

## SERIES AT/DT/SAT/SDT SURFACE MOUNT and PLUG-IN

Hi Reliability, Ultra-Miniature, 0.2" ht.  
Isolated DC-DC Converters

This series of unregulated DC-DC converters offer you a 0.200" tall package. 96

different models are available and all offer very low current consumption to operate in battery driven circuits. Isolated, single and dual outputs will operate from -25° C to +70° C with no heat sink or derating required. Built-in output capacitors and 4 convenient input voltages also help in simplifying your design, and with the addition of our new DIP package, board layout and assembly is simplified.

### 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, full power burn in (100% power, 125° C case temp)

### FEATURES

- Ultra-miniature, 0.200" height
- New DIP package available
- Low current consumption
- No external components required
- 4 convenient input voltages 3-5-9-12V DC
- Up to 0.75 watt output
- Encapsulated semiconductors, conservatively rated for maximum reliability
- Single and dual output
- 100 megohm at 500V DC
- No heat sink required

### 0.2" Height Low Profile

No External Components Required

Low No Load Current for Battery Applications

New DIP Package

At Low Profile .5" x .5" x .2" ht. ...up to 0.75 Watts

No Heat Sink or Electrical Derating Required

### • TYPICAL CHARACTERISTICS:

- - **Test conditions:** 25° C ambient and input voltage at nominal value unless otherwise specified.  
**LINE REGULATION:** OUTPUT VOLTAGE IS DIRECTLY PROPORTIONAL TO THE INPUT VOLTAGE.  
**Input voltage range:**
    - 3V models 2.5 to 3.5V DC
    - 5V models 4 to 6V DC
    - 9V models 7 to 11V DC
    - 12V models 9 to 14V DC
- - **Converter frequency:** 40 to 60 KHz  
**Output temperature coefficient:** 0.05%/°C all models  
**Operating temperature:** -25° C to +70° C ambient. No heat sink or derating required.  
**Storage temperature:** -55° C to +125° C  
**Isolation:** 100 megohms min. @ 500V DC

## SERIES AT - SAT SINGLE OUTPUT

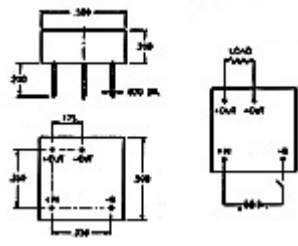
PICO Plug-In Part Number	PICO Surface Mount Part Number	Input Volt. (V DC)	Output Volt. (V DC)	Max. Load Current (mA)	Max. Output Power (watts)	Eff. @ Full Load Typical (%)	Input Current Full Load Typical (mA)	Output Volt. Ripple @ Full Load* (Vp-p max)	No Load Current Typical (mA)	Full Load Output Voltage Tolerance (V DC)	Price (US \$)
3AT3.3S	3SAT3.3S	3	3.3	197	0.65	61	355	0.20	35	±0.20	108.39
3AT5S	3SAT5S	3	5	130	0.65	66	328	0.20	35	±0.25	108.39
3AT5.2S	3SAT5.2S	3	5.2	125	0.65	66	328	0.20	35	±0.25	108.39
3AT9S	3SAT9S	3	9	83	0.75	70	357	0.20	35	±0.30	108.39
3AT12S	3SAT12S	3	12	63	0.75	72	347	0.20	35	±0.40	108.39
3AT15S	3SAT15S	3	15	50	0.75	73	342	0.20	35	±0.40	108.39
5AT3.3S	5SAT3.3S	5	3.3	227	0.75	64	234	0.20	25	±0.20	108.39
5AT5S	5SAT5S	5	5	150	0.75	69	217	0.20	25	±0.25	108.39
5AT5.2S	5SAT5.2S	5	5.2	144	0.75	69	217	0.20	25	±0.25	108.39
5AT9S	5SAT9S	5	9	83	0.75	72	208	0.20	25	±0.30	108.39
5AT12S	5SAT12S	5	12	63	0.75	75	200	0.20	25	±0.40	108.39
5AT15S	5SAT15S	5	15	50	0.75	76	197	0.20	25	±0.40	108.39

9AT3.3S	9SAT3.3S	9	3.3	227	0.75	65	128	0.20	15	±0.20	108.39
9AT5S	9SAT5S	9	5	150	0.75	70	119	0.20	15	±0.25	108.39
9AT5.2S	9SAT5.2S	9	5.2	144	0.75	70	119	0.20	15	±0.25	108.39
9AT9S	9SAT9S	9	9	83	0.75	72	116	0.20	15	±0.30	108.39
9AT12S	9SAT12S	9	12	63	0.75	78	107	0.20	15	±0.40	108.39
9AT15S	9SAT15S	9	15	50	0.75	80	104	0.20	15	±0.40	108.39
12AT3.3S	12SAT3.3S	12	3.3	227	0.75	66	95	0.20	8	±0.20	108.39
12AT5S	12SAT5S	12	5	150	0.75	71	88	0.20	8	±0.25	108.39
12AT5.2S	12SAT5.2S	12	5.2	144	0.75	71	88	0.20	8	±0.25	108.39
12AT9S	12SAT9S	12	9	83	0.75	73	86	0.20	8	±0.30	108.39
12AT12S	12SAT12S	12	12	63	0.75	78	80	0.20	8	±0.40	108.39
12AT15S	12SAT15S	12	15	50	0.75	80	78	0.20	8	±0.40	108.39

### SERIES SDT - DT 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 \$)
3DT3.3S	3SDT3.3S	3	3.3	197	0.65	61	355	0.20	35	±0.20	134.00
3DT5S	3SDT5S	3	5	130	0.65	66	328	0.20	35	±0.25	134.00
3DT5.2S	3SDT5.2S	3	5.2	125	0.65	66	328	0.20	35	±0.25	134.00
3DT9S	3SDT9S	3	9	83	0.75	70	357	0.20	35	±0.30	134.00
3DT12S	3SDT12S	3	12	63	0.75	72	347	0.20	35	±0.40	134.00
3DT15S	3SDT15S	3	15	50	0.75	73	342	0.20	35	±0.40	134.00
5DT3.3S	5SDT3.3S	5	3.3	227	0.75	64	234	0.20	25	±0.20	134.00
5DT5S	5SDT5S	5	5	150	0.75	69	217	0.20	25	±0.25	134.00
5DT5.2S	5SDT5.2S	5	5.2	144	0.75	69	217	0.20	25	±0.25	134.00
5DT9S	5SDT9S	5	9	83	0.75	72	208	0.20	25	±0.30	134.00
5DT12S	5SDT12S	5	12	63	0.75	75	200	0.20	25	±0.40	134.00
5DT15S	5SDT15S	5	15	50	0.75	76	197	0.20	25	±0.40	134.00
9DT3.3S	9SDT3.3S	9	3.3	227	0.75	65	128	0.20	15	±0.20	134.00
9DT5S	9SDT5S	9	5	150	0.75	70	119	0.20	15	±0.25	134.00
9DT5.2S	9SDT5.2	9	5.2	144	0.75	70	119	0.20	15	±0.25	134.00
9DT9S	9SDT9S	9	9	83	0.75	72	116	0.20	15	±0.30	134.00
9DT12S	9SDT12S	9	12	63	0.75	78	107	0.20	15	±0.40	134.00
9DT15S	9SDT15S	9	15	50	0.75	80	104	0.20	15	±0.40	134.00
12DT3.3S	12SDT3.3S	12	3.3	227	0.75	66	95	0.20	8	±0.20	134.00
12DT5S	12SDT5S	12	5	150	0.75	71	88	0.20	8	±0.25	134.00
12DT5.2S	12SDT5.2	12	5.2	144	0.75	71	88	0.20	8	±0.25	134.00
12DT9S	12SDT9S	12	9	83	0.75	73	86	0.20	8	±0.30	134.00
12DT12S	12SDT12S	12	12	63	0.75	78	80	0.20	8	±0.40	134.00
12DT15S	12SDT15S	12	15	50	0.75	80	78	0.20	8	±0.40	134.00

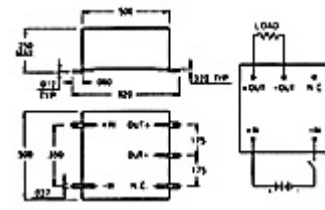
### AT Single



Bottom View

Larger Size Drawing [1]

### SAT Single

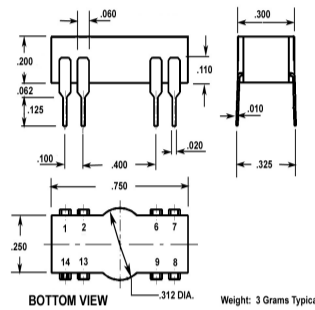


Bottom View

Larger Size Drawing [2]

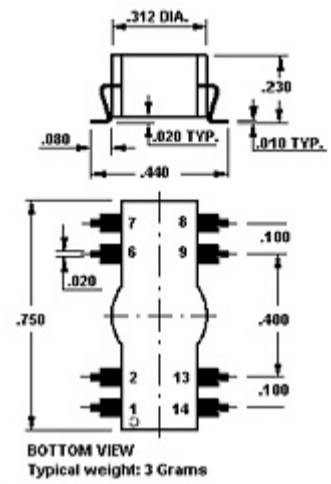
Pin no.	Single
1	-INPUT
2	-INPUT
6	+OUTPUT
7	-OUTPUT
8	-OUTPUT
9	N.C.
13	+INPUT
14	+INPUT

### DT Single



Larger Size Drawing [3]

### SDT Single



Larger Size Drawing [4]

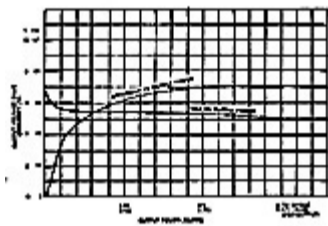
## SERIES AT - SAT DUAL OUTPUT

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 \$)
3AT5D	3SAT5D	3	5	65	0.325	66	328	0.20	35	±0.25	122.11
3AT9D	3SAT9D	3	9	41	0.375	70	357	0.20	35	±0.30	122.11
3AT12D	3SAT12D	3	12	31	0.375	72	347	0.20	35	±0.40	122.11
3AT15D	3SAT15D	3	15	25	0.375	73	342	0.20	35	±0.40	122.11
5AT5D	5SAT5D	5	5	75	0.375	69	217	0.20	35	±0.25	122.11
5AT9D	5SAT9D	5	9	41	0.375	72	208	0.20	25	±0.30	122.11
5AT12D	5SAT12D	5	12	31	0.375	75	200	0.20	25	±0.40	122.11
5AT15D	5SAT15D	5	15	25	0.375	76	197	0.20	25	±0.40	122.11
9AT5D	9SAT5D	9	5	75	0.375	70	119	0.20	15	±0.25	122.11
9AT9D	9SAT9D	9	9	41	0.375	72	116	0.20	15	±0.30	122.11
9AT12D	9SAT12D	9	12	31	0.375	78	107	0.20	15	±0.40	122.11
9AT15D	9SAT15D	9	15	25	0.375	80	104	0.20	15	±0.40	122.11
12AT5D	12SAT5D	12	5	75	0.375	71	88	0.20	8	±0.25	122.11
12AT9D	12SAT9D	12	9	41	0.375	78	86	0.20	8	±0.30	122.11
12AT12D	12SAT12D	12	12	31	0.375	78	80	0.20	8	±0.40	122.11
12AT15D	12SAT15D	12	15	25	0.375	80	78	0.20	8	±0.40	122.11

## SERIES DT - SDT DUAL OUTPUT

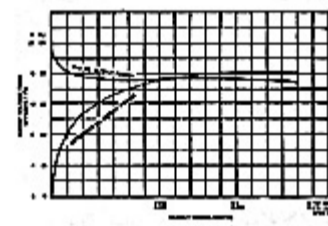
PICO Plug-In Part Number	PICO Surface Mount Part Number	Input Volt. (V DC)	Output Volt. (V DC)	Max. Load Current (mA)	Max. Output Power (watts)	EFF. @ Full Load Typical (%)	Input Current Full Load Typical (mA)	Output Volt Ripple @ Full Load* (Vp-p max)	No Load Current Typical (mA)	Full Load Output Voltage Tolerance (V DC)	Price (US \$)
3DT5D	3SDT5D	3	5	65	0.325	66	328	0.20	35	±0.25	148.10
3DT9D	3SDT9D	3	9	41	0.375	70	357	0.20	35	±0.30	148.10
3DT12D	3SDT12D	3	12	31	0.375	72	347	0.20	35	±0.40	148.10
3DT15D	3SDT15D	3	15	25	0.375	73	342	0.20	35	±0.40	148.10
5DT5D	5SDT5D	5	5	75	0.375	69	217	0.20	25	±0.25	148.10
5DT9D	5SDT9D	5	9	41	0.375	72	208	0.20	25	±0.30	148.10
5DT12D	5SDT12D	5	12	31	0.375	75	200	0.20	25	±0.40	148.10
5DT15D	5SDT15D	5	15	25	0.375	76	197	0.20	25	±0.40	148.10
9DT5D	9SDT5D	9	5	75	0.375	70	119	0.20	15	±0.25	148.10
9DT9D	9SDT9D	9	9	41	0.375	72	116	0.20	15	±0.30	148.10
9DT12D	9SDT12D	9	12	31	0.375	78	107	0.20	15	±0.40	148.10
9DT15D	9SDT15D	9	15	25	0.375	80	104	0.20	15	±0.40	148.10
12DT5D	12SDT5D	12	5	75	0.375	71	88	0.20	8	±0.25	148.10
12DT9D	12SDT9D	12	9	41	0.375	73	86	0.20	8	±0.30	148.10
12DT12D	12SDT12D	12	12	31	0.375	78	80	0.20	8	±0.40	148.10
12DT15D	12SDT15D	12	15	25	0.375	80	78	0.20	8	±0.40	148.10

### SINGLE & DUAL 5V - 5V



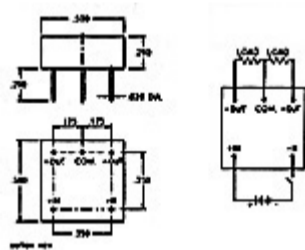
Larger Size Graph [5]

### SINGLE & DUAL 9V - 15V



Larger Size Graph [6]

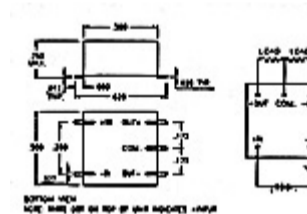
### AT Dual



Bottom View

Larger Size Drawing [7]

### SAT Dual



Bottom View

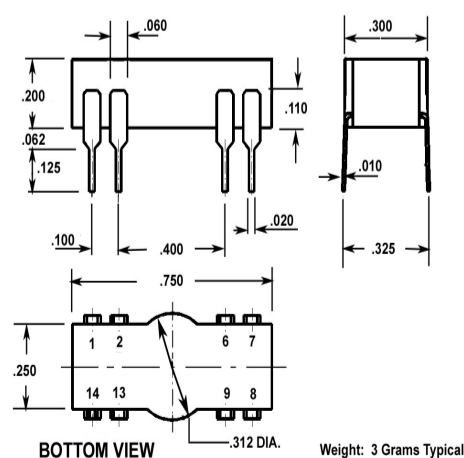
Larger Size Drawing [8]

### Pin no.

### Single

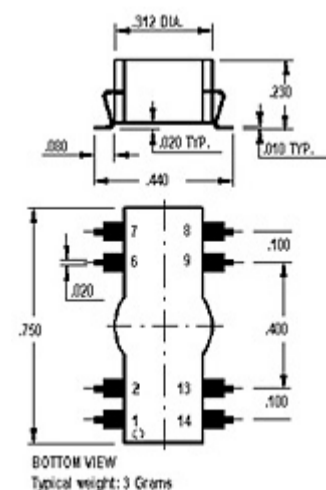
1	-INPUT
2	-INPUT
6	+OUTPUT
7	COMMON
8	COMMON
9	-OUTPUT
13	+INPUT
14	+INPUT

### DT Dual



Larger Size Drawing [9]

### SDT Dual

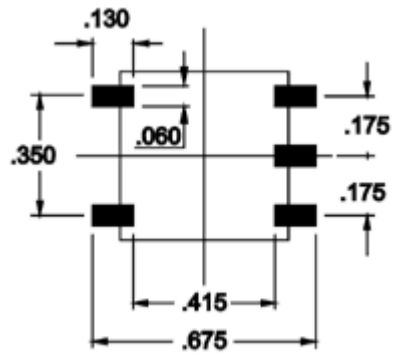


Larger Size Drawing [10]

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RECOMMENDED LAND PATTERN DIMENSIONS

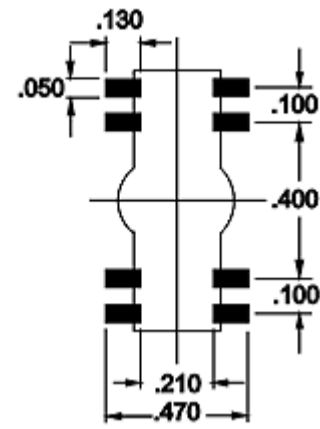
**SAT SERIES**



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RECOMMENDED LAND PATTERN DIMENSIONS

**PICO SDT SERIES.**



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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

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