

#### Major Ratings and Characteristics

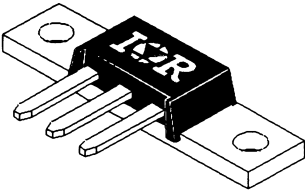
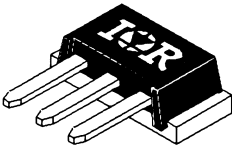
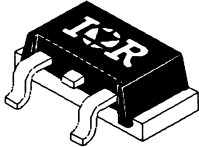
| Characteristics                               | 85CNQ015   | Units            |
|-----------------------------------------------|------------|------------------|
| $I_{F(AV)}$ Rectangular waveform              | 80         | A                |
| $V_{RRM}$                                     | 15         | V                |
| $I_{FSM}$ @tp = 5 $\mu$ s sine                | 5200       | A                |
| $V_F$ @40Apk, $T_J=75^\circ\text{C}$ (perleg) | 0.32       | V                |
| $T_J$ range                                   | -55 to 125 | $^\circ\text{C}$ |

#### Description/Features

The 85CNQ015 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
- Low profile, small footprint, high current package

#### Case Styles

| 85CNQ015                                                                            | 85CNQ015SM                                                                          | 85CNQ015SL                                                                            |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |
| <b>D61-8</b>                                                                        | <b>D61-8-SM</b>                                                                     | <b>D61-8-SL</b>                                                                       |

## Voltage Ratings

| Partnumber                                      | 85CNQ015A |
|-------------------------------------------------|-----------|
| $V_R$ Max. DC Reverse Voltage (V)               | 15        |
| $V_{RWM}$ Max. Working Peak Reverse Voltage (V) | 25        |

## Absolute Maximum Ratings

| Parameters                                                                        | 85CNQ | Units | Conditions                                                                                                             |
|-----------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------------------------------------------------------|
| $I_{F(AV)}$ Max. Average Forward Current<br>* See Fig. 5                          | 80    | A     | 50% duty cycle @ $T_C = 78^\circ\text{C}$ , rectangular waveform                                                       |
| $I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7 | 5200  | A     | Following any rated load condition and with rated $V_{RWM}$ applied                                                    |
|                                                                                   | 850   |       |                                                                                                                        |
| $E_{AS}$ Non-Repetitive Avalanche Energy (Per Leg)                                | 9     | mJ    | $T_J = 25^\circ\text{C}$ , $I_{AS} = 2$ Amps, $L = 4.50$ 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. $V_A = 3 \times V_R$ typical |

## Electrical Specifications

| Parameters                                                       | 85CNQ  | Units            | Conditions                                                              |
|------------------------------------------------------------------|--------|------------------|-------------------------------------------------------------------------|
| $V_{FM}$ Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)    | 0.36   | V                | @ 40A                                                                   |
|                                                                  | 0.45   | V                | @ 80A                                                                   |
|                                                                  | 0.32   | V                | @ 40A                                                                   |
|                                                                  | 0.42   | V                | @ 80A                                                                   |
| $I_{RM}$ Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | 20     | mA               | $T_J = 25^\circ\text{C}$                                                |
|                                                                  | 1000   | mA               | $T_J = 100^\circ\text{C}$                                               |
|                                                                  | 890    | mA               | $T_J = 100^\circ\text{C}$                                               |
|                                                                  | 540    | mA               | $T_J = 100^\circ\text{C}$                                               |
| $C_T$ Max. Junction Capacitance (Per Leg)                        | 3600   | pF               | $V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$ |
| $L_S$ Typical Series Inductance (Per Leg)                        | 5.5    | 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                                                           | 85CNQ      | 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)        | 0.85       | $^\circ\text{C}/\text{W}$ | DC operation * See Fig. 4            |
| $R_{thJC}$ Max. Thermal Resistance Junction to Case (Per Package)    | 0.42       | $^\circ\text{C}/\text{W}$ | DC operation                         |
| $R_{thCS}$ Typical Thermal Resistance, Case to Heatsink (D61-8 Only) | 0.30       | $^\circ\text{C}/\text{W}$ | Mounting surface, smooth and greased |
| wt Approximate Weight                                                | 7.8(0.28)  | g(oz.)                    |                                      |
| T Mounting Torque (D61-8 Only)                                       | Min.       | 40(35)                    | Kg-cm (lbf-in)                       |
|                                                                      | Max.       | 58(50)                    |                                      |

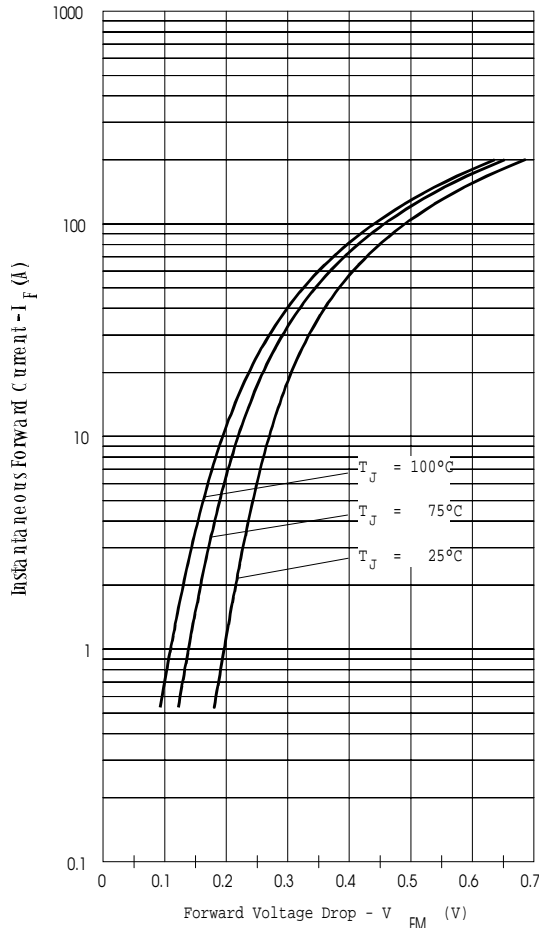


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

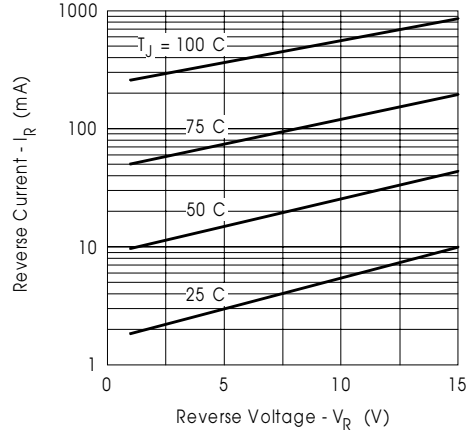


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

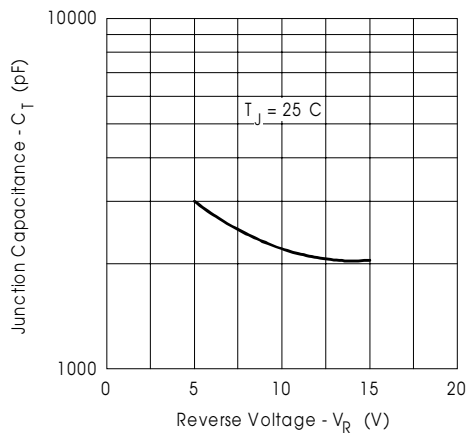


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

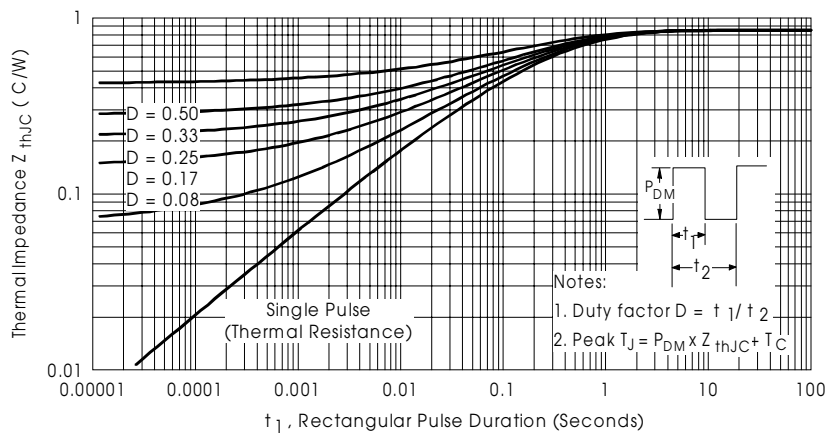


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

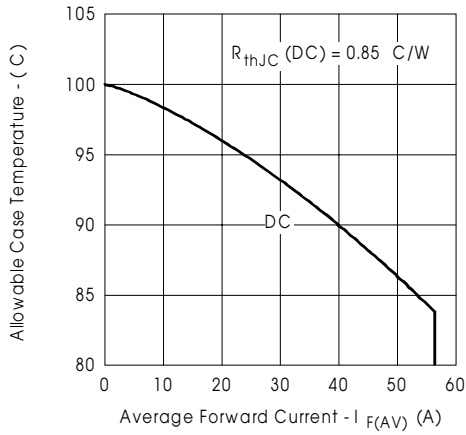


Fig. 5- Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

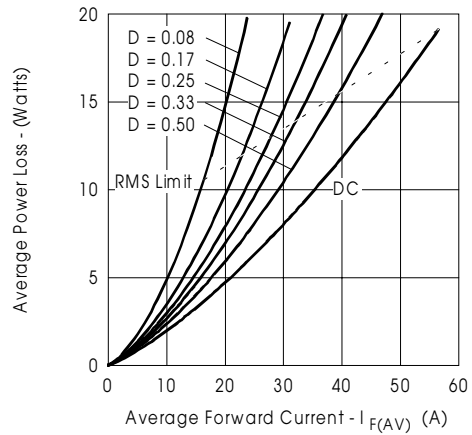


Fig. 6- Forward Power Loss Characteristics (Per Leg)

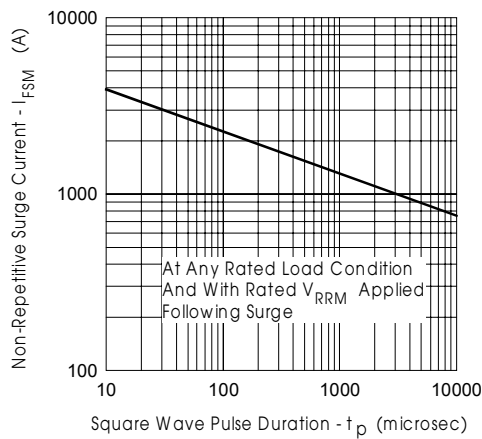


Fig. 7- Max. Non-Repetitive Surge Current (Per Leg)

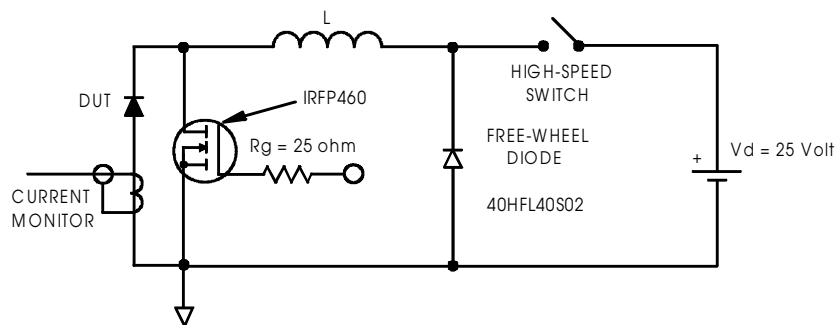
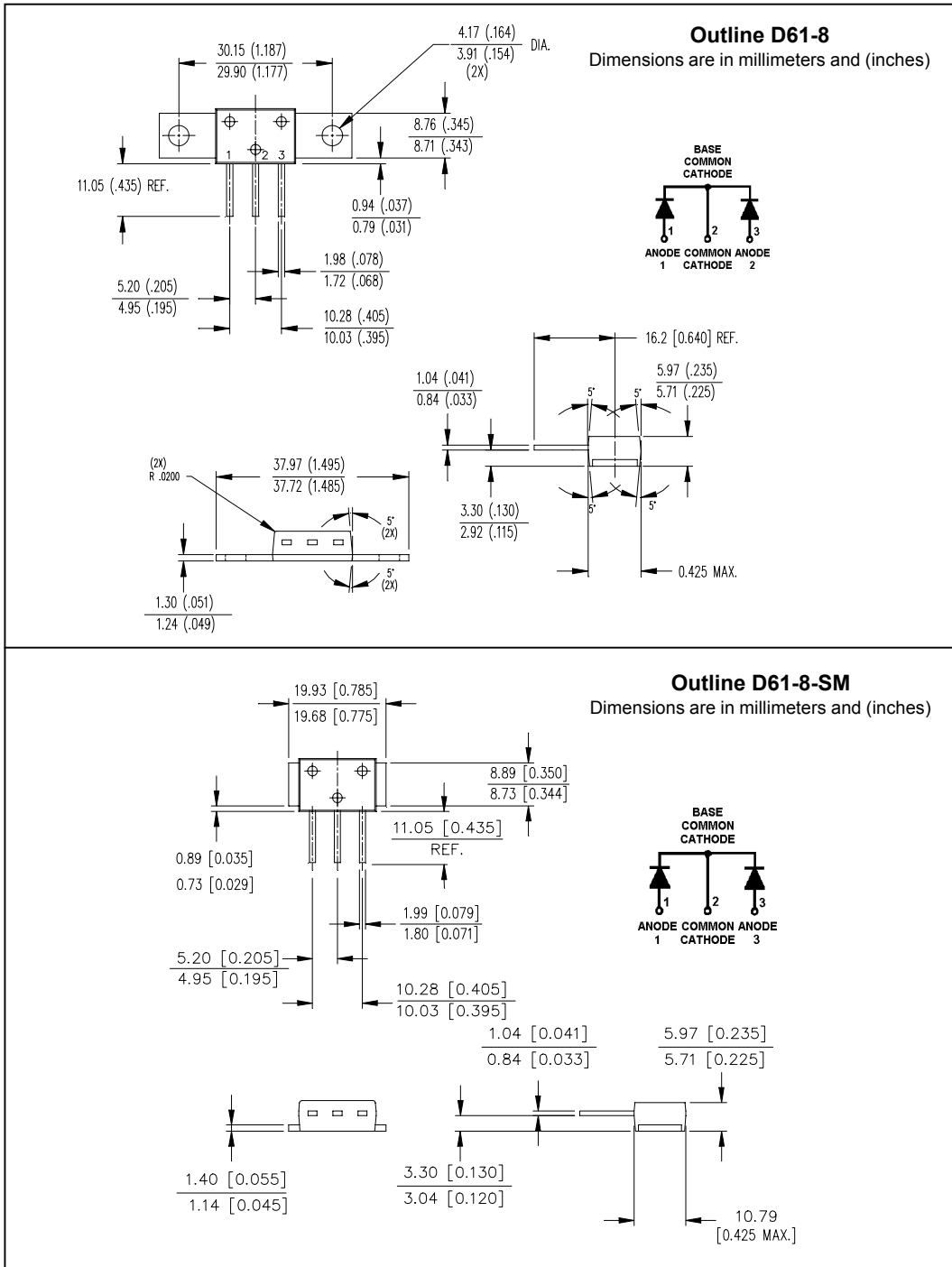


Fig. 8- Unclamped Inductive Test Circuit

Outline Table



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