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$$I_{F(AV)} = 40\text{Amp}$$

$$V_R = 15\text{V}$$

Major Ratings and Characteristics

| Characteristics | Values | Units |
|--|------------|------------------|
| $I_{F(AV)}$ Rectangular waveform | 40 | A |
| V_{RRM} | 15 | V |
| I_{FSM} @tp = 5 μ s sine | 700 | A |
| V_F @ 19 Apk, $T_J = 125^\circ\text{C}$ (per leg, Typical) | 0.25 | V |
| T_J | -55 to 125 | $^\circ\text{C}$ |

Description/ Features

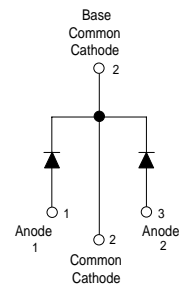
The 40L15CWPbF center tap Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 $^\circ\text{C}$ junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 125 $^\circ\text{C}$ T_J operation ($V_R < 5\text{V}$)
- Center tap module
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Lead-Free ("PbF" suffix)

Case Styles



TO-247AC



40L15CWPbF

Bulletin PD-20793 rev. A 11/06

International
 Rectifier

Voltage Ratings

| Part number | 40L15CWPbF | |
|---|------------|--|
| V_R Max. DC Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$ | 15 | |
| V_{RWM} Max. Working Peak Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$ | 15 | |

Absolute Maximum Ratings

| Parameters | 40L15CW | Units | Conditions |
|---|---------|-------|--|
| $I_{F(AV)}$ Max. Average Forward (Per Leg) Current * See Fig. 5 (Per Device) | 20 | A | 50% duty cycle @ $T_C = 86^\circ\text{C}$, rectangular wave form |
| | 40 | | |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7 | 700 | A | 5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RRM} applied |
| | 330 | | |
| E_{AS} Non-Repetitive Avalanche Energy (Per Leg) | 10 | mJ | $T_J = 25^\circ\text{C}$, $I_{AS} = 2$ Amps, $L = 5$ mH |
| I_{AR} Repetitive Avalanche Current (Per Leg) | 2 | A | Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical |

Electrical Specifications

| Parameters | 40L15CW | | Units | Conditions | |
|---|---------|------|------------------|---|---------------------------|
| | Typ. | Max. | | | |
| V_{FM} Forward Voltage Drop (Per Leg) * See Fig. 1 (1) | - | 0.41 | V | @ 19A | $T_J = 25^\circ\text{C}$ |
| | - | 0.52 | V | @ 40A | |
| | 0.25 | 0.33 | V | @ 19A | $T_J = 125^\circ\text{C}$ |
| | 0.37 | 0.50 | V | @ 40A | |
| I_{RM} Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | - | 10 | mA | $T_J = 25^\circ\text{C}$ | $V_R = \text{rated } V_R$ |
| | - | 600 | mA | $T_J = 100^\circ\text{C}$ | |
| $V_{F(TO)}$ Threshold Voltage | 0.182 | | V | $T_J = T_J \text{ max.}$ | |
| r_t Forward Slope Resistance | 7.6 | | m Ω | | |
| C_T Max. Junction Capacitance (Per Leg) | - | 2000 | pF | $V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C | |
| L_S Typical Series Inductance (Per Leg) | 8 | - | nH | Measured lead to lead 5mm from package body | |
| dv/dt Max. Voltage Rate of Change | 10000 | | V/ μs | (Rated V_R) | |

(1) Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications

| Parameters | 40L15CW | Units | Conditions |
|---|------------------|--------------------|--------------------------------------|
| T_J Max. Junction Temperature Range | -55 to 125 | $^\circ\text{C}$ | |
| T_{stg} Max. Storage Temperature Range | -55 to 150 | $^\circ\text{C}$ | |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg) | 1.4 | $^\circ\text{C/W}$ | DC operation * See Fig. 4 |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Package) | 0.7 | $^\circ\text{C/W}$ | DC operation |
| R_{thCS} Typical Thermal Resistance, Case to Heatsink | 0.24 | $^\circ\text{C/W}$ | Mounting surface, smooth and greased |
| wt Approximate Weight | 6 (0.21) | g (oz.) | |
| T Mounting Torque | Min. 6 (5) | Kg-cm (lbf-in) | Non-lubricated threads |
| | Max. 12 (10) | | |
| Case Style | TO-247AC (TO-3P) | JEDEC | |
| Marking Device | 40L15CW | | |

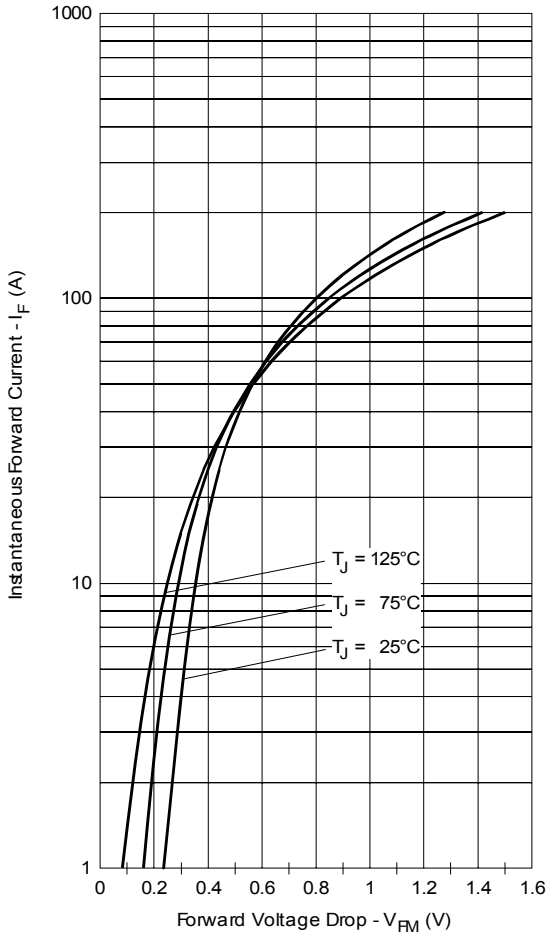


Fig. 1 - Maximum Forward Voltage Drop Characteristics

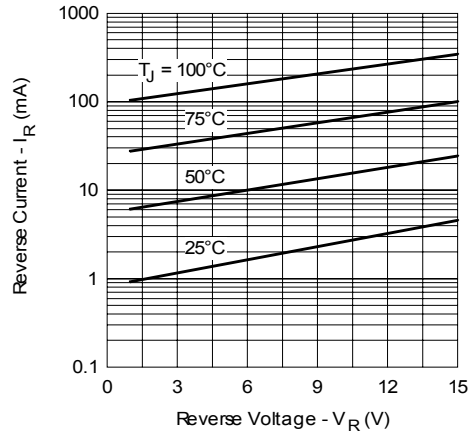


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

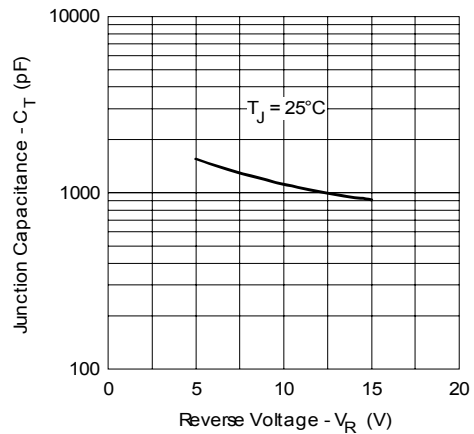


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

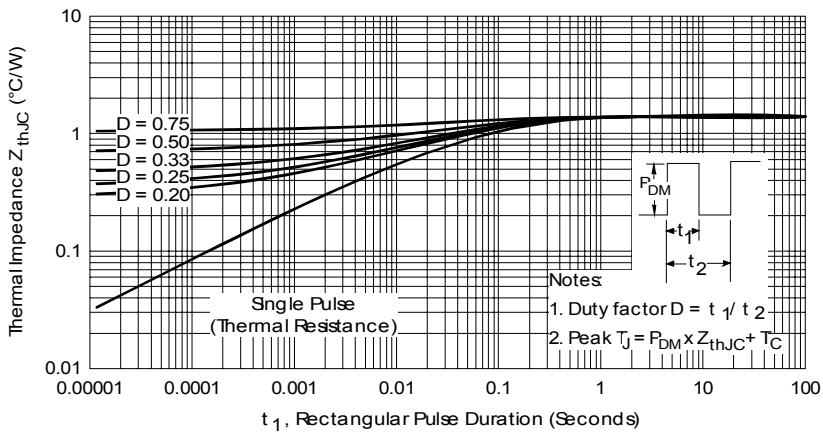


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

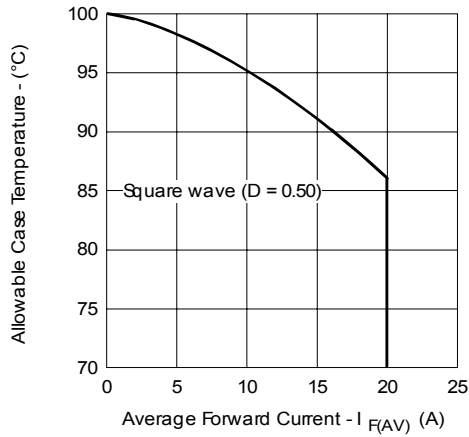


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

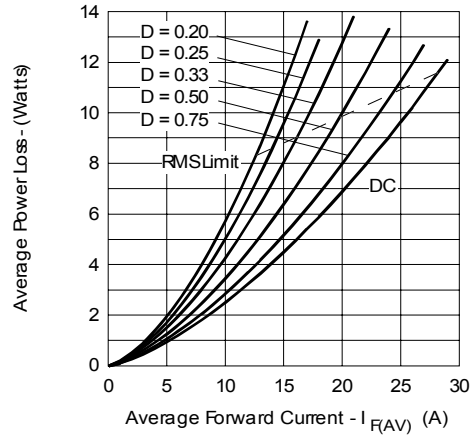


Fig. 6 - Forward Power Loss Characteristics

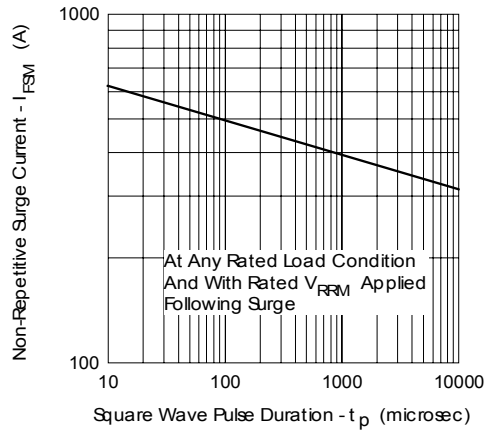


Fig. 7 - Maximum Non-Repetitive Surge Current

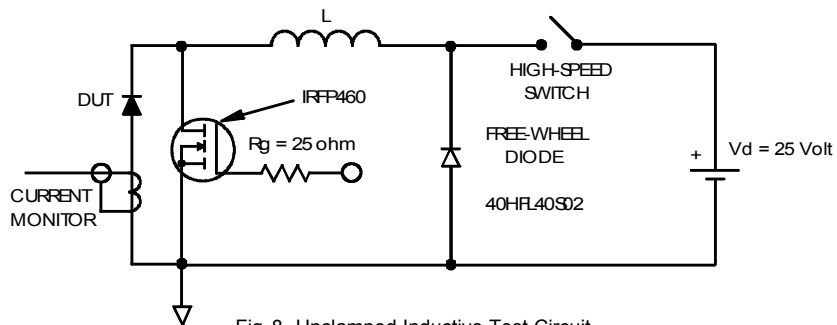
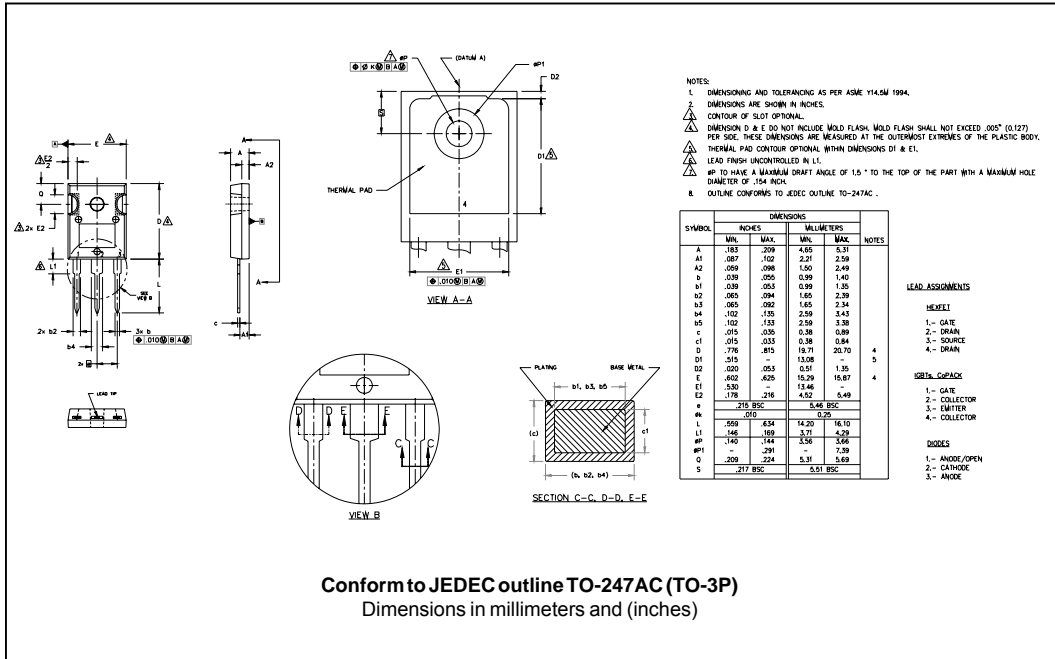
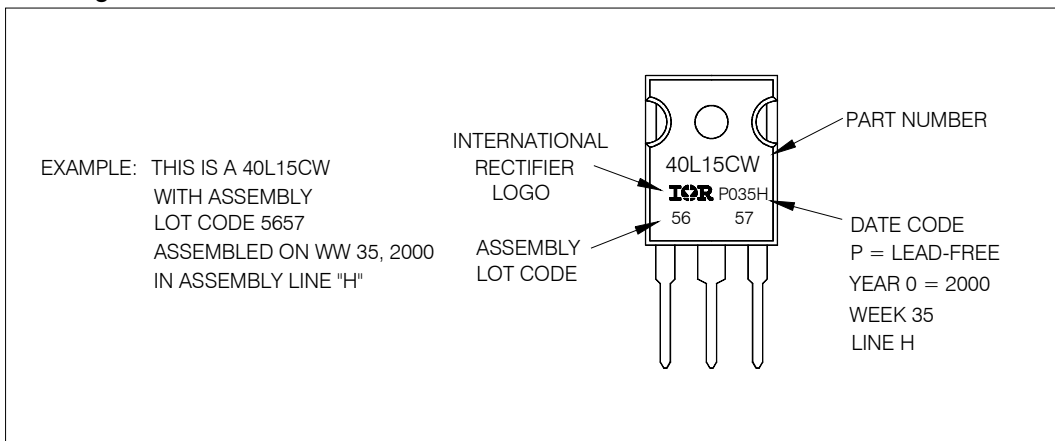


Fig. 8 - Unclamped Inductive Test Circuit

Outline Table



Marking Information



Ordering Information Table

| Device Code | | | | | | | | | | | | | |
|---|---|----|---|----|-----|---|-----|---|---|---|---|---|---|
| | <table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">40</td> <td style="padding: 5px;">L</td> <td style="padding: 5px;">15</td> <td style="padding: 5px;">C</td> <td style="padding: 5px;">W</td> <td style="padding: 5px;">PbF</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> </tr> </table> | 40 | L | 15 | C | W | PbF | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 40 | L | 15 | C | W | PbF | | | | | | | | |
| ① | ② | ③ | ④ | ⑤ | ⑥ | | | | | | | | |
| 1 | - Current Rating (40 = 40A) | | | | | | | | | | | | |
| 2 | - Schottky "L" Series | | | | | | | | | | | | |
| 3 | - Voltage Code (15 = 15V) | | | | | | | | | | | | |
| 4 | - Circuit Configuration C = Common Cathode | | | | | | | | | | | | |
| 5 | - Package W = TO-247 | | | | | | | | | | | | |
| 6 | - <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free | | | | | | | | | | | | |
| Tube Standard Pack Quantity : 25 pieces | | | | | | | | | | | | | |

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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11/06



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