



## Voltage Ratings

| Part number                                     | 80SQ030 | 80SQ035 | 80SQ040 | 80SQ045 |
|-------------------------------------------------|---------|---------|---------|---------|
| $V_R$ Max. DC Reverse Voltage (V)               | 30      | 35      | 40      | 45      |
| $V_{RWM}$ Max. Working Peak Reverse Voltage (V) |         |         |         |         |

## Absolute Maximum Ratings

| Parameters                                                              | 80SQ | Units | Conditions                                                                                                               |
|-------------------------------------------------------------------------|------|-------|--------------------------------------------------------------------------------------------------------------------------|
| $I_{F(AV)}$ Max. Average Forward Current<br>* See Fig. 5                | 8    | A     | 50% duty cycle @ $T_C = 119^\circ\text{C}$ , rectangular wave form                                                       |
| $I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7 | 2400 | A     | 5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse                                                                      |
|                                                                         | 380  |       | 10ms Sine or 6ms Rect. pulse                                                                                             |
| $E_{AS}$ Non-Repetitive Avalanche Energy                                | 10   | mJ    | $T_J = 25^\circ\text{C}$ , $I_{AS} = 1.6\text{Amps}$ , $L = 7.8\text{mH}$                                                |
| $I_{AR}$ Repetitive Avalanche Current                                   | 1.6  | 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                                                | 80SQ  | Units            | Conditions                                                              |
|-----------------------------------------------------------|-------|------------------|-------------------------------------------------------------------------|
| $V_{FM}$ Max. Forward Voltage Drop (1)<br>* See Fig. 1    | 0.53  | V                | @ 8A                                                                    |
|                                                           | 0.60  | V                | @ 16A                                                                   |
|                                                           | 0.44  | V                | @ 8A                                                                    |
|                                                           | 0.55  | V                | @ 16A                                                                   |
| $I_{RM}$ Max. Reverse Leakage Current (1)<br>* See Fig. 2 | 2     | mA               | $T_J = 25^\circ\text{C}$                                                |
|                                                           | 15    | mA               | $T_J = 125^\circ\text{C}$                                               |
| $C_T$ Max. Junction Capacitance                           | 900   | pF               | $V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$ |
| $L_S$ Typical Series Inductance                           | 10.0  | nH               | Measured lead to lead 5mm from body                                     |
| $dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )        | 10000 | V/ $\mu\text{s}$ |                                                                         |

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

## Thermal-Mechanical Specifications

| Parameters                                             | 80SQ       | Units              | Conditions                                        |
|--------------------------------------------------------|------------|--------------------|---------------------------------------------------|
| $T_J$ Max. Junction Temperature Range                  | -55 to 175 | $^\circ\text{C}$   |                                                   |
| $T_{stg}$ Max. Storage Temperature Range               | -55 to 175 | $^\circ\text{C}$   |                                                   |
| $R_{thJL}$ Max. Thermal Resistance Junction to Lead    | 8.0        | $^\circ\text{C/W}$ | DC operation * See Fig. 4<br>1/8 inch lead length |
| $R_{thJA}$ Typical Thermal Resistance, Junction to Air | 44         | $^\circ\text{C/W}$ |                                                   |
| wt Approximate Weight                                  | 1.4(0.049) | g(oz.)             |                                                   |
| Case Style                                             | DO - 204AR | JEDEC              |                                                   |

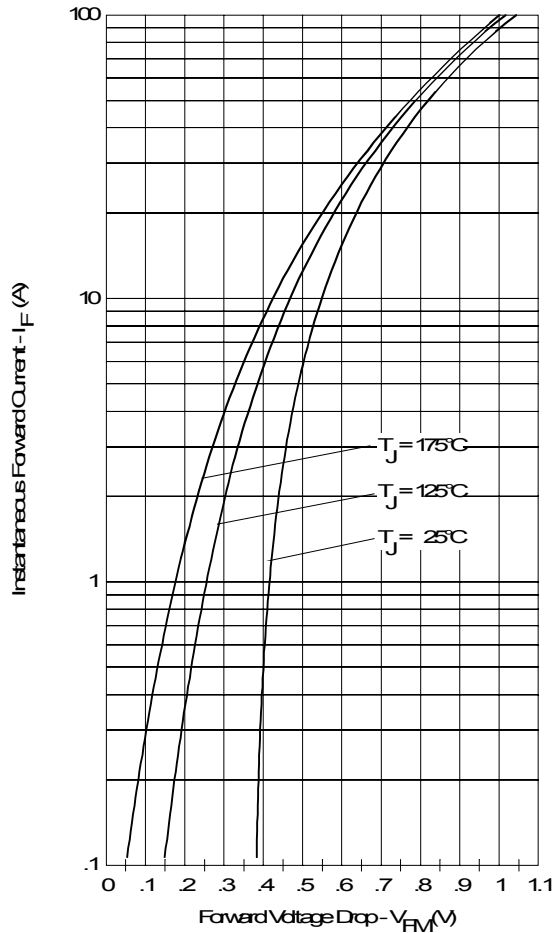


Fig. 1 - Maximum Forward Voltage Drop Characteristics

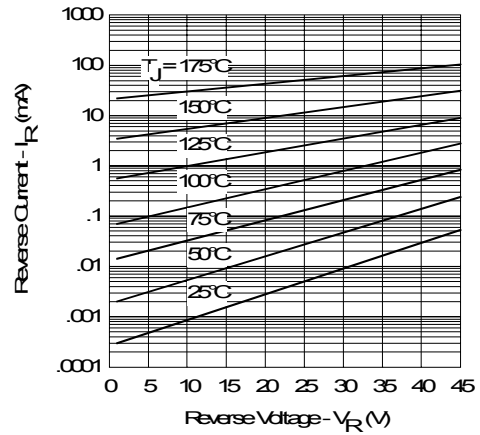


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

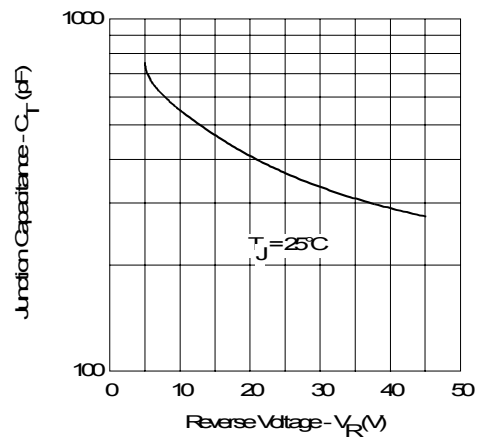


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

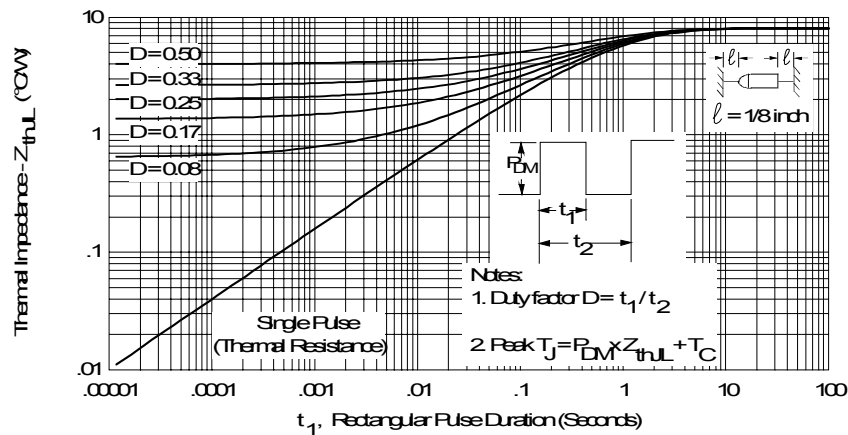


Fig. 4 - Maximum Thermal Impedance  $Z_{thL}$  Characteristics

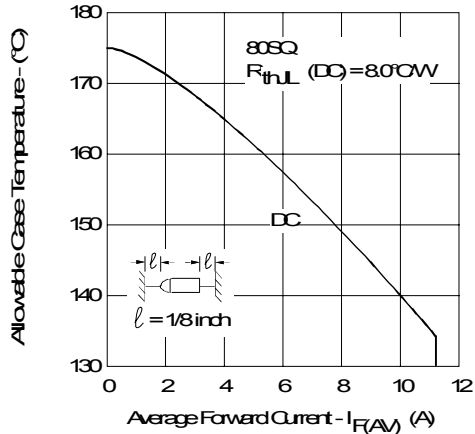


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

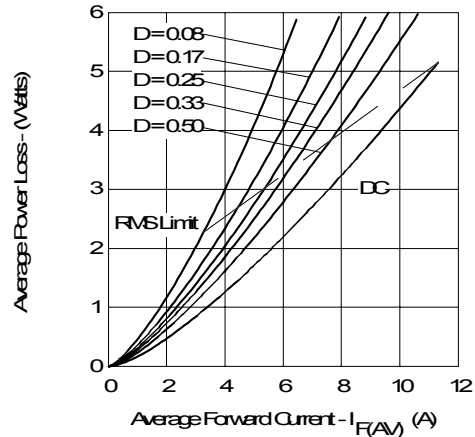


Fig. 6 - Forward Power Loss Characteristics

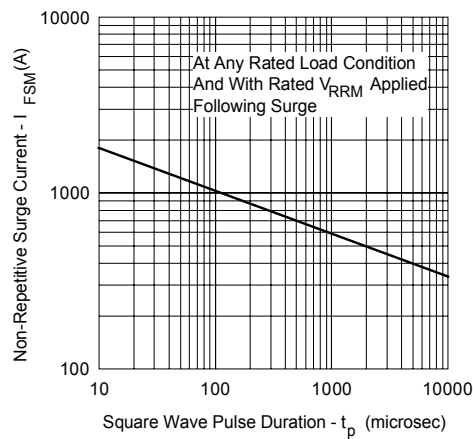


Fig. 7 - Maximum Non-Repetitive Surge Current

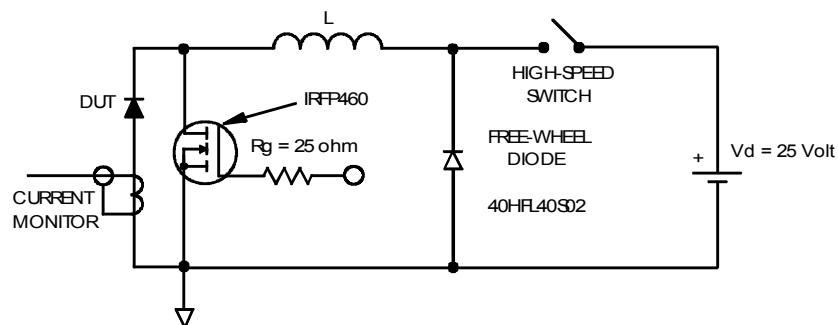


Fig. 8 - Unclamped Inductive Test Circuit

## Ordering Information Table

## Device Code

|    |   |   |     |    |
|----|---|---|-----|----|
| 80 | S | Q | 045 | TR |
| ①  | ② | ③ | ④   | ⑤  |

- 1** - 80 = current x 10
- 2** - S = DO-204AR
- 3** - Q = Schottky Q Series
- 4** - Voltage Rating
- 5** - TR = Tape & Reel package (1500 pcs)  
 - = Box package (200 pcs)

|           |
|-----------|
| 030 = 30V |
| 035 = 35V |
| 040 = 40V |
| 045 = 45V |

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.