



■ Features

- 4:1 Wide input range voltage
- 11W in DIP 24 package
- Continuous short circuit protection
- Under voltage lockout function
- 5KVac isolated voltage
- 8mm creepage
- 2MOPP application at 250Vac working voltage
- Wide operating temperature from -40°C to 105°C

Application:

1. Battery management system
2. Industrial control system
3. Medical equipment
4. High isolation required

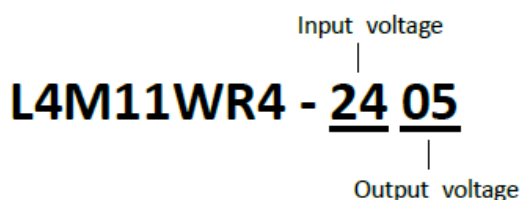
■ Selection Guide

Part number	Input voltage	Output voltage	Output current @full load	Input current @no load	Efficiency* typ.	Capacitive Load* max.
L4M11WR4-2405	9-36 Vdc Nom. 24Vdc	5Vdc	2200mA	6mA	86%	2500uF
L4M11WR4-2412		12Vdc	916mA	6mA	88%	430uF
L4M11WR4-2415		15Vdc	733mA	6mA	90%	350uF
L4M11WR4-2424		24Vdc	458mA	6mA	90%	125uF

*The efficiency is test by nominal input and max. full load @25°C.

*The capacitive load is test by minimum input and constant resistive load.

*Special input and output voltage combinations available by request, please check our sales.



Specifications

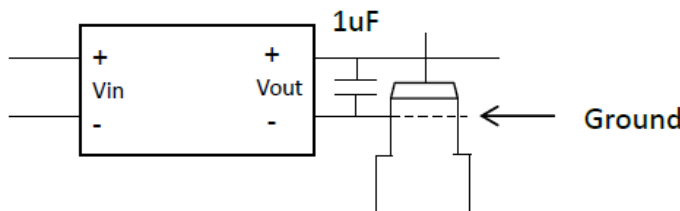
Parameter	Conditions	Min.	Typ.	Max.	Unit
Input					
Input filter			Pi type		
Voltage range		9		36	Vdc
Input surge voltage	1s max.			50	VDC
No-load input current			6		mA
Under voltage lockout	0%~100% load		7.5		VDC
Start-up voltage	0%~100% load		9		VDC
Start-up time	100% load at nominal Vin		30		ms
Output					
Voltage accuracy				±1	%
Line voltage regulation	LL-HL at 100% load			±0.2	%
Load voltage regulation	0%-100% load			±0.2	%
Minimum load		0			%
Ripple & noise ⁽¹⁾	Vo=5V			30	mVp-p
	Vo=12V/ 15V			40	mVp-p
	24V			50	mVp-p
Operating frequency	100% load at nominal Vin		300		KHz
Transient response recovery time	25% load step change (75%-100% load)		250		μs
Environment					
Operating temperature		-40		105	°C
Storage temperature		-55		125	°C
Temperature coefficient				±0.05	%/°C
Relative humidity		5		95	%RH
MTBF (MIL-HDBK-217F)	+25°C	TBD			KHrs
Function					
Short Circuit Protection			Continuous, automatic recovery		
Isolation voltage	1 minute, Input to output Cut-off current: 1mA for Vdc	5			kVac
Isolation capacitance				15	pF
Isolation resistance		1000			MΩ
Over load protection			150		%
Over voltage protection (Zener diode clamp)	Vo=5V	5.6		8.0	VDC
	Vo=12V	13.4		19.2	VDC
Safety			EN60950-1/EN60601-1		
Vibration			MIL-STD-202G, IEC68-2-6		
Physical					
Dimension			31.8x20.3x10.2 mm		
Weight			13		g
Cooling method			Nature convection		
Case material			Plastic		
Potting material			Silicone		
EMC					
EMI ⁽²⁾	EN55022, EN55011		Class A/B		
ESD	EN61000-4-2, Air±15kV; Contact±8kV		Criteria A		
Radiated immunity	EN61000-4-3, 10V/m		Criteria A		
Fast transient ⁽³⁾	EN61000-4-4, ±2kV		Criteria A		
Surge ⁽³⁾	EN61000-4-5, ±2kV		Criteria A		

Conducted immunity	EN61000-4-6, 10V/rms	Criteria A
Magnetic field immunity	EN61000-4-8, 30A/m	Criteria A

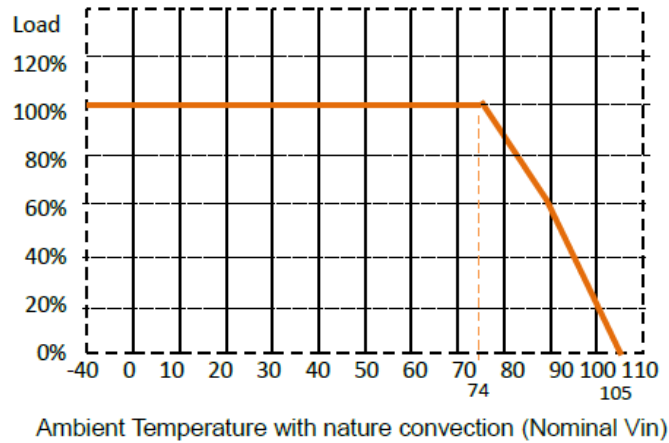
1. Ripple & noise: 20MHz BW at Vin range with a 1µF/50V X7R MLCC.
2. "EMC filtering suggestion" is as following.
3. Test with E-CAP 220µF/100V at input terminal.
4. All specifications valid at nominal input voltage, full load and 25°C after warm-up time unless otherwise stated.
5. The product information and specifications are subject to change without prior notice.

■ Ripple & Noise measure method

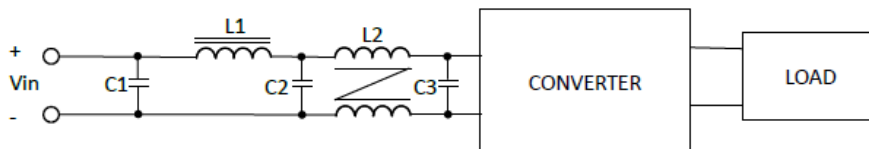
*Measured with 20MHz bandwidth and 1uF ceramic capacitor



■ Derating Curve

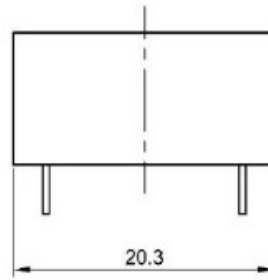
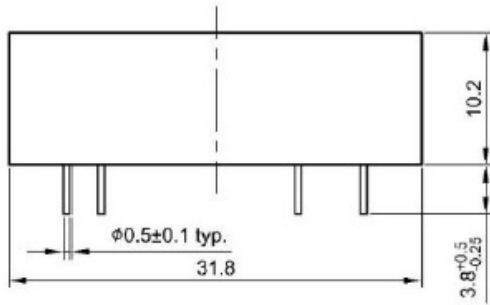


■ EMI filtering-suggestion for EN55022 Class B

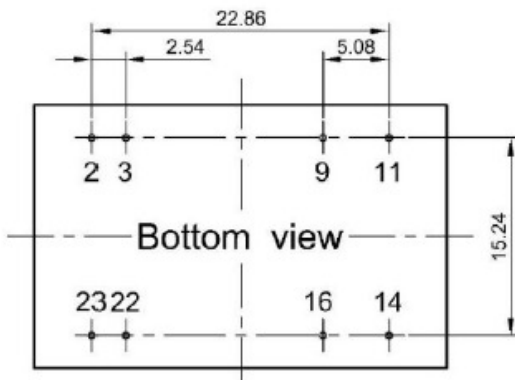


	C1	C2	C3	L1	L2
Class B	4.7µF	4.7µF	4.7µF	10µH	290µH Common choke

Mechanical Dimension & Pinning

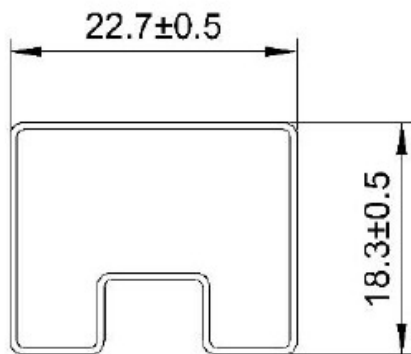


Pin	function
2, 3	-Vin
9	No pin
11	No pin
14	+Vout
16	-Vout
22, 23	+Vin



Projection : Third angle projection
Unit : mm
Tolerance : ±0.25mm

Package



UNIT:mm
1 Tube = 15 pcs
Length:520±2mm