



**DESCRIPTION:** 1W 1.5KVDC and 2KVDC Isolated Single Output DC/DC Converters

The PPE series are miniature, isolated 1W DC/DC converters in a SIP and DIP package. They offer the ideal solution in many space critical applications for board level power distribution. The internal SMD construction makes it possible to offer a product with high performance at low cost. The series offers smaller size, improved efficiency, lower output ripple noise.

### FEATURES

RoHS compliant, CE certification	Single isolated output	SIP: 1.5KVDC isolation    DIP: 2KVDC isolation
Efficiency up to 81%	Power density 1.45W/cm <sup>3</sup>	UL 94V-0 Package material
Footprint from 0.69cm <sup>2</sup>	Industry Standard Pinout	Input voltage: 15V, 24V, 48V
Output voltage: 3.3V, 5V, 9V, 12V, 15V, 24V	Custom solutions available	Operating temperature: -40°C to 105°C

### SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
PPE1503D	15	3.3	303/30.3	71	DIP
PPE1505D	15	5	200/20	71	DIP
PPE1509D	15	9	111/11.1	75	DIP
PPE1512D	15	12	83/8.3	81	DIP
PPE1515D	15	15	66/6.6	81	DIP
PPE1524D	15	24	41.5/4.15	80	DIP
PPE1503S	15	3.3	303/30.3	71	SIP
PPE1505S	15	5	200/20	71	SIP
PPE1509S	15	9	111/11.1	75	SIP
PPE1512S	15	12	83/8.3	81	SIP
PPE1515S	15	15	66/6.6	81	SIP
PPE1524S	15	24	41.5/4.15	80	SIP
PPE2403D	24	3.3	303/30.3	71	DIP
PPE2405D	24	5	200/20	70	DIP
PPE2409D	24	9	111/11.1	75	DIP
PPE2412D	24	12	83/8.3	81	DIP
PPE2415D	24	15	66/6.6	81	DIP
PPE2424D	24	24	41.5/4.15	80	DIP
PPE2403S	24	3.3	303/30.3	71	SIP
PPE2405S	24	5	200/20	71	SIP
PPE2409S	24	9	111/11.1	75	SIP
PPE2412S	24	12	83/8.3	80	SIP
PPE2415S	24	15	66/6.6	80	SIP
PPE2424S	24	24	41.5/4.15	80	SIP
PPE4803S	48	3.3	303/30.3	71	SIP
PPE4805S	48	5	200/20	70	SIP
PPE4809S	48	9	111/11.1	75	SIP
PPE4812S	48	12	83/8.3	81	SIP
PPE4815S	48	15	66/6.6	81	SIP
PPE4824S	48	24	41.5/4.15	80	SIP

Add suffix "P" for continuous short circuit protection, for example PPE2405SP.

### INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	15V input	13.4	15	16.4	V
Voltage range	24V input	21.6	24	26.4	V
Voltage range	48V input	43.2	48	52.8	V

### OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA= -40°C to 85°C			1.0	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN (voltage variation +/-5%)		1.0	1.2	%/%
Load Regulation (10% load to rated load)	5V output			15	%
Load Regulation (10% load to rated load)	all other output			10	%

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

### ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage Vin, PPE15	18V
Input voltage Vin, PPE24	28V
Input voltage Vin, PPE48	54V

### ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage SIP package	Tested for 1 second	1500			VDC
Isolation test voltage DIP package	Tested for 1 second	2000			VDC
Resistance	Viso= 500VDC	1			GΩ

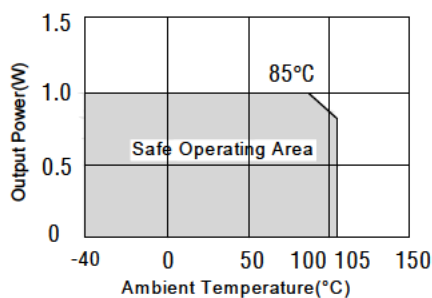
### GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All types		100		kHz

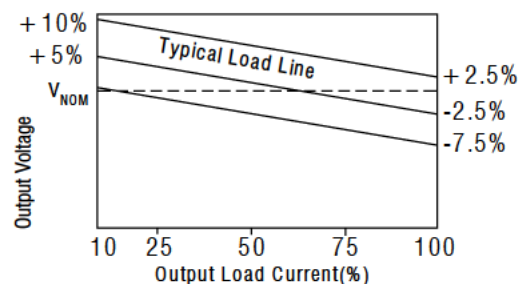
### TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-55		130	°C
Cooling	Free air convection				

### TEMPERATURE DERATING GRAPHS



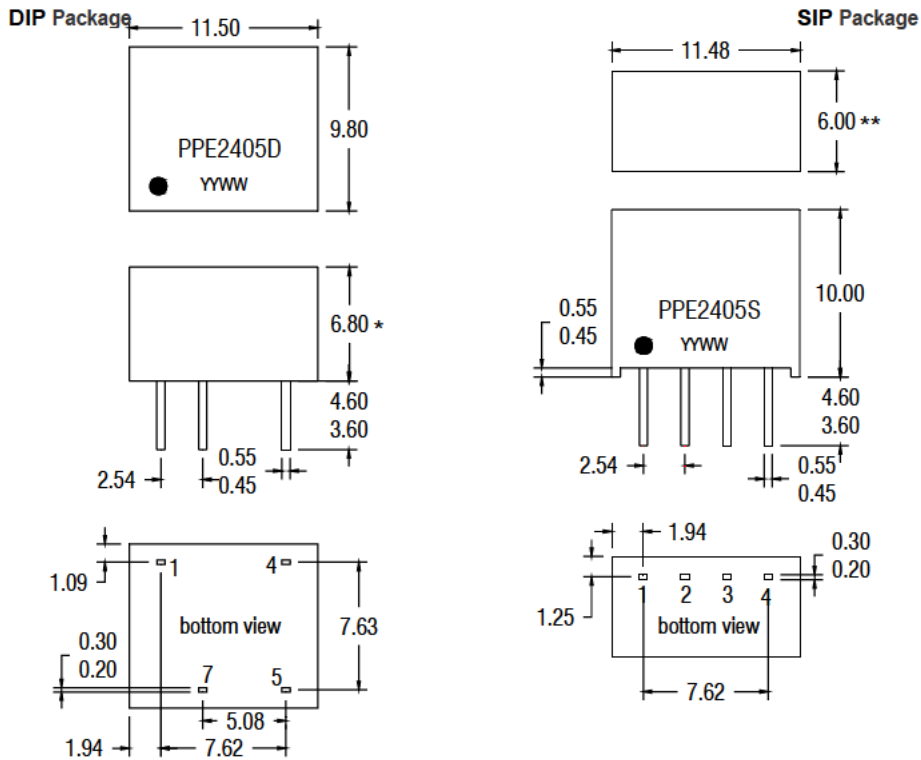
### TOLERANCE ENVELOPES



### SOLDERING INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300° C for 10 seconds. Both SIP and DIP types in this series are backward compatible with Sn/Pb soldering systems.

### MECHANICAL DIMENSIONS

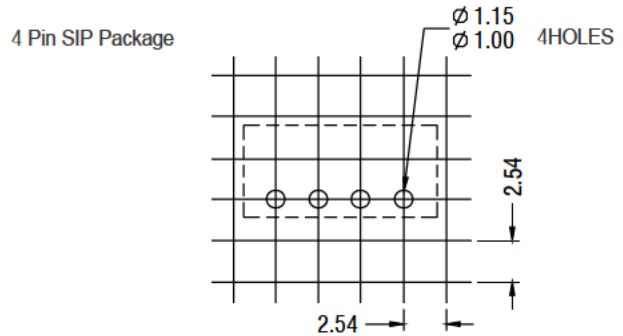
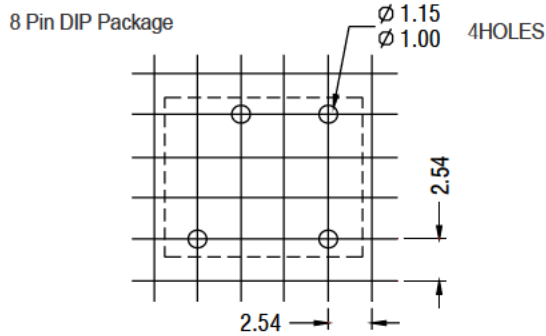


### PIN CONNECTIONS

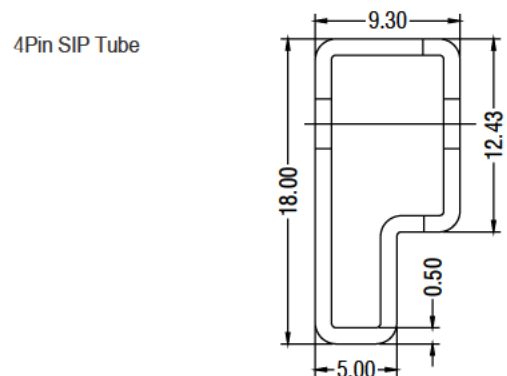
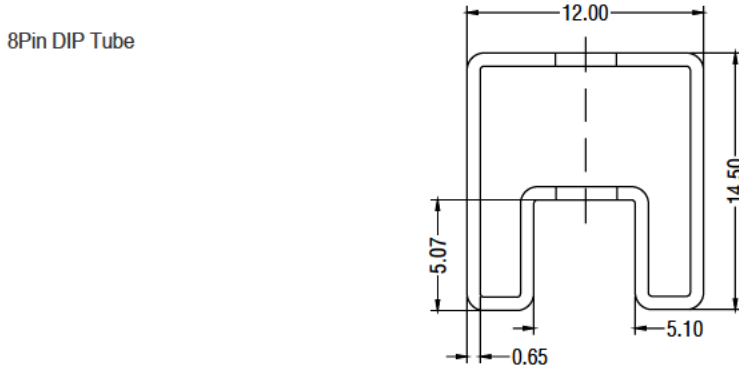
8 PIN DIP	
Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

4 PIN SIP	
Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

### RECOMMENDED FOOTPRINT DETAILS



### TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.

Tube length (8 Pin DIP) : 520mm  $\pm 2$ mm.

Tube length (4 Pin SIP) : 520mm  $\pm 2$ mm.

Tube Quantity : 35PCS