

# PECO4-x-xxxxE/Z2:1(H35)(M)LF



## PECO-SERIES

Rev.02-2010

- ✓ 4 Watt
- ✓ 2:1 Wide Input
- ✓ Reg. Single and Dual Output
- ✓ 1.5 – 3.5 kV DC I/O Isolation
- ✓ DIP24 Plastic or Metal Case
- ✓ Continuous Short Circuit Prot.
- ✓ Full SMD Technology

The PECO-Line combine 1.5W up to 6W output power with 2:1 or 4:1 wide input and regulated output. The converters are available in plastic or optional metal DIP24 case with standard 1.5kV Isolation or optional 3.5kV isolation. You can choose between 3 Pinnings.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

### Input Specifications

Voltage Range	2:1 Wide Input
Input Filter	Pi Type
Input Reflected Ripple Current <sup>1</sup>	35 mA pk-pk

### Output Specifications

Voltage Accuracy	± 1%
Short Circuit Protection	Continuous (automatic recovery)
Line Regulation	± 0.5%
Load Regulation	± 0.5%
Ripple and Noise (20Mhz bandwidth)	60 mV pk-pk
Temperature Coefficient	± 0.02% / °C

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1500 VDC 3500 VDC (optional - please add "H35")
I/O Isolation Capacity	60 pF, typ.
I/O Isolation Resistance	1000 M Ohm
Switching Frequency (typical)	100 - 400 kHz
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 2.199 Mhrs

### Physical Specifications

Case Material	Non Conductive Black Plastic (UL94V-0 rated) <i>Nickel Coated Copper</i> (optional – please add "M")
Potting Material	Epoxy (UL94V-0 rated)
Weight	~12.5g, typ. (Plastic case - standard) ~15g, typ. (Metal case - optional)

### Environment Specifications

Operating Temperature	-25 to +71 °C (for 100% load)
Maximum Case Temperature	100 °C
Storage Temperature	-40 to +125 °C
Cooling	Free Air Convection (10mm distance required)
RoHS Conform	Soldering 260 °C, max. (1.5mm from case 10s.)

PECO-Series – PECO4-x-xxxxE/Z2:1(H35)(M)LF – Single/Dual Output – DIP24 – Plastic/Metal Case  
Specification can change without a notice – We accept no liability for any inaccuracy or printing errors.

# Selection Guide

## Single/Dual Output

Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF) <sup>2</sup>
<b>SINGLE OUTPUT</b> - standard (1.5kV, plastic case)								
PECO4-x-1205E2:1LF	9-18	20	432	5	200	800	77	2200
PECO4-x-1209E2:1LF	9-18	20	416	9	111	444	80	470
PECO4-x-1212E2:1LF	9-18	20	416	12	83.3	333	80	470
PECO4-x-1215E2:1LF	9-18	20	416	15	66.8	267	80	470
PECO4-x-1224E2:1LF	9-18	20	416	24	41.8	167	80	220
PECO4-x-2405E2:1LF	18-36	12	210	5	200	800	79	2200
PECO4-x-2409E2:1LF	18-36	12	203	9	111	444	82	470
PECO4-x-2412E2:1LF	18-36	12	203	12	83.3	333	82	470
PECO4-x-2415E2:1LF	18-36	12	203	15	66.8	267	82	470
PECO4-x-2424E2:1LF	18-36	12	203	24	41.8	167	82	220
PECO4-x-4805E2:1LF	36-72	8	106	5	200	800	78	2200
PECO4-x-4809E2:1LF	36-72	8	101	9	111	444	82	470
PECO4-x-4812E2:1LF	36-72	8	101	12	83.3	333	82	470
PECO4-x-4815E2:1LF	36-72	8	101	15	66.8	267	82	470
PECO4-x-4824E2:1LF	36-72	8	101	24	41.8	167	82	220

<b>DUAL OUTPUT</b> - standard (1.5kV, plastic case)								
PECO4-x-1205Z2:1LF	9-18	20	432	± 5	± 100	± 400	77	± 1000
PECO4-x-1209Z2:1LF	9-18	20	416	± 9	± 55.5	± 222	80	± 220
PECO4-x-1212Z2:1LF	9-18	20	416	± 12	± 41.8	± 167	80	± 220
PECO4-x-1215Z2:1LF	9-18	20	416	± 15	± 33.3	± 133	80	± 220
PECO4-x-1224Z2:1LF	9-18	20	416	± 24	± 20.8	± 83	80	± 100
PECO4-x-2405Z2:1LF	18-36	12	210	± 5	± 100	± 400	79	± 1000
PECO4-x-2409Z2:1LF	18-36	12	203	± 9	± 55.5	± 222	82	± 220
PECO4-x-2412Z2:1LF	18-36	12	203	± 12	± 41.8	± 167	82	± 220
PECO4-x-2415Z2:1LF	18-36	12	203	± 15	± 33.3	± 133	82	± 220
PECO4-x-2424Z2:1LF	18-36	12	203	± 24	± 20.8	± 83	82	± 100
PECO4-x-4805Z2:1LF	36-72	8	109	± 5	± 100	± 400	76	± 1000
PECO4-x-4809Z2:1LF	36-72	8	101	± 9	± 55.5	± 222	82	± 220
PECO4-x-4812Z2:1LF	36-72	8	101	± 12	± 41.8	± 167	82	± 220
PECO4-x-4815Z2:1LF	36-72	8	101	± 15	± 33.3	± 133	82	± 220
PECO4-x-4824Z2:1LF	36-72	8	101	± 24	± 20.8	± 83	82	± 100

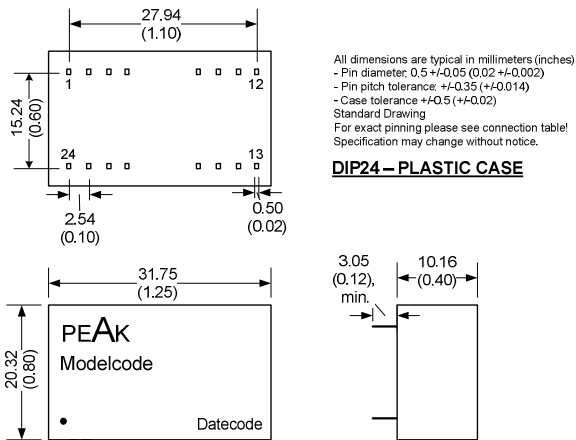
If you need other specifications, please enquire.

**\*OPTIONS:**

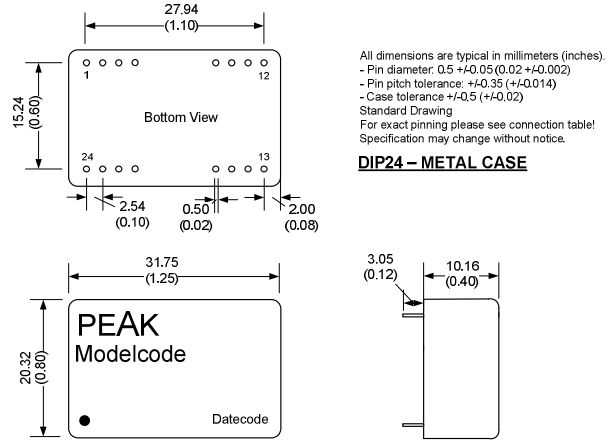
<b>PINNING "A" / "B" / "C"</b>	Please see table on page 3 and choose your pinning. (PECO4-A-2412E2:1LF for Pinning "A")
<b>3.5 kV I/O Isolation</b>	For optional 3.5kV DC I/O Isolation, please add "H35" before (M)LF! (PECO4-A-2412E2:1H35LF)
<b>Metal case</b>	For optional Metal case, please add "M" before LF! (PECO4-A-2412E2:1H35MLF)

# Package / Pinning / Derating

## Standard



## Optional: Please add „M“ before LF



PINNING "A"		
#	Single	Dual
2	- Vin	- Vin
3	- Vin	- Vin
9	Omitted	Common
11	N.C.	- Vout
14	+ Vout	+Vout
16	- Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Same pinning for 3.5kV models!

PINNING "B"		
#	Single 1.5kV	Dual 1.5kV
1	+Vin	+Vin
2	N.C.	- Vout
3	N.C.	Common
9	Omitted	Omitted
10	- Vout	Common
11	+Vout	+Vout
12	- Vin	- Vin
13	- Vin	- Vin
14	+Vout	+Vout
15	- Vout	Common
16	Omitted	Omitted
22	N.C.	Common
23	N.C.	- Vout
24	+Vin	+Vin

Only 1.5 kV isolation for pinning "B" available!

PINNING "C"		
#	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	N.C.	Common
11	N.C.	Common
12	- Vout	N.C.
13	+Vout	- Vout
15	N.C.	+Vout
23	- Vin	- Vin
24	- Vin	- Vin

Same pinning for 3.5kV models!

## App Notes:

<sup>1</sup> = Measured Input reflected ripple current with a simulated source inductance of 12uH.

<sup>2</sup> = Tested by nominal Vin and constant resistor load.

- Operation under no-load conditions will not damage these devices, but they will not observe the listed specifications.

Example: Pinning "C", single output, metal case

<b>PECO</b>	<b>4</b>	<b>- C -</b>	<b>12</b>	<b>05</b>	<b>E</b>	<b>2:1</b>	<b>M</b>	<b>LF</b>
Series	4 Watt	Pinning "C"	Input voltage	Output voltage	single output	2:1 wide input	Metal case	RoHS

Example: Pinning "A", dual output, plastic case, 3.5kV isolation

<b>PECO</b>	<b>4</b>	<b>- A -</b>	<b>24</b>	<b>12</b>	<b>Z</b>	<b>2:1</b>	<b>H35</b>	<b>LF</b>
Series	4 Watt	Pinning "A"	Input voltage	Output voltage	dual output	2:1 wide input	3.5kV isolation	RoHS

TEMPERATURE DERATING GRAPH

