

T-57-11

• **2.25 WATT • 24 PIN**
 • **AUTO-INSERTABLE**

ELECTRICAL SPECIFICATIONS

All Specifications Typical @ +25°C, Nominal Line, and Full Load Unless Otherwise Noted.

INPUT SPECIFICATIONS

Input Voltage Range $\pm 5\%$, $\pm 10\%$ is Available
 Input Filter π (Pi) Filter

GENERAL SPECIFICATIONS

Efficiency Unregulated: 70-93%, Regulated: 55-72%
 Isolation Voltage > 500 VDC
 Isolation Resistance > 10^9 Ohms
 Switching Frequency 20 KHz, typ.

OUTPUT SPECIFICATIONS:

Voltage Accuracy $\pm 3\%$ max.
 Temperature Coefficient $\pm 0.02\%/^{\circ}\text{C}$ max.
 Voltage Stability (24hr) $\pm 0.05\%$ max.
 Line Regulation: Unregulated $\pm 5-10\%$ max, Regulated: $\pm 0.02\%$ max.
 Load Regulation: Unregulated $\pm 5\%$ max, Regulated: $\pm 1\%$ max.
 Ripple and Noise (20MHz BW) 50mv P-P
 Short Circuit Protection Unregulated: Auto Recovery, Regulated: 10 min

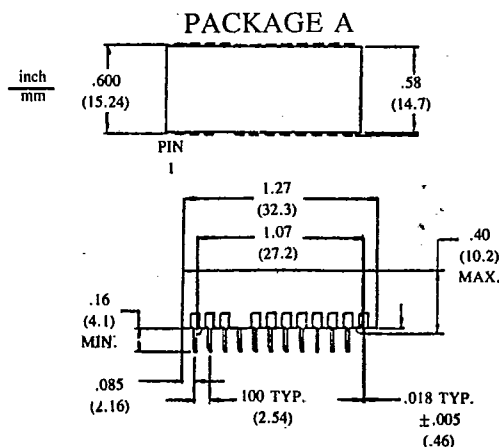
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Range -25°C to $+71^{\circ}\text{C}$
 Surface Temp. Rise Above Ambient $10^{\circ}\text{C}/\text{Watt Diss.}$
 Derating None
 Storage Temperature Range -40°C to $+125^{\circ}\text{C}$
 Humidity 20% to 95% R.H. (non-condensing)
 Cooling Free-Air Convection

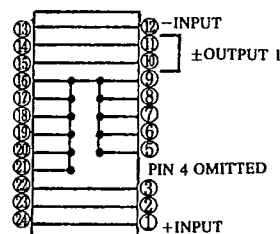
PHYSICAL SPECIFICATIONS (CASE A)

Dimensions $1.27" \times 0.62" \times 0.40"$ ($32.3 \times 15.7 \times 10.2$ mm)
 Weight 0.5 oz (14.2 grams)
 Case Material Non-Conductive Black Plastic

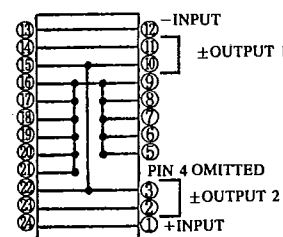
MECHANICAL DIMENSIONS & PIN CONNECTION



SINGLE OUTPUT A



DUAL OUTPUT A



PIN CONNECTIONS

PIN	SINGLE	DUAL
1&24	+INPUT	+INPUT
2&23	NC	-OUTPUT
3&22	NC	COMMON
10&15	-OUTPUT	COMMON
11&14	+OUTPUT	+OUTPUT
12&-3	-INPUT	-INPUT

T-57-11

- 2.25 WATT • 24 PIN • REGULATED
- AUTO-INSERTABLE

INPUT VOLTAGE (V _{DC})	OUTPUT VOLTAGE (V _{DC})	OUTPUT CURRENT (mA)	INPUT CURRENT (mA)		MODEL NO.
			NO LOAD	FULL LOAD	
5	5	360	55	660	RA11S360R
5	9	250	40	700	RA12S250R
5	12	150	40	560	RA13S150R
5	15	120	70	560	RA14S120R
5	±5	±180	50	400	RA11D180R
5	±9	±125	40	650	RA12D125R
5	±12	±75	60	560	RA13D075R
5	±15	±60	55	560	RA14D060R
12	5	360	25	250	RA31S360R
12	9	250	40	270	RA32S250R
12	12	150	25	220	RA33S150R
12	15	120	25	240	RA34S120R
12	±5	±180	25	250	RA31D180R
12	±12	±75	25	220	RA33D075R
12	±15	±60	25	240	RA34D060R
24	5	360	20	140	RA51S360R
24	9	200	20	120	RA52S200R
24	12	150	20	120	RA53S150R
24	15	120	20	110	RA54S120R
24	±5	±180	20	140	RA51D180R
24	±12	±75	20	120	RA53D075R
24	±15	±60	20	120	RA54D060R
48	5	360	20	50	RA71S360R
48	9	200	20	50	RA72S200R
48	12	150	20	50	RA73S150R
48	15	120	20	50	RA74S120R
48	±5	±180	20	50	RA71D180R
48	±12	±75	20	50	RA73D075R
48	±15	±60	20	50	RA74D060R

NOTES

APPLICATION

FCI's DC/DC converters serve the dual function of isolating the DC input from the external loading effects, and of providing DC output levels different from the primary DC input.

The applications for the FCI DC/DC converters are many gas-discharge displays, florescent displays, portable computers, modems, computer add-on boards of various types ... and most especially, LAN networks.

DESIGN

The FCI DC/DC converters employ the most advance design techniques available in the field ... and produce the most desirable features, such as minimal output ripple and noise, extremely tight regulation over the range of output currents and temperature swings, and rock hard stability over time.

QUALITY CONTROL AND RELIABILITY

The FCI converters are made from materials which are carefully inspected when received (IQC), meticulously monitored when being processed (IPQC) and assiduously checked before shipping (OQC), all to the tightest AQL levels in the industry. Additionally, every FCI DC/DC converter is burned-in before final testing to eliminate any possible early-life problems with the components included in the device.

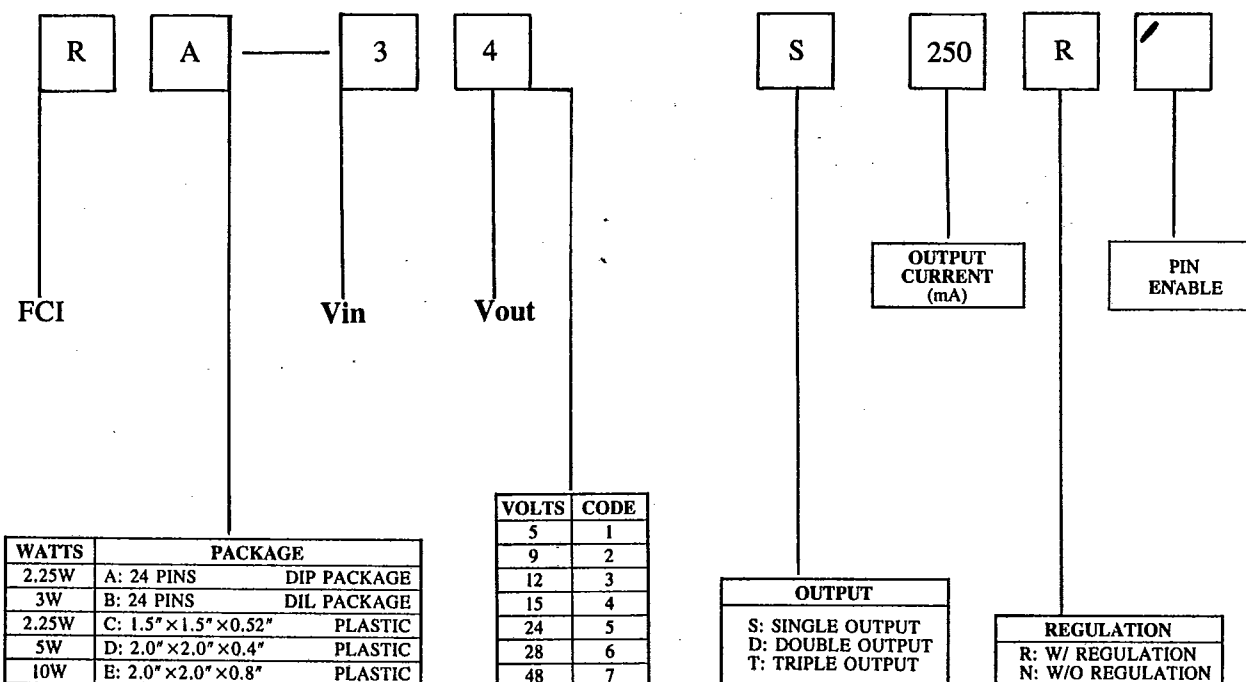
DC-DC CONVERTERS**RA SERIES**

T-57-11

- **2.25 WATT • 24 PIN • UN-REGULATED**
- **AUTO-INSERTABLE**

INPUT VOLTAGE (Vdc)	OUTPUT VOLTAGE (Vdc)	OUTPUT CURRENT (mA)	INPUT CURRENT (mA)		MODEL NO.
			NO LOAD	FULL LOAD	
5	5	360	30	462	RA11S360N
5	9	250	30	490	RA12S250N
5	12	150	30	412	RA13S150N
5	15	120	30	412	RA14S120N
5	±5	±180	30	400	RA11D180N
5	±9	±125	30	455	RA12D125N
5	±12	±75	30	412	RA13D075N
5	±15	±60	30	412	RA14D060N
12	5	360	30	225	RA31S360N
12	9	250	30	243	RA32S250N
12	12	150	30	186	RA33S150N
12	15	120	30	186	RA34S120N
12	±5	±180	30	225	RA31D180N
12	±12	±75	30	186	RA33D075N
12	±15	±60	30	186	RA34D060N
24	5	360	20	126	RA51S360N
24	9	200	20	108	RA52S200N
24	12	150	20	108	RA53S150N
24	15	120	20	100	RA54S120N
24	±5	±180	20	126	RA51D180N
24	±12	±75	20	108	RA53D075N
24	±15	±60	20	108	RA54D060N
48	5	360	20	45	RA71S360N
48	9	200	20	45	RA72S200N
48	12	150	20	45	RA73S150N
48	15	120	20	45	RA74S120N
48	±5	±180	20	45	RA71D180N
48	±12	±75	20	45	RA73D075N
48	±15	±60	20	45	RA74D060N

FCI PART NUMBER SYSTEM DC-DC CONVERTERS



Test Circuit

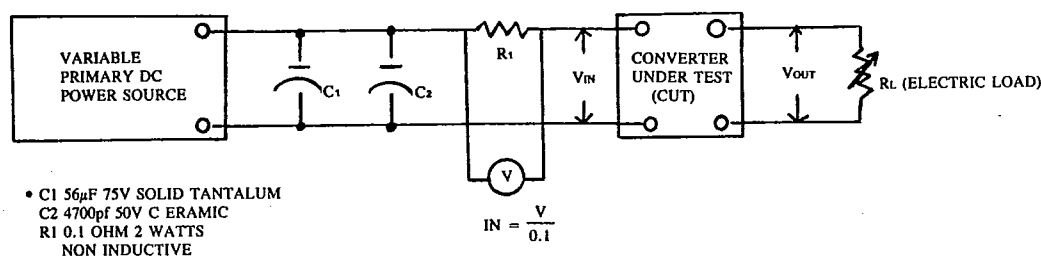


Fig. 1 Input/Output Static Test

- Vin Vout Test By DVM
- Efficiency = $\frac{V_{OUT} \times I_{OUT}}{V_{IN} \times I_{IN}} \times 100\%$
- Load Regulation = $\frac{V_{OUTmax.} - V_{OUTmin}}{V_{OUTmin}} \times 100\%$
(Variation of output current from min to max.)
- Line Regulation = $\frac{V_{OUT max} - V_{OUT min}}{V_{OUT min}} \times 100\%$
(Variation of Input Voltage from min. to max.)
- Short circuit test: Output short directly.

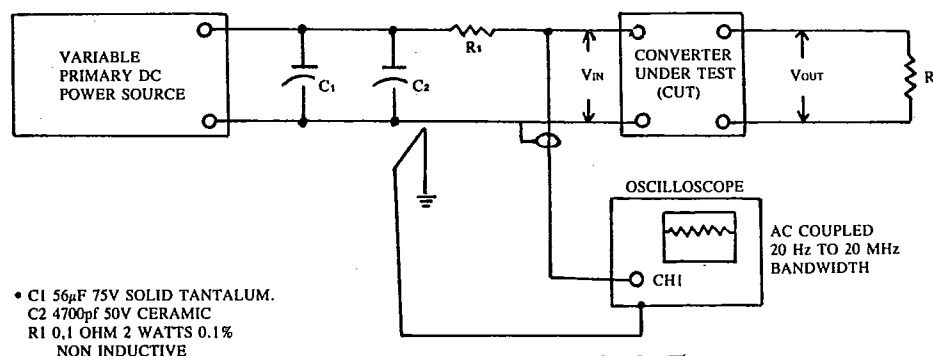


Fig. 2 Input Reflected Ripple Test

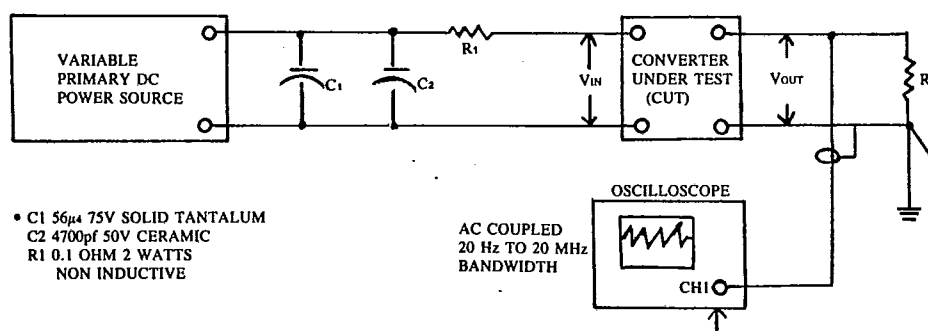


Fig. 3 Output Noise And Ripple Test