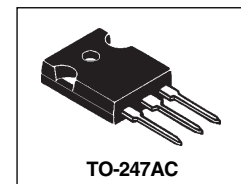


## 40L15CW

### SCHOTTKY RECTIFIER

2 x 20 Amps



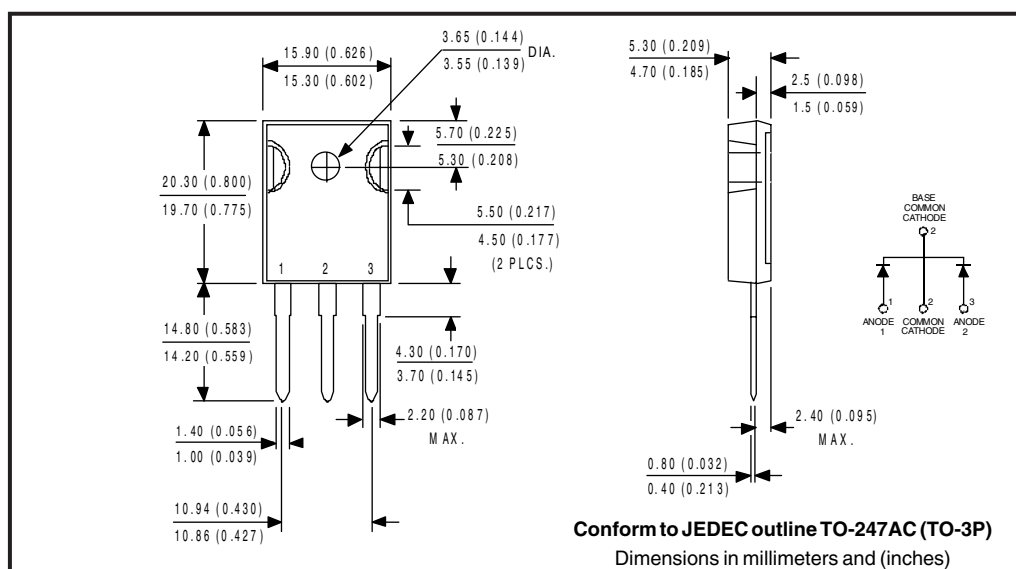
#### Major Ratings and Characteristics

| Characteristics                                       | 40L15CW    | Units      |
|-------------------------------------------------------|------------|------------|
| $I_{F(AV)}$ Rectangular waveform                      | 40         | A          |
| $V_{RRM}$                                             | 15         | V          |
| $I_{FSM}$ @ $t_p = 5 \mu s$ sine                      | 700        | A          |
| $V_F$ @ 19Apk, $T_J = 125^\circ C$ (per leg, Typical) | 0.25       | V          |
| $T_J$                                                 | -55 to 125 | $^\circ C$ |

#### Description/Features

The 40L15CW center tap Schottky rectifier has been optimized for Ultra low forward voltage drop. This device has been specifically designed to be the best solution as OR-ing diode in fault tolerant power supplies equipment.

- Center tap TO-247 package
- High efficiency
- Ultra low forward voltage drop
- Optimized for OR-ing application of 3V, 5V



## Voltage Ratings

| Part number                                                                 | 40L15CW |
|-----------------------------------------------------------------------------|---------|
| $V_R$ Max. DC Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$               | 15      |
| $V_{RWM}$ Max. Working Peak Reverse Voltage (V) @ $T_J = 100^\circ\text{C}$ |         |

## Absolute Maximum Ratings

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

## Electrical Specifications

| Parameters                                                  | 40L15CW   | Units            | Conditions                                                              |
|-------------------------------------------------------------|-----------|------------------|-------------------------------------------------------------------------|
| $V_{FM}$ Forward Voltage Drop (Per Leg) * See Fig. 1 (1)    | Typ. Max. |                  |                                                                         |
|                                                             | 0.41      | V                | @ 19A $T_J = 25^\circ\text{C}$                                          |
|                                                             | 0.52      | V                | @ 40A $T_J = 25^\circ\text{C}$                                          |
|                                                             | 0.25 0.33 | V                | @ 19A $T_J = 125^\circ\text{C}$                                         |
| $I_{RM}$ Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | - 10      | mA               | $T_J = 25^\circ\text{C}$                                                |
|                                                             | - 600     | mA               | $T_J = 100^\circ\text{C}$ $V_R = \text{rated } V_R$                     |
| $V_{F(TH)}$ Threshold Voltage                               | 0.182     | V                | $T_J = T_J \text{ max.}$                                                |
| $r_t$ Forward Slope Resistance                              | 7.6       | m $\Omega$       |                                                                         |
| $C_T$ Max. Junction Capacitance (Per Leg)                   | - 2000    | pF               | $V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$ |
| $L_S$ Typical Series Inductance (Per Leg)                   | 8 -       | nH               | Measured lead to lead 5mm from package body                             |
| $dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )          | 10,000    | V/ $\mu\text{s}$ |                                                                         |

(1) Pulse Width < 300 $\mu\text{s}$ , 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)<br>Max. 12(10) | Kg-cm<br>(lbf-in)  | Non-lubricated threads               |
| Case Style                                                        | TO-247AC(TO-3P)          | JEDEC              |                                      |

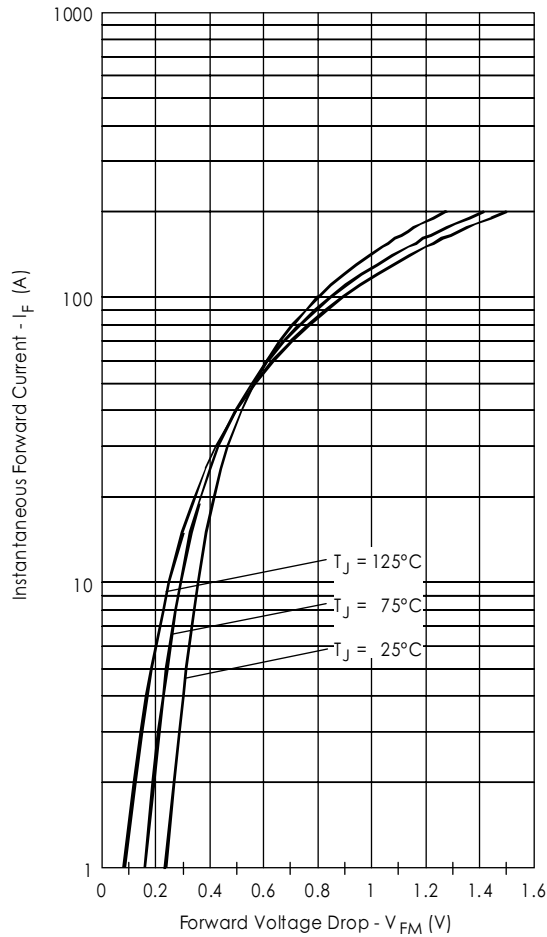


Fig. 1 - Maximum Forward Voltage Drop Characteristics

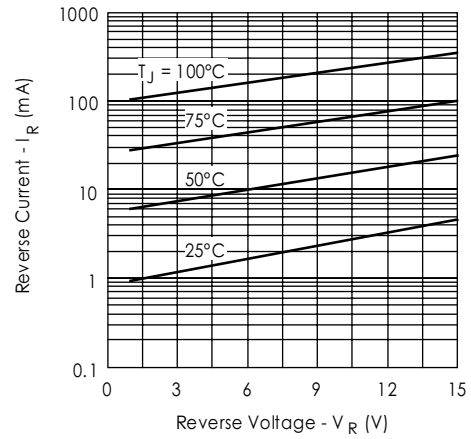


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

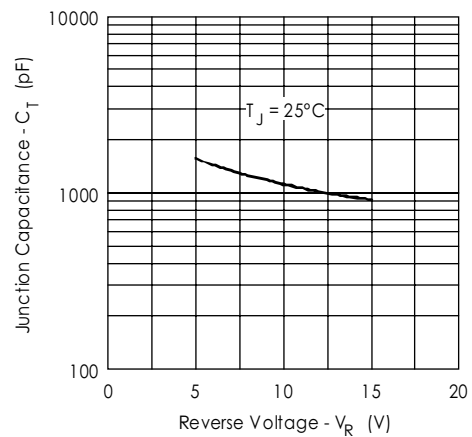


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

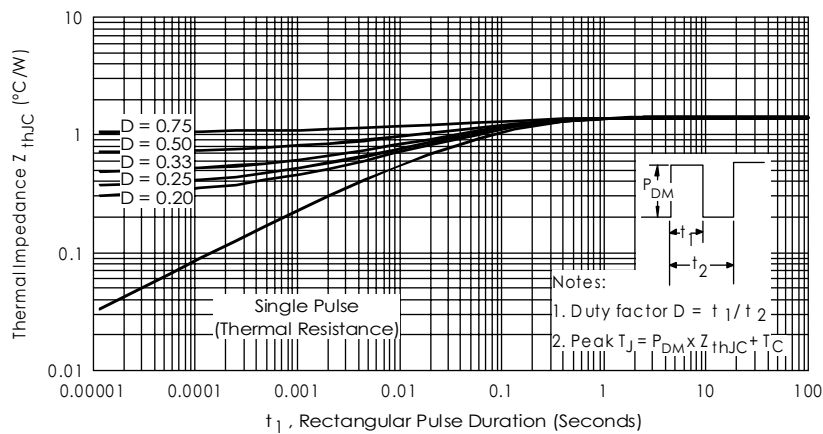


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

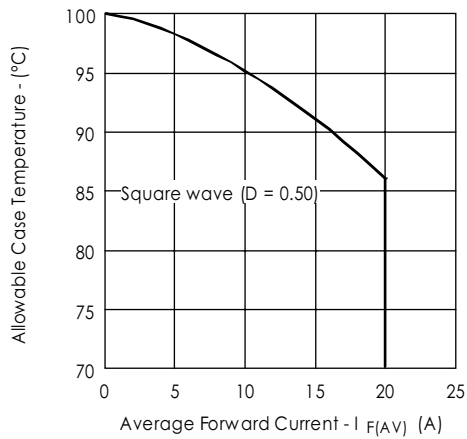


Fig. 5 - Maximum Allowable Case Temperature  
Vs. Average Forward Current

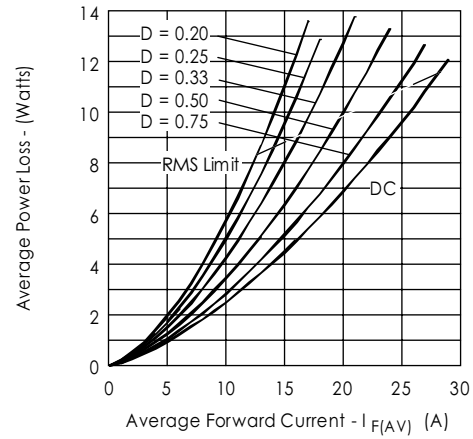


Fig. 6 - Forward Power Loss Characteristics

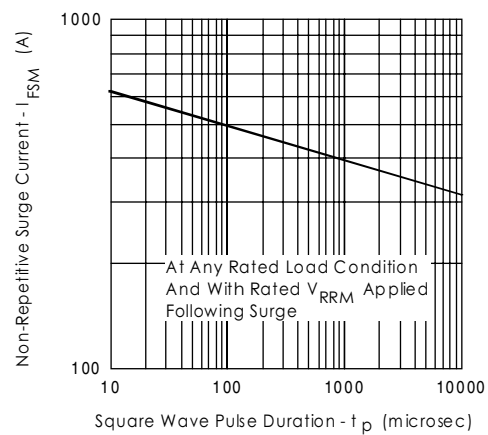


Fig. 7 - Maximum Non-Repetitive Surge Current

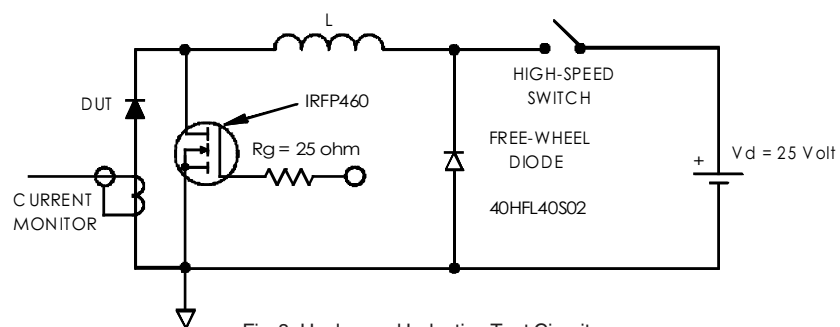


Fig. 8 - Unclamped Inductive Test Circuit

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