

QC3Q

Reverse Voltage 45V

Forward Current 40Amp

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

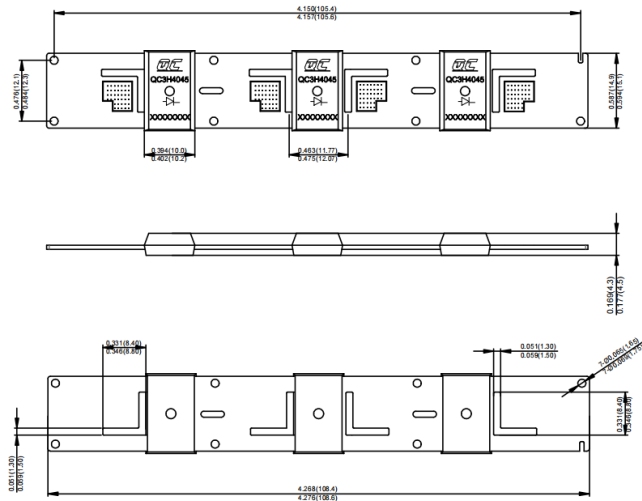
Case: QC3Q, Molded plastic body

Molding compound meets UL 94V-0 flammability rating

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

Polarity: As marked on body

Weight: 14.2grams (approximately)



Dimensions in inch(mm)

Typical Applications

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

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	40	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	$^\circ\text{C} / \text{W}$
T_j	Operating Junction Temperature(Note2)	-55 to +200	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$

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

Symbol	Test Conditions	Value	Units
V_{FM}	Maximum Instantaneous Forward Voltage(Note3) $I_F=40A, T_j=25^\circ\text{C}$	0.55	V
I_R	Maximum DC reverse current at rated DC blocking voltage $T_A = 25^\circ\text{C}, T_A = 100^\circ\text{C}$	0.1	mA
		15	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

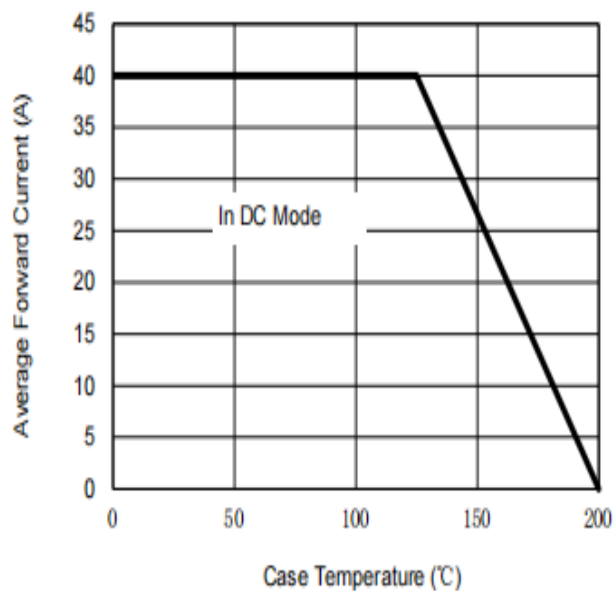


FIG. 1-FORWARD CURRENT DERATING CURVE

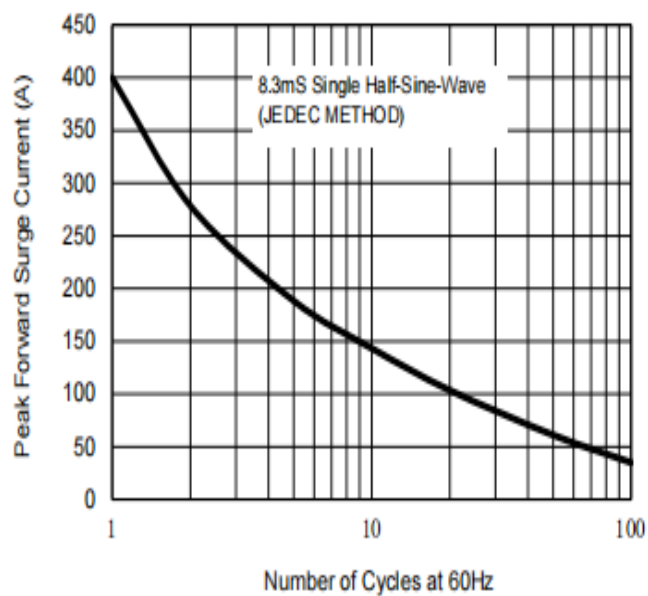


FIG. 2- MAXIMUM NON-REPETITIVE SURGE

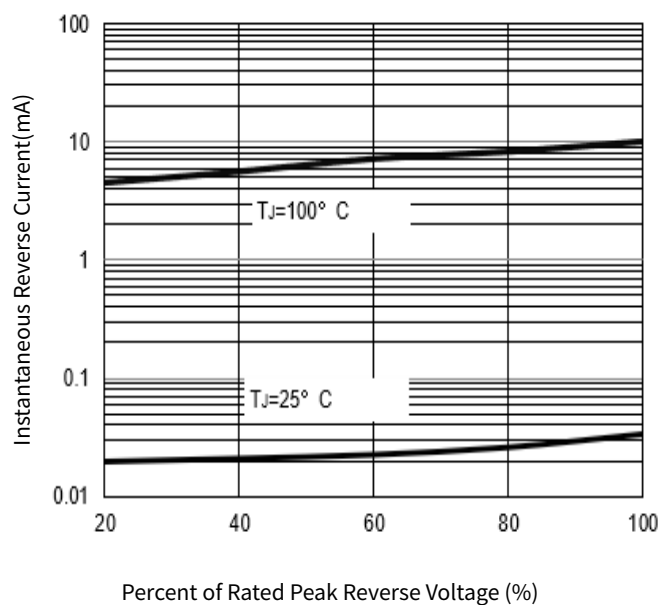


FIG. 3-TYPICAL REVERSE CHARACTERISTICS

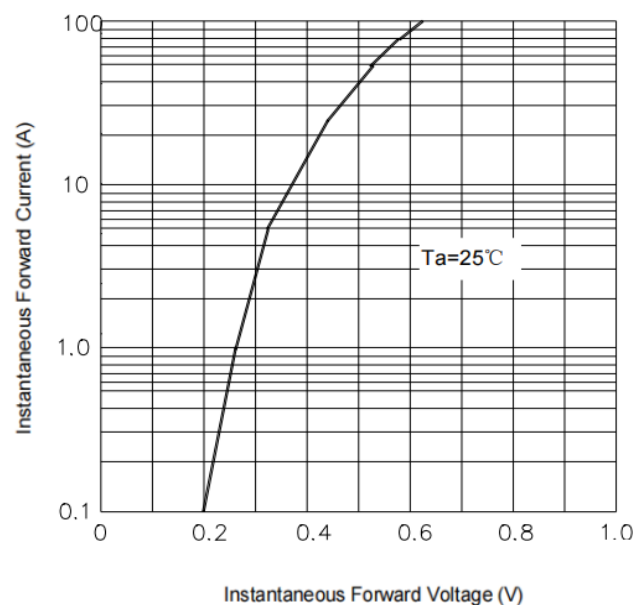


FIG. 4-TYPICAL FORWARD CHARACTERISTICS

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