

**DESCRIPTION:** 0.5W 1.5KVDC and 3KVDC Isolated Miniature Single Output DC/DC Converters

The PKE-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.

### FEATURES

RoHS compliant	Sub-Miniature SIP & DIP styles	DIP: 3KVDC isolation, SIP: 1.5KVDC isolation
UL 94V-0 package material	Operating temperature: -40°C to 105°C	Power density 2.09W/cm <sup>3</sup>
Footprint at 0.69cm <sup>2</sup>	Industry standard pinout	Input voltage: 3.3V, 5V, 12V
Output voltage: 3.3V, 5V, 9V, 12V, 15V	Custom solutions available	CE certification

### SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
PKE0303D-W5	3.3	3.3	152/15.2	71	DIP
PKE0305D-W5	3.3	5	100/10	74	DIP
PKE0309D-W5	3.3	9	55.5/5.55	75	DIP
PKE0303S-W5	3.3	3.3	152/15.2	71	SIP
PKE0305S-W5	3.3	5	100/10	75	SIP
PKE0309S-W5	3.3	9	55.5/5.55	74	SIP
PKE0503D-W5	5	3.3	152/15.2	74	DIP
PKE0505D-W5	5	5	100/10	69	DIP
PKE0509D-W5	5	9	55.5/5.55	74	DIP
PKE0512D-W5	5	12	41.7/4.17	78	DIP
PKE0515D-W5	5	15	33.3/3.33	78	DIP
PKE0503S-W5	5	3.3	152/15.2	74	SIP
PKE0505S-W5	5	5	100/10	69	SIP
PKE0509S-W5	5	9	55.5/5.55	75	SIP
PKE0512S-W5	5	12	41.7/4.17	78	SIP
PKE0515S-W5	5	15	33.3/3.33	78	SIP
PKE1205D-W5	12	5	100/10	72	DIP
PKE1209D-W5	12	9	55.5/5.55	78	DIP
PKE1212D-W5	12	12	41.7/4.17	80	DIP
PKE1215D-W5	12	15	33.3/3.33	81	DIP
PKE1205S-W5	12	5	100/10	72	SIP
PKE1209S-W5	12	9	55.5/5.55	78	SIP
PKE1212S-W5	12	12	41.7/4.17	80	SIP
PKE1215S-W5	12	15	33.3/3.33	81	SIP

Add suffix "P" for continuous short circuit protection, for example PKE0505SP-W5.

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input	2.9	3.3	3.6	V
Voltage range	5V input	4.5	5.0	5.5	V
Voltage range	12V input	11	12.0	13.3	V

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	520mW
Input voltage Vin, PKE03	5.5V
Input voltage Vin, PKE05	7V
Input voltage Vin, PKE12	15V

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

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Max.	Units
Rated Power	TA= -40°C to 85°C, see derating graphs		0.5	W
Voltage Set Point Accuracy	See tolerance envelope			
Line regulation	High VIN to low VIN (voltage variation +/-5%)		1.2	%/%
Load Regulation(10% load to rated load)	3.3V output types & 0309		15	%
Load Regulation(10% load to rated load)	5V output types		15	%
Load Regulation(10% load to rated load)	9V output types		10	%
Load Regulation(10% load to rated load)	12V output types		10	%
Load Regulation(10% load to rated load)	15V output types		9	%

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage DIP package	tested for 1 second	3000			VDC
Isolation test voltage SIP package	tested for 1 second	1500			VDC
Resistance	Viso= 1000VDC	1			GΩ

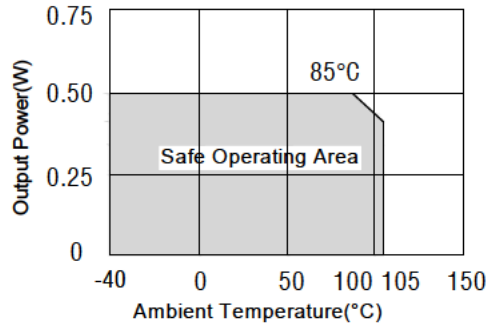
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All output types		120		kHz

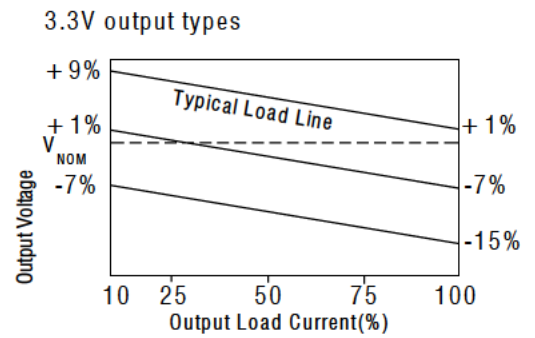
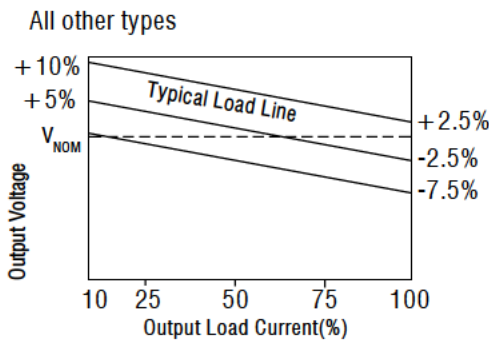
**TEMPERATURE CHARACTERISTICS**

Specification	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-50		130	°C
Case temperature rise above ambient	0505D/S, 1205D/S			35	°C
Case temperature rise above ambient	All other output types				
Cooling	Free air convection				

### TEMPERATURE DERATING GRAPHS

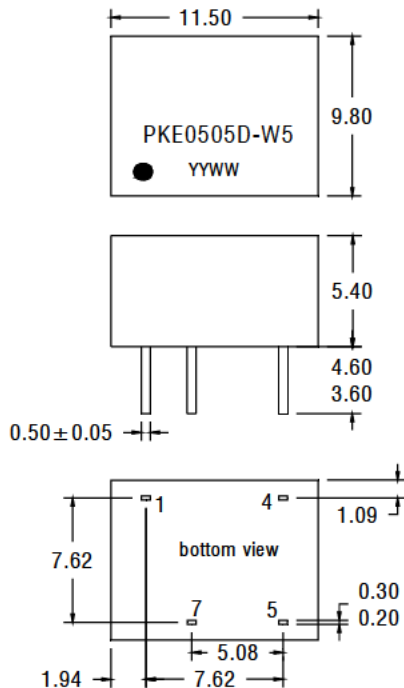


### TOLERANCE ENVELOPES

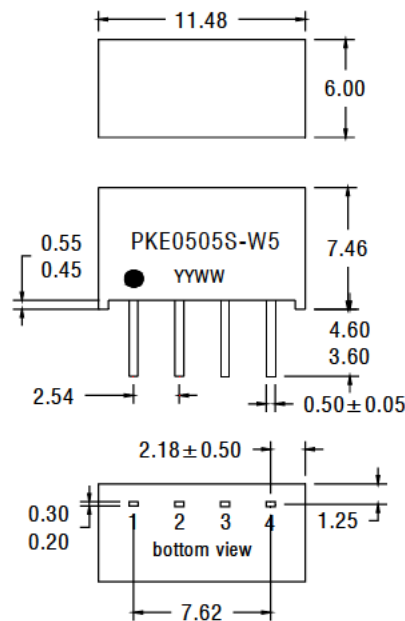


### MECHANICAL DIMENSIONS

#### DIP Package



#### SIP Package



All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.  
Weight: 1.09g(SIP) 1.25g(DIP)

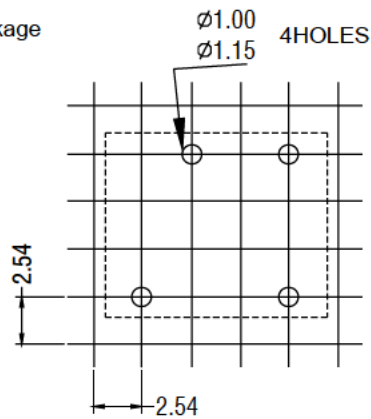
### PIN CONNECTIONS

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

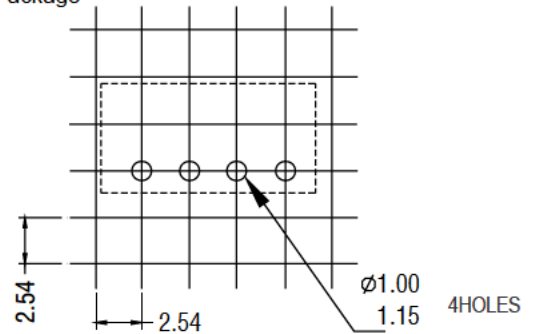
4 PIN SIP	
Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

### RECOMMENDED FOOTPRINT DETAILS

8 Pin DIP Package

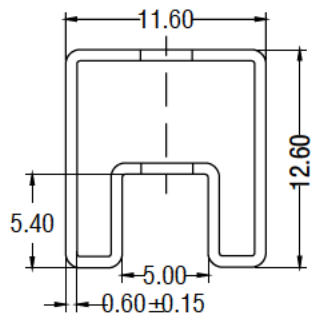


4 Pin SIP Package

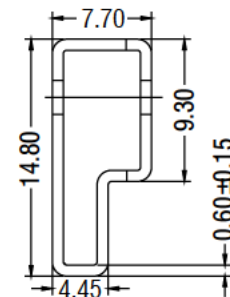


### TUBE OUTLINE DIMENSIONS

8 Pin DIP Tube



4 Pin SIP Tube



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):525mm  $\pm 2$ mm

Tube Quantity:40PCS

### 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.