SERIES E/SE
SURFACE MOUNT and PLUG-IN

Hi Reliability
Miniature
Isolated DC-DC Converters
Up to 7 Watts

Low Profile 0.4" Height! Up to 7 Watts
No External Capacitors Required
No Heat Sink or Electrical Derating Required

This series of unregulated DC-DC converters are produced in an ultra-miniaturized encapsulated package. 190 different models are available. The units feature single and isolated dual outputs. They will operate over the temperature range of -25° C to +70° C. No heat sink is required.

FEATURES
• Up to 7 watts output at 70° C ambient
• Encapsulated semiconductors, conservatively rated for maximum reliability 6 input voltage ranges 5, 12, 15, 24, 28 and 48V DC 100 megohm @ 500V DC Single and dual isolated output No heat sink required
• Output filter included (No external capacitors required)

OPTIONS AVAILABLE
• Per Mil. Std. 883
• Expanded operating temp (-55° C to +85° C)
• Stabilization Bake (125° C ambient)
• Temperature Cycle (-55° C to +125° C)
• Hi Temp, burn in

TYPICAL CHARACTERISTICS:
• **Test conditions:** 25° C ambient and input voltage at nominal value unless otherwise specified.
• **Line Regulation:** OUTPUT IS DIRECTLY PROPORTIONAL TO THE INPUT.
• **Input voltage range:**
5V models: 4 to 6.5V DC
12V models: 9 to 15V DC
15V models: 12 to 18V DC
24V models: 17 to 28V DC
28V models: 21 to 32V DC
48V models: 25 to 50V DC
• **Output voltage tolerance at full load:**
5V models ± 0.25V
9V models ± 0.3V
12V & 15V models ± 0.4V
24V & 28V models ± 0.5V
48V models ± 0.7V
• **Converter frequency:**20 to 40 KHz
• **Output temperature coefficient:** 0.02%/°C
• **Operating temperature:** -25° C to +70° C ambient. No heat sink is required.
• **Storage temperature:** -55° C to +125° C
• **Isolation:** 100 megohms min. @ 500V DC
• **Short circuit protection:**Temporary

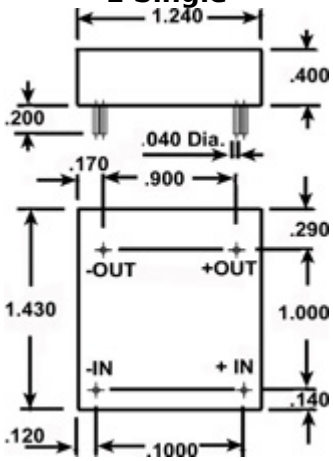
SERIES E/SE - SINGLE OUTPUT

PICO Plug-In Part Number	PICO Surface Mount Part Number	Input Volt. (V DC)	Output Volt. (V DC)	Max. Load Current (mA)	Max. Output Power (watts)	Eff. @ Full Load Typical (%)	Input Current Full Load Typical (mA)	Output Volt. Ripple @ Full Load* (Vp-p max)	No Load Current Typical (mA)	Full Load Output Voltage Tolerance (V DC)	Price (US $)
5E3.3S	5SE3.3S	5	3.3	1061	3.5	60	1167	0.30	150	±0.2	117.47
5E5S	5SE5S	5	5	800	4.0	68	1176	0.30	140	±0.25	117.47
5E5.2S	5SE5.2S	5	5.2	769	4.0	68	1176	0.30	140	±0.25	117.47
5E9S	5SE9S	5	9	500	4.5	73	1233	0.30	200	±0.3	117.47
5E12S	5SE12S	5	12	375	4.5	75	1200	0.25	200	±0.4	117.47
5E15S	5SE15S	5	15	300	4.5	78	1154	0.25	190	±0.4	117.47
5E24S	5SE24S	5	24	187	4.5	80	1125	0.25	190	±0.5	117.47
5E28S	5SE28S	5	28	161	4.5	79	1139	0.25	190	±0.5	117.47
5E48S	5SE48S	5	48	93	4.5	80	1125	0.25	190	±0.7	117.47
12E3.3S	12SE3.3S	12	3.3	1061	3.5	65	449	0.30	40	±0.2	117.47
12E5S	12SE5S	12	5	800	4.0	73	456	0.30	40	±0.25	117.47
12E5.2S	12SE5.2S	12	5.2	769	4.0	73	456	0.30	40	±0.25	117.47
12E9S	12SE9S	12	9	666	6.0	80	625	0.30	45	±0.3	117.47
12E12S	12SE12S	12	12	541	6.5	82	660	0.25	45	±0.4	117.47
12E15S	12SE15S	12	15	433	6.5	83	652	0.25	40	±0.4	117.47
12E24S	12SE24S	12	24	281	6.75	86	654	0.25	40	±0.5	117.47
12E28S	12SE28S	12	28	241	6.75	86	654	0.25	40	±0.5	117.47
12E48S	12SE48S	12	48	141	6.75	86	654	0.25	40	±0.7	117.47
15E3.3S	15SE3.3S	15	3.3	1061	3.5	65	359	0.30	35	±0.2	117.47
15E5S	15SE5S	15	5	800	4.0	73	365	0.30	35	±0.25	117.47
15E5.2S	15SE5.2S	15	5.2	769	4.0	73	365	0.30	35	±0.25	117.47
15E9S	15SE9S	15	9	666	6.0	80	500	0.30	38	±0.3	117.47
15E12S	15SE12S	15	12	541	6.5	82	528	0.25	38	±0.4	117.47
15E15S	15SE15S	15	15	433	6.5	83	522	0.25	35	±0.4	117.47
15E24S	15SE24S	15	24	281	6.75	86	523	0.25	35	±0.5	117.47
15E28S	15SE28S	15	28	241	6.75	86	523	0.25	35	±0.5	117.47
15E48S	15SE48S	15	48	141	6.75	86	523	0.25	35	±0.7	117.47

24E3.3S	24SE3.3S	24	3.3	1061	3.5	61	239	0.30	22	±0.2	117.47
24E5S	24SE5S	24	5	800	4.0	69	241	0.30	22	±0.25	117.47
24E5.2S	24SE5.2S	24	5.2	769	4.0	69	214	0.30	22	±0.25	117.47
24E9S	24SE9S	24	9	666	6.0	79	316	0.30	22	±0.3	117.47
24E12S	24SE12S	24	12	541	6.5	81	334	0.25	22	±0.4	117.47
24E15S	24SE15S	24	15	433	6.5	82	330	0.25	22	±0.4	117.47
24E24S	24SE24S	24	24	291	7.0	88	331	0.25	17	±0.5	117.47
24E28S	24SE28S	24	28	250	7.0	88	331	0.25	17	±0.5	117.47
24E48S	24SE48S	24	48	146	7.0	88	331	0.25	17	±0.7	117.47
28E3.3S	28SE3.3S	28	3.3	1061	3.5	61	205	0.30	22	±0.2	117.47
28E5S	28SE5S	28	5	800	4.0	69	207	0.30	22	±0.25	117.47
28E5.2S	28SE5.2S	28	5.2	769	4.0	69	207	0.30	22	±0.25	117.47
28E9S	28SE9S	28	9	666	6.0	80	268	0.30	22	±0.3	117.47
28E12S	28SE12S	28	12	540	6.5	80	290	0.25	22	±0.4	117.47
28E15S	28SE15S	28	15	433	6.5	82	283	0.25	22	±0.4	117.47
28E24S	28SE24S	28	24	291	7.0	88	284	0.25	22	±0.5	117.47
28E28S	28SE28S	28	28	250	7.0	88	284	0.25	20	±0.5	117.47
28E48S	28SE48S	28	48	146	7.0	88	284	0.25	20	±0.7	117.47
48E3.3S	48SE3.3S	48	3.3	1061	3.5	67	109	0.30	6	±0.2	126.43
48E5S	48SE5S	48	5	800	4.0	75	111	0.30	6	±0.25	126.43
48E5.2S	48SE5.2S	48	5.2	769	4.0	75	111	0.30	6	±0.25	126.43
48E9S	48SE9S	48	9	666	6.0	80	156	0.30	6	±0.3	126.43
48E12S	48SE12S	48	12	541	6.5	84	161	0.30	6	±0.4	126.43
48E15S	48SE15S	48	15	433	6.5	84	161	0.30	6	±0.4	126.43
48E24S	48SE24S	48	24	291	7.0	89	164	0.30	6	±0.5	126.43
48E28S	48SE28S	48	28	250	7.0	89	164	0.30	6	±0.5	126.43

Series E/SE Single Output

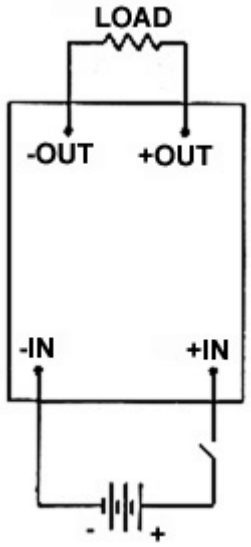
E Single



BOTTOM VIEW
Typical Weight: 25 Grams
All dimensions are in inches

Larger Size Drawing

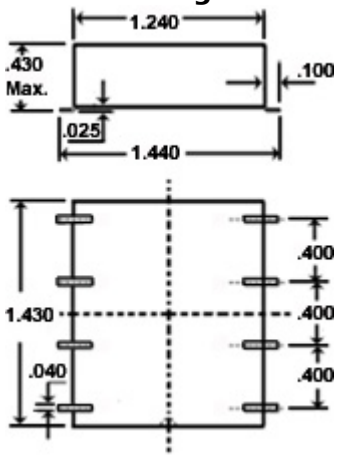
Typical Weight: 25 Grams



Larger Size Schematic

Pin no.	Single
1	-INP
2	N/C
3	N/C
4	+INP
5	+OUT
6	-OUT
7	N/C
8	N/C

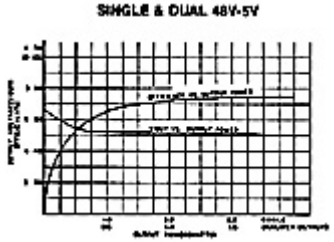
SE Single



BOTTOM VIEW
Typical Weight: 25 Grams
All dimensions are in inches

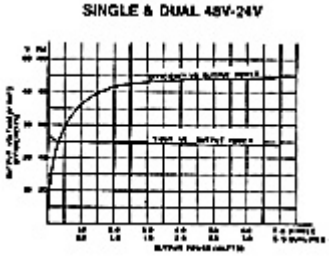
Larger Size Drawing

SINGLE & DUAL 48V - 5V



Larger Size Graph

SINGLE & DUAL 48V - 24V



Larger Size Graph

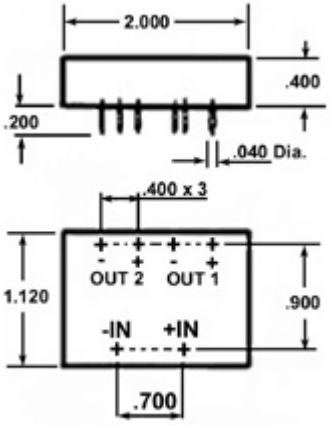
SERIES E/SE - DUAL OUTPUT

PICO Plug-In Part Number	PICO Surface Mount Part Number	Input Volt. (V DC)	Output Volt. (V DC)	Max. Load Current per Output (mA)	Max. Output Power per Output (watts)	Eff. @ Full Load Typical (%)	Input Current Full Load Typical (mA)	Output Volt. Ripple @ Full Load* (Vp-p max)	No Load Current Typical (mA)	Full Load Output Voltage Tolerance (V DC)	Price (US $)
5E5D	5SE5D	5	5	400	2.0	68	1176	0.3	200	±0.25	128.34
5E9D	5SE9D	5	9	250	2.25	74	1216	0.3	200	±0.3	128.34
5E12D	5SE12D	5	12	187	2.25	77	1168	0.25	220	±0.4	128.34
5E15D	5SE15D	5	15	150	2.25	79	1139	0.25	200	±0.4	128.34
5E24D	5SE24D	5	24	93	2.25	80	1125	0.25	200	±0.5	128.34
5E28D	5SE28D	5	28	80	2.25	80	1139	0.25	200	±0.5	128.34
5E48D	5SE48D	5	48	46	2.25	80	1125	0.25	200	±0.7	128.34
12E5D	12SE5D	12	5	400	2.0	75	444	0.3	40	±0.25	128.34
12E9D	12SE9D	12	9	333	3.0	80	625	0.3	40	±0.3	128.34
12E12D	12SE12D	12	12	270	3.25	83	652	0.25	40	±0.4	128.34
12E15D	12SE15D	12	15	217	3.25	85	637	0.25	40	±0.4	128.34
12E24D	12SE24D	12	24	140	3.375	86	654	0.25	40	±0.5	128.34
12E28D	12SE28D	12	28	121	3.375	86	654	0.25	40	±0.5	128.34
12E48D	12SE48D	12	48	70	3.375	88	654	0.25	40	±0.7	128.34
15E5D	15SE5D	15	5	400	2.0	75	356	0.3	35	±0.25	128.34
15E9D	15SE9D	15	9	333	3.0	80	500	0.3	35	±0.3	128.34
15E12D	15SE12D	15	12	270	3.25	83	528	0.25	35	±0.4	128.34
15E15D	15SE15D	15	15	217	3.25	85	522	0.25	35	±0.4	128.34
15E24D	15SE24D	15	24	140	3.375	86	523	0.25	35	±0.5	128.34
15E28E	15SE28D	15	28	121	3.375	86	523	0.25	35	±0.5	128.34
15E48D	15SE48D	15	48	70	3.375	86	523	0.25	35	±0.7	128.34
24E5D	24SE5D	24	5	400	2.0	72	231	0.3	22	±0.25	128.34
24E9D	24SE9D	24	9	333	3.0	79	316	0.3	22	±0.3	128.34
24E12D	24SE12D	24	12	270	3.25	82	330	0.25	22	±0.4	128.34
24E15D	24SE15D	24	15	217	3.25	85	318	0.25	22	±0.4	128.34
24E24D	24SE24D	24	24	145	3.5	88	331	0.25	18	±0.5	128.34
24E28D	24SE28D	24	28	125	3.5	88	331	0.25	18	±0.5	128.34
24E48D	24SE48D	24	48	73	3.5	88	331	0.25	18	±0.7	128.34

28E5D	28SE5D	28	5	400	2.0	69	207	0.3	25	±0.25	128.34
28E9D	28SE9D	28	9	333	3.0	80	268	0.3	25	±0.3	128.34
28E12D	28SE12D	28	12	270	3.25	80	290	0.25	22	±0.4	128.34
28E15D	28SE15D	28	15	217	3.25	82	283	0.25	22	±0.4	128.34
28E24D	28SE24D	28	24	145	3.5	88	284	0.25	20	±0.5	128.34
28E28D	28SE28D	28	28	125	3.5	88	284	0.25	20	±0.5	128.34
28E48D	28SE48D	28	48	73	3.5	88	284	0.25	20	±0.7	128.34
48E5D	48SE5D	48	5	400	2.0	74	113	0.3	6	±0.25	137.27
48E9D	48SE9D	48	9	333	3.0	80	156	0.3	6	±0.3	137.27
48E12D	48SE12D	48	12	270	3.25	85	160	0.3	6	±0.4	137.27
48E15D	48SE15D	48	15	217	3.25	85	160	0.3	6	±0.4	137.27
48E24D	48SE24D	48	24	145	3.5	88	166	0.3	6	±0.5	137.27
48E28D	48SE28D	48	28	125	3.5	89	164	0.3	6	±0.5	137.27

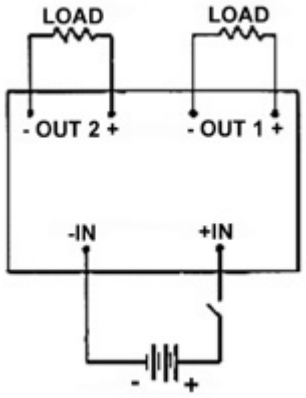
Series E/SE Dual Output

E Dual



BOTTOM VIEW
Typical Weight: 33 Grams
All dimensions are in inches
Larger Size Drawing

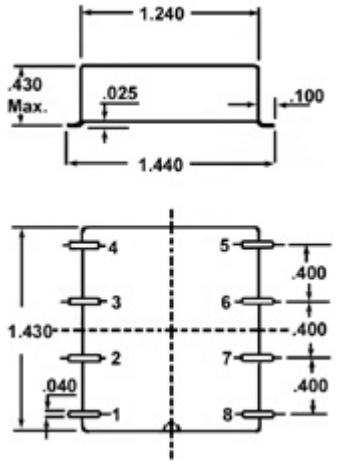
Typical Weight: 33 Grams



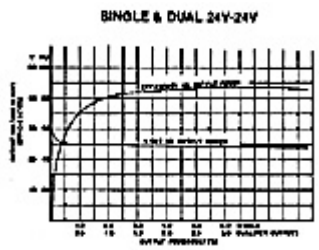
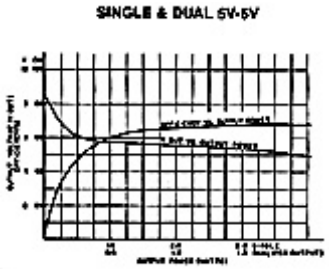
Larger Size Schematic

Pin no.	Dual
1	-INP
2	N/C
3	N/C
4	+INP
5	+OUT1
6	-OUT1
7	+OUT2
8	-OUT2

SE Dual



BOTTOM VIEW
Typical Weight: 33 Grams
All dimensions are in inches
Larger Size Drawing

SINGLE & DUAL 24V - 24V	SINGLE & DUAL 5V - 5V
 Larger Size Graph	 Larger Size Graph

Ordering Instructions:
• No minimum.
Net 30 days F.O.B. Pelham, NY

Delivery--stock to one week for sample orders.

For immediate engineering assistance or to place an order:
Call Toll Free: 800-431-1064

PICO Electronics, Inc.

143 Sparks Ave. Pelham, NY 10803
Tel: 914-738-1400 or Fax: 914-738-8225