DC/DC Power Module-6W Wide Voltage

- Operating temperature range: -40℃ to +85℃
- Isolation Voltage: 1500VDC
- Maximum Efficiency: up to 86%
- Continuous Short-Circuit Protection
- Complies with the RoHS Directive

Selection Table

Product Model	Input Voltage (VDC)	Output		Full-Load Efficiency % (Min,Typ)	Maximum Capacitive Load (μF)
	Nominal(Range)	Output Voltage (VDC)	Maximum Current (mA)Max./Min		
LRS6-05S05	5 (4.5-9)	5	1200/0	80/82	1000
LRS6-05S12		12	500/0	83/85	470
LRS6-05S15		15	400/0	83/86	220
LRS6-05S24		24	200/0	83/86	100
LRS6-24S03	24 (9-36)	3.3	1200/0	76/78	1800
LRS6-24S05		5	1200/0	80/82	1000
LRS6-24S09		9	667/0	82/84	470
LRS6-24S12		12	500/0	83/85	470
LRS6-24S15		15	400/0	83/86	220
LRS6-24S24		24	250/0	83/86	100
LRS6-24D05		±5	±600/0	78/80	470
LRS6-24D09		±9	±333/0	81/83	220
LRS6-24D12		±12	±250/0	81/83	120
LRS6-24D15		±15	±200/0	81/83	100
LRS6-24D24		±24	±125/0	80/82	68
LRS6-48S03	48 (18-75)	3.3	12000	76/78	1800
LRS6-48S05		5	1200/0	80/82	1000
LRS6-24S09		9	667/0	82/84	470
LRS6-24S12		12	500/0	83/85	470
LRS6-24S15		15	400/0	83/86	220
LRS6-24S24		24	250/0	83/86	100
LRS6-48D05		±5	±600/0	78/80	470
LRS6-48D09		±9	±333/0	81/83	220
LRS6-48D12		±12	±250/0	81/83	120
LRS6-48D15		±15	±200/0	81/83	100
LRS6-48D24		±24	±125/0	80/82	68

Input Characteristics

Parameter	Condition	Min.	Typ.	Max.	Unit
Input Current (Full Load/No Load)	5VDC Input		305/5	--	
	Other Input	--	305/10	--	
Reflected Ripple Current		--	50	--	
Surge Voltage	5VDC Input	-0.7	--	16	VDC
	24VDC Input	-0.7	--	50	
	48VDC Input	-0.7	--	100	
Startup Voltage	5VDC Input	--	4.5	--	
	24VDC Input	--	9	--	
	48VDC Input	--	18	--	
Input Filter Type		Capacitive Filter			
Hot Swap		Not Supported			
Remote Control Pin(CTRL)	Module Shutdown	0-0.7V Shutdown			
	Module Startup	Floating or 3.5-12V Startup			

Output Characteristics

Parameter	Condition		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	5% to 100% Load		--	±1.0	±3.0	%
Line Regulation	Full Load, Output Voltage from Low to High Limit		--	±0.2	±0.5	
Load Regulation	5% to 100% Load		--	±0.5	±1.5	
Transient Recovery Time	25% Load Step Change (Nominal Input Voltage)		--	0.3	0.5	ms
Transient Response Deviation		3.3\5VDC Input	--	±5	±8	%
		Other Input	--	±3	±5	
Temperature Coefficient	Full Load		--	--	±0.03	%/℃
Ripple and Noise	20MHz Bandwidth		--	50	100	mVp-p
Overload Protection	Input Voltage Range		110	140	190	%Io
Short-Circuit Protection			Continuous, Self-Recovering			

General characteristics

Parameter	Condition	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-Output, Test Time 1 Minute, Leakage Current < 1mA	1500	--	--	VDC
Insulation Resistance	Input-Output, Insulation Voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-Output, 100KHz/0.1V	--	1000	--	pF
Operating Temperature		-40	--	+85	℃
Storage Temperature		-55	--	+125	
Storage Humidity	No Condensation	5	--	95	%RH
Lead Soldering Temperature	1.5mm from Housing, 10 Seconds	--	--	+300	℃

Switching Frequency	Full Load, Nominal Input Voltage	--	270	--	kHz
MTBF	MIL-HDBK-217F@25℃	1000	--	--	K Hours

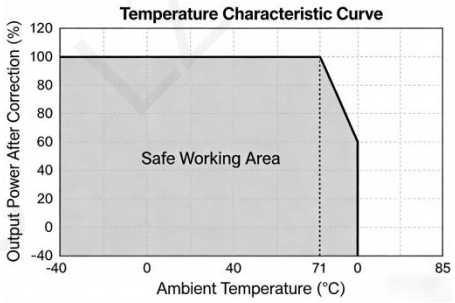
Physical Characteristics

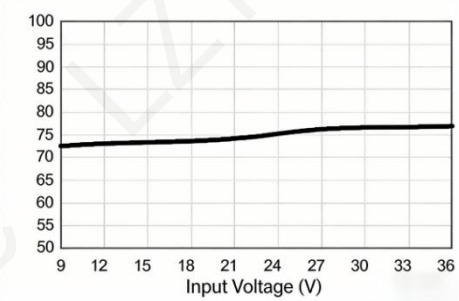
Housing Material	Black Flame-Retardant Heat-Resistant Plastic (UL 94V-0 rated)
Package Dimensions	22.00*9.50*12.00 mm
Weight	4.8g
Cooling Method	Natural Convection

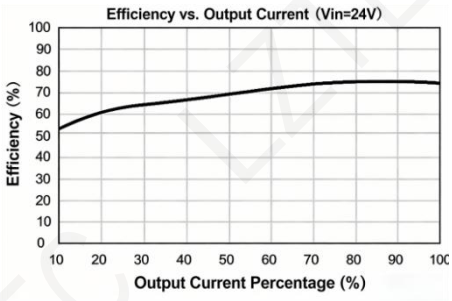
EMC Characteristic

EMI	Conducted Emission	CISPR32/EN55032 CLASS B（Recommended Circuit ）
	Radiated Emission	CISPR32/EN55032 CLASS B（Recommended Circuit）
EMS	Electrostatic Discharge	IEC/EN61000-4-2 Contact±4KV Perf.Criteria B
	Radiated Immunity	IEC/EN61000-4-3 10V/m Perf.Criteria A
	Electrical Fast Transient/Burst	IEC/EN61000-4-4 ±2KV(Recommended Circuit) Perf.Criteria B
	Surge Immunity	IEC/EN61000-4-5 line to line±2KV(Recommended Circuit) Perf.Criteria B
	Conducted Disturbance Immunity	IEC/EN61000-4-6 3 Vr.m.s Perf.Criteria A

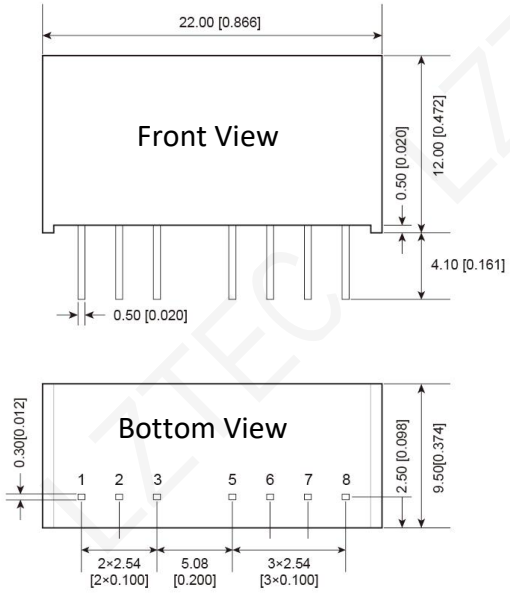
Product Feature Curve Diagram







External dimensions/printing layout recommendations



PIN	Single channel	Double channel
1	GND	GND
2	Vin	Vin
3	CTRL	CTRL
5	NC	NC
6	+Vo	+Vo
7	-Vo	COM
8	NC	-Vo

NC:

No Connection - Do not connect to any external components or circuits to avoid device damage.

Size unit: mm[inch]

End diameter tolerance: ±0.10[±0.004]

Unmarked tolerances: ±0.50[±0.020]

1. Application Circuit

All DC/DC converters in this series are tested in accordance with the recommended test circuit before delivery.If it is required to further reduce the input and output ripple, the external input and output capacitors Cin and Cout can be increased in capacitance value or replaced with capacitors with low equivalent series resistance (ESR). However, the capacitance value shall not exceed the maximum capacitive load specified for the product.

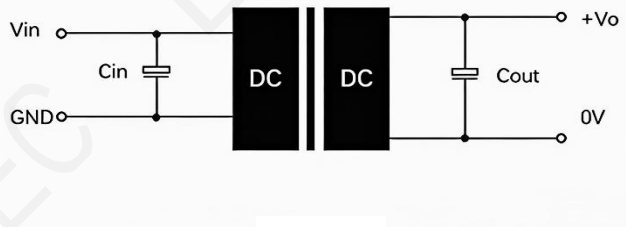
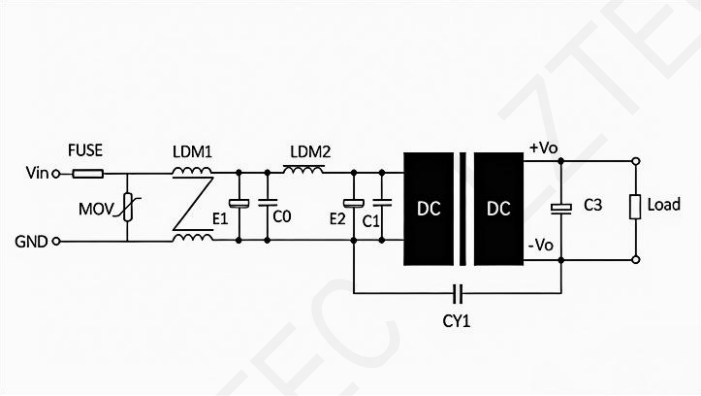


Figure 2

Cin(μF)	Cout(μF)
100	10

2.EMC Solution - Recommended Circuit



MOV	14D560K
C0、C1	1uF
E1、E2	100μF
LDM1	10mH
LDM2	10μH
CY1	1nF/2KV

Figure 3

NOTE

1. If the product operates below the minimum required load, it cannot be guaranteed that all performance metrics specified in this manual will be met.
2. The maximum capacitive load is tested under the condition of input voltage range and full load.
3. Unless otherwise specified, all measurements in this manual are taken at Ta=25℃, temperature <75% RH, nominal input voltage, and rated output load.
4. All test methods in this manual are based on our company's enterprise standards.
5. We offer customized product solutions. For specific requirements, please contact our technical team directly.

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