



DESCRIPTION: 0.5W 3KVDC Isolated Single & Dual Output DC/DC Converters

The PPV-W5 series are miniature, isolated 0.5W 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 and 3KVDC

FEATURES

RoHS compliant, CE certification	Efficiency to 80%	Power density up to 0.85W/cm ³
Single or dual output	UL 94V-0 package material	Power sharing on dual output
Footprint from 1.17cm ²	Industry standard pinout	3KVDC isolation (1 minute)
Input voltage: 3.3V,5V,12V,15V	Output voltage: 3.3V,5V,9V,12V,15V,24V /±5V,±9V,±12V,±15V	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	%	
PPV0303DA-W5	3.3	3.3	152/15.2	72	DIP
PPV0305DA-W5	3.3	5	100/10	72	DIP
PPV0505DA-W5	5	5	100/10	72	DIP
PPV0509DA-W5	5	9	55.5/5.55	75	DIP
PPV0512DA-W5	5	12	41.7/4.17	76	DIP
PPV0515DA-W5	5	15	33.3/3.33	78	DIP
PPV0303SA-W5	3.3	3.3	152/15.2	72	SIP
PPV0305SA-W5	3.3	5	100/10	72	SIP
PPV0505SA-W5	5	5	100/10	83	SIP
PPV0509SA-W5	5	9	55.5/5.55	75	SIP
PPV0512SA-W5	5	12	41.7/4.17	76	SIP
PPV0515SA-W5	5	15	33.3/3.33	78	SIP
PPV0524SA-W5	5	24	20.84/2.084	79	SIP
PPV1205DA-W5	12	5	100/10	72	DIP
PPV1209DA-W5	12	9	55.5/5.55	75	DIP
PPV1212DA-W5	12	12	41.7/4.17	77	DIP
PPV1215DA-W5	12	15	33.3/3.33	78	DIP
PPV1205SA-W5	12	5	100/10	72	SIP
PPV1209SA-W5	12	9	55.5/5.55	75	SIP
PPV1212SA-W5	12	12	41.7/4.17	77	SIP
PPV1215SA-W5	12	15	33.3/3.33	78	SIP
PPV1505SA-W5	15	5	100/10	72	SIP
PPV1512SA-W5	15	12	41.7/4.17	74	SIP
PPV1515SA-W5	15	15	33.3/3.33	78	SIP
PPV0505D-W5	5	±5	±50/±5	72	DIP
PPV0509D-W5	5	±9	±27.75/±2.775	77	DIP
PPV0512D-W5	5	±12	±20.85/±2.085	78	DIP
PPV0515D-W5	5	±15	±16.65/±1.665	80	DIP
PPV0505S-W5	5	±5	±50/±5	72	SIP
PPV0509S-W5	5	±9	±27.75/±2.775	77	SIP
PPV0512S-W5	5	±12	±20.85/±2.085	78	SIP
PPV0515S-W5	5	±15	±16.65/±1.665	80	SIP
PPV1205D-W5	12	±5	±50/±5	72	DIP
PPV1209D-W5	12	±9	±27.75/±2.775	74	DIP
PPV1212D-W5	12	±12	±20.85/±2.085	76	DIP
PPV1215D-W5	12	±15	±16.65/±1.665	77	DIP
PPV1205S-W5	12	±5	±50/±5	72	SIP
PPV1209S-W5	12	±9	±27.75/±2.775	74	SIP
PPV1212S-W5	12	±12	±20.85/±2.085	76	SIP
PPV1215S-W5	12	±15	±16.65/±1.665	77	SIP
PPV1505S-W5	15	±5	±50/±5	72	SIP
PPV1512S-W5	15	±12	±20.85/±2.085	74	SIP
PPV1515S-W5	15	±15	±16.65/±1.665	78	SIP

Add suffix "P" for continuous short circuit protection, for example PPV0505SAP-W5.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input variants	2.9	3.3	3.6	V
Voltage range	5V input variants	4.4	5	5.6	V
Voltage range	12V input variants	11	12	13.3	V
Voltage range	15V input variants	13.4	15	16.4	V

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V_{in} , PPV03 variants	5.5V
Input voltage V_{in} , PPV05 variants	6.6V
Input voltage V_{in} , PPV12 variants	14.5V
Input voltage V_{in} , PPV15 variants	18V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	$T_A = -40^\circ\text{C}$ to 85°C			0.5	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High V_{IN} to low V_{IN} (voltage variation +/-5%)		1.0	1.2	%/%

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 minute	3000			VDC
Resistance	$V_{iso} = 1000\text{VDC}$	1			$G\Omega$

GENERAL CHARACTERISTICS

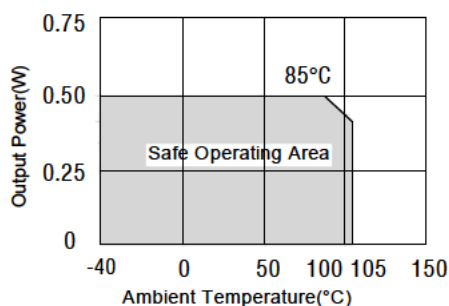
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3.3V input variants		95		kHz
Switching frequency	5V input variants		120	140	kHz
Switching frequency	12V input variants		145	180	kHz
Switching frequency	15V input variants		90	180	kHz

TEMPERATURE CHARACTERISTICS

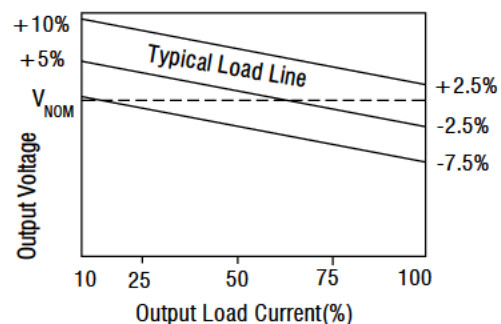
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature $\geq 85^\circ\text{C}$	-40		105	$^\circ\text{C}$
Storage		-55		130	$^\circ\text{C}$
Cooling	Free air convection				

All specifications typical at $T_A = 25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified.

TEMPERATURE DERATING GRAPHS

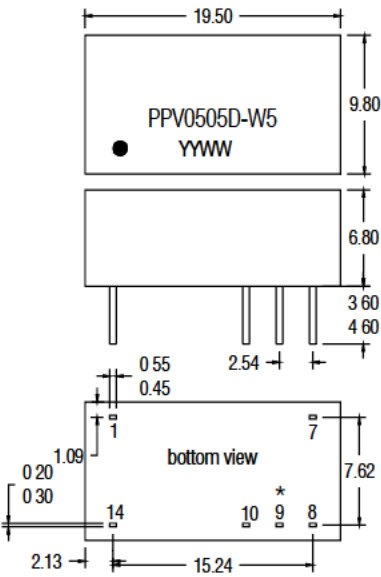


TOLERANCE ENVELOPES

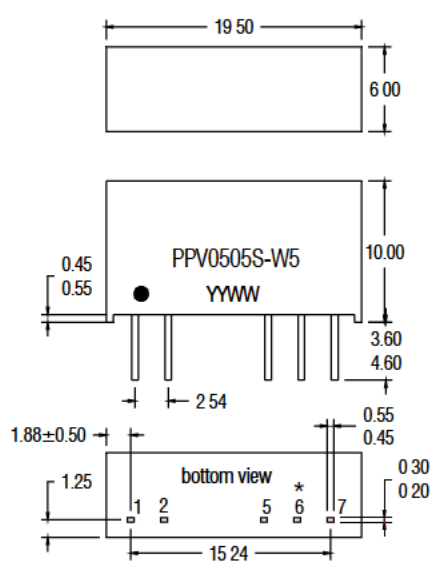


MECHANICAL DIMENSIONS

DIP Package



SIP Package



Pin not fitted on single output variants. All dimensions in mm ± 0.25 mm.

*7.70 for 48V variants

**7.50 for 48V variants

All pins on a 2.54mm pitch and within ± 0.25 mm of true position.

Weight: 2.11g (DIP and SIP)

PIN CONNECTIONS

Dual output variants

14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
9	0V
10	-Vout
14	+Vin

7 PIN SIP

Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

Single output variants

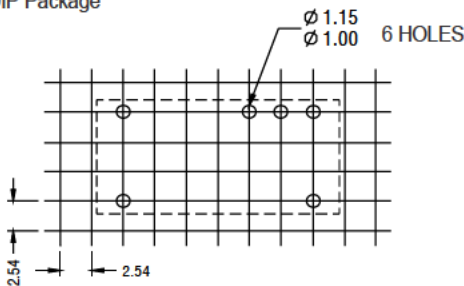
14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
10	-Vout
14	+Vin

7 PIN SIP

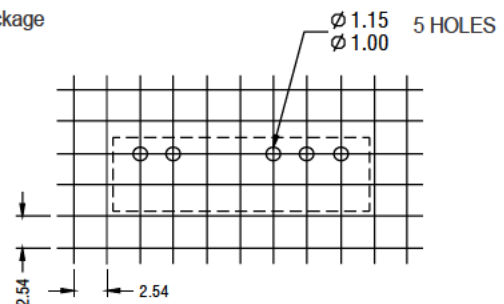
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

RECOMMENDED FOOTPRINT DETAILS

14Pin DIP Package

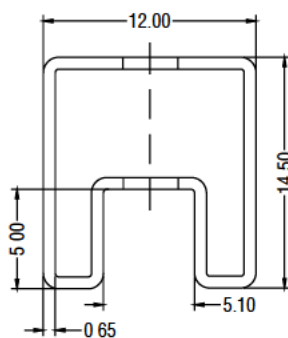


7Pin SIP Package

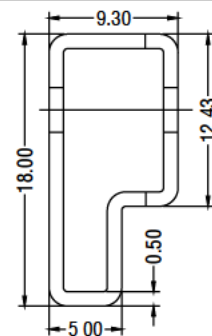


TUBE OUTLINE DIMENSIONS

14Pin DIP Tube



7Pin SIP Tube



Unless otherwise stated all dimensions in mm ± 0.5 mm.

Tube length (14 Pin DIP) : 520mm ± 2 mm.

Tube length (7 Pin DIP) : 520mm ± 2 mm.

Tube Quantity : 25PCS

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.