

Make-Ps®

DC/DC CONVERTER

Single Output DC/DC Converter

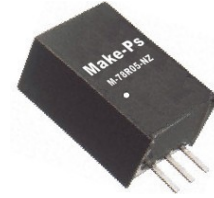
M-78R-NZ

Up to 13 Watt | DC-DC Converter



FEATURES:

- 3 Pin SIP Package
- Pin-out compatible with LM78XX Linear Regulators
- Continuous Short Circuit Protection
- Non-Isolated Regulated Outputs
- Operating temperature -40°C to +85°C
- Wide input range
- Very High Efficiency Up To 92%
- Low ripple and noise



Models

Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (A)	Efficiency Vin Min (%)	Efficiency Vin Max (%)
M-78R2.5-NZ	4.75-18	2.5	2	85	83
M-78R3.3-NZ	4.75-18	3.3	2	87	86
M-78R5.0-NZ	7-18	5	2	91	88
M-78R6.5-NZ	8.5-18	6.5	2	92	91

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Input Specifications

Input Specifications	Nominal	Typical	Maximum	Units
Voltage range		See the table above		VDC
Filter		Capacitor		
Quiescent Current	Vin=(LL-HL) at full load	5	10	mA

Output Specifications

Output Specifications	Conditions	Typical	Maximum	Units
Voltage accuracy	100% load	±3		%
Short Circuit protection		Continuous.		
Short circuit restart		Auto recovery		
Output current limit			5	A
Thermal shutdown	Internal IC junction	150		°C
Dynamic load stability	10-100% load		±100	mV
Line voltage regulation	Vin=(LL-HL) at full load	±0.75		%
Load voltage regulation	10-100% load	±1		%
Temperature coefficient	-40°C to +85°C ambient	±0.03		%/°C
Ripple & Noise	20MHz Bandwidth	45		mV p-p
Maximum Capacitive Load			1000	µF

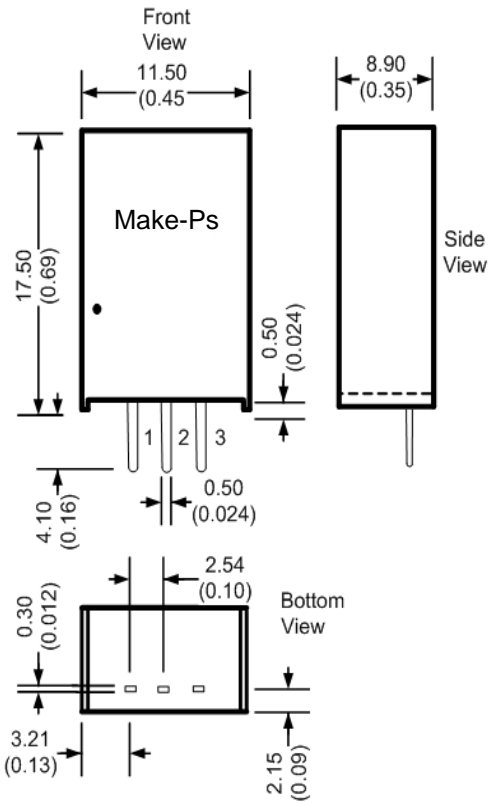
General Specifications

Input Specifications	Conditions	Typical	Maximum	Units
Switching frequency	100% load	340		KHz
Operating temperature	With derating above 71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Max Case temperature			100	°C
Cooling		Free air convection		
Humidity			95	%
Case material		Non-conductive black plastic (UL94-V0 rated)		
Weight		4		g
Dimensions (L x W x H)		0.45 X 0.35 X 0.69 inch	11.50 X 8.90 X 17.50 mm	
MTBF		> 2 000 000 hrs (MIL-HDBK-217F, Ground Benign, t=+25°C)		
Soldering Temperature	1.5 mm from case for 10 sec		300	°C

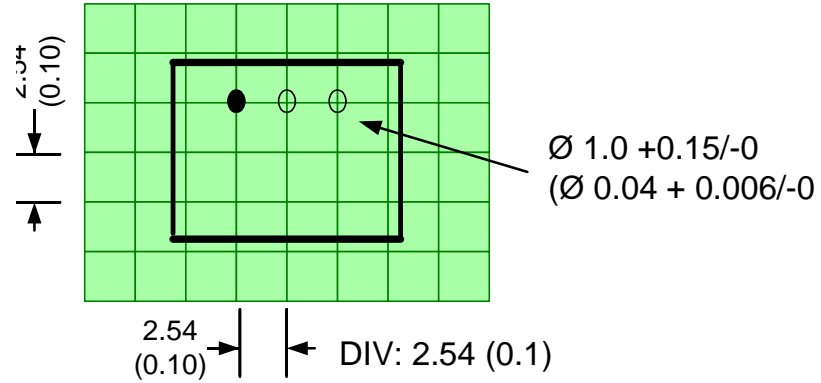
Pin Out Specifications

Pin	Single
1	+Vin
2	GND
3	+Vout

Dimensions



Footprint

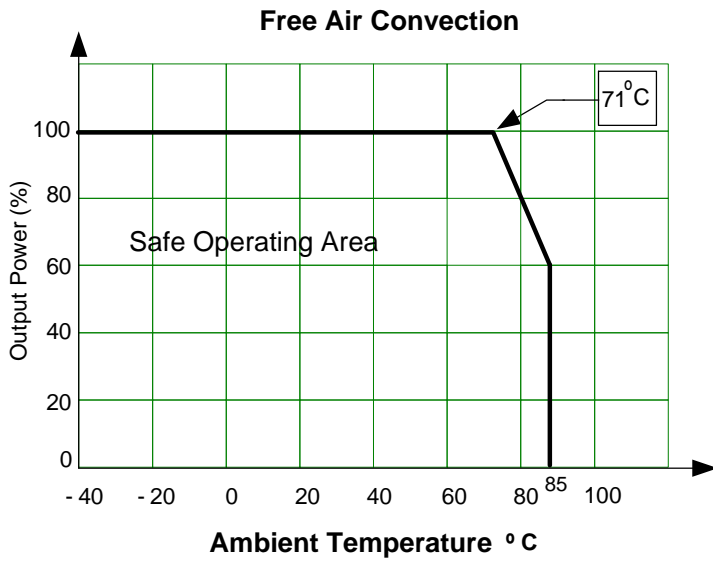


Dimensions are typical values: mm (inch)

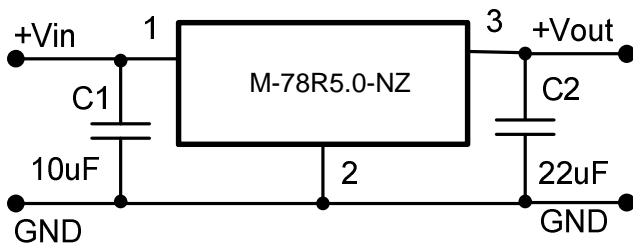
General Tolerance: ± 0.25 (± 0.01)

Pin Tolerance: ± 0.1 (± 0.004)

Derating



Typical Application Circuit

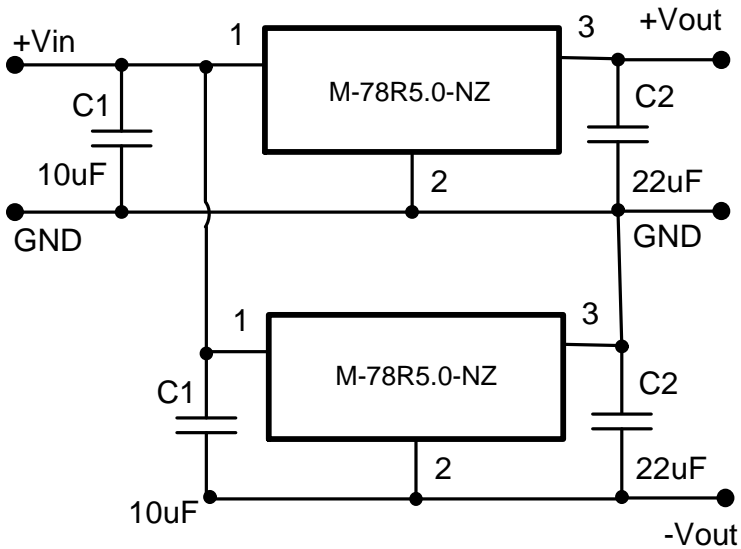


C1: A low ESR capacitor is required to keep the noise of the converter to a minimum. Ceramic capacitors are recommended with typical value is 10µF / 25V.

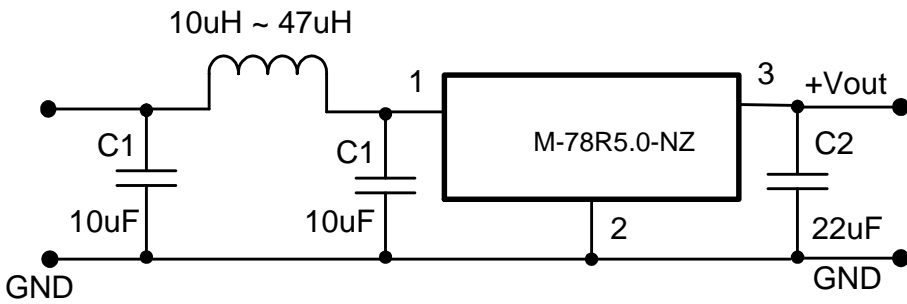
C2: Installation of C2 is recommended with typical value of 22µF / 16V ceramic for 5V and 6.5V output signal and 22µF / 6.3V ceramic for 2.5V and 3.3V output signal.

NOTE: This part is not designed for parallel operation.

Dual Output Connection



Input Filter



Output Filter

