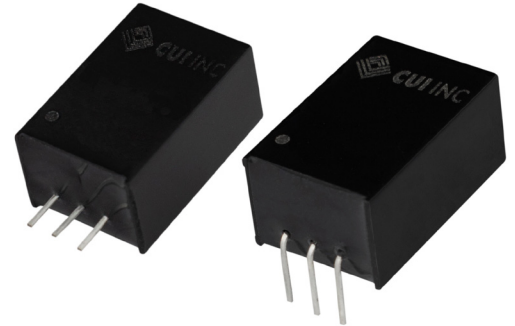


SERIES: P78W-500 | DESCRIPTION: DC-DC CONVERTER

FEATURES

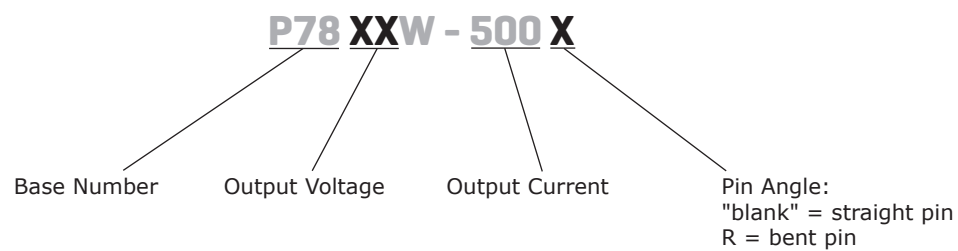
- 0.5A current output
- pin compatible with LM78XX linear regulators
- -40 to +85°C operating temperature
- wide input voltage range, up to 9~90 Vdc
- continuous short circuit protection
- compact SIP3 package
- certified to EN/IEC/UL 62368-1



MODEL	input voltage		output voltage	output current	output power	ripple and noise ¹	efficiency
	typ (Vdc)	range (Vdc)	typ (Vdc)	max (mA)	max (W)	max (mVp-p)	max (%)
P7803W-500	48	9~90	3.3	500	1.65	80	82
		9~70	-3.3	-300	0.9	80	76
P7805W-500	48	9~90	5.0	500	2.5	80	87
		9~70	-5.0	-300	1.5	80	78
P7806W-500	48	9~90	6.5	500	3.25	80	91
P7809W-500	48	14~90	9.0	500	4.5	80	91
P7812W-500	48	18~90	12.0	500	6.0	80	91
		9~62	-12.0	-300	3.6	80	83
P7815W-500	48	20~90	15.0	500	7.5	80	93
		12~62	-15.0	-300	4.5	80	85
P7824W-500	48	36~90	24.0	300	7.2	80	93

Notes: 1. The ripple and noise are measured at 20 MHz BW.
2. All specifications are measured at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
no load input current				1.5	mA

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load				100	μF
line regulation	3.3 ~ 6.5 Vdc output models			1.5	%
	9 ~ 24 Vdc output models			2.5	%
load regulation	10% ~ 100% load			2	%
voltage accuracy	3.3 Vdc output model		3	±4	%
	all other output models			3	%
switching frequency	at nominal input, full load		440		kHz
transient recovery time	50% load step change		0.25		ms

PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous, auto recovery				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
safety approvals	certified to 62368-1: IEC, EN, UL				
radiated emissions	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)				
ESD	IEC/EN 61000-4-2 air: ±8 kV, indirect contact: ±4 kV, perf. Criteria B				
radiated immunity	IEC/EN 61000-4-3 3 V/m, perf. Criteria A				
EFT/burst	IEC/EN 61000-4-4 ±0.5 kV, perf. Criteria B				
surge	IEC/EN 61000-4-5 positive to negative ±0.5 kV, perf. Criteria B				
conducted immunity	IEC/EN61000-4-6 3 Vrms max, perf. Criteria A				
MTBF	as per MIL-HDBK-217 at 25°C	5,000,000			hours
	as per MIL-HDBK-217 at 71°C	1,000,000			hours
RoHS compliant	yes				

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		85	°C
storage temperature		-55		125	°C
storage humidity	non-condensing	-		95	%

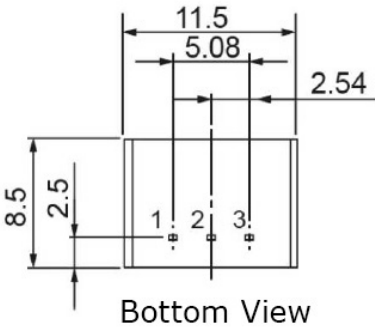
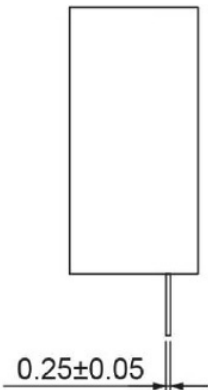
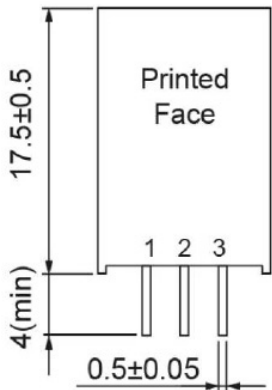
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	straight pin: 11.50 x 8.50 x 17.50 [0.453 x 0.335 x 0.689 inch] bent pin: 11.50 x 8.50 x 17.50 [0.453 x 0.335 x 0.689 inch]				mm
case material	black plastic, flame retardant and heat resistant				
weight			4.0		g
cooling	natural convection				

MECHANICAL DRAWING

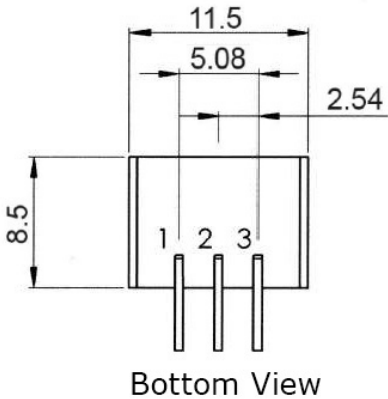
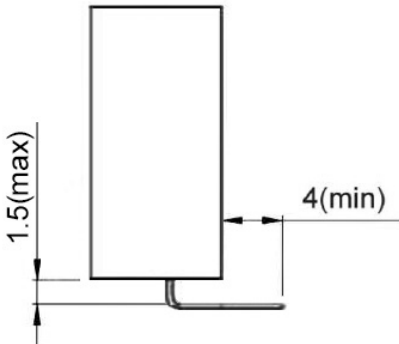
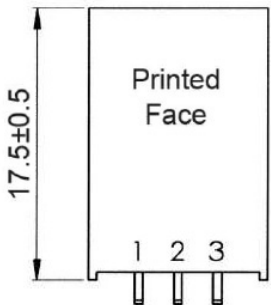
Straight pin
units: mm
tolerance: xx.x = ±0.50, xx.xx = ±0.25

PIN CONNECTIONS		
Pin	Function (positive output)	Function (negative output)
1	+Vin	+Vin
2	GND	-Vout
3	+Vout	GND



Bent pin
units: mm
tolerance: xx.x = ±0.50, xx.xx = ±0.25

PIN CONNECTIONS		
Pin	Function (positive output)	Function (negative output)
1	+Vin	+Vin
2	GND	-Vout
3	+Vout	GND



TYPICAL APPLICATION CIRCUIT



Table 1

Output Voltage (Vdc)	C1 (ceramic capacitor)	C2 (ceramic capacitor)
3.3	10µF/50V	22µF/10V
5		22µF/10V
6.5		22µF/16V
9		22µF/16V
12		22µF/25V
15		22µF/25V
24		22µF/50V

EMC RECOMMENDED CIRCUIT

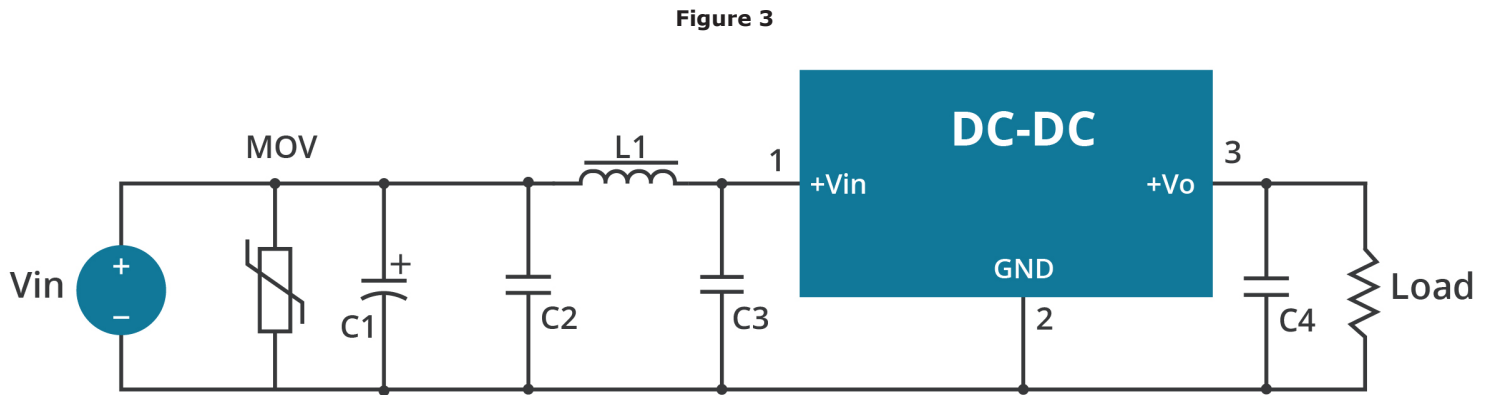
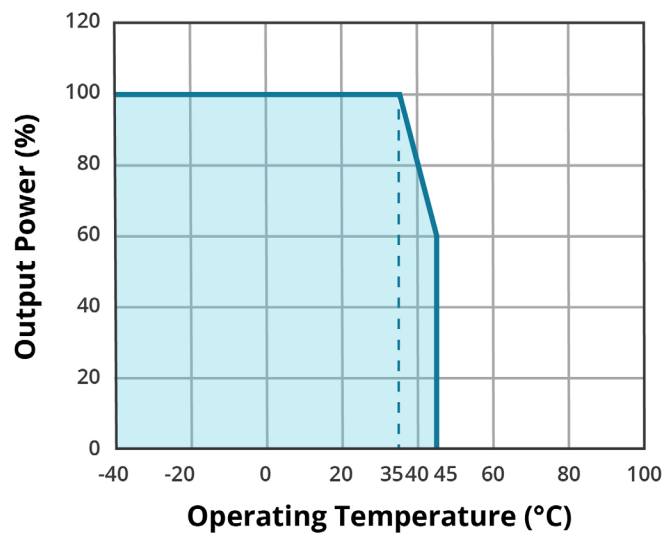


Table 2

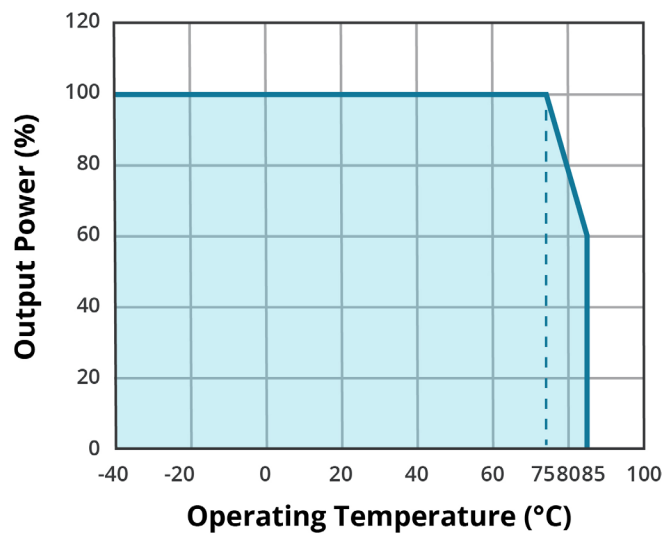
Component	Recommended value
FUSE	selected based on the actual input current in application
MOV	S20K30
L1	120µH
C1	680µH/100V
C2, C3	4.7µF/100V
C4	10µF/50V

DERATING CURVES

TEMPERATURE DERATING CURVE
24 V output model



TEMPERATURE DERATING CURVE
all other output models



REVISION HISTORY

rev.	description	date
1.0	initial release	09/30/2025

The revision history provided is for informational purposes only and is believed to be accurate.



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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