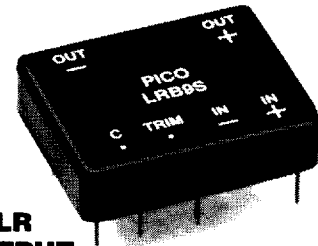


SERIES LR**Isolated Regulated up to 5 Watt
DC-DC Converters****Wide Input Range/up to 3.33:1****Fully Regulated****All Units Shielded**
**New 100 VDC
Output Models**
**SERIES LR
SINGLE OUTPUT****FEATURES:**

- Voltage regulation over input of LOW HI
LRE 5V 15V
LRF 8V 24V
LRA 18V 36V
LRB 36V 60V
LRC 18V 60V
- Encapsulated semiconductors, conservatively rated for maximum reliability.
- Load regulation (see table for typical variation at different loads)
- Line regulation = Typical values
5-15 V DC = $\pm 1.5\%$
8-24 V DC = $\pm 1.5\%$
18-36 V DC = $\pm 1.0\%$
36-60 V DC = $\pm 1.0\%$
18-60 V DC = $\pm 1.5\%$
- High efficiency—up to 80%
- Will operate over a temperature range of -25°C to $+70^{\circ}\text{C}$ with no heat sink or electrical derating
- 6 sided shielding
- Isolation—100 megohms at 500 volts DC
- External output trimming pin standard, + 5%
- Single and dual isolated outputs
- Each unit is supplied with an external control pin. This "C" pin, when connected to the negative (-) input, will disable the unit, allowing for remote shutdown.

OPTIONS AVAILABLE

- Expanded operating temp. (-55°C to $+85^{\circ}\text{C}$)
- Stabilization Bake (125°C ambient)
- Temperature Cycle (-55°C to $+125^{\circ}\text{C}$)
- Hi Temp, full power burn in (100% power, 125°C case temp)

**Low Profile
Less Than 0.5" ht.**
For 0.3" ht. see pages 78/79

PICO PART NUMBER	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE DC	MAX. LOAD CURRENT mA	MAX. OUTPUT POWER (watts)	EFF. @ FULL LOAD TYPICAL (%)	INPUT CURRENT FULL LOAD TYPICAL (mA)	OUT VOLT RIPPLE @ FULL LD. 1-1 MHz BW mv p-p	OUT VOLT TOLERANCE (%)	VLD. REG. 25%-100% LOAD (%)	LINE REGULATION (%)	PRICE 1-24
LRE5S	5-15	5	800	3	78	385	150	0.75	1.50	2.00	117.70
LRE9S	5-15	9	444	4	78	515	125	0.50	1.25	1.50	117.70
LRE12S	5-15	12	333	4	79	505	125	0.50	1.25	1.25	117.70
LRE15S	5-15	15	267	4	79	505	125	0.50	1.25	1.25	117.70
LRE24S	5-15	24	167	4	80	500	125	0.50	1.00	1.25	117.70
LRE28S	5-15	28	143	4	80	500	125	0.50	1.00	1.00	117.70
LRE48S	5-15	48	83	4	80	500	175	0.50	1.00	1.00	117.70
LRE100S	5-15	100	40	4	80	500	200	0.50	1.00	1.00	147.13
LRF5S	8-24	5	1000	5	78	400	150	0.75	1.50	2.00	117.70
LRF9S	8-24	9	556	5	78	400	125	0.50	1.25	1.50	117.70
LRF12S	8-24	12	417	5	79	395	125	0.50	1.25	1.25	117.70
LRF15S	8-24	15	333	5	79	395	125	0.50	1.25	1.25	117.70
LRF24S	8-24	24	208	5	80	390	125	0.50	1.00	1.25	117.70
LRF28S	8-24	28	179	5	80	390	125	0.50	1.00	1.00	117.70
LRF48S	8-24	48	104	5	80	390	175	0.50	1.00	1.00	117.70
LRF100S	8-24	100	50	5	80	390	200	0.50	1.00	1.00	147.13
LRA5S	18-36	5	1000	5	76	245	100	0.75	2.00	0.75	117.70
LRA9S	18-36	9	556	5	76	245	100	0.50	2.00	0.50	117.70
LRA12S	18-36	12	417	5	77	240	100	0.50	2.00	0.50	117.70
LRA15S	18-36	15	333	5	79	235	100	0.50	1.50	0.50	117.70
LRA24S	18-36	24	208	5	80	230	100	0.50	1.50	0.25	117.70
LRA28S	18-36	28	179	5	80	230	100	0.50	1.50	0.25	117.70
LRA48S	18-36	48	104	5	80	230	150	0.50	1.00	0.25	117.70
LRA100S	18-36	100	50	5	80	230	200	0.50	1.00	0.50	147.13
LRB5S	36-60	5	1000	5	74	140	100	0.75	1.25	0.50	139.10
LRB9S	36-60	9	556	5	74	140	100	0.50	1.00	0.25	139.10
LRB12S	36-60	12	417	5	74	140	100	0.50	1.00	0.25	139.10
LRB15S	36-60	15	333	5	76	135	100	0.50	1.00	0.25	139.10
LRB24S	36-60	24	208	5	76	135	100	0.50	0.75	0.25	139.10
LRB28S	36-60	28	179	5	76	135	100	0.50	0.75	0.25	139.10
LRB48S	36-60	48	104	5	76	135	150	0.50	0.75	0.25	139.10
LRB100S	36-60	100	50	5	76	135	200	0.50	1.00	0.50	173.88
LRC5S	18-60	5	1000	5	75	170	100	0.75	2.00	1.25	149.80
LRC9S	18-60	9	556	5	75	170	100	0.50	1.00	0.75	149.80
LRC12S	18-60	12	417	5	75	170	100	0.50	1.00	0.75	149.80
LRC15S	18-60	15	333	5	77	165	100	0.50	1.00	0.75	149.80
LRC24S	18-60	24	208	5	78	165	100	0.50	0.75	0.50	149.80
LRC28S	18-60	28	179	5	78	165	100	0.50	0.75	0.50	149.80
LRC48S	18-60	48	104	5	78	165	150	0.50	0.75	0.50	149.80
LRC100S	18-60	100	50	5	78	165	200	0.50	1.00	0.50	187.50

*Measurements taken with input voltage set at mid value.

Ordering Instructions: No minimum. Net 30 days F.O.B. Mt. Vernon, New York.

‡ 10% minimum load required.

Each unit is supplied with an external control pin. The "C" pin, when connected to the negative (-) input, will disable the unit, allowing for remote shutdown.

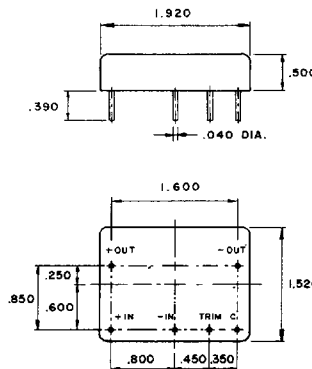
For immediate engineering assistance
or to place an order—

Call Toll Free 800-431-1064

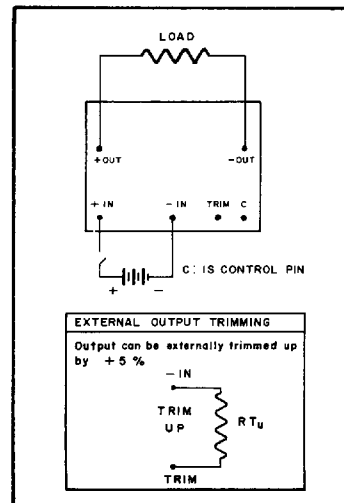
**PICO
Electronics, Inc.**
453 N. MacQuesten Pkwy.
Mt. Vernon, N.Y. 10552

914-699-5514

FAX 914-699-5565

**Delivery—
stock to one week**
Series LR-Single OutputC: IS CONTROL PIN
NOTE: ALL RADII TO BE 7/64"

BOTTOM VIEW

**EXTERNAL OUTPUT TRIMMING**Output can be externally trimmed up
by + 5 %
 -IN
TRIM UP
RTu
TRIM

Typical Weight: 65 Grams

This series of high efficiency, wide input range, encapsulated regulators come in 75 different models. These units feature a 500 VOLT DC input to output isolation in both single and dual output models. The LR Series will operate over a temperature range of -25°C TO +70°C with no heat sink or electrical derating. These units are excellent for applications where input voltage varies dramatically, yet a high efficiency and output voltage regulation must be maintained.

TYPICAL CHARACTERISTICS:

Test conditions: 25°C ambient

Operating temperature: -25°C to +70°C ambient

Output voltage tolerance: $\pm 1\%$ at typical input voltage

Output voltage temperature coefficient: 0.02%/°C

Storage temperature: -55°C to 125°C

Short circuit protection: Temporary

Operating frequency: 40 KHz, typ.

T-57-11

SERIES LR - DUAL OUTPUT

PICO PART NUMBER	INPUT VOLTAGE RANGE	OUTPUT VOLTAGE DC PER OUTPUT	MAX. LOAD CURRENT (mA) PER OUTPUT	MAX. OUTPUT POWER (watts) PER OUTPUT	EFF. @ FULL LOAD TYPICAL (%)*	INPUT CURRENT FULL LOAD TYPICAL (mA)*	OUT VOLT RIPPLE @ FULL L.D. 1-1 MHz BW mv p-p	OUT VOLT TOLERANCE (%)*	V.L.D. REG. 25%-100% LOAD† (%)	LINE REGULATION (%)*	PRICE 1-24
LRE5D	5-15	5	300	1.5	78	385	150	0.75	1.50	2.00	144.45
LRE9D	5-15	9	222	2.0	78	515	125	0.50	1.25	1.50	144.45
LRE12D	5-15	12	167	2.0	79	505	125	0.50	1.25	1.25	144.45
LRE15D	5-15	15	134	2.0	79	505	125	0.50	1.25	1.25	144.45
LRE24D	5-15	24	84	2.0	80	500	125	0.50	1.00	1.25	144.45
LRE28D	5-15	28	72	2.0	80	500	125	0.50	1.00	1.00	144.45
LRE48D	5-15	48	42	2.0	80	500	175	0.50	1.00	1.00	144.45
LRF5D	8-24	5	500	2.5	78	400	150	0.75	1.50	2.00	144.45
LRF9D	8-24	9	278	2.5	78	400	125	0.50	1.25	1.50	144.45
LRF12D	8-24	12	208	2.5	79	395	125	0.50	1.25	1.25	144.45
LRF15D	8-24	15	167	2.5	79	395	125	0.50	1.25	1.25	144.45
LRF24D	8-24	24	104	2.5	80	390	125	0.50	1.00	1.25	144.45
LRF28D	8-24	28	89	2.5	80	390	125	0.50	1.00	1.00	144.45
LRF48D	8-24	48	52	2.5	80	390	175	0.50	1.00	1.00	144.45
LRA5D	18-36	5	500	2.5	76	245	100	0.75	2.00	0.75	144.45
LRA9D	18-36	9	278	2.5	76	245	100	0.50	2.00	0.50	144.45
LRA12D	18-36	12	208	2.5	77	240	100	0.50	2.00	0.50	144.45
LRA15D	18-36	15	167	2.5	79	235	100	0.50	1.50	0.50	144.45
LRA24D	18-36	24	104	2.5	80	230	100	0.50	1.50	0.25	144.45
LRA28D	18-36	28	89	2.5	80	230	100	0.50	1.50	0.25	144.45
LRA48D	18-36	48	52	2.5	80	230	150	0.50	1.0	0.25	144.45
LRB5D	36-60	5	500	2.5	74	140	100	0.75	1.25	0.50	165.85
LRB9D	36-60	9	278	2.5	74	140	100	0.50	1.00	0.25	165.85
LRB12D	36-60	12	208	2.5	74	140	100	0.50	1.00	0.25	165.85
LRB15D	36-60	15	167	2.5	76	135	100	0.50	1.00	0.25	165.85
LRB24D	36-60	24	104	2.5	76	135	100	0.50	0.75	0.25	165.85
LRB28D	36-60	28	89	2.5	76	135	100	0.50	0.75	0.25	165.85
LRB48D	36-60	48	52	2.5	76	135	150	0.50	0.75	0.25	165.85
LRC5D	18-60	5	500	2.5	75	170	100	0.75	2.00	1.25	176.55
LRC9D	18-60	9	278	2.5	75	170	100	0.50	1.00	0.75	176.55
LRC12D	18-60	12	208	2.5	75	170	100	0.50	1.00	0.75	176.55
LRC15D	18-60	15	167	2.5	77	165	100	0.50	1.00	0.75	176.55
LRC24D	18-60	24	104	2.5	78	165	100	0.50	0.75	0.50	176.55
LRC28D	18-60	28	89	2.5	78	165	100	0.50	0.75	0.50	176.55
LRC48D	18-60	48	52	2.5	78	165	150	0.50	0.75	0.50	176.55

*Measurements taken with input voltage set at mid value.

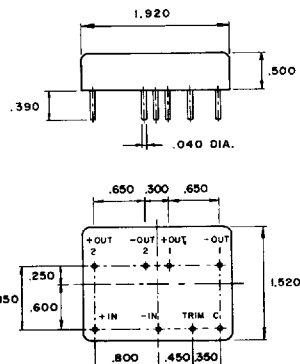
† 10% minimum load required.

Ordering Instructions: No minimum.

Net 30 days F.O.B. Mt. Vernon, New York.

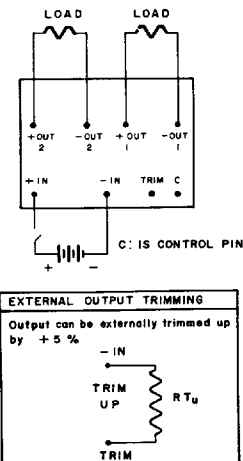
Each unit is supplied with an external control pin. This "C" pin, when connected to the negative (-) input, will disable the unit, allowing for remote shutdown.

Series LR-Dual Output

C: IS CONTROL PIN
NOTE: ALL RADII TO BE 7/64"

BOTTOM VIEW

Typical Weight: 65 Grams

For immediate engineering assistance
or to place an order—

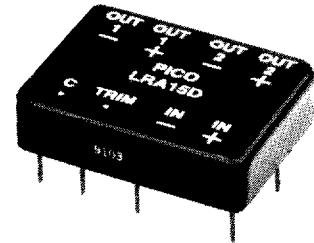
Call Toll Free 800-431-1064

PICO

Electronics, Inc.

453 N. MacQuesten Pkwy.
Mt. Vernon, N.Y. 10552

914-699-5514 • FAX 914-699-5565

Delivery—
stock to one weekNo Heat Sink
or Electrical
Derating Required
OPTIONS AVAILABLE

- Expanded operating temp. (-55°C to +85°C)
- Stabilization Bake (125°C ambient)
- Temperature Cycle (-55°C to +125°C)
- Hi Temp, full power burn in (100% power, 125°C case temp)

Low Profile
Less Than 0.5" ht.
For 0.3" ht. see pages 78/79