



Typical Unit

FEATURES

- User-selectable outputs: 0.75-5V (D12 models) or 0.75-3.3V (W3 models)
- 6, 10 or 16A maximum output current
- Double lead free to RoHS standards
- Selectable phased start-up sequencing and tracking
- Wide range V_{IN} 8.3-14V or 2.4-5.5V
- Up to 52 Watts total output power
- Very high efficiency up to 95%
- Starts up into pre-biased load
- Fast settling, high di/dt I_{OUT} slew rate

PRODUCT OVERVIEW

These miniature point-of-load (POL) switching DC/DC converters are ideal regulation and supply elements for distributed power and intermediate bus architectures. Fully compatible with the Distributed-power Open Standards Alliance specification (www.dosapower.com), LSN2's can power CPU's, programmable logic and mixed-voltage systems with little heat and low noise. A typical application uses a master isolated 12 or 5Vdc supply and individual LSN2 converters for local 1.8 and 3.3Vdc supplies. All system isolation resides in the central supply, leaving lower cost POL regulation at the load. The LSN2's can deliver very high power (to 52 Watts) in a tiny area without heat sinking or external components. They feature quick transient response (to 25 μ sec) and very fast current slew rates (to 20A/ μ sec).

ORDERING GUIDE SUMMARY

Model	V_{OUT} Range	I_{OUT} Range	V_{IN} Range	Ripple/Noise	Efficiency
LSN2-T/6-W3	0.75-3.3V	0-6A	2.4-5.5V	15mVp-p	94%
LSN2-T/6-D12	0.75-5V	0-6A	8.3-14V	15mVp-p	93%
LSN2-T/10-W3	0.75-3.3V	0-10A	2.4-5.5V	15mVp-p	95%
LSN2-T/10-D12	0.75-5V	0-10A	8.3-14V	30mVp-p	95%
LSN2-T/16-W3	0.75-3.3V	0-16A	2.4-5.5V	25mVp-p	95%
LSN2-T/16-D12	0.75-5V	0-16A	8.3-14V	30mVp-p	94%

INPUT CHARACTERISTICS

Parameter	Typ. @ 25°C, full load	Notes
Voltage Range	2.4-5.5 or 8.3-14V	5V or 12V nominal models
Current, full power	4.22 to 11.12A	Model dependent
Undervoltage Shutdown	Included	With autorestart hysteresis
Short Circuit Current	60mA	Output is short circuited
Remote On/Off Control	Positive or negative polarity	Default polarity is positive

OUTPUT CHARACTERISTICS

Parameter	Typ. @ 25°C, full load	Notes
Voltage	0.75-3.3 or 0.75-5V	User adjustable, model dependent
Current	0-6, 0-10 or 0-16A	Three ranges, model dependent
Power Dissipation	20, 33, 52W max.	Three values, model dependent
Accuracy	$\pm 2\%$ of V_{NOM}	50% load
Ripple & Noise	15-75mVpp	Model dependent
Line and Load Regulation	$\pm 0.03\%$	
Overcurrent Protection	Hiccup autorecovery	Continuous short circuit protection
Overtemperature Protection	+115°C shutdown	
Efficiency (minimum)	92-93%	Model dependent
Efficiency (typical)	94-95%	Model dependent

GENERAL SPECIFICATIONS

Parameter	Typ. @ 25°C, full load	Notes
Transient Response	25 μ sec	50% load step to 2% of final value
Operating Temperature Range	-40 to +85°C	With 200 lfm airflow
Safety (designed to meet)	UL/IEC/EN 60950-1	And CSA C22.2-No.234
EMI (designed to meet)	FCC pt.15, class B	May need external filter

MECHANICAL CHARACTERISTICS

6 Amp output models	0.50 x 1.00 x 0.275 inches (12.7 x 25.4 x 6.98 mm)
10 & 16 Amp models	0.50 x 2.00 x 0.32 inches (12.7 x 50.8 x 8.13 mm)



PERFORMANCE SPECIFICATIONS AND ORDERING GUIDE ①													
Root Model ⑦	Output						Input				Efficiency		Package (Case/Pinout)
	V _{OUT} (Volts)	I _{OUT} (Amps)	Power (Watts)	R/N (mVp-p) ②		Regulation ③		V _{IN} Nom. (Volts)	Range ⑤ (Volts)	I _{IN} ④ (mA/A)	Min.	Typ.	
				Typ.	Max.	Line	Load						
LSN2-T/6-W3	0.75-3.3	6	19.8	25	40	±0.075%	±0.055%	5	2.4-5.5	50/4.2	93.1%	94.3%	B12, P69
LSN2-T/6-D12	0.75-5	6	30	15	25	±0.3%	±0.3%	12	8.3-14	70/2.69	90%	93%	B12, P69
LSN2-T/10-W3	0.75-3.3	10	33.0	15	25	±0.3%	±0.3%	5	2.4-5.5	50/6.95	93%	95%	B11, P68
LSN2-T/10-D12	0.75-5	10	50	30	75	±0.3%	±0.3%	12	8.3-14	100/4.39	93%	95%	B11, P68
LSN2-T/16-W3	0.75-3.3	16	52.8	25	50	±0.3%	±0.3%	5	2.4-5.5	50/11.12	93%	95%	B11, P68
LSN2-T/16-D12 ⑥	0.75-5	16	80	30	75	±0.3%	±0.3%	12	8.3-14	100/7.1	92%	94%	B11, P68
LSN2-T/30-D12	0.8-5	30	150	Please refer to the separate LSN2-T/30 data sheet.									

① Typical at T_A = +25°C under nominal line voltage and full-load conditions, unless noted. All models are tested and specified with external 22µF tantalum input and output capacitors. These capacitors are necessary to accommodate our test equipment and may not be required to achieve specified performance in your applications. See I/O Filtering and Noise Reduction. "Nominal" output is 3.3V (W3 models) or 5V (D12 models)
 ② Ripple/Noise (R/N) is tested/specified over a 20MHz bandwidth and may be reduced with external filtering. See I/O Filtering and Noise Reduction for details.

③ These devices have no minimum-load requirements and will regulate under no-load conditions. Regulation specifications describe the output-voltage deviation as the line voltage or load is varied from its nominal/midpoint value to either extreme.
 ④ Nominal line voltage, no-load/full-load conditions.
 ⑤ V_{IN} must be ≥0.5V greater than V_{OUT}.
 ⑥ LSN2-TXX-D12 efficiencies are shown at 5V_{OUT}.
 ⑦ These are not complete model numbers. Please refer to the Part Number Structure when ordering.

