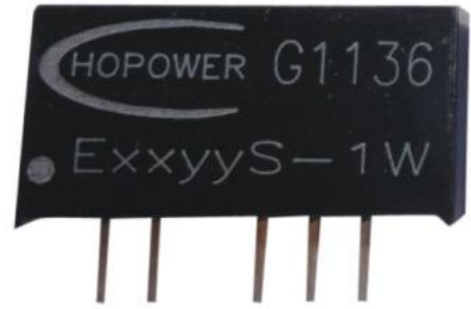


## Features

- ★ Small Footprint
- ★ In-Out Isolation Voltage 3000 VDC
- ★ 7 PIN SIP Package
- ★ Temperature Range:-40°C to +85°C
- ★ UL94V-0 Inflamming retarding package
- ★ MTBF>1million hours(25°C)



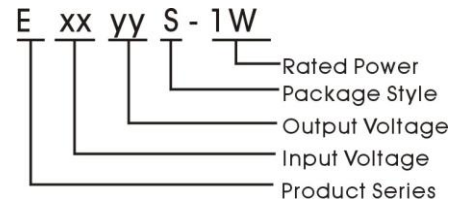
## Applications

The E\_S-1W Series are designed for application where isolated output is required from a distributed power system.

These products apply to where:

- 1) Input voltage variation  $\leq \pm 10\%$ ;
- 2) 3000 VDC input and output isolation;
- 3) Regulated and low ripple noise is not required.

Such as: digital circuits, and IGBT power device driving circuits.



## Model Detail List Specification

Model Number	Input Voltage range (nominal voltage)	Output Voltage	Output Current (mA)		Input Current Full load.(mA)		Efficiency	Max. Capacitive Load( $\mu$ F)
			Min.	Max.	Max.	No.		
E0505S-1W	4.5~5.5VDC (5 VDC)	$\pm 5.0V$	$\pm 10$	$\pm 100$	138	25	72%	100
E0909S-1W		$\pm 9.0V$	$\pm 6$	$\pm 56$	134		75%	
E1212S-1W		$\pm 12.0V$	$\pm 4$	$\pm 42$	129		78%	
E1515S-1W		$\pm 15.0V$	$\pm 3$	$\pm 33$	126		78%	
E1205S-1W	10.8~13.2VDC (12 VDC)	$\pm 5.0V$	$\pm 10$	$\pm 100$	57	18	73%	
E1209S-1W		$\pm 9.0V$	$\pm 6$	$\pm 56$	56		75%	
E1212S-1W		$\pm 12.0V$	$\pm 4$	$\pm 42$	53		78%	
E1215S-1W		$\pm 15.0V$	$\pm 3$	$\pm 33$	52		78%	
E2405S-1W	21.6~26.4VDC (24 VDC)	$\pm 5.0V$	$\pm 10$	$\pm 100$	28	12	73%	
E2409S-1W		$\pm 9.0V$	$\pm 6$	$\pm 56$	28		75%	
E2412S-1W		$\pm 12.0V$	$\pm 4$	$\pm 42$	26		78%	
E2415S-1W		$\pm 15.0V$	$\pm 3$	$\pm 33$	26		78%	

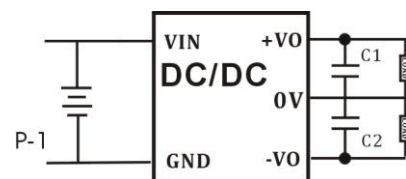
### 1. Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

### 2. Output Voltage Regulation and Over-voltage Protection Circuit

No parallel connection or plug and play.

### Model test circuit

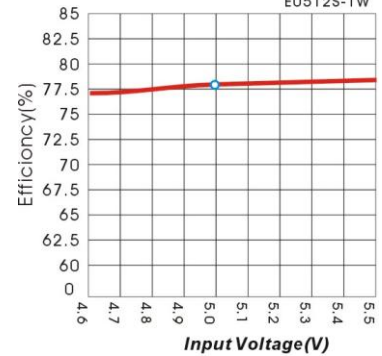


## Output Specifications

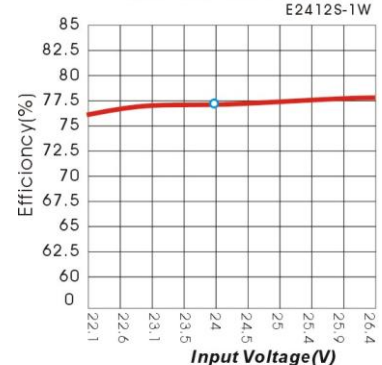
Item	Test Conditions	Min.	Typ.	Max.	Unit
Output Power		0.1		1	W
Line Voltage Regulation	For Vin change of ±1%			±1.5	%
Load regulation	10% to 100% load	5V output	10	15	
		12V output	8	15	
		15V output	6	15	
		24V output	6	15	
Ripple	20MHz Bandwidth		50		mVp-p
Noise			75		
Temperature Drift	100% full load			±0.03	%/°C
Input Filter		C Filter			

## Product typical Curve

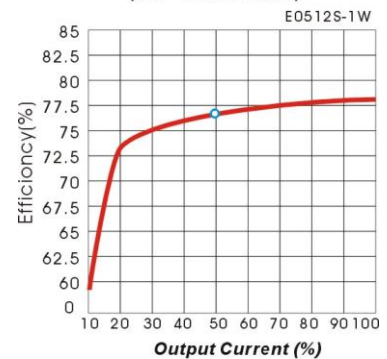
Efficiency VS Input Voltage curve (Full Load) E0512S-1W



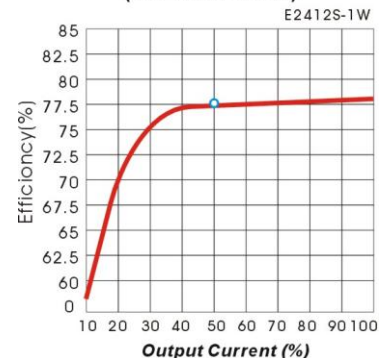
Efficiency VS Output Voltage curve (Vin=Vin-nominal) E2412S-1W



Output Load VS Efficiency curve (Vin=Vin-nominal) E0512S-1W



Efficiency VS Output Load curve (Vin=Vin-nominal) E2412S-1W



## Environmental Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Storage Humidity	Non condensing			95	%
Temp. rise at full load			25		°C
Operating Temperature		-40		+85	
Storage Temperature	Power derating (above 85°C)	-55		+125	
Soldering Temperature	1.5mm from case for 10 seconds			300	
Cooling		Free air convection			

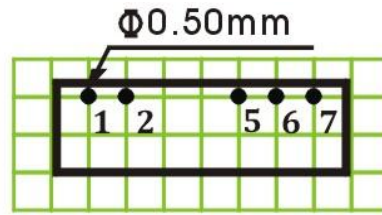
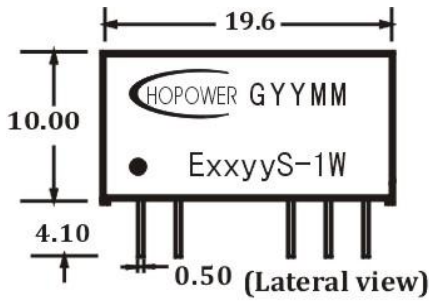
## Common Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Tested for 1 minute and leakage current less than 1 mA	3000			VDC
Switching Frequency	Full load, nominal input		100	300	KHz
MTBF	MIL-HDBK-217F@25°C	1000			K hours
Isolation Resistance	Test at 500VDC	1000			MΩ
Weight			2.5		g

## Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Max. voltage	5 VDC Input (4.5~5.5V)			6	VDC
	12 VDC Input (10.8~13.2V)			14.4	
	24 VDC Input (13.5~16.5V)			28.8	
Input surge voltage (1 sec. Max. )	5 VDC Input (4.5~5.5V)	-0.8		10	
	12 VDC Input (10.8~13.2V)	-0.8		20	
	24 VDC Input (13.5~16.5V)	-0.8		32	

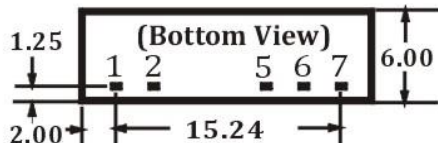
## Mechanical Dimensions & Recommended Footprint



Note: grid 2.54\*2.54mm.

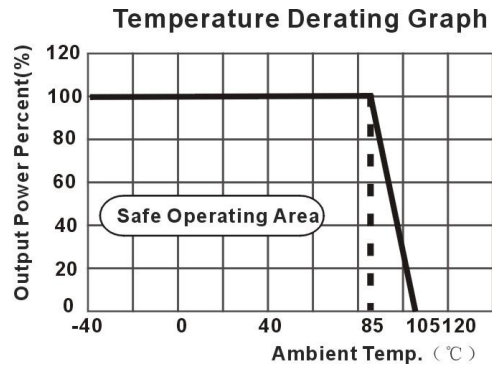
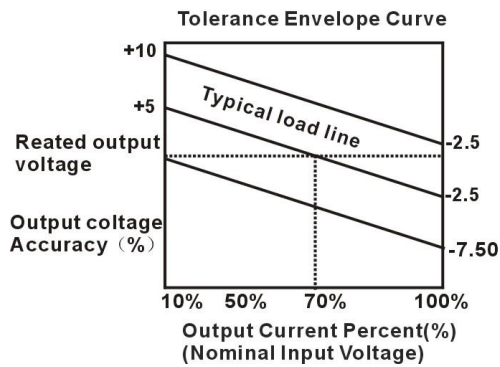
Unit: mm

General tolerances : 0.20mm

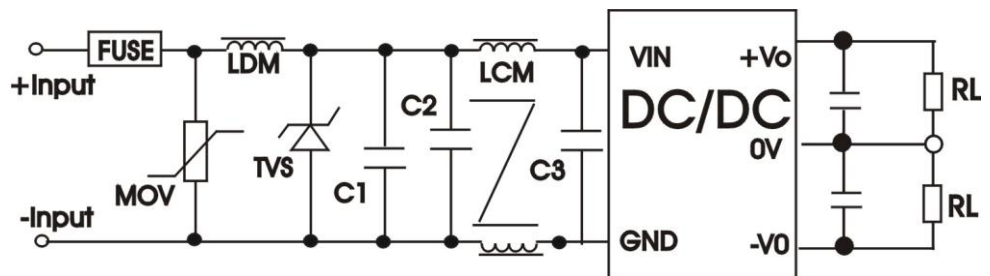


Package	Vin	GND	-Vo	OV	+Vo	NC
ES	1	2	5	6	7	-

## Tolerance Envelope Curve & Temperature Derating Graph



## EMC Recommended Circuit



## EMC Module Application Circuit

