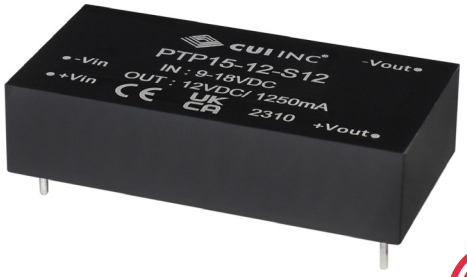
CUI INC
a bel group

SERIES: PTP15 | DESCRIPTION: DC-DC CONVERTER

FEATURES

- up to 15W continuous power
- 2:1 input range (9~18, 18~36 and 36~75 Vdc)
- 5,600 Vdc isolation
- regulated single outputs
- certified to IEC/EN 60601-1
- EN 55011 Class A without external components
- -40 to +100 C operating temperature
- output over current, short circuit and over voltage protections

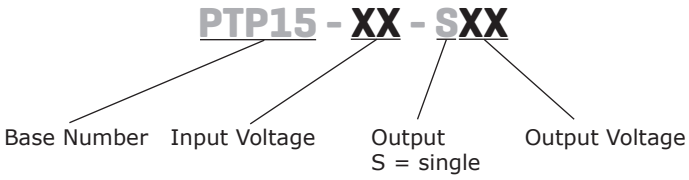


MODEL

MODEL	input voltage typ (Vdc)	input voltage range (Vdc)	output voltage (Vdc)	output current max (mA)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency[2] typ (%)
PTP15-12-S5	12	9~18	5	3,000	15	60	85
PTP15-12-S12	12	9~18	12	1,250	15	60	88
PTP15-12-S15	12	9~18	15	1,000	15	60	87
PTP15-12-S24	12	9~18	24	625	15	120	85
PTP15-24-S5	24	18~36	5	3,000	15	60	87
PTP15-24-S12	24	18~36	12	1,250	15	60	87
PTP15-24-S15	24	18~36	15	1,000	15	60	87
PTP15-24-S24	24	18~36	24	625	15	120	87
PTP15-48-S5	48	36~75	5	3,000	15	60	87
PTP15-48-S12	48	36~75	12	1,250	15	60	88
PTP15-48-S15	48	36~75	15	1,000	15	60	87
PTP15-48-S24	48	36~75	24	625	15	120	88

Note:
1. Measured at 20 MHz bandwidth with 0.1 µF capacitor.
2. The efficiency is test by nominal input and max full load at 25°C, the tolerance for the efficiency measurement is plus and minus 2%~3%.
3. All specifications are measured at Ta=25°C, nominal input voltage and full output load unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage	12 Vdc input models 24 Vdc input models 48 Vdc input models	9 18 36	12 24 48	18 36 75	Vdc Vdc Vdc
current	12 Vdc input models, at no load 24 Vdc input models, at no load 48 Vdc input models, at no load		10 7 5		mA mA mA
under voltage lockout	12 Vdc input models 24 Vdc input models 48 Vdc input models		7.5 15 33		Vdc Vdc Vdc
surge voltage	at 1 second max 12 Vdc input models 24 Vdc input models 48 Vdc input models			 25 50 100	 Vdc Vdc Vdc
filter	pi filter				

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	5 Vdc output models 12 Vdc output models 15 Vdc output models 24 Vdc output models			5,600 1,000 720 220	µF µF µF µF
line regulation	input voltage from low to high, full load			±0.5	%
load regulation	0% to full load			±0.5	%
voltage accuracy				±1	%
start-up time	at nominal input, full load			25	ms
switching frequency	24 & 48 Vdc input, 5 Vdc ouput models 12 & 24 Vdc input, all other output models 48 Vdc input, all other output models		210 300 350		KHz KHz KHz
transient recovery time	75%~100% load step change			500	µs

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over current protection			150		%
over voltage protection	output clamped with zener diode 5 Vdc output models 12 Vdc output models 15 Vdc output models 24 Vdc output models	 5.6 13.4 16.8 26.9		 8.0 19.2 24.0 38.4	 Vdc Vdc Vdc Vdc
short circuit protection	auto recovery, continuous				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage		4,000 5,600			Vac Vdc
isolation capacitance				100	pF
isolation resistance		10,000			MΩ
safety approvals	certified to 60601-1: IEC, EN				
EMI[4]	EN 55011 Class A				
ESD	EN 61000-4-2, Contact±8kV, Air±15kV, perf. Criteria A				
radiated immuninty	EN 61000-4-3, 10V/m, perf. Criteria A				
fast transient[5]	EN 61000-4-4, ±2kV, perf. Criteria A				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
surge[5]	EN 61000-4-5, ±2kV, perf. Criteria A				
criteria immunity	EN 61000-4-6, 10 Vrms, perf. Criteria A				
magnetic field immunity	EN 61000-4-8, 10A/m, perf. Criteria A				
MTBF	as per MIL-HDBK-217F at 25°C at 51°C	 1,060,000 84,000			 hours hours
RoHS compliant	yes				

Note: 4. EMI Class A without external circuit.
5. Test with E-CAP 220µF/100V at input terminal.

ENVIRONMENTAL

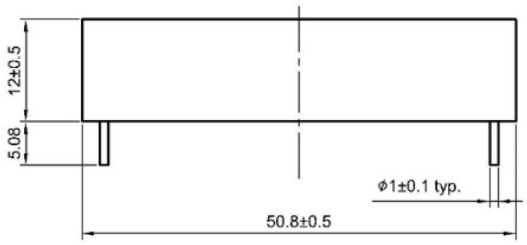
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		100	°C
storage temperature		-55		105	°C
storage humidity	non-condensing	5		95	%

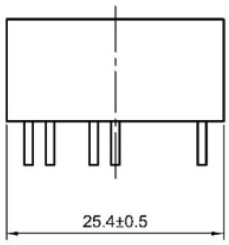
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	50.8 x 25.4 x 12.0				mm
weight			30		g
cooling method	natural convection				
case material	plastic case				
potting material	silicon				

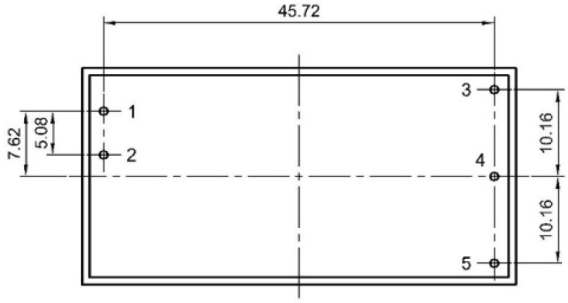
MECHANICAL DRAWING

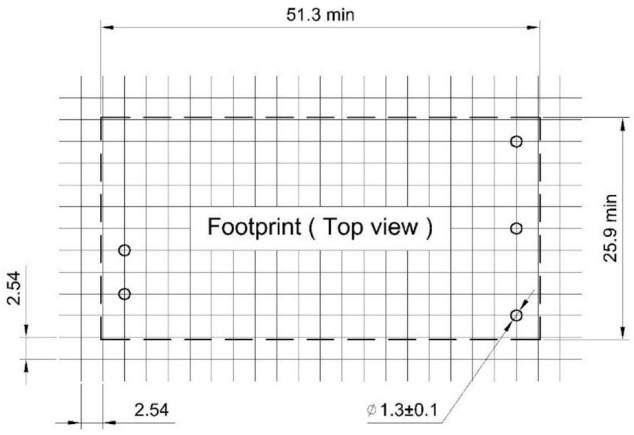
units: mm
tolerance: ±0.25 mm



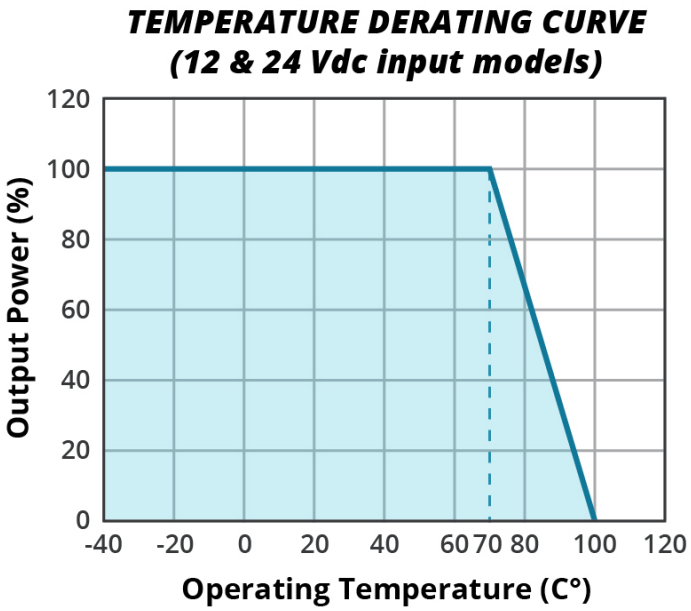


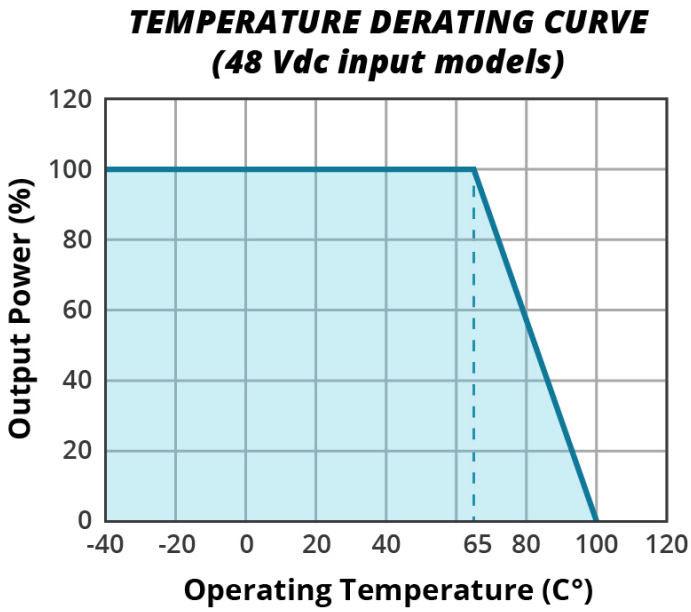
PIN CONNECTIONS	
PIN	Function
1	+Vin
2	-Vin
3	+Vout
4	no pin
5	-Vout





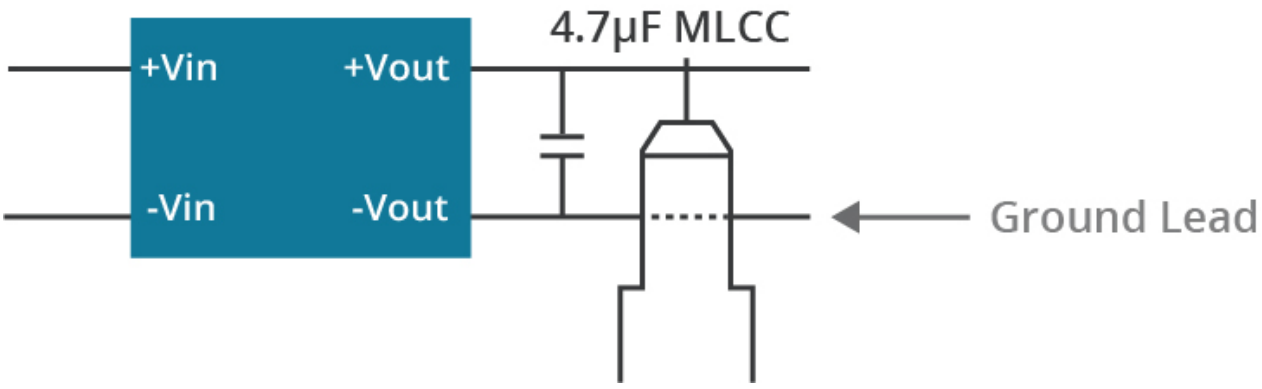
DERATING CURVES





RIPPLE AND NOISE MEASURE

Figure 1



REVISION HISTORY

rev.	description	date
1.0	initial release	09/07/2023

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

CUI INC
a bel group

Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com