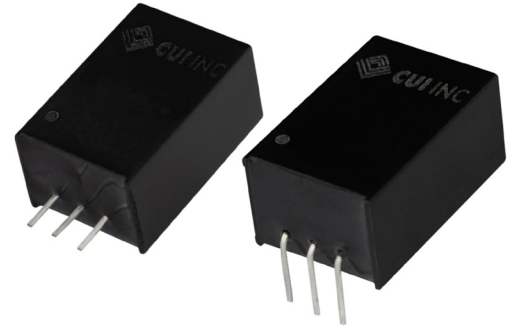


SERIES: P78W-500 | DESCRIPTION: DC-DC CONVERTER

FEATURES

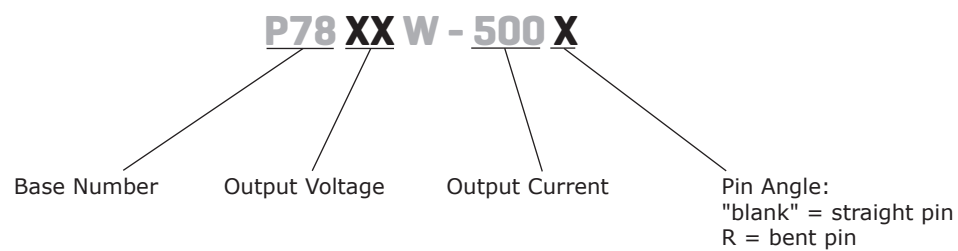
- 0.5A current output
- pin compatible with LM78XX linear regulators
- -40 to +85°C operating temperature
- wide input voltage range, up to 9~90 Vdc
- continuous short circuit protection
- compact SIP3 package
- certified to EN/IEC/UL 62368-1



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/EN 61000-4-6 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	%

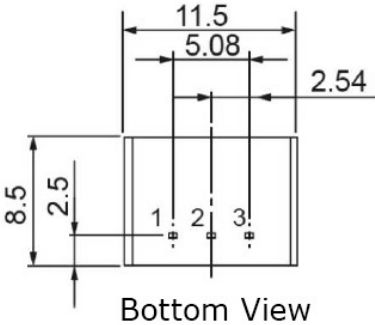
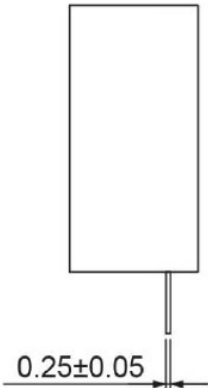
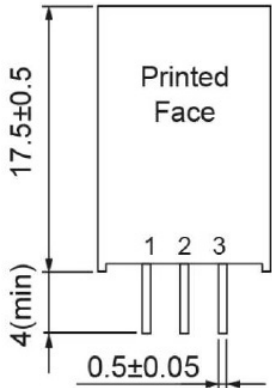
MECHANICAL

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

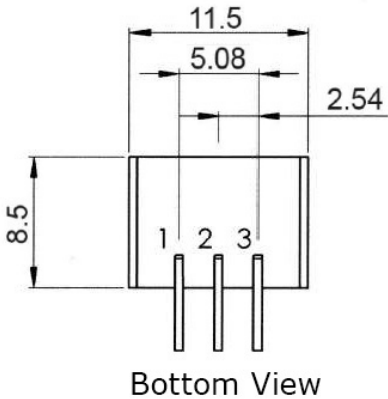
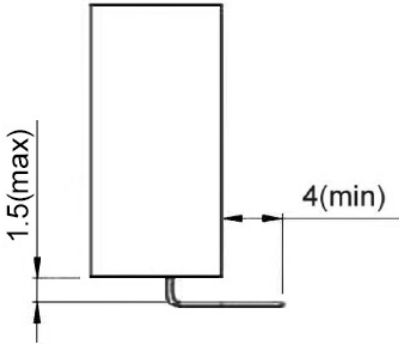
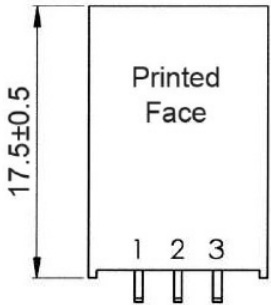
Straight pin
units: mm
tolerance: xx.x = ±0.50, xx.xx = ±0.25

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

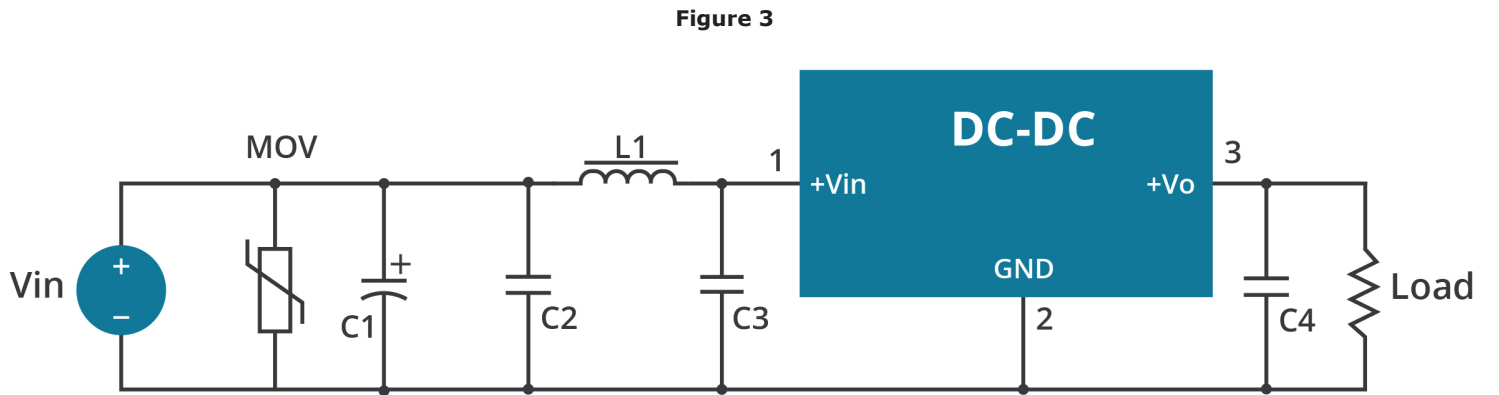
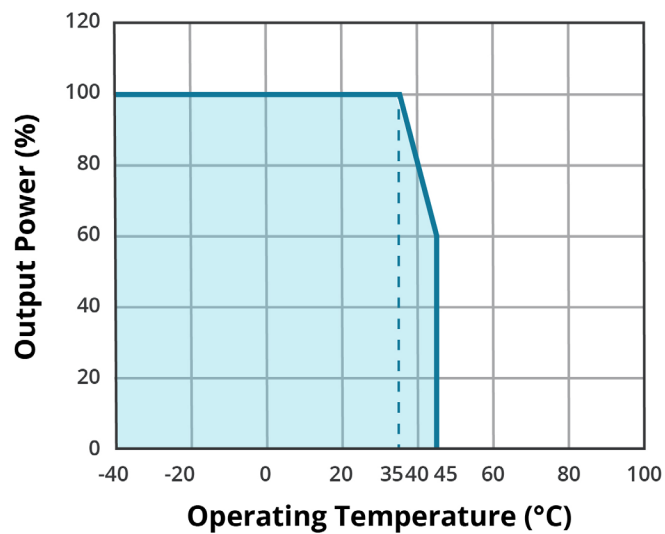


Table 2

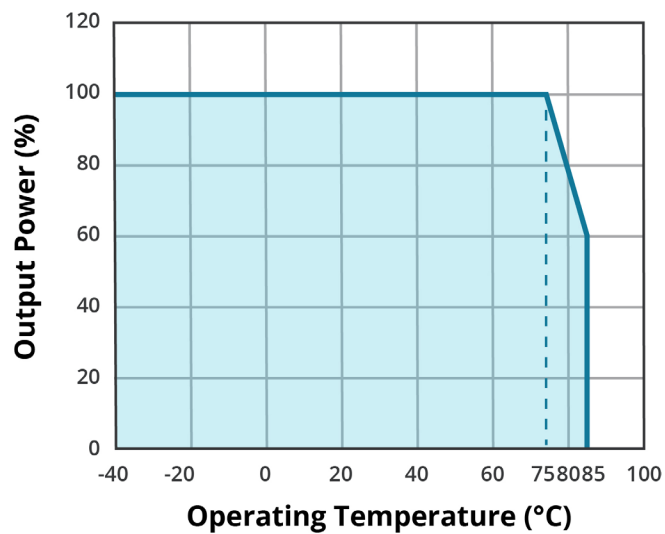
Component	Recommended value
FUSE	selected based on the actual input current in application
MOV	S20K30
L1	120µH
C1	680µH/100V
C2, C3	4.7µF/100V
C4	10µF/50V

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	10/25/2025

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.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.