

PEN5-xxxxE/Z2:1LF



PEN-SERIES

Rev.09-2009

- ✓ 4-6 Watt
- ✓ **2:1** Wide Input
- ✓ Reg. **Single** and **Dual** Output
- ✓ **DIP24 Metal Case**
- ✓ **1.5 kV DC I/O Isolation**
- ✓ Continuous Short Circuit Prot.

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 ¹	35 mA pk-pk

Output Specifications

Voltage Accuracy	± 1%
Short Circuit Protection	Indefinite (automatic recovery)
Line Regulation	± 0.5%
Load Regulation	± 0.5% / ± 1.5% (only 3.3 / ±3.3 Vout Models)
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
I/O Isolation Capacity	470 pF, typ.
I/O Isolation Resistance	1000 MOhm
Switching Frequency (typical)	266 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 1.121 Mhrs

Physical Specifications

Case Material	Nickel Coated Copper
Potting Material	Epoxy (UL94V-0 rated)
Weight	~ 17g, typ.

Environment Specifications

Operating Temperature	-40 to +85 °C (ambient)
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.)

Selection Guide

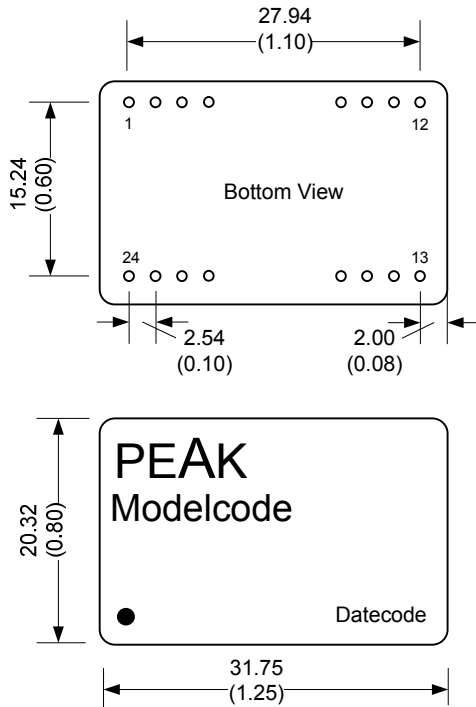
Single/Dual Output

Order #	Watt	Input Voltage (VDC)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF)
SINGLE OUTPUT							
PEN5-123R3E2:1LF	4	9 - 18	3.3	0	1200	77	3300
PEN5-1205E2:1LF	5	9 - 18	5	0	1000	81	1000
PEN5-1212E2:1LF	6	9 - 18	12	0	500	84	330
PEN5-1215E2:1LF	6	9 - 18	15	0	400	84	220
PEN5-243R3E2:1LF	4	18 - 36	3.3	0	1200	79	3300
PEN5-2405E2:1LF	5	18 - 36	5	0	1000	83	1000
PEN5-2412E2:1LF	6	18 - 36	12	0	500	86	330
PEN5-2415E2:1LF	6	18 - 36	15	0	400	86	220
PEN5-483R3E2:1LF	4	36 - 72	3.3	0	1200	79	3300
PEN5-4805E2:1LF	5	36 - 72	5	0	1000	83	1000
PEN5-4812E2:1LF	6	36 - 72	12	0	500	86	330
PEN5-4815E2:1LF	6	36 - 72	15	0	400	86	220

DUAL OUTPUT							
PEN5-1205Z2:1LF	5	9 - 18	± 5	0	± 500	81	± 330
PEN5-1212Z2:1LF	6	9 - 18	± 12	0	± 250	84	± 100
PEN5-1215Z2:1LF	6	9 - 18	± 15	0	± 200	84	± 47
PEN5-2405Z2:1LF	5	18 - 36	± 5	0	± 500	83	± 330
PEN5-2412Z2:1LF	6	18 - 36	± 12	0	± 250	86	± 100
PEN5-2415Z2:1LF	6	18 - 36	± 15	0	± 200	86	± 47
PEN5-4805Z2:1LF	5	36 - 72	± 5	0	± 500	83	± 330
PEN5-4812Z2:1LF	6	36 - 72	± 12	0	± 250	86	± 100
PEN5-4815Z2:1LF	6	36 - 72	± 15	0	± 200	86	± 47

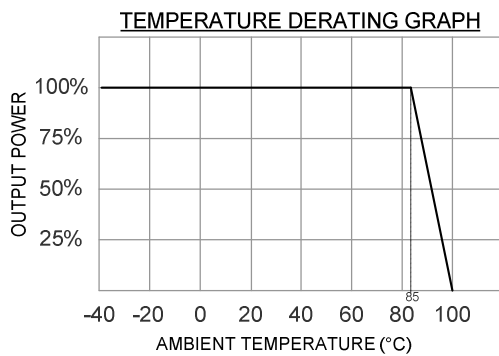
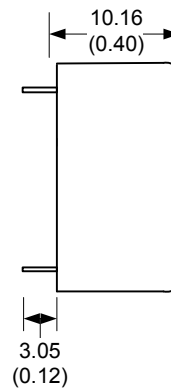
If you need other specifications, please enquire.

Package / Pinning / Derating



All dimensions are typical in millimeters (inches).
 - Pin diameter: 0.5 +/-0.05 (0.02 +/-0.002)
 - Pin pitch tolerance: +/-0.35 (+/-0.014)
 - Case tolerance +/-0.5 (+/-0.02)
 Standard Drawing
 For exact pinning please see connection table!
 Specification may change without notice.

DIP24 – METAL CASE



PIN CONNECTIONS		
#	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
others	Omitted	Omitted

App Notes:

¹ = Measured Input reflected ripple current with a simulated source inductance of 12uH.
² = Test by nominal input voltage and constant resistor load.