

SEMICONDUCTOR CIRCUITS, INC.

SUBSIDIARY OF ASTEC AMERICA, INC.

QQA SERIES

6 WATT DC/DC POWER CONVERTER

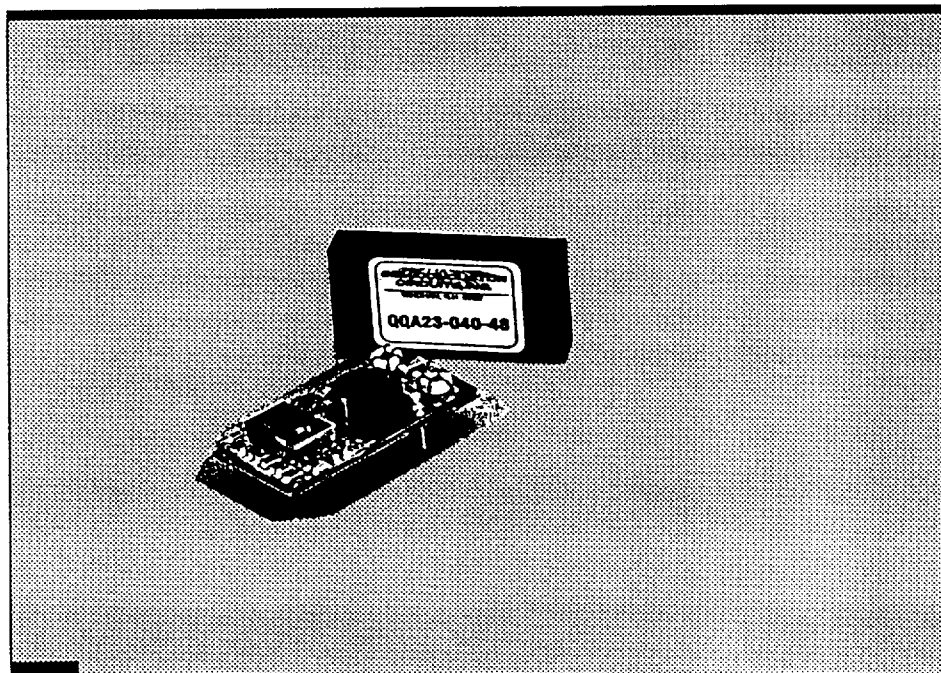
SINGLE & DUAL OUTPUTS

FEATURES

- **4:1 Ultrawide input range**
- **Efficiency 80% (typ.)**
- **Six-sided continuous shielding**
- **Regulated outputs**
- **Surface mount technology**

APPLICATIONS

The QQA Series is ideally suited for applications in telecommunications, distributed power systems, automatic test equipment, geosource test equipment, process control, etc.



THE NEW QQA FAMILY features Surface Mount Technology and the latest in State-of-the-Art MOSFET design. Features include 4:1 ultra-wide input range, efficiencies of 80% typical, continuous short circuit protection with auto restart, under voltage lockout, input/output isolation of 500 Vdc and an operating temperature range of -25°C to +71°C. All models are packaged in a six-sided shielded case measuring 1.0" x 2.0" x 0.4" high.

**SEMICONDUCTOR
CIRCUITS, INC.**

SUBSIDIARY OF ASTEC AMERICA, INC.

ASTEC

ELECTRICAL CHARACTERISTICS

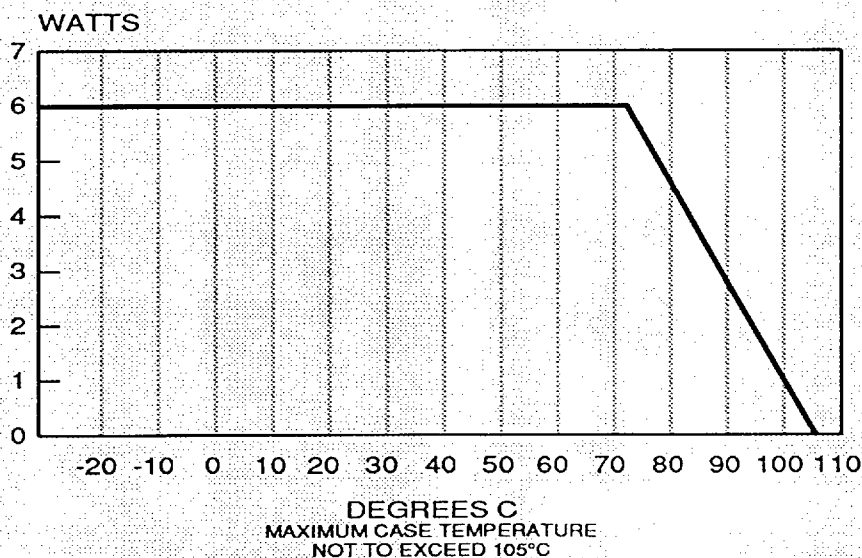
Parameter	Conditions	Limits
Input Voltage		4.5 - 5.5 Vdc 9-36 Vdc 20 - 72 Vdc
Input Filter		Low ESR Capacitor
Reflected Ripple Current		<100 mA P - P
Input Current	Nominal Line - Full Load -25% Load	See Output Data/Ordering Information
Setting Accuracy	Single & Dual Outputs	±2.0% Maximum
Line Regulation	Low Line to High Line, Full Load	±1.0%
Load Regulation	25% Load to Full Load	5% (5Vdc) 3% (9, 12, 15, ±12, ±15Vdc)
Efficiency		80% Typical
Temperature Coefficient		0.02%/°C Maximum
Voltage Stability	24 Hours	±0.05% Maximum
Transient Response	75 % Load Step	150 mV Peak Transient settling within 1% within 1 ms
Output PARD		50 mV P-P Max. (See Note 1)
Overshoot/Undershoot		None
Overvoltage Protection Threshold	5 V Output 12 V Output 15 V Output	6.2V ± 5% 15V ± 5% 18V ± 5%
Short Circuit Protection	Auto Recovery	Power Foldback
Total Output Power	71°C Ambient Temperature	6 Watts Maximum
Isolation Voltage	Input to Output	500 Vdc
Isolation Resistance		10 Megohms Minimum
Switching Frequency		200 KHz ±10%
Temperature	Operating (Standard Model) Case Temperature Non-Operating	- 25°C to +71°C (Linearly derate to ØW out at 100°C) +105°C Maximum - 40°C to +105°C
Cooling		Free Air Convection
Relative Humidity	Non-Condensing	5% to 95%
Vibration	Three Orthogonal Axes. Random Vibration 10 Minute Test for Each Axis	2.4G RMS (approximately) 5 Hz to 500 Hz
MTBF	Per MIL-217-E	
Size		1.0" x 2.0" x 0.4" ±0.03%
Weight		1.0 oz.
Case Material	Case Tied to Input Pin #2 - 5V and 9-36 Vdc input, Pin #1 - 36-72 Vdc input	Six-Sided Shielded, Black Anodized Aluminum
Flammability Rating		Meets UL 94V-0
NOTES: (1) Measured with 3.3 MF 25V tantalum capacitor across each output. (2) All specifications are typical at nominal line and full load at 25°C unless otherwise noted.		

OUTPUT DATA/ORDERING INFORMATION

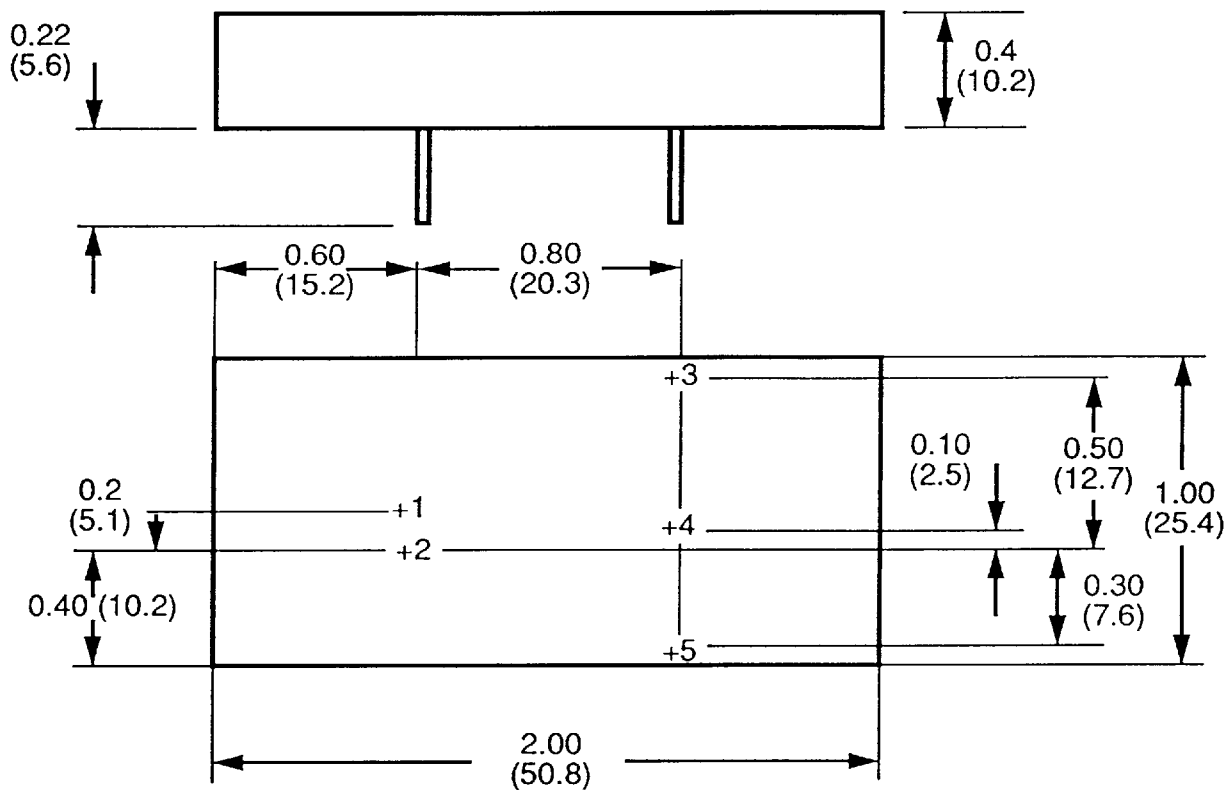
Model Number	Input Voltage Range	Output Voltage	Output Current	Input Current		Power Out
				Min. Load	Full Load	
QQA11-100-05	4.5 - 5.5 Vdc	5 Vdc	1000 mA	350 mA	1400 mA	5 Watts
QQA19-060-05	4.5 - 5.5 Vdc	9 Vdc	600 mA	375 mA	1500 mA	5.4Watts
QQA12-050-05	4.5 - 5.5 Vdc	12 Vdc	500 mA	400 mA	1600 mA	6 Watts
QQA13-040-05	4.5 - 5.5 Vdc	15 Vdc	400 mA	400 mA	1600 mA	6 Watts
QQA11-100-18	9 - 36 Vdc	5 Vdc	1000 mA	91 mA	365 mA	5 Watts
QQA12-050-18	9 - 36 Vdc	12 Vdc	500 Vdc	112 mA	450 mA	6 Watts
QQA13-040-18	9 - 36 Vdc	15 Vdc	400 Vdc	112 mA	450 mA	6 Watts
QQA11-100-48	20 - 72 Vdc	5 Vdc	1000 mA	37 mA	150 mA	5 Watts
QQA12-050-48	20 - 72 Vdc	12 Vdc	500 Vdc	44 mA	175 mA	6 Watts
QQA13-040-48	20 - 72 Vdc	15 Vdc	400 Vdc	44 mA	175 mA	6 Watts
QQA22-050-05	4.5 - 5.5 Vdc	±12 Vdc	±250 mA	400 mA	1600 mA	6 Watts
QQA23-040-05	4.5 - 5.5 Vdc	±15 Vdc	±200 mA	400 mA	1600 mA	6 Watts
QQA22-050-18	9 - 36 Vdc	±12 Vdc	±250 mA	112 mA	450 mA	6 Watts
QQA23-040-18	9 - 36 Vdc	±15 Vdc	±200 mA	112 mA	450 mA	6 Watts
QQA22-050-48	20 - 72 Vdc	±12 Vdc	±250 mA	44 mA	175 mA	6 Watts
QQA23-040-48	20 - 72 Vdc	±15 Vdc	±200 mA	44 mA	175 mA	6 Watts

OPERATING LIMITS AND OUTPUT POWER RANGE

-25°C TO +71°C (no derating)



DIMENSIONS AND CONNECTIONS



Note:

1. All dimensions are in inches and (mm).

PIN CONNECTIONS

Single Output

- PIN 1. +Vdc In
- 2. -Vdc In
- 3. +Vdc Out
- 4. No Pin
- 5. -Vdc Out

Dual Output

- PIN 1. + Vdc In
- 2. -Vdc In
- 3. +Vdc Out
- 4. Common Out
- 5. -Vdc Out

Specifications subject to change without notice.

**SEMICONDUCTOR
CIRCUITS, INC.**
SUBSIDIARY OF ASTEC AMERICA, INC.

49 Range Road Windham, NH 03087
TEL: (603) 893-2330
FAX: (603) 893-6280

ASTEC