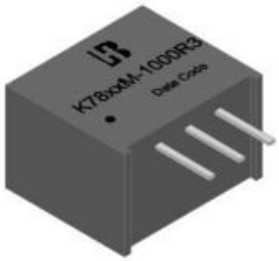
BOTHHAND

Features

- 6~36VDC wide input range
- Pin-out compatible with LM78xx linear regulators
- High Efficiency up to 97%
- Output Short Circuit Protection:
  Hiccup & Auto Recovery
- Over Temperature Protection
- Lead Free Design, RoHS Compliant
- Meet Safety Standard / Approval: IEC / EN60950-1



RoHS compliant

Description

The K78_M-1000R3 Series are non-isolated DC/DC converters suited to replace 1.0 Amp LM78xx linear regulators. Designed with highly efficiency, allow the operating temperature range of these units to be -40°C to +85°C in a 11.6×7.5×10.2mm non-conducted black plastic case. Further features include wide 6~36VDC input voltage range, short-circuits protection and over temperature protection.

Technical Specification

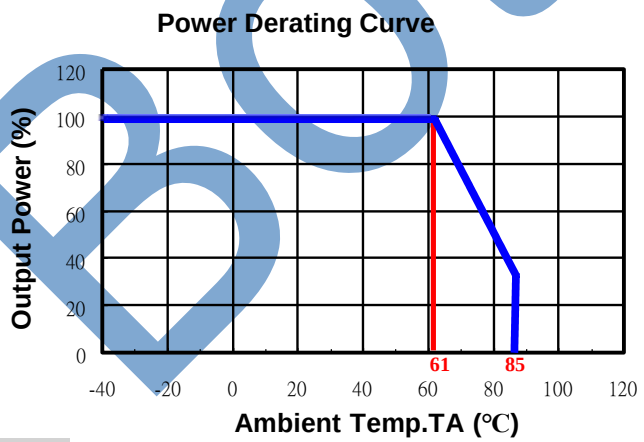
All specifications are typical at nominal input, full load and 25°C unless otherwise stated.

Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Eff .(2) (%)		Capacitive Load, max. (3) (uF)
			Min. Load (1)	Full. Load	Vin_max	Vin_min	
K7803M-1000R3	6-36V Nominal:24V	3.3	0	1000	90	80	2200
K7805M-1000R3	7-36V Nominal:24V	5	0	1000	94	85	2200
K7809M-1000R3	12-36V Nominal:24V	9	0	1000	95	90	1000
K7812M-1000R3	15-36V Nominal:24V	12	0	1000	96	92	1000
K7815M-1000R3	18-36V Nominal:24V	15	0	1000	97	93	1000

Input Specifications			
Input voltage	K7803M-1000R3	24V nominal input	6~36V
	K7805M-1000R3	24V nominal input	7~36V
	K7809M-1000R3	24V nominal input	12~36V
	K7812M-1000R3	24V nominal input	15~36V
	K7815M-1000R3	24V nominal input	18~36V
Input filter			Capacitor type
Environmental Specifications			
Operating ambient temperature			-40°C to +85°C (with derating)

Maximum case temperature		+105°C
Storage temperature range		-50°C to +125°C
Relative humidity		95% RH max.
Temperature coefficient		±0.03% / °C max.
Output Specifications		
Output current		1A max.
Voltage accuracy	0 -100% load and 24Vin	±1.5% typ. 3.3V±4% max. >=5V±3% max.
Minimum load		0mA
Line regulation	Full load	±0.75% max.
Load Regulation	10 -100% load	±1.5% max.
Ripple and Noise (20MHz Bandwidth)		85mVp-p max.
Capacitive load		See table
Short Circuit Protection(SCP)		Hiccup, automatic recovery
Over Temperature Protection(OTP)	The IC Thermal Shutdown Temperature	150°C typ
General Specifications		
Efficiency		See table
Switching frequency (Fixed)	Pulse width modulation (PWM)	520kHz
Reliability, calculated MTBF		10 × 10 5 Hrs
Physical Specifications		
Case material		Plastic (UL94 V-0)
Dimensions		0.46 × 0.295 × 0.4 Inch (11.6 × 7.5 × 10.2 mm)
Weight		1.6g (0.057oz) typ.

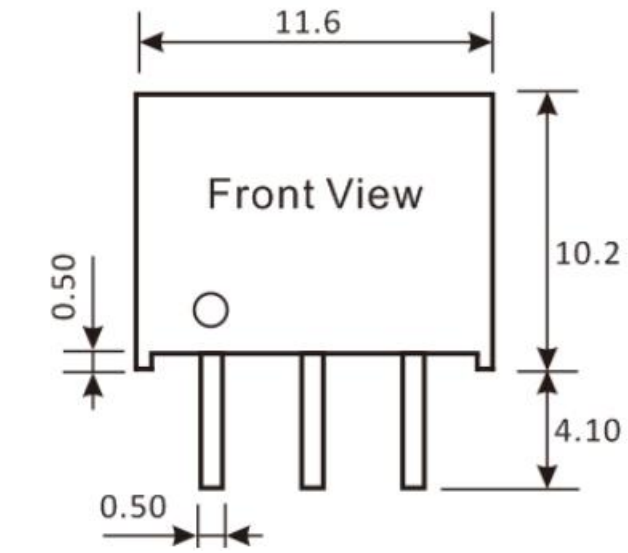
Attention：Please don't use it in overload condition.

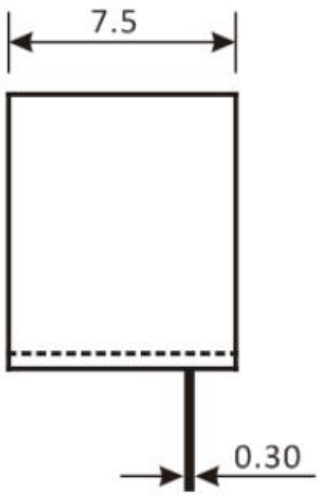


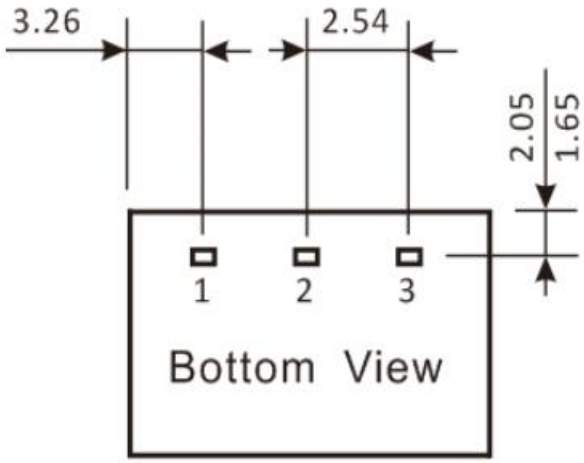
Note

1. Io below this value will not damage these converters, however, they may not meet all listed specifications.
2. Typical value, tested at nominal input and full load.
3. Specifications subject to change without notice.
4. This power module is not internally fused. The input line fuse must always be used.

Mechanical Dimensions





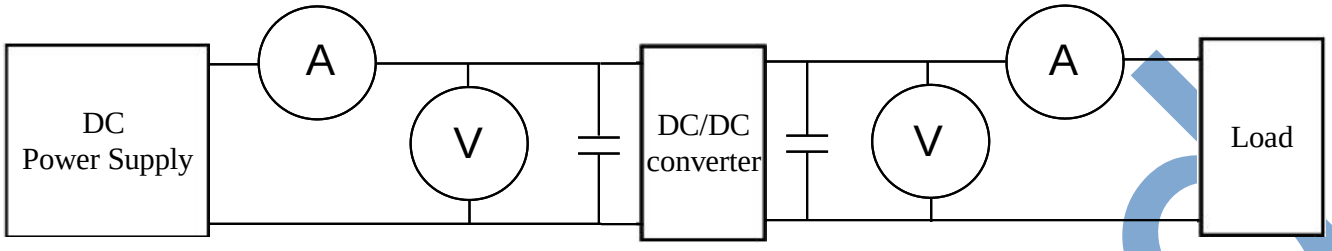


Pin Assignment	
Pin	Define
1	Vin
2	GND
3	Vout

Unit: mm
Tolerance: XX.X=±0.5, XX.XX=±0.25

Test Configurations

All specifications are typical at nominal input, full load and 25°C unless otherwise stated.



◎DC Power Supply: It offers a wide voltage and current range precisely.

◎Current meter (A): Accuracy➔200μA ~ 200mA 4 ranges±(0.2% rdg + 2 digits)

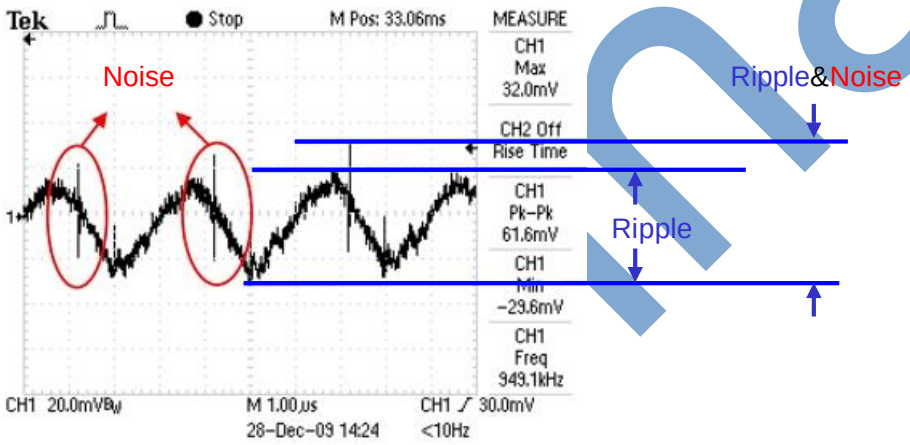
2000mA ~ 20A 2 ranges±(0.3% rdg + 2 digits).

◎Voltage meter (V): Accuracy➔±(0.03% rdg + 4 digits).

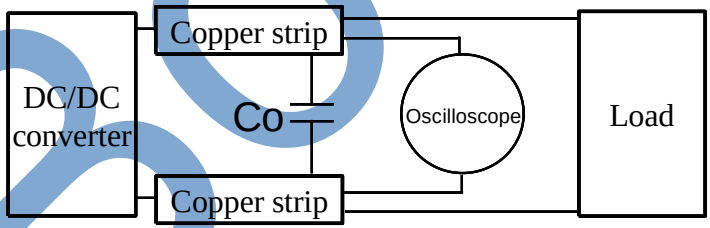
◎Load: At full load.

◎Wires: The resistance of the wires must be small.

1. Ripple and Noise: as shown below. The bandwidth is 0-20MHz.

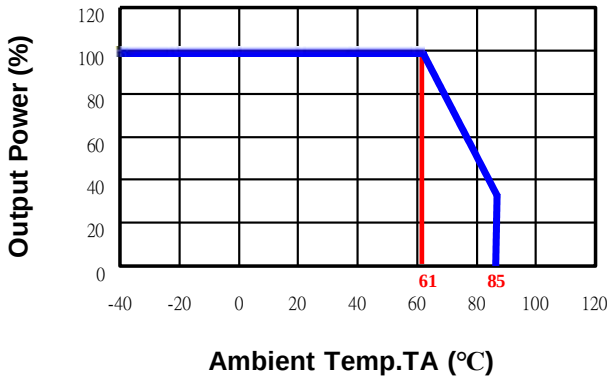


Output Ripple&Noise measurement test circuit: as shown below.

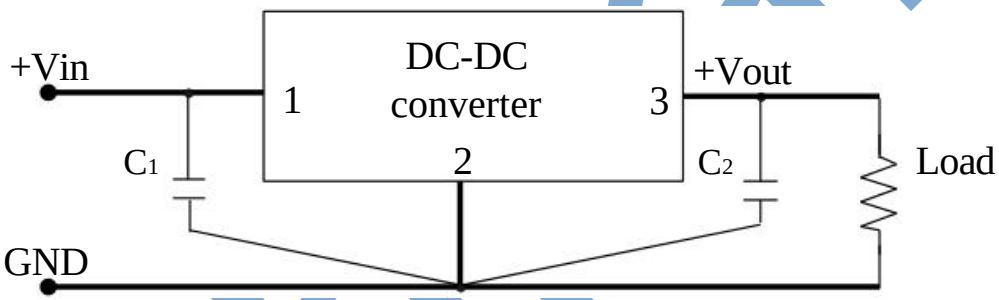


Co: usually 1uF MLCC and 10uF tantalum capacitor.

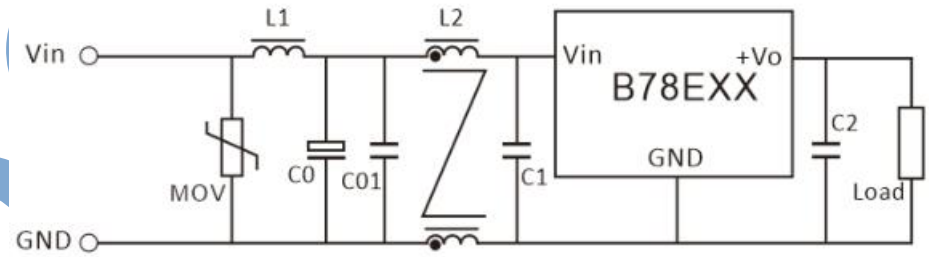
2. Temperature derating curve: The DC-DC converter will operate over a wider temperature range if less power is drawn from the output and the device is already running. The temperature derating curve shows the operating power-temperature range. As shown below.



3. Application circuit: as shown below. C1=10uF/50V MLCC, C2 =22uF/25V MLCC.



4.EMC Filter Suggestion according to EN55032 CLASSB:



MOV	L1	C0	C01	L2	C1	C2
20D470K	300uH	470uF/50V	4.7uF/50V MLCC	5mH	10uF/50V MLCC	22uF/10V MLCC