

## QC3Q

**Reverse Voltage** 45V

**Forward Current** 50Amp

### Features

- Metal of silicon rectifier, majority carrier conduction
- Guardring for overvoltage protection
- Low power loss, high efficiency
- High surge current capability
- High temperature reverse characteristic is excellent
- Trench Schottky Technology

### Mechanical Data

Case: QC3Q, Molded plastic body

Molding compound meets UL 94V-0 flammability rating

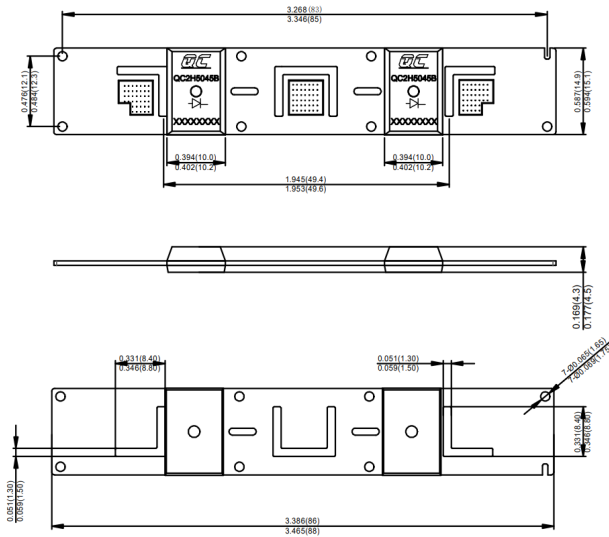
Terminal: Matte tin plated leads, solderable per JESD22-B102

Polarity: As marked on body

Weight: 10.9grams (approximately)

### Typical Applications

- Photovoltaic solar cell protection
- Switching power supplies, converters, freewheeling diodes, and reverse battery protection



Dimensions in inch(mm)

### Maximum Ratings and Thermal Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)(Note1)

| Symbol          | Parameter&Test Conditions                                                         | Value       | Units |
|-----------------|-----------------------------------------------------------------------------------|-------------|-------|
| $V_{RRM}$       | Maximum Repetitive Peak Reverse Voltage                                           | 45          | V     |
| $V_{RMS}$       | Maximum RMS Voltage                                                               | 31.5        | V     |
| $V_{DC}$        | Maximum DC Blocking Voltage                                                       | 45          | V     |
| $I_F(AV)$       | Maximum Average Forward Rectified Current @25°C                                   | 50          | A     |
| $I_{FSM}$       | Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rated Load | 400         | A     |
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction To Case                                      | 1.0         | °C /W |
| $T_j$           | Operating Junction Temperature(Note2)                                             | -55 to +200 | °C    |
| $T_{STG}$       | Storage Temperature                                                               | -55 to +150 | °C    |

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol   | Test Conditions                                                                                              | Value | Units |
|----------|--------------------------------------------------------------------------------------------------------------|-------|-------|
| $V_{FM}$ | Maximum Instantaneous Forward Voltage(Note3)<br>$I_F=50A, T_j=25^\circ\text{C}$                              | 0.55  | V     |
| $I_R$    | Maximum DC reverse current at rated DC blocking voltage<br>$T_A = 25^\circ\text{C}, T_A = 100^\circ\text{C}$ | 0.1   | mA    |
|          |                                                                                                              | 20    | mA    |

Note 1: Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Note 2: Junction Temperature In DC forward current without reverse bias,  $t \leq 1$  h (Fig.1). Meets the Requirements of IEC 61215 Ed. 2 bypass diode thermal test.

Note 3: Pulse test with  $PW=300\mu\text{s}$ , 2% duty cycle.

## Typical Performance Characteristics

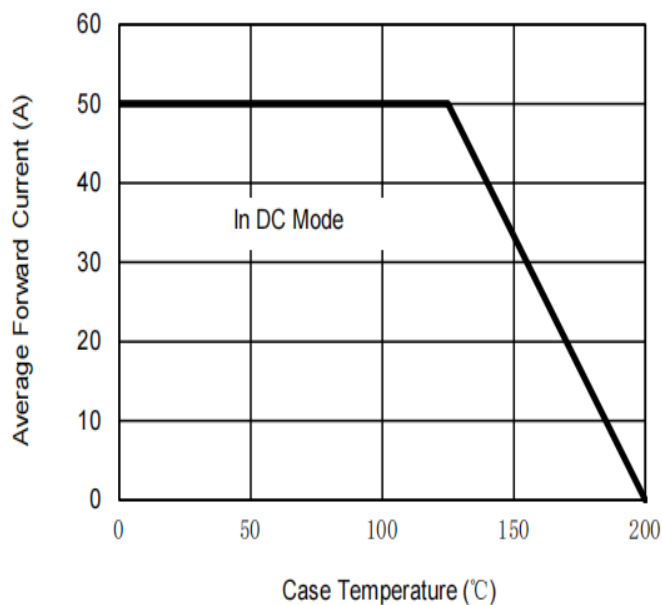


FIG. 1-FORWARD CURRENT DERATING CURVE

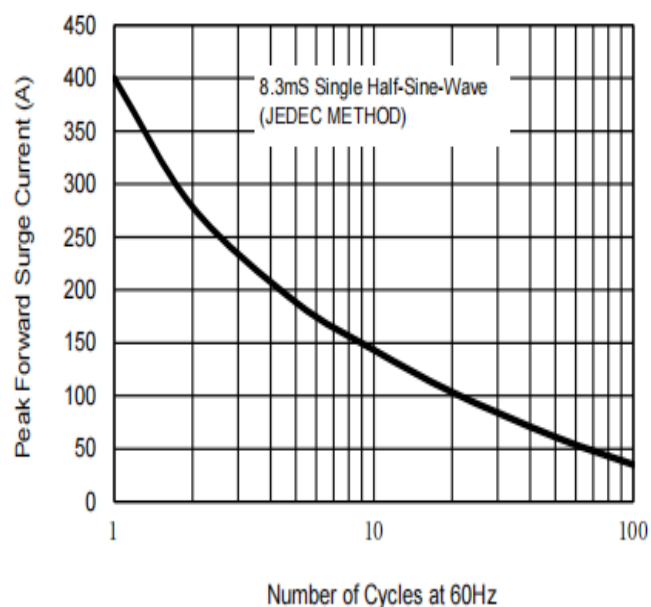


FIG. 2- MAXIMUM NON-REPETITIVE SURGE

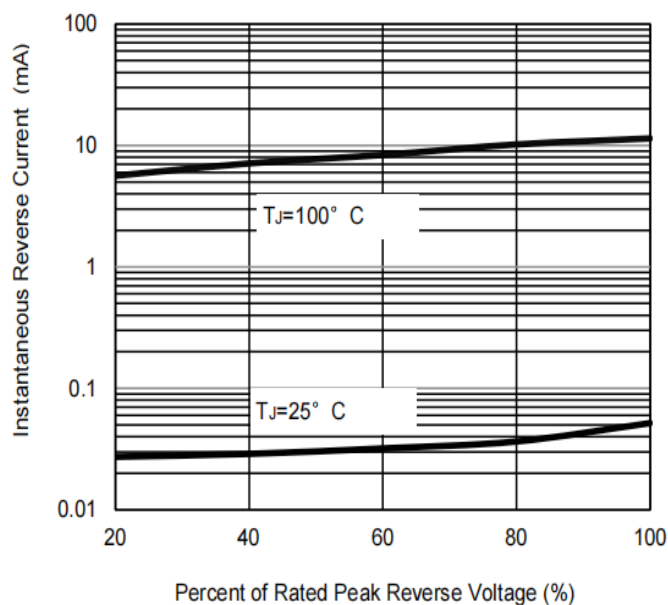


FIG. 3-TYPICAL REVERSE CHARACTERISTICS

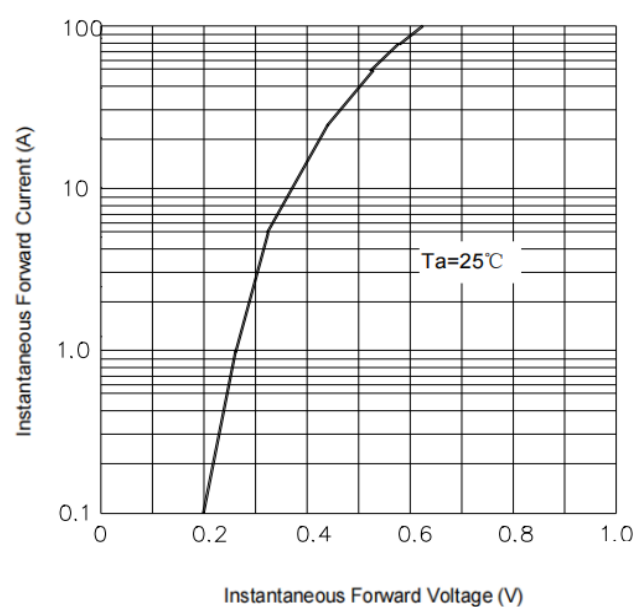


FIG. 4-TYPICAL FORWARD CHARACTERISTICS

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