CUI INC®

SERIES: VYC30W | DESCRIPTION: DC-DC CONVERTER

FEATURES

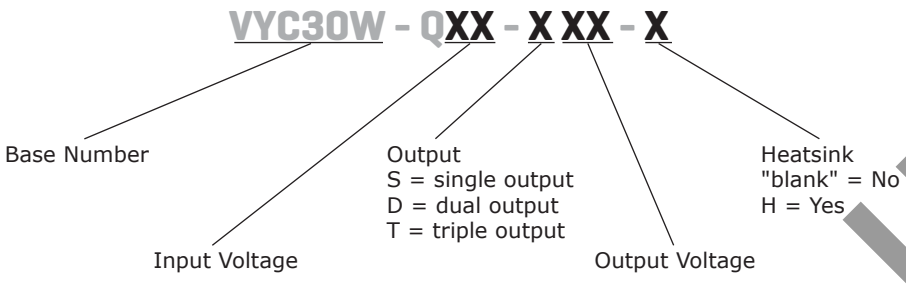
- up to 30 W output
- industry standard pinout
- 4:1 input range (9~36 V, 18~75 V)
- single, dual, and triple outputs
- 1,500 V isolation
- short circuit, over current, and over voltage protection
- wide temperature operation (-40~85°C)
- efficiency up to 88%

RoHS

MODEL	input voltage range (Vdc)	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency typ (%)
VYC30W-Q24-S5	9 ~ 36	5	6	30	120	87
VYC30W-Q24-S12	9 ~ 36	12	2.5	30	120	88
VYC30W-Q24-S15	9 ~ 36	15	2	30	120	87
VYC30W-Q24-D5	9 ~ 36	±5	3	30	120	86
VYC30W-Q24-D12	9 ~ 36	±12	1.25	30	120	88
VYC30W-Q24-D15	9 ~ 36	±15	1	30	120	87
VYC30W-Q24-T312	9 ~ 36	3.3 ±12	4 ±0.625	28.2	120	85
VYC30W-Q24-T315	9 ~ 36	3.3 ±15	4 ±0.5	28.2	120	85
VYC30W-Q24-T512	9 ~ 36	5 ±12	3 ±0.625	30	120	86
VYC30W-Q24-T515	9 ~ 36	5 ±15	3 ±0.5	30	120	86
VYC30W-Q48-S5	18 ~ 75	5	6	30	120	87
VYC30W-Q48-S12	18 ~ 75	12	2.5	30	120	88
VYC30W-Q48-S15	18 ~ 75	15	2	30	120	87
VYC30W-Q48-D5	18 ~ 75	±5	3	30	120	86
VYC30W-Q48-D12	18 ~ 75	±12	1.25	30	120	88
VYC30W-Q48-D15	18 ~ 75	±15	1	30	120	87
VYC30W-Q48-T312	18 ~ 75	3.3 ±12	4 ±0.625	28.2	120	85
VYC30W-Q48-T315	18 ~ 75	3.3 ±15	4 ±0.5	28.2	120	85
VYC30W-Q48-T512	18 ~ 75	5 ±12	3 ±0.625	30	120	86
VYC30W-Q48-T515	18 ~ 75	5 ±15	3 ±0.5	30	120	86

Notes: 1. Ripple and noise are measured at 20 MHz BW

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage		9 18	24 48	36 75	Vdc Vdc
start-up time			10		ms
under voltage lockout	power up 24 V input power up 48 V input power down 24 V input power down 48 V input			9.0 17.8	Vdc Vdc Vdc Vdc
		8.0 16.0			
Remote on/off[1]	module off module on (or open circuit)	0 3.5		1.2 12	Vdc Vdc
filter	PI type				

Notes: 1. The on/off pin voltage is referenced to GND

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	single and dual output models, measured from low line to high line at full load		±0.2	±0.5	%
	triple output models (main output), measured from low line to high line at full load			±1	%
	triple output models (auxiliary outputs), measured from low line to high line at full load			±5	%
load regulation	single and dual output models, measured from 10% to full load at nominal input		±0.5	±1	%
	triple output models (main output), measured 10% to full load at nominal input			±2	%
	triple output models (auxiliary outputs), measured 10% to full load at nominal input			±5	%
voltage accuracy	single and dual output models, refer to recommended circuit		±1	±3	%
	triple output models (main output), refer to recommended circuit		±2		%
	triple output models (auxiliary outputs), refer to recommended circuit		±5		%
transient recovery time	25% ~ 50% ~ 25% step load charge		300	500	µs
transient peak deviation	25% rated load change		300		µs
cross regulation	dual output models, main output 50% load, supplemental output from 10~100% load triple output models, main output and one auxiliary output 50% load, another auxiliary output from 10~100% load			±5	%
adjustability			±10%		Vdc
switching frequency	100% load, input voltage range		400		kHz
temperature coefficient			±0.02		%/°C

PROTECTIONS

parameter	conditions/description		min	typ	max	units
short circuit protection	hiccups, automatic recovery					
over current protection	input voltage range			130		%
over voltage protection	single and dual output models (main)	5 V		6.1		Vdc
		12 V		15		Vdc
		15 V		18		Vdc
	triple output models (main)	3.3 V		3.9		Vdc
		5 V		6.2		Vdc

SAFETY AND COMPLIANCE

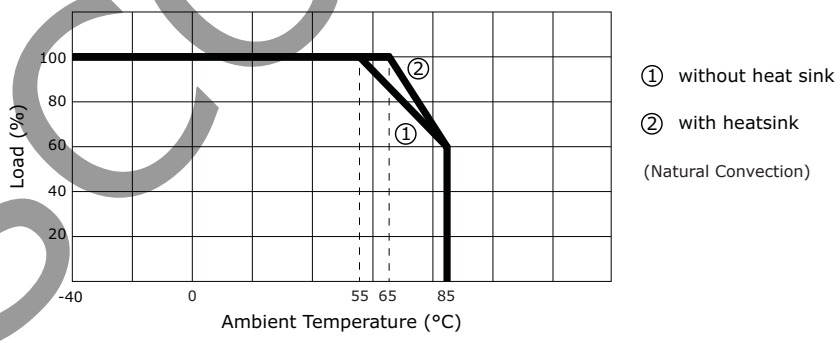
parameter	conditions/description	min	typ	max	units
isolation voltage	tested for 1 minute at 1 mA max.	1,500			Vdc
isolation resistance	at 500 Vdc	1,000			MΩ
isolation capacitance	100 kHz / 0.1 V		2,000		pF
RoHS compliant	yes				
MTBF	M1L-HDBK-217F	1,000,000			hours

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
case operating temperature		-40		85	°C
maximum case temperature	during operation			105	°C
storage temperature		-40		125	°C
storage humidity	non-condensing	5		95	%

DERATING CURVES

output power vs. ambient temperature

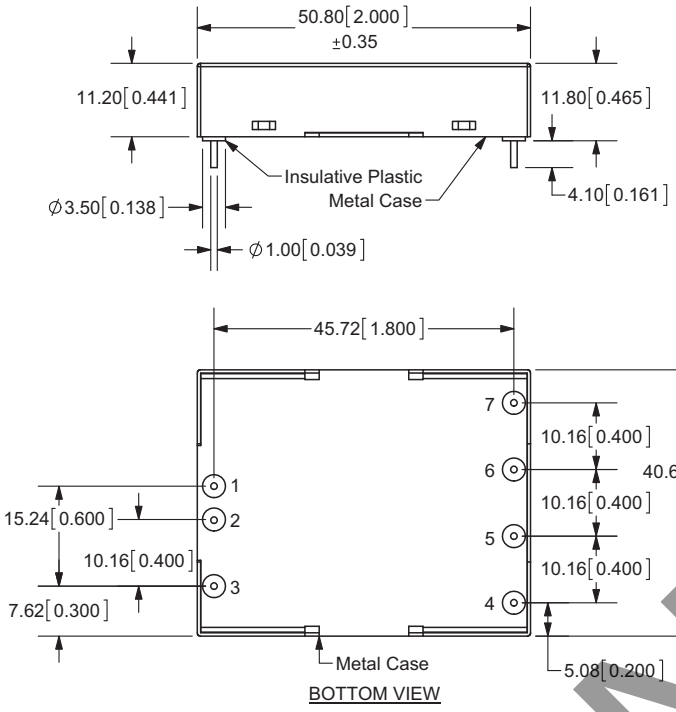


MECHANICAL

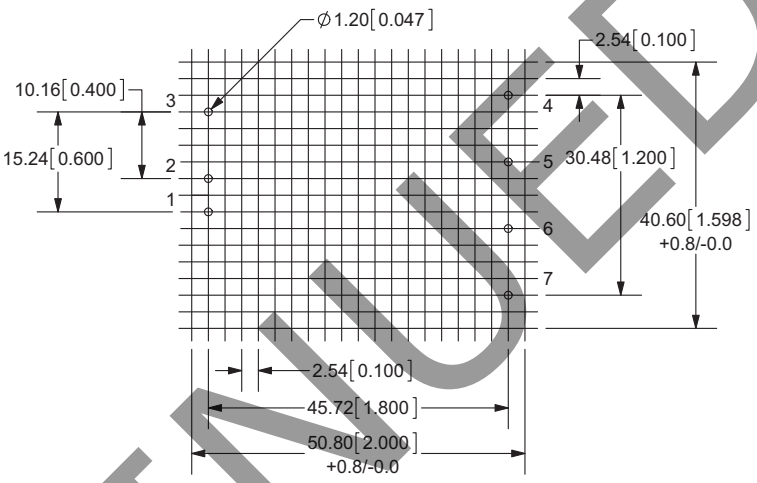
parameter	conditions/description	min	typ	max	units
dimensions	2.0 x 1.6 x 0.44 inch (50.8 x 40.6 x 11.2mm)				
case material	nickel-coated copper (six-sided)				
weight			50		g
	with heat sink		70		g

MECHANICAL DRAWING

unit: mm [inch]
General tolerances: ±0.25mm [±0.010 inch]
Pin section tolerances: ±0.10mm [±0.004 inch]

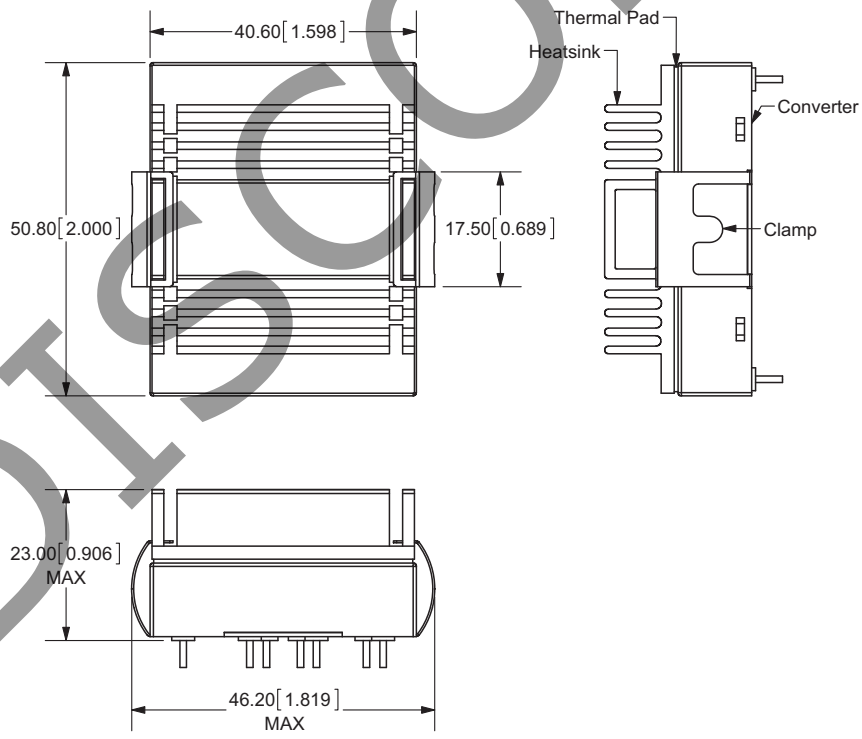


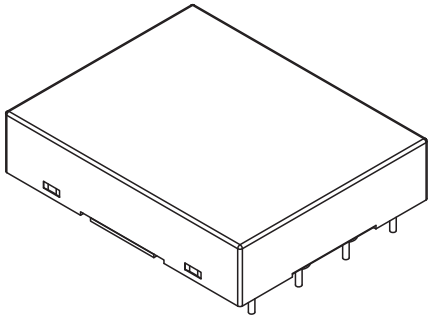
RECOMMENDED FOOTPRINT (TOP VIEW)

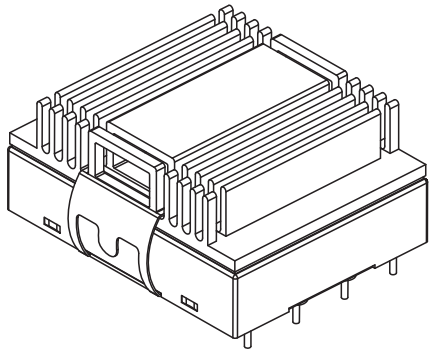


PIN CONNECTIONS			
Pin	Single	Dual	Triple
1	Vin	Vin	Vin
2	GND	GND	GND
3	On/Off	On/Off	On/Off
4	Trim	Trim	-Vo2
5	0V	-Vo	0V
6	+Vo	0V	+Vo1
7	No Pin	+Vo	+Vo2

unit: mm [inch]
tolerance: ±0.5mm [±0.020 inch]







APPLICATION NOTES

1. EMI & EMS recommended external circuit

	Single output, 18 ~ 75 Vin	Single output, 9 ~ 36 Vin	Dual output, 18 ~ 75 Vin	Dual output, 9 ~ 36 Vin	Triple output, 18 ~ 75 Vin	Triple output, 9 ~ 36 Vin
TVS	SMCJ90A,1500W(Bringtking)	SMCJ48A,1500W(Bringtking)	SMCJ90A,1500W(Bringtking)	SMCJ48A,1500W(Bringtking)	SMCJ48A,1500W(Bringtking)	SMCJ48A,1500W(Bringtking)
LCM	232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme)	232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme)	232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme)	232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme)	232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme)	232uH(0.1V 100KHz) 15T core: N5 T12*6*4 (Acme)
C0	680μF/1,000V (CapXon)	1,000μF/50V(CapXon)	680μF/100V (CapXon)	1000μF/50V(CapXon)	680μF/50V(CapXon)	1,000μF/100V (CapXon)
C1	105K/100V 1210(TDK)	105K/100V 1210(TDK)	105K/100V 1210(TDK)	105K/100V 1210(TDK)	105K/100V 1210(TDK)	105K/100V 1210(TDK)
C2	225K/100V 1210(TDK)	225K/100V 1210(TDK)	225K/100V 1210(TDK)	225K/100V 1210(TDK)	225K/100V 1210(TDK)	225K/100V 1210(TDK)
C3	No component	No component	102K/2,000V 1206 (TDK)	102K/2,000V 1200 (TDK)	No component	No component
C4	No component	No component	102K/2,000V 1206 (TDK)	102K/2,000V 1206 (TDK)	102K/2,000V 1206 (TDK)	102K/2,000V 1206 (TDK)

Figure 1 (Single output)

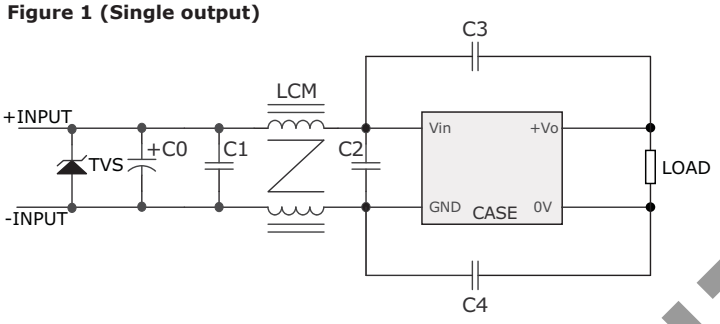


Figure 2 (Dual output)

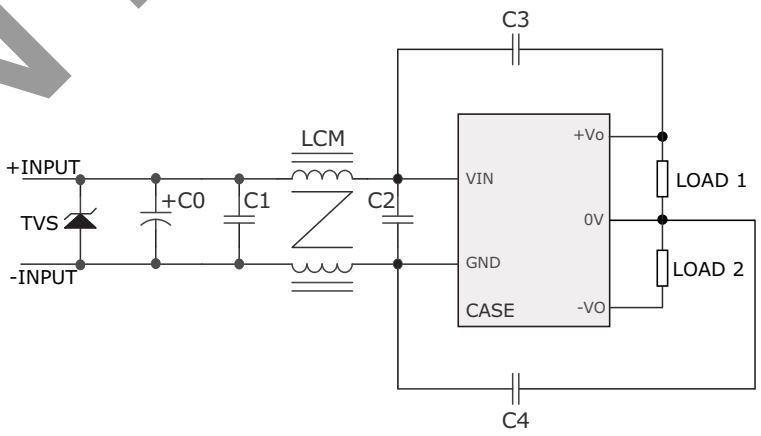
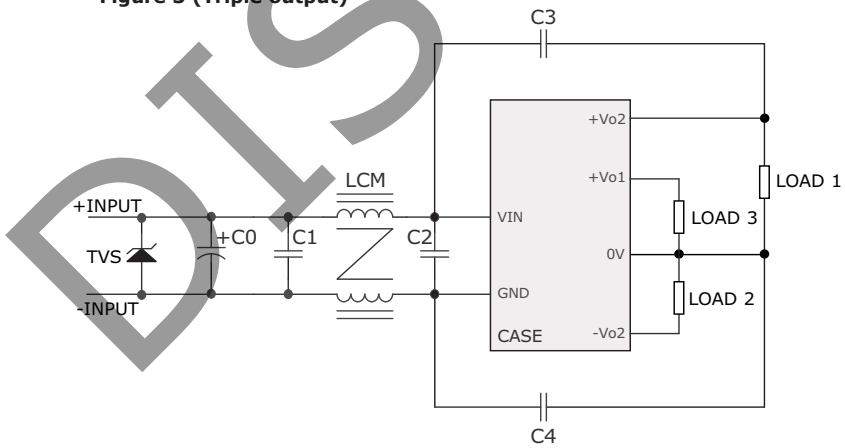


Figure 3 (Triple output)



REVISION HISTORY

rev.	description	date
1.0	initial release	08/23/2011
1.01	updated spec	10/07/2011
1.02	added two dual 5 V models	11/15/2011
1.03	V-Infinity branding removed	09/06/2012

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

CUI INC®

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

Fax 503.612.2383
cui.com
techsupport@cui.com