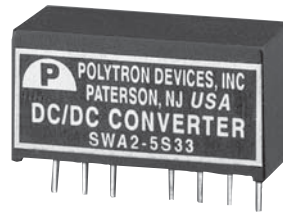




# 2 WATT SINGLE & DUAL OUTPUT

**Regulated,  
Wide Input (2:1)  
DC/DC Converters**



## Specifications

All specifications are typical at nominal input, full load and 25°C, unless otherwise noted.

### INPUT

Input Voltages Range .....	Voltage Range
5V nominal input .....	4.5 - 9 Vdc
12V nominal input .....	9 - 18 Vdc
24V nominal input .....	18 - 36 Vdc
48V nominal input .....	36 - 75 Vdc

Input Filter .....	Capacitor type
Input Surge Voltage .....	100mS max.

5V input .....	15 Vdc
12V input .....	36 Vdc
24V input .....	50 Vdc
48V input .....	100 Vdc

Reflected Ripple Current .....	There is an external capacitor at input (Note 2)
5V input (100µF) .....	400mA-p-p max
12V input (100µF) .....	150mA-p-p max
24V input (10µF) .....	380mA-p-p max
48V input (10µF) .....	170mA-p-p max

Start up time	Nominal Vin and constant resistor load .....	1mS typ.
Remote ON/OFF	DC-DC ON .....	Open or high impedance
	DC-DC OFF .....	Control pin applied current 3 - 6mA max. (via 1KΩ)

Remote OFF Input current	Nominal input .....	1mA max.
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### OUTPUT

Output Power .....	2 Watts max.	
Voltage Accuracy	Full load and nominal Vin .....	±2%
Minimum Load .....	25% of FL	
Line Regulation	LL to HL at Full load .....	±0.5%
Load Regulation	25% to 100% FL .....	±0.75%
Ripple and Noise	20 MHz bandwidth .....	50mVp-p
Temperature Coefficient	.....	±0.1%/°C max.
Transient Response Recovery Time	25% load step change .....	500µS, typ
Short Circuit Protection .....	Continuous, automatic recovery	

### GENERAL

Efficiency .....	70%	
Isolation Voltage .....	1000 Vdc min.	
Isolation Resistance .....	10 <sup>9</sup> Ohms, min.	
Isolation Capacitance .....	300pF, max.	
Switching Frequency .....	Full load to minimum load .....	100 to 650KHz

### ENVIRONMENTAL

Operating Temperature Range .....	-40°C to +85°C
Storage Temperature Range .....	-55°C to +105°C
Cooling .....	Nature Convection
Thermal Shock .....	MIL-STD-810D
Vibration .....	10-55Hz, 2G, 30 minutes along X, Y and Z
Relative Humidity .....	5% to 95% RH

### PHYSICAL

Case Material .....	Non-conductive black plastic
Base Material .....	None
Potting Material .....	Silicon (UL94-V0)
Dimensions .....	0.86 x 0.36 x 0.44 inch (21.8 x 9.2 x 11.1 mm)
Weight .....	4.8 g. (0.17 oz.)
MTBF .....	5.107 x 10 <sup>6</sup> Hours

### EMC CHARACTERISTICS

Meet EN55022 classes B recommend circuit with external L-C at input	
5V input .....	100µF & 10µH
12V input .....	100µF & 10µH
24V input .....	10µF & 120µH
48V input .....	10µF & 120µH

## FEATURES

- **SIP Package**  
**0.86" x 0.36" x 0.44"**
- **2:1 Wide Input Voltage Range**
- **Low Ripple and Noise**
- **Input to Output Isolation up to 1kvdc**
- **Continuous Short Circuit Protection**
- **External On/Off Control**

SWA2 Series

Selection Guide

(Continued)

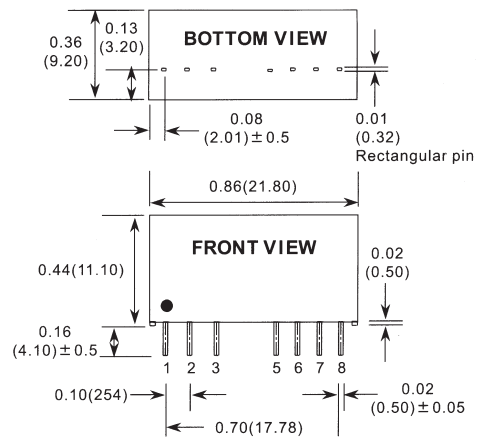
	Input Voltage Nominal (Range) (Vdc)	Output Voltage (Vdc)	Output Current (mA)	Efficiency	Model Number	Case
<b>SINGLE OUTPUT VOLTAGE</b>	5 (4.5-9)	3.3	500	65	SWA2-5S33	SIP3
	5 (4.5-9)	5	400	66	SWA2-5S5	SIP3
	5 (4.5-9)	9	222	71	SWA2-5S9	SIP3
	5 (4.5-9)	12	167	71	SWA2-5S12	SIP3
	5 (4.5-9)	15	134	73	SWA2-5S15	SIP3
	12 (9-18)	3.3	500	70	SWA2-12S33	SIP3
	12 (9-18)	5	400	75	SWA2-12S5	SIP3
	12 (9-18)	9	222	79	SWA2-12S9	SIP3
	12 (9-18)	12	167	80	SWA2-12S12	SIP3
	12 (9-18)	15	134	80	SWA2-12S15	SIP3
	24 (18-36)	3.3	500	71	SWA2-24S33	SIP3
	24 (18-36)	5	400	76	SWA2-24S5	SIP3
	24 (18-36)	9	222	80	SWA2-24S9	SIP3
	24 (18-36)	12	167	80	SWA2-24S12	SIP3
	24 (18-36)	15	134	81	SWA2-24S15	SIP3
	<b>DUAL OUTPUT VOLTAGE</b>	5 (4.5-9)	±5	±200	64	SWA2-5-5
5 (4.5-9)		±12	±83	69	SWA2-5-12	SIP3
5 (4.5-9)		±15	±67	71	SWA2-5-15	SIP3
12 (9-18)		±5	±200	73	SWA2-12-5	SIP3
12 (9-18)		±12	±83	78	SWA2-12-12	SIP3
12 (9-18)		±15	±67	78	SWA2-12-15	SIP3
24 (18-36)		±5	±200	78	SWA2-24-5	SIP3
24 (18-36)		±12	±83	80	SWA2-24-12	SIP3
24 (18-36)		±15	±67	70	SWA2-24-15	SIP3
48 (36-72)		±5	±200	71	SWA2-48-5	SIP3
48 (36-72)		±12	±83	77	SWA2-48-12	SIP3
48 (36-72)		±15	±67	77	SWA2-48-15	SIP3

Mechanical Specifications

PIN CONNECTION		
PIN	SINGLE	DUAL
1	-INPUT	-INPUT
2	+INPUT	+INPUT
3	CTRL	CTRL
5	NC	NC
6	+OUTPUT	+OUTPUT
7	-OUTPUT	COM
8	NC	-OUTPUT

NOTE:

- Maximum output deviation is 10% inclusive of trim. If remote sense is not being used, the +Vsense should be connected to its corresponding +OUTPUT and likewise the -sense should be connected to its corresponding -OUTPUT.
- An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V models. Suggest: Nippon chemi-con KMF series, 220µ F/100V, ESR 90mΩ.
- The negative / positive logic and pin length are optional (see table). The pin voltage is referenced to negative input.
- Heat sink is optional and P/N: 7G-0029, 7G-0030, 7G-0031, 7G-0032.
- The SWA2 meets level A & level B conducted emissions only with external components connected before the input pin to the converter.
- Typical value at nominal input voltage and full load.
- BASEPLATE GROUNDING: Base-plate should be grounded at one of the four screw bolts prior to operation.
- The converter is provided by basic insulation.



- All Dimensions are in inches (mm)
- Pin pitch tolerance ±0.02 (0.5)



POLYTRON DEVICES, Inc.

P.O. Box 398, Paterson, New Jersey 07544 U.S.A.

Tel: (973)345-5885 Fax: (973)345-1264 • Email: sales@polytrondevices.com • www.polytrondevices.com