    |
| Surge peak forward current<br>8.3ms single half sine-wave<br>superimposed on rated load | I <sub>FSM</sub> |             |        |        | 30        |        |        |        | А    |
| Junction temperature  | TJ               | -65 to +150 |        |        |           |        |        | °C     |      |
| Storage temperature   | T <sub>STG</sub> |             |        | -(     | 65 to +15 | 50     |        |        | °C   |

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| THERMAL PERFORMANCE                 |                  |     |      |  |  |
|-------------------------------------|------------------|-----|------|--|--|
| PARAMETER                           | SYMBOL           | TYP | UNIT |  |  |
| Junction-to-case thermal resistance | R <sub>eJC</sub> | 50  | °C/W |  |  |

| ELECTRICAL SPECIFICATIONS (T <sub>A</sub> = 25°C unless otherwise noted) |                             |                  |     |     |      |  |
|--|-----------------------------|------------------|-----|-----|------|--|
| PARAMETER  | CONDITIONS                  | SYMBOL           | TYP | MAX | UNIT |  |
| Forward voltage (1)  | I <sub>F</sub> = 1.0A       | V <sub>F</sub>   | -   | 1.1 | V    |  |
| Reverse current @ rated V <sub>R</sub> (2)                               | T <sub>J</sub> = 25°C       |                  | -   | 5   | μΑ   |  |
| Reverse current @ rated v <sub>R</sub>                                   | T <sub>J</sub> = 125°C      | - I <sub>R</sub> | -   | 100 | μΑ   |  |
| Junction capacitance   | 1 MHz, V <sub>R</sub> =4.0V | CJ               | 15  | -   | pF   |  |

## Notes:

- 1. Pulse test with PW=0.3 ms
- 2. Pulse test with PW=30 ms

| ORDERING INFORMATION         |         |                |  |  |  |
|------------------------------|---------|----------------|--|--|--|
| ORDERING CODE <sup>(1)</sup> | PACKAGE | PACKING        |  |  |  |
| LL400xG L0G                  | MELF    | 5,000/13" reel |  |  |  |

# Notes:

(1) "x" defines voltage from 50V(LL4001G) – 1000V(LL4007G)



# **CHARACTERISTICS CURVES** (T<sub>A</sub> = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

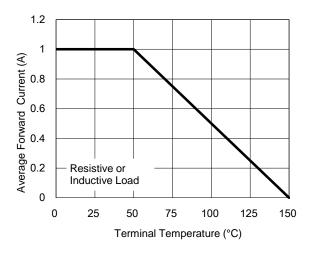


Fig.3 Typical Forward Characteristics

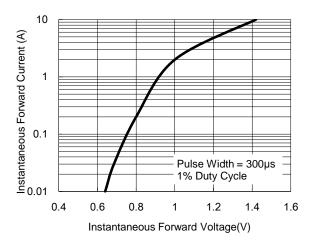


Fig.5 Typical Junction Capacitance

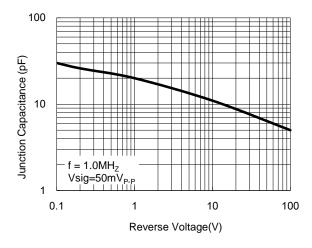


Fig.2 Maximum Non-Repetitive Peak
Forward Surge Current

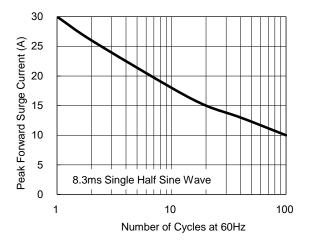


Fig.4 Typical Reverse Characteristics

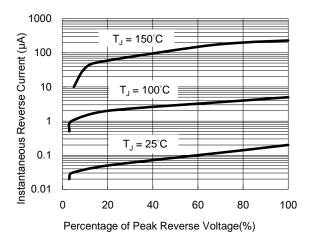
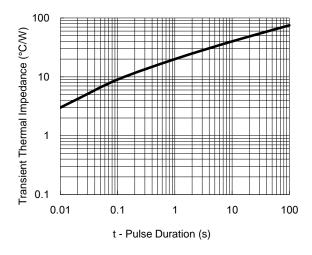


Fig.6 Typical Transient Thermal Impedance



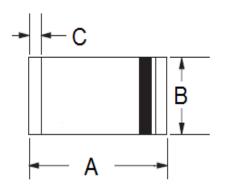
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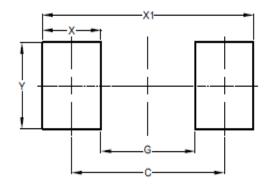
# **PACKAGE OUTLINE DIMENSIONS**

**MELF** 



|     | Unit | (mm) | Unit (inch) |       |  |
|-----|------|------|-------------|-------|--|
| DIM | Min  | Max  | Min         | Max   |  |
| Α   | 4.80 | 5.50 | 0.189       | 0.217 |  |
| В   | 2.25 | 2.67 | 0.089       | 0.105 |  |
| С   | 0.30 | 0.60 | 0.012       | 0.024 |  |

# **SUGGESTED PAD LAYOUT**



| DIM | Unit (mm) | Unit (inch) |  |  |
|-----|-----------|-------------|--|--|
| DIN | TYP       | TYP         |  |  |
| С   | 4.80      | 0.189       |  |  |
| G   | 3.30      | 0.130       |  |  |
| Х   | 1.50      | 0.059       |  |  |
| X1  | 6.30      | 0.248       |  |  |
| Υ   | 2.70      | 0.106       |  |  |

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