

SEMICONDUCTOR CIRCUITS, INC.

SUBSIDIARY OF ASTEC AMERICA, INC.

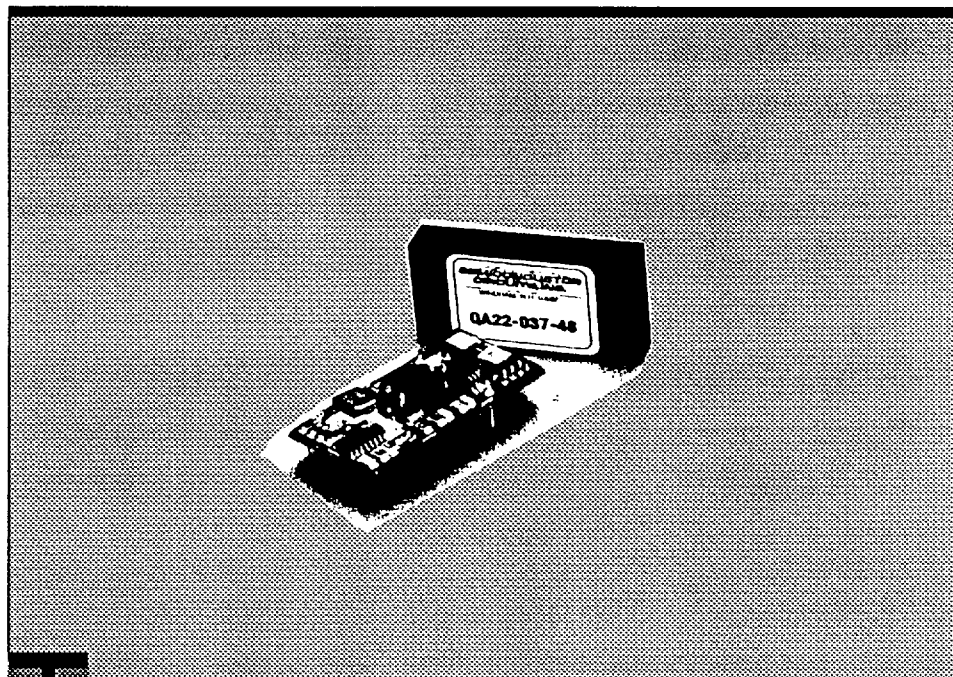
QA SERIES 4.5 WATT DC/DC POWER CONVERTER SINGLE AND DUAL OUTPUTS

FEATURES

- 4:1 ultra-wide input range
- Efficiency to 80%
- Six-sided continuous shielding
- Regulated outputs
- Surface mount technology

APPLICATIONS

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



THE QA SERIES features SMT technology and the latest in state-of-the-art MOSFET design. Utilizing both technologies has enabled our design engineers to reduce the unit surface area by 50% over competitive products with similar power levels. Features include 4:1 ultra-wide input range, efficiencies to 80%, continuous short circuit protection with auto restart, input/output isolation of 500 Vdc, and an operating temperature range of -25°C to +71°C. In addition, the QA Series provides output voltage tracking to protect power sensitive devices requiring both plus and minus voltage. All models are packaged in a continuous six-sided shielded case measuring 1.0" x 2.0" x 0.4" high.

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ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Limits
Input Voltage		4.5–5.25 Vdc 9–36 Vdc 20–72 Vdc
Input Filter		Low ESR Capacitor
Reflected Ripple Current		
Input Current		
Setting Accuracy	Single & Dual Outputs	± 1.5 % Maximum
Line Regulation	Low Line to High Line, Full Load	± 0.25%
Load Regulation	Full Load to No Load	± 0.5%
Efficiency	Nominal Line — Full Load 5V Nominal Line — Full Load ±12V, ±15V Nominal Line — Full Load 12V & 15V	75% Typical
Temperature Coefficient	-25°C to +71°C	± 0.02%/°C Maximum
Voltage Stability		
Transient Response	25% Load Step	
Output PARD	20 MHz Bandwidth	50 mV P-P Max (See Note)
Overshoot/Undershoot		None
Short Circuit Protection	Auto Recovery, Indefinite Duration	Current Limit
Overvoltage Protection Threshold	5 Vdc Output 12 Vdc Output 15 Vdc Output	6.2 Vdc ± 5% 15 Vdc ± 5% 18 Vdc ± 5%
Total Output Power	+71° C Ambient Temperature	4.5 Watts Maximum
Isolation Voltage	Input to Output	500 Vdc
Isolation Resistance		10 Megohms Minimum
Switching Frequency	5 Vin Models Wide Vin Models	170 KHz ± 5% 250 KHz ± 5%
Temperature	Operating (standard model) Case Temperature Non-Operating	- 25°C to +71°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	2.4 G RMS (approximately) 5 Hz to 500 Hz
MTBF	Per MIL-217-E	420,000 Hours Minimum
Size		1.0" x 2.0" x 0.4" ±0.03%
Weight		1.0 oz.
Case Material	Case Tied to Output Common Pin 5 Singles Pin 4 Duals	Six-Sided Shielded, Black Anodized Aluminum with Non-Conductive Base
Flammability Rating		Meets UL 94V-0

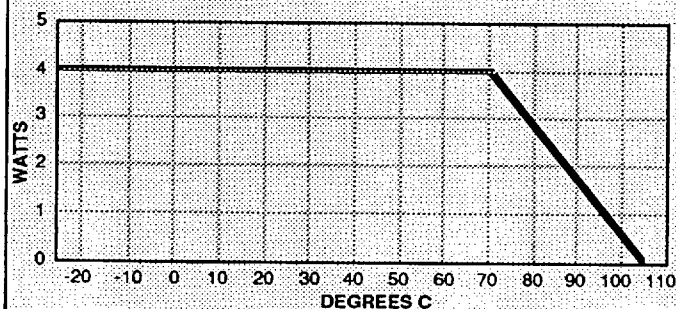
NOTE: Measured with 3.3 MF 25V tantalum capacitor across each output.

OUTPUT DATA/ORDERING INFORMATION

Model Number	Input Voltage Range	Output Voltage	Output Current	Ripple, P-P Max	Power Out
QA11-075-5	4.5–5.25 Vdc	5 Vdc	750 mA	75 mV	3.75 Watts
QA12-037-5	4.5–5.25 Vdc	12 Vdc	375 mA	75 mV	4.5 Watts
QA13-030-5	4.5–5.25 Vdc	15 Vdc	300 mA	75 mV	4.5 Watts
QA11-075-18	9–36 Vdc	5 Vdc	750 mA	75 mV	3.75 Watts
QA12-037-18	9–36 Vdc	12 Vdc	375 mA	75 mV	4.5 Watts
QA13-030-18	9–36 Vdc	15 Vdc	300 mA	75 mV	4.5 Watts
QA11-075-48	20–72 Vdc	5 Vdc	750 mA	75 mV	3.75 Watts
QA12-037-48	20–72 Vdc	12 Vdc	375 mA	75 mV	4.5 Watts
QA13-030-48	20–72 Vdc	15 Vdc	300 mA	75 mV	4.5 Watts
QA22-037-5	4.5–5.25 Vdc	±12 Vdc	±185 mA	75 mV	4.44 Watts
QA23-030-5	4.5–5.25 Vdc	±15 Vdc	±150 mA	75 mV	4.5 Watts
QA22-037-18	9–36 Vdc	±12 Vdc	±185 mA	75 mV	4.44 Watts
QA23-030-18	9–36 Vdc	±15 Vdc	±150 mA	75 mV	4.5 Watts
QA22-037-48	20–72 Vdc	±12 Vdc	±185 mA	75 mV	4.44 Watts
QA23-030-48	20–72 Vdc	±15 Vdc	±150 mA	75 mV	4.5 Watts

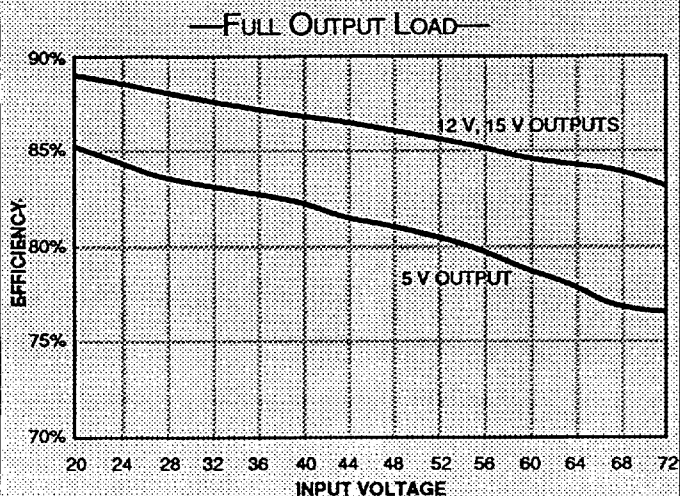
OPERATING LIMITS AND OUTPUT POWER RANGE

—NATURAL CONVECTION COOLING—

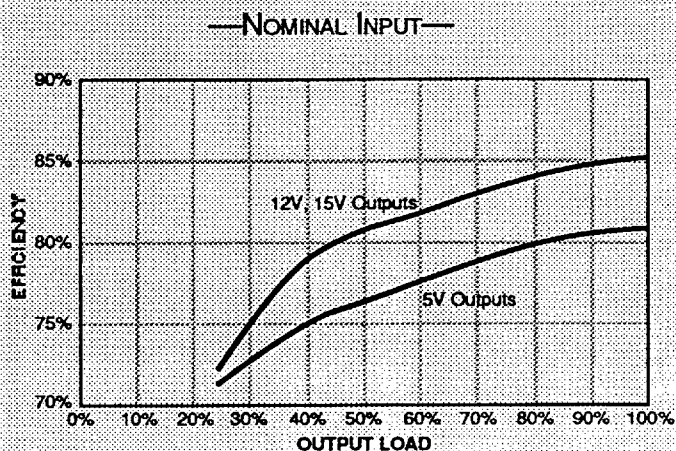


Maximum Case Temperature Under Any Condition is 105°C

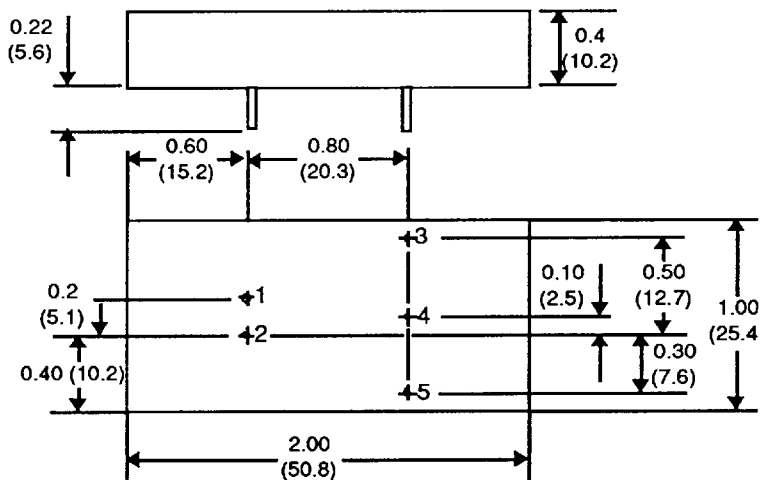
EFFICIENCY VS INPUT VOLTAGE



EFFICIENCY VS OUTPUT LOAD



CASE DIMENSIONS



Note: Dimensions are given in both inches and (mm)

PIN CONNECTIONS

Single Output	Dual Output
PIN 1. + Vdc In	1. + Vdc In
2. - Vdc In	2. - Vdc In
3. + Vdc Out	3. + Vdc Out
4. (no pin)	4. Output Common
5. - Vdc Out	5. - Vdc Out

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