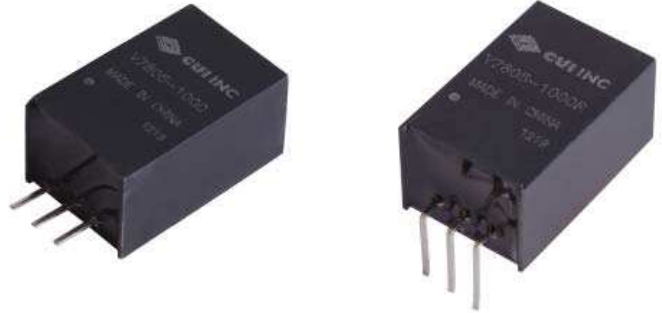


**SERIES:** V78XX-1000 | **DESCRIPTION:** NON-ISOLATED SWITCHING REGULATOR

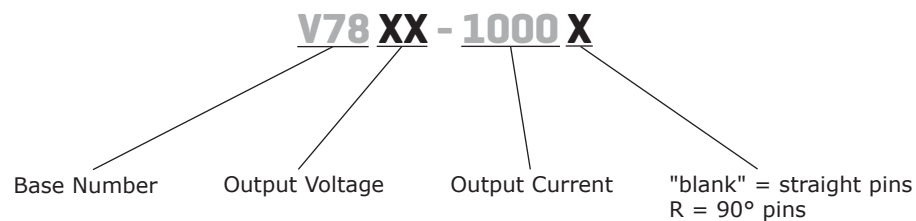
**FEATURES**

- 1 A current output
- extremely high efficiency up to 97%
- no heat sink required
- pin compatible to LM78XX linear regulators
- available in straight and right angle SIP packages
- low ripple and noise
- short circuit protection, thermal shutdown
- wide temperature (-40~85°C)



MODEL	input voltage		output voltage (Vdc)	output current max (mA)	ripple and noise <sup>1</sup> max (mVp-p)	efficiency	
	typ (Vdc)	range (Vdc)				Vin min (%)	Vin max (%)
V7803-1000	24	4.75~28	3.3	1,000	35	90	83
V7805-1000	24	6.5~32	5	1,000	35	93	88
V7806-1000	24	9~32	6.5	1,000	35	94	90
V7809-1000	24	12~32	9	1,000	35	95	92
V7812-1000	24	16~32	12	1,000	35	96	94
V7815-1000	24	20~32	15	1,000	35	97	94

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	3.3 V model	4.75	24	28	Vdc
	5 V model	6.5	24	32	Vdc
	6 V model	9.0	24	32	Vdc
	9 V model	12	24	32	Vdc
	12 V model	16	24	32	Vdc
	15 V model	20	24	32	Vdc

**OUTPUT**

parameter	conditions/description	min	typ	max	units
line regulation	Vin = min ~ max, at full load		±0.2	±0.4	%
load regulation	measured from 10% load to full load		±0.4	±0.6	%
voltage accuracy	100% load		±2	±3	%
switching frequency	100% load, input voltage range	280	340	30	kHz
temperature coefficient			±0.02		%/°C
load capacitance				1,000	µF

**PROTECTIONS**

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous, automatic recovery				
thermal shutdown			150		°C

**SAFETY AND COMPLIANCE**

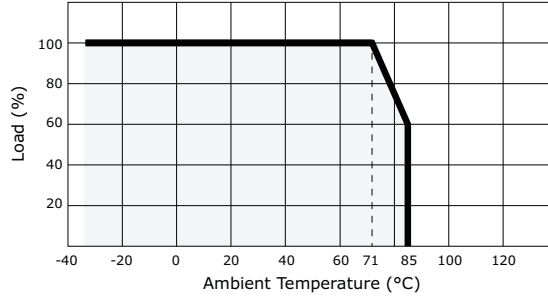
parameter	conditions/description	min	typ	max	units
MTBF		2,000,000			hours
RoHS compliant	yes				

**ENVIRONMENTAL**

parameter	conditions/description	min	typ	max	units
operating temperature		-40		85	°C
storage temperature		-55		125	°C
case temperature				100	°C
storage humidity	non-condensing			95	%
temperature rise	at full load		25		°C
lead temperature	1.5 mm from case for 10 seconds			300	°C

## DERATING CURVES

1. output power vs. ambient temperature



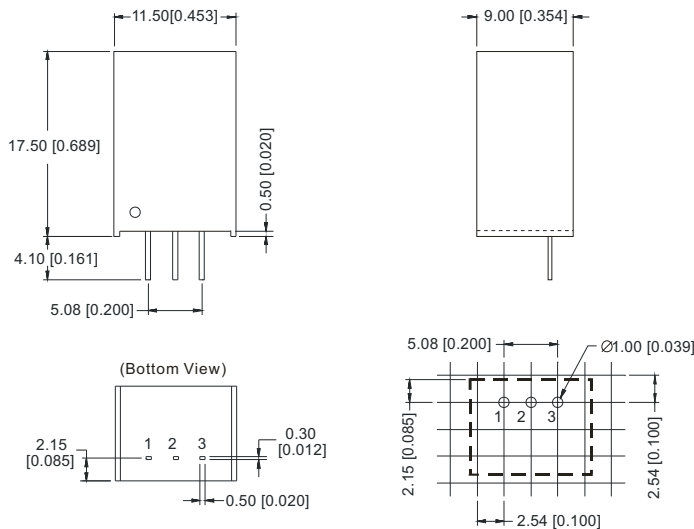
## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	0.689 x 0.354 x 0.453 (11.50 x 9.00 x 17.50 mm)				inch
case material	plastic (UL94-V0)				
weight			3.7		g

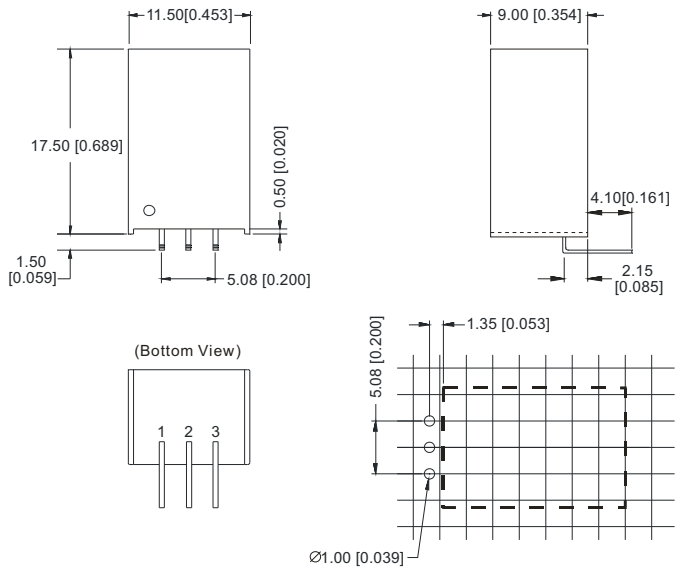
## MECHANICAL DRAWING

units: mm [inches]  
 tolerance: ±0.25 [±0.010]  
 pin section tolerance: ±0.10 mm [±0.004]

V78XX-1000



V78XX-1000R

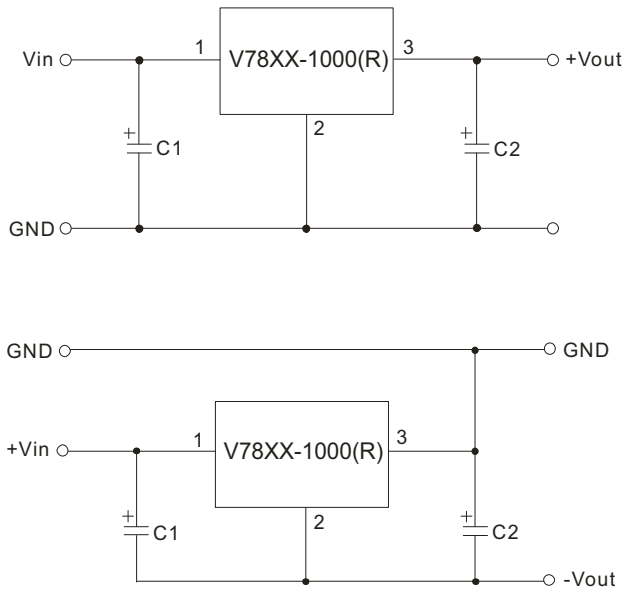


PIN CONNECTIONS	
PIN	FUNCTION
1	+Vin
2	GND
3	+Vo

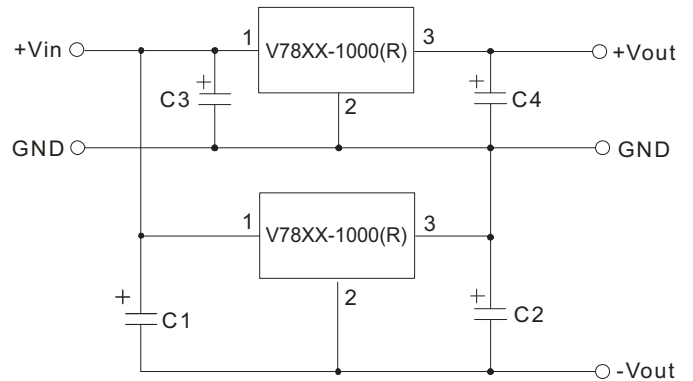
## EXTERNAL CAPACITOR TABLE

Part Number	C1,C3 (Ceramic capacitor)	C2,C4 (Ceramic capacitor)
V7803-1000(R)	10 $\mu$ F/50V	22 $\mu$ F/6.3V
V7805-1000(R)	10 $\mu$ F/50V	22 $\mu$ F/10V
V7806-1000(R)	10 $\mu$ F/50V	10 $\mu$ F/10V
V7809-1000(R)	10 $\mu$ F/50V	10 $\mu$ F/16V
V7812-1000(R)	10 $\mu$ F/50V	10 $\mu$ F/25V
V7815-1000(R)	10 $\mu$ F/50V	10 $\mu$ F/25V

## TYPICAL APPLICATION CIRCUIT

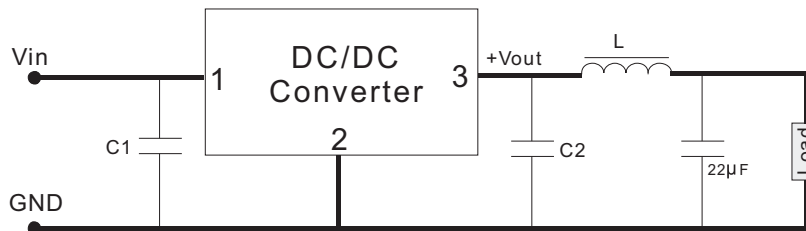


## APPLICATION EXAMPLE



1. C1 and C2 are required and should be fitted close to the converter pins.
2. The capacitance of C1, C2, C3 and C4 sees external capacitor table, it can be increased properly if required, and tantalum or low ESR electrolytic capacitors may also suffice.
3. No parallel connection or plug and play.

## OUTPUT RIPPLE REDUCTION

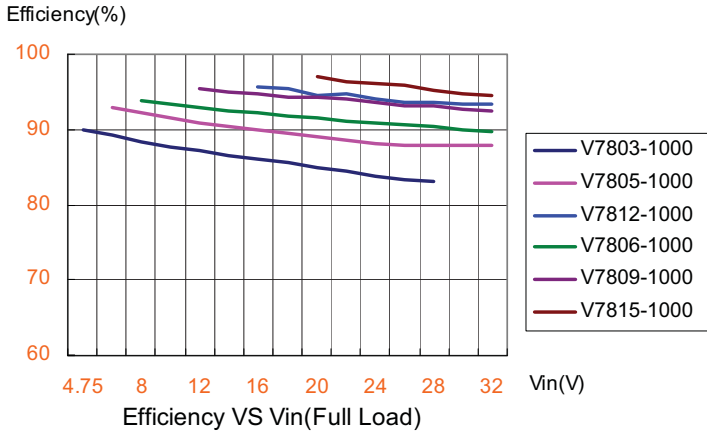


To reduce output ripple, it is recommended to add a LC filter in output port.

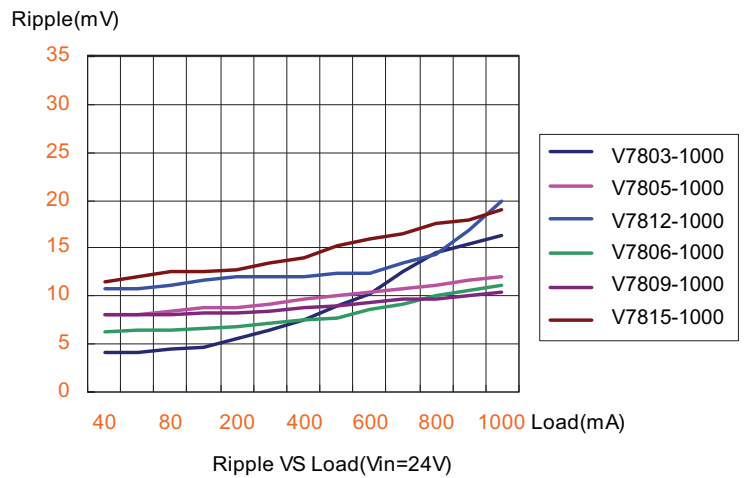
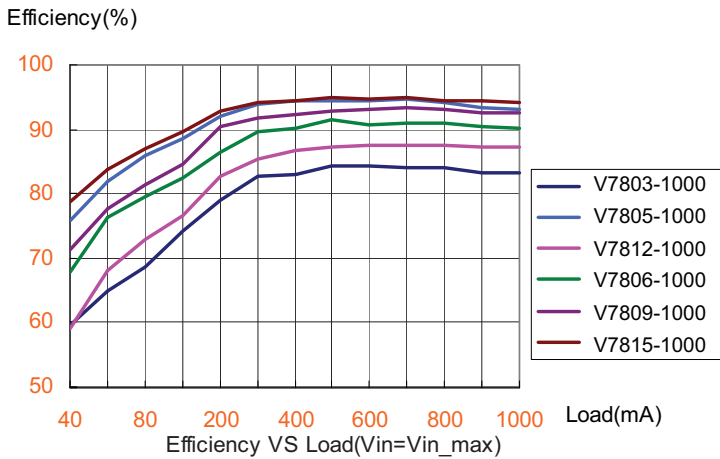
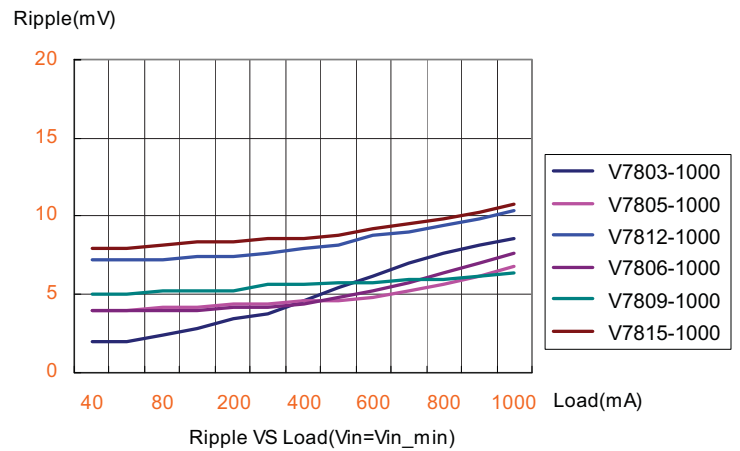
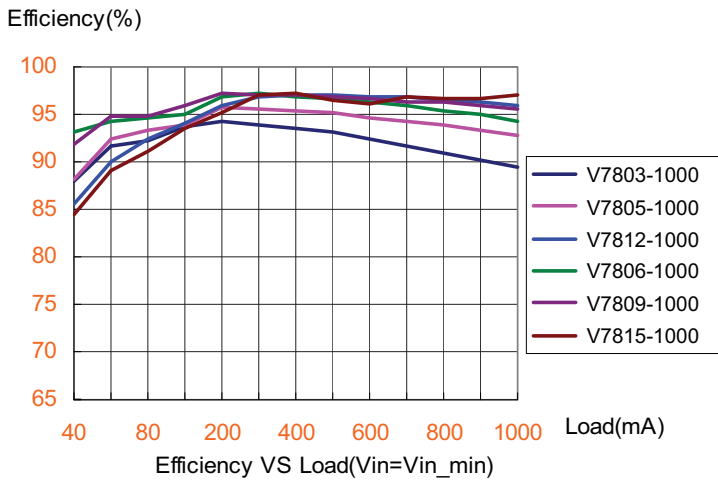
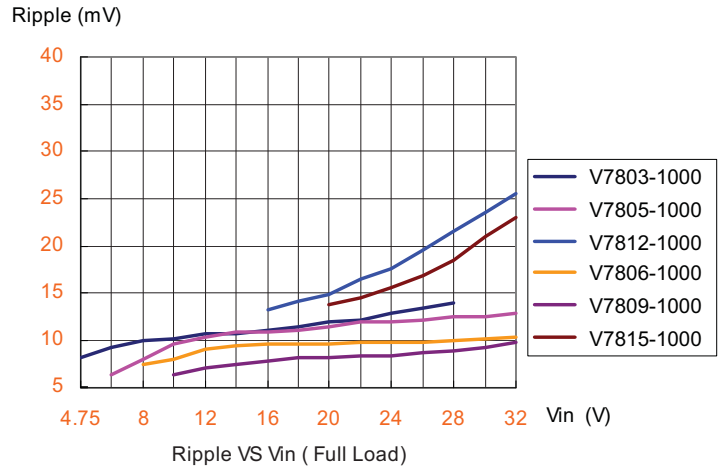
L: Recommended parameter 10 $\mu$ H ~ 47 $\mu$ H.

## EFFICIENCY AND RIPPLE CURVES

### Efficiency

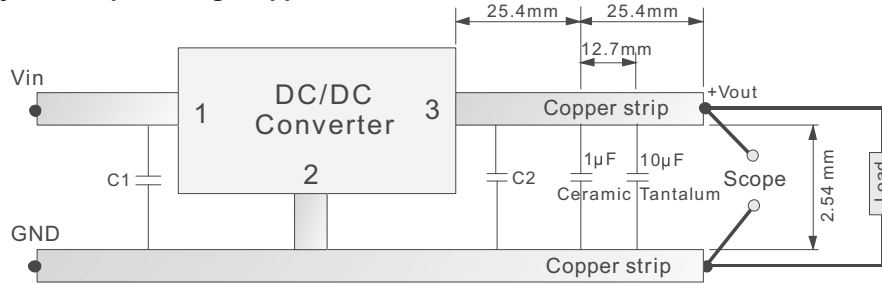


### Ripple

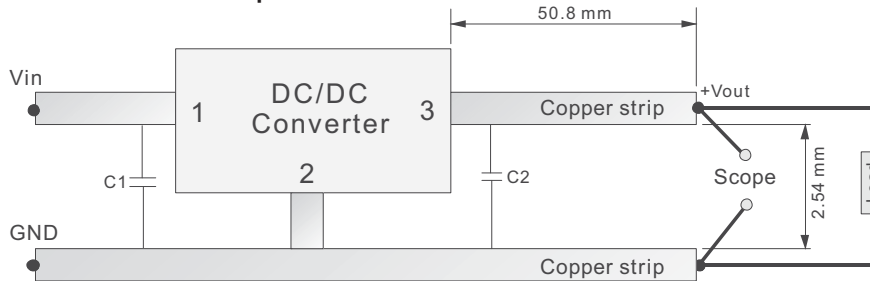


## TEST CONFIGURATION

### Efficiency and Output Voltage Ripple Test



### Start-up and Load Transient Response Test



## REVISION HISTORY

rev.	description	date
1.0	initial release	07/13/2010
1.01	V-Infinity branding removed	09/04/2012

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



**CUI INC**<sup>®</sup>

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

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

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