

LMSxxxxP6W1ZPC

9-36V/ 18-75V Wide Input

6W, single output DC/DC Converter



Features

- Wide input voltage range (4:1)
- High efficiency up to 88%
- No-load power loss down to 0.12W
- Isolation voltage:1500Vdc
- Input under-voltage protection, output over-current and short-circuit protection
- Operating temperature range: -40°C to +85°C
- Industry standard pin-out
- UL 60950-1 2nd edition recognized¹

Part Numbering System

LM	S	x	xxx	P	6W	1	ZP	C
Series Name:	Output Channel:	Input Range:	Output Voltage:	Enabling Logic:	Output Power:	Isolation Voltage:	Package:	Version:
LM	S: single	1: 9-36V 3: 18-75V	Unit: 0.1V 050: 5V	P: Positive	6W: 6W	1: 1500Vdc	ZP : ZP Package	C: Version No.

Selection Guide

Part No.	Input Voltage(VDC)	Output		Efficiency(%) at nominal input & full load	Max. Load Capacitance (µF)
	Nominal (Range)	Voltage(VDC)	Current(mA) (Max.)		
LMS1033P6W1ZPC	24 (9-36)	3.3	1500	79	1800
LMS1050P6W1ZPC		5	1200	83	1000
LMS1090P6W1ZPC		9	667	84	1000
LMS1120P6W1ZPC		12	500	87	470
LMS1150P6W1ZPC		15	400	88	220
LMS1240P6W1YPC		24	250	87	100
LMS3033P6W1ZPC	48 (18-75)	3.3	1500	80	1800
LMS3050P6W1ZPC		5	1200	84	1000
LMS3090P6W1ZPC		9	667	85	680
LMS3120P6W1ZPC		12	500	87	470
LMS3150P6W1ZPC		15	400	88	220
LMS3240P6W1ZPC		24	250	87	100

¹ UL is a registered trademark of Underwriters Laboratory Inc.

Electrical Specifications

These specifications are valid over the converter's full range of input voltage, resistive load, and operating temperature unless noted otherwise.

Input Specifications

Parameter	Conditions	Min	Typical	Max	Unit
Input Current(full load)	24Vdc input series at nominal input voltage	-	301	309	mA
	48Vdc input series at nominal input voltage	-	148	154	
Input Current (zero load)	24Vdc input series at nominal input voltage	-	5	12	
	48Vdc input series at nominal input voltage	-	4	8	
Reflected Ripple Current		-	20	-	
Surge Voltage (1sec. max.)	Nominal 24Vdc input series	-0.7	-	50	Vdc
	Nominal 48Vdc input series	-0.7	-	100	
Starting Voltage	Nominal 24Vdc input series	-	-	9	
	Nominal 48Vdc input series	-	-	18	
Input under-voltage protection	Nominal 24Vdc input series	5.5	6.5	-	
	Nominal 48Vdc input series	14	15.5	-	
Input Filter		Pi filter			

Output Specifications

Parameter	Conditions	Min	Typical	Max	Unit	
Output Voltage Accuracy		-	±1	±3	%Vo	
Line Regulation	Full range input voltage, full load	-	±0.2	±0.5		
Load Regulation ¹	5% load to full load, nominal input	-	±0.5	±1		
Temperature Coefficient	Full load	-	-	±0.03	%/°C	
Transient Recovery Time	25% load step, nominal input voltage	-	300	500	us	
Transient Response Deviation	25% load step, nominal input voltage	3.3V, 5V output	-	±5	±8	%Vo
		Others		±3	±5	
Ripple & Noise	20MHz bandwidth , with 0.1uF and 10uF capacitor	-	-	85	mVp-p	
Over-voltage Protection	Full input range	110	-	160	%Vo	
Over-current Protection		110	140	190	%Io	
Short circuit Protection	Full input range	Hiccup				

General Specifications

Parameter	Conditions	Min	Typical	Max	Unit
Isolation Voltage	Input-output, 1 minute	1500	-	-	Vdc
Isolation Resistance	Input-output, 500Vdc	1000	-	-	MΩ
Isolation Capacitance	Input-output	-	1000	-	pF
Operating Temperature		-40	-	+85	°C
Storage Temperature		-55	-	+125	°C
Operating Humidity	Without condensation	5	-	95	%
Vibration		10-55Hz, 10G, 30 Min. along X, Y and Z			
Switching Frequency *		-	300	-	kHz
MTBF	MIL-HDBK-217F @25°C	1000	-	-	10 ³ hours

* The switching frequency decreases as the load decreases at 50% or less of the full load.

¹ Load regulation index is ±5% when testing from 0% to 100% load.

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Physical Specifications

Case Material	Aluminum alloy	
Dimensions	Horizontal package	32.00*20.00*10.80 mm
Weight	without heat sink (Horizontal package)	14g (Typ.)
Cooling Method	Free air convection	

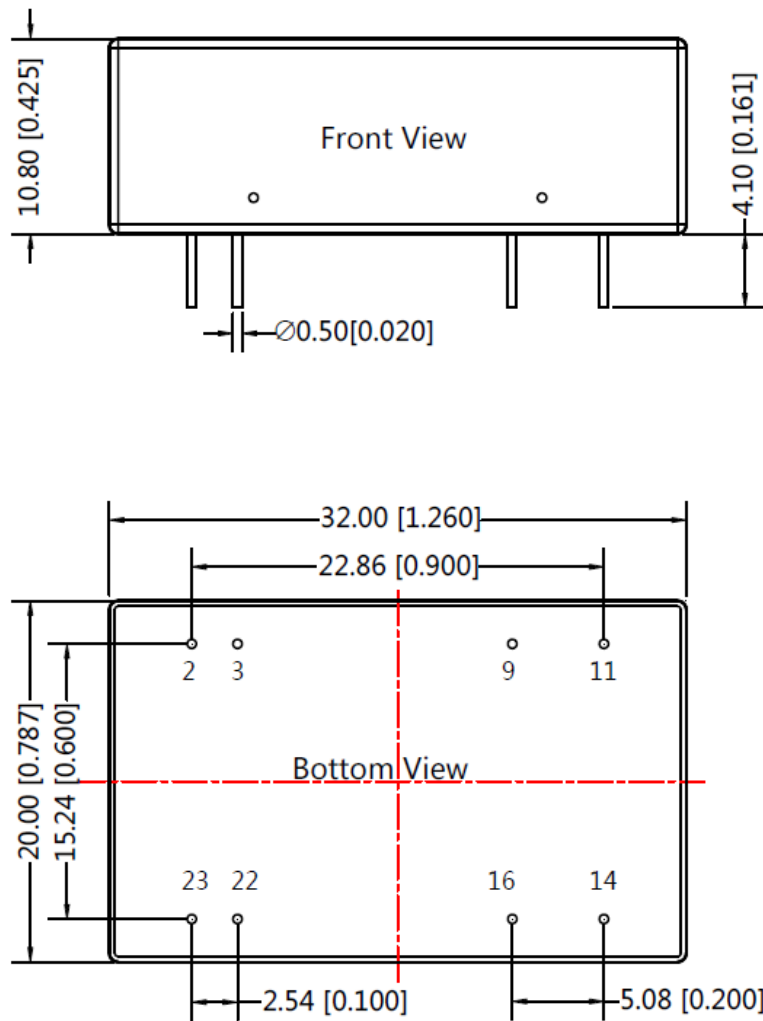
EMC Specifications

EMI	CE	CISPR22/EN55022 CLASS A (Bare component)/ CLASS B	
	RE	CISPR22/EN55022 CLASS A (Bare component)/ CLASS B	
EMS	ESD	IEC/EN61000-4-2	Contact ±4KV perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV perf. Criteria B
	Surge	IEC/EN61000-4-5	±2KV perf. Criteria B
	CS	IEC/EN61000-4-6	3 Vrms perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-29	0-70% perf. Criteria B

**Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25 °C, humidity <75%RH with nominal input voltage and rated output load.*

Mechanical Parameters

Horizontal Package



Pin	Name	Function
2,3	Vin(-)	Negative input voltage
9	No Pin	No Pin
11	NC	No Connection
14	Vout(+)	Positive output voltage
16	Vout(-)	Negative output voltage
22,23	Vin(+)	Positive input voltage

Note:

- 1) Unit: mm [inch]
- 2) Pin section tolerances: ± 0.10 [± 0.004]
- 3) General tolerances: ± 0.50 [± 0.020]