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# P10CU-xxxxE/Z LF (1kV) P10LU-xxxxE/Z (Hxx)LF (3-6kV)

## **PM3-SERIES**

Rev. 09-2015

- ✓ 2 Watt
- ✓ Unregulated
- ✓ Single and Dual Output
- ✓ SIP7 Case
- √ 1-6 kV DC I/O Isolation
- Low Ripple and Noise

The PM3 series is a family of cost effective 2W single/dual output DC/DC converters. They are encapsulated in an ultra miniature SIP7 (P10CU/LU...) or DIP14 (P10DU/MU...) case. High performance features: 1000-6000Vdc input/output isolation, high efficiency operation, output voltage accuracy of  $\pm 3\%$  maximum, input range of  $\pm 10\%$  and low output ripple and noise.

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

#### **Input Specifications**

Voltage Range	±10%
Current max.	52 - 797mA (See table)
Current No-Load	6 - 45mA (See table)
Filter	Capacitors
Reflected Ripple Current (@12uH)	20mA pk-pk

#### **General Specifications**

Efficiency	60% - 82% (See table)
	1000VDC (P10CU-xxxxELF)
Isolation I/O (60 sec)	3000VDC (P10LU-xxxxELF)
	4000-6000VDC (P10LU-xxxxEHxxLF)
Isolation I/O Capacitance	60 pF
Isolation I/O Resistance	1000 MΩ
Switching Frequency	80 kHz (variable)
Humidity (rel.)	95%
MTBF (Calculated MIL-HDBK-217F	>1.121 Mhrs
Safety Standard (designed to me	eet) IEC/EN 60950-1

## **Output Specifications**

Voltage accuracy	±3%
Line regulation (per 1% Vin change)	±1.2%
Lood regulation ( 00% to 400% )	±10%
Load regulation ( 20% to 100% )	(for 3.3Vout) ±20%
Ripple & noise (20 MHz bandwidth)	75 mV pk-pk
Temperature coefficient	±0.02%/°C
Constitution and the second second	470uF (Single out)
Capacitor load (Test: min. Vin + const. load)	±220uF (Dual out)

#### **Environment / Physical Specifications**

Operation Temp. (Derating)	-40°C to 85°C
Case max.	100°C
Storage	-40°C to 125°C
Cooling	Nature / Free Air
Case Material	Plastic (UL94V-0 rated)
Potting	Epoxy (UL94V-0 rated)
Pin Material	Alloy42 (Solder coated)
Weight	2.3 g

#### **EMC Specifications**

Radiated Emissions	EN55022	Class B
Conducted Emissions*	EN55022	Class B
ESD	IEC-61000-4-2	Pref. Criteria A
RS	IEC-61000-4-3	Pref. Criteria A
EFT*	IEC-61000-4-4	Pref. Criteria A
Surge*	IEC-61000-4-5	Pref. Criteria A
CS	IEC-61000-4-6	Pref. Criteria A
PFMF	IEC-61000-4-8	Pref. Criteria A

\*Input filter components are required to meet conducted emission class B (see App Note). An external filter capacitor (e.g. 470uF/100V) is required if the module has to meet IEC61000-4-4 and IEC61000-4-5.





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	Input Voltag	e (NDC)	it No Los	Ontbrit Aolta Fenil Fosid (unv.	ge (Alban Critic	ent Full s	Capacitor Load
Order #	Inbrit 1	Inbrit O	Inbrit C.	Ontbur	Ontbur	Efficien	Cabacin
SINGLE OUTPUT							
P10CU/LU-3R33R3ELF	3.3	26	797	3.3	400	76	470
P10CU/LU-3R305ELF	3.3	30	797	5	400	76	470
P10CU/LU-3R37R2ELF	3.3	30	808	7.2	277.7	75	470
P10CU/LU-3R309ELF	3.3	30	758	9	222.2	80	470
P10CU/LU-3R312ELF	3.3	35	748	12	166.7	81	470
P10CU/LU-3R315ELF	3.3	40	777	15	133.3	78	470
P10CU/LU-3R318ELF	3.3	35	787	18	111.1	77	470
P10CU/LU-3R324ELF	3.3	35	767	24	83. 3	79	470
P10CU/LU-053R3ELF	5	30	367	3.3	400	72	470
P10CU/LU-0505ELF	5	30	512	5	400	78	470
P10CU/LU-057R2ELF	5	30	500	7.2	277.7	80	470
P10CU/LU-0509ELF	5	30	500	9	222.2	80	470
P10CU/LU-0512ELF	5	30	487	12	166.7	82	470
P10CU/LU-0515ELF	5	30	487	15	133.3	82	470
P10CU/LU-0518ELF	5	30	487	18	111.1	82	470
P10CU/LU-0524ELF	5	30	487	24	83. 3	82	470
P10CU/LU-123R3ELF	12	36	169	3.3	400	65	470
P10CU/LU-1205ELF	12	20	216	5	400	77	470
P10CU/LU-127R2ELF	12	20	208	7.2	277.7	80	470
P10CU/LU-1209ELF	12	20	208	9	222.2	80	470
P10CU/LU-1212ELF	12	20	203	12	166.7	82	470
P10CU/LU-1215ELF	12	20	203	15	133.3	82	470
P10CU/LU-1218ELF	12	20	208	18	111.1	80	470
P10CU/LU-1224ELF	12	20	208	24	83. 3	80	470
P10CU/LU-243R3ELF	24	10	76	3.3	400	72	470
P10CU/LU-2405ELF	24	10	105	5	400	79	470
P10CU/LU-247R2ELF	24	10	104	7.2	277.7	80	470
P10CU/LU-2409ELF	24	10	104	9	222.2	80	470
P10CU/LU-2412ELF	24	10	102	12	166.7	80	470
P10CU/LU-2415ELF	24	10	101	15	133.3	82	470
P10CU/LU-2418ELF	24	10	101	18	111.1	82	470
P10CU/LU-2424ELF	24	10	104	24	83. 3	80	470
P10CU/LU-483R3ELF	48	6	45	3.3	400	60	470
P10CU/LU-4805ELF	48	6	54	5	400	77	470
P10CU/LU-487R2ELF	48	6	54	7.2	277.7	77	470
P10CU/LU-4809ELF	48	6	54	9	222.2	77	470





P10CU/LU-2412ELF	24	10	102	12	166.7	80	470
P10CU/LU-2415ELF	24	10	101	15	133.3	82	470
P10CU/LU-2418ELF	24	10	101	18	111.1	82	470
P10CU/LU-2424ELF	24	10	104	24	83. 3	80	470
P10CU/LU-483R3ELF	48	6	45	3.3	400	60	470
P10CU/LU-4805ELF	48	6	54	5	400	77	470
P10CU/LU-487R2ELF	48	6	54	7.2	277.7	77	470
P10CU/LU-4809ELF	48	6	54	9	222.2	77	470
P10CU/LU-4812ELF	48	6	53	12	166.7	78	470
P10CU/LU-4815ELF	48	6	53	15	133.3	78	470
P10CU/LU-4818ELF	48	6	53	18	111.1	78	470
P10CU/LU-4824ELF	48	6	55	24	83. 3	75	470
DUAL OUTPUT							
P10CU/LU-3R33R3ZLF	3.3	25	797	±3.3	±200	76	±220
P10CU/LU-3R305ZLF	3.3	40	777	±5	±200	78	±220
P10CU/LU-3R37R2ZLF	3.3	40	797	±7.2	±138.8	76	±220
P10CU/LU-3R309ZLF	3.3	40	797	±9	±111.1	76	±220
P10CU/LU-3R312ZLF	3.3	45	777	±12	±83. 3	78	±220
P10CU/LU-3R315ZLF	3.3	45	777	±15	±66.67	78	±220
P10CU/LU-3R318ZLF	3.3	45	777	±18	±55.55	78	±220
P10CU/LU-3R324ZLF	3.3	45	767	±24	±41.67	79	±220
P10CU/LU-053R3ZLF	5	30	406	±3.3	±200	65	±220
P10CU/LU-0505ZLF	5	30	555	±5	±200	72	±220
P10CU/LU-057R2ZLF	5	30	555	±7.2	±138.8	72	±220
P10CU/LU-0509ZLF	5	30	519	±9	±111.1	77	±220
P10CU/LU-0512ZLF	5	30	512	±12	±83. 3	78	±220
P10CU/LU-0515ZLF	5	30	500	±15	±66.67	80	±220
P10CU/LU-0518ZLF	5	30	500	±18	±55.55	80	±220
P10CU/LU-0524ZLF	5	30	500	±24	±41.67	80	±220
P10CU/LU-123R3ZLF	12	20	164	±3.3	±200	67	±220
P10CU/LU-1205ZLF	12	20	222	±5	±200	75	±220
P10CU/LU-127R2ZLF	12	20	219	±7.2	±138.8	76	±220
P10CU/LU-1209ZLF	12	20	216	±9	±111.1	77	±220
P10CU/LU-1212ZLF	12	20	203	±12	±83. 3	82	±220
P10CU/LU-1215ZLF	12	20	203	±15	±66.67	82	±220
P10CU/LU-1218ZLF	12	20	203	±18	±55.55	82	±220
P10CU/LU-1224ZLF	12	20	203	±24	±41.67	82	±220





P10CU/LU-243R3ZLF	24	10	80	±3.3	±200	68	±220
P10CU/LU-2405ZLF	24	10	111	±5	±200	75	±220
P10CU/LU-247R2ZLF	24	10	111	±7.2	±138.8	75	±220
P10CU/LU-2409ZLF	24	10	104	±9	±111.1	80	±220
P10CU/LU-2412ZLF	24	10	101	±12	±83. 3	82	±220
P10CU/LU-2415ZLF	24	10	101	±15	±66.67	82	±220
P10CU/LU-2418ZLF	24	10	101	±18	±55.55	82	±220
P10CU/LU-2424ZLF	24	10	101	±24	±41.67	82	±220
P10CU/LU-483R3ZLF	48	6	45	±3.3	±200	60	±220
P10CU/LU-4805ZLF	48	6	57	±5	±200	73	±220
P10CU/LU-487R2ZLF	48	6	54	±7.2	±138.8	77	±220
P10CU/LU-4809ZLF	48	6	54	±9	±111.1	77	±220
P10CU/LU-4812ZLF	48	6	52	±12	±83. 3	80	±220
P10CU/LU-4815ZLF	48	6	52	±15	±66.67	80	±220
P10CU/LU-4818ZLF	48	6	52	±18	±55.55	80	±220
P10CU/LU-4824ZLF	48	6	52	±24	±41.67	80	±220

If you need other specifications, please enquire.

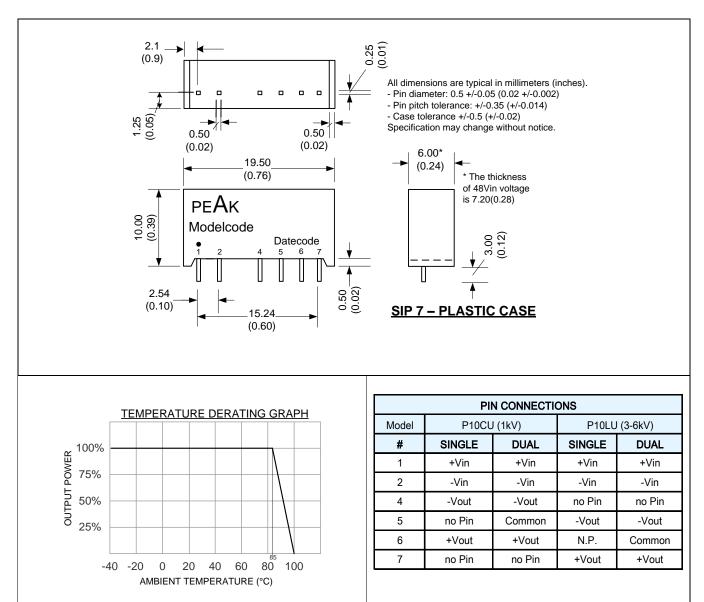
## **How to Order:**

Standard 1 kV Isolation	P10 <b>C</b> U-xxxxELF or ZLF
Standard 3 kV Isolation	P10 <u>L</u> U-xxxxELF or ZLF
Optional 4 kV Isolation	P10 <u>L</u> U-xxxxE <u>H40</u> LF orZ <u>H40</u> LF
Optional 5.2 kV Isolation	P10 <u>L</u> U-xxxxE <u>H52</u> LF orZ <u>H52</u> LF
Optional 6 kV Isolation	P10 <u>L</u> U-xxxxE <u>H60</u> LF orZ <u>H60</u> LF





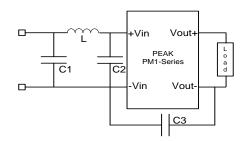
## Package / Pinning / Derating



### **App Notes:**

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

## **EMC Typical Recommended Circuit (CLASS B)**



Vin	C1	C2	C3	L
3.3	2.2uF/100V	-	-	18uH
5	2.2uF/100V	-	-	18uH
12	2.2uF/100V	-	-	18uH
15	2.2uF/100V	-	-	18uH
24	2.2uF/100V	2.2uF/100V	470pF/2kV	18uH
48	10uF/100V	2.2uF/100V	470pF/2kV	18uH
	Electrolytic			

