

500E series

Single Output DC/DC Converter

FEATURES

- Up to 70% Efficiency
- Single output, 5 watt converters
- 500 VDC Input / Output Isolation
- Continuous Short Circuit Protection
- Continuous Six-Sided Shielding
- UL1950 Approved, File No. E104645
- CSA 22.2 Approved, File No. LR89494
- >1,300,000 Hours MTBF

DESCRIPTIONS

The 500E series is a family of compact high performance 5 W DC/DC converters that operate over input voltage ranges of 4.3-6 VDC, 10.3-15.0 VDC, 15.5-22.5 VDC, 20.4-30.0 VDC, 24.2-36.0 VDC and 41.3-60.0 VDC and provide precisely regulated output voltages of 5V, 12V and 15V.

The -30°C to +75°C operating temperature range makes it ideal for data communication equipment, mobile battery driven equipment, distributed power systems, telecommunication equipment, mixed analog/digital subsystems, process/machine control equipment, computer peripheral systems industrial robot systems.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Set Point			±3	% Output voltage at nominal line & FL
Line Regulation			±0.3	% Output voltage measured from min. input line to maximum
Load Regulation			±0.3	% Output voltage measured from FL to no load
Ripple/Noise			20	mV p-p, Nom.Line @FL, 20MHz B.W., using 1 µf bypass capacitor
Short Circuit Protection				Continuous, Automatic Recovery
Temperature Coefficient			±0.01	% per °C

INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Input Voltage				
5 VDC Input Models	4.65	5	5.25	VDC @ FL
12 VDC Input Models	10.9	12	13.2	VDC @ FL
24 VDC Input Models	21.6	24	26.4	VDC @ FL
28 VDC Input Models	25.2	28	30.8	VDC @ FL
48 VDC Input Models	43.2	48	52.8	VDC @ FL
Input Filter				Pi Filter

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency		100		kHz
Isolation Voltage	500			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance		70		pF, 100kHz, 1Volt
MTBF (MIL-HBK-217F)	1.3			Million Hours, +25°C, Ground Benign

ENVIRONMENTAL SPECIFICATIONS

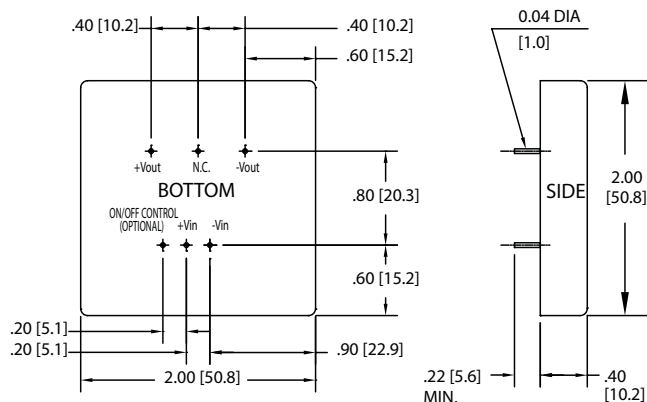
	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-30		+75	°C; Ambient
Storage Temp. Range	-40		+125	°C
Relative Humidity			+95	% Humidity; non-condensing
Cooling				Free-Air Convection

PHYSICAL CHARACTERISTICS

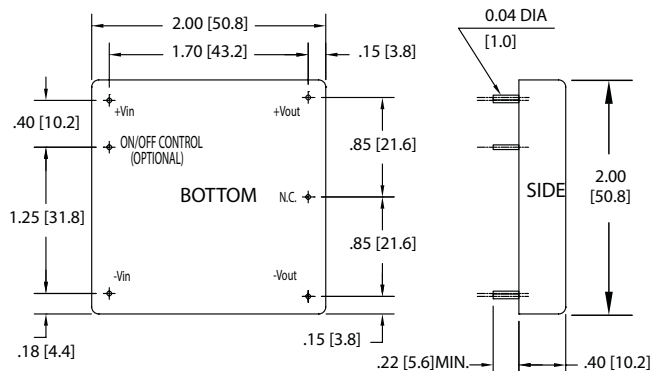
	Unit/Comments
Case Size	2.0 X 2.0 X 0.4 inches (50.8 X 50.8 X 10.2 mm)
Case Material	Black Coated Metal
Shield Connection	Negative Output Pin
Flammability	UL94V-0
Weight	2.6 oz.

OUTLINE DRAWING

CASE "A"



CASE "A1" (OPTIONAL)

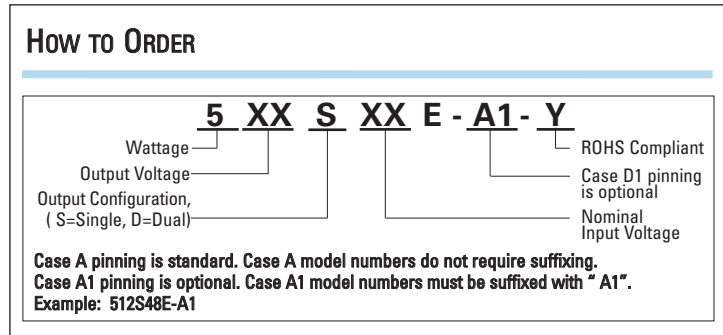


Notes:

- Unless otherwise specified dimensions are in inches (mm).
Tolerances Inches mm
 X.XX = ±0.02 X.X = ±0.5
 X.XXX = ±0.010 X.XX = ±0.25
- Case A pinning is standard. Case A model numbers do not require suffixing.
- Case A1 pinning is optional. Case A1 model numbers must be suffixed with "A1". Example: 512S48E-A1

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified. External, low ESR, 10 microfarad (minimum) capacitor across input is recommended for operation.

HOW TO ORDER



INPUT VOLTAGE RANGE VS OUTPUT LOAD

Nominal Input (VDC)	Input Voltage Range (VDC) at:			
	20% Load	40% Load	60% Load	100% Load
5	4.30 - 6.00	4.40 - 5.70	4.55 - 5.60	4.65 - 5.25
12	10.3 - 15.0	10.4 - 14.6	10.6 - 13.6	10.9 - 13.2
24	20.4 - 30.0	20.6 - 29.0	21.0 - 27.0	21.6 - 26.4
28	24.2 - 36.0	24.5 - 34.0	24.9 - 31.3	25.2 - 30.8
48	41.3 - 60.0	42.0 - 58.0	42.3 - 54.4	43.2 - 52.8

MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Output Voltage (VDC)	Full Load Output Current (mA)	No Load Input Current (mA)	Full Load Input Current (mA)	Efficiency @ FL (%)	Case Style
505S5E	5	5	1000	90	1580	67	A or A1
512S5E	5	12	450	80	1650	65	A or A1
515S5E	5	15	350	70	1580	66	A or A1
505S12E	12	5	1000	40	600	69	A or A1
512S12E	12	12	450	40	750	60	A or A1
515S12E	12	15	350	40	625	70	A or A1
505S24E	24	5	1000	20	360	70	A or A1
512S24E	24	12	450	20	360	67	A or A1
515S24E	24	15	350	20	312	70	A or A1
505S28E	28	5	1000	20	255	70	A or A1
512S28E	28	12	450	15	287	67	A or A1
515S28E	28	15	350	15	268	70	A or A1
505S48E	48	5	1000	11	160	70	A or A1
512S48E	48	12	450	11	168	67	A or A1
515S48E	48	15	350	11	156	70	A or A1