

Non Isolated Board Mount DC / DC Converters

multicomp PRO

**RoHS
Compliant**



Features

- High efficiency up to 96%
- No-load input current as low as 0.1mA
- Operating ambient temperature range: -40°C to +85°C
- Support the negative output
- Output short-circuit protection

Selection Guide

Part Number	Certification	Input Voltage (V DC)*	Output		Full Load Efficiency (%) Typ. Vin Min./Vin Max.	Capacitive Load (μF) Max.
		Nominal (Range)	Voltage (V DC)	Current (mA) Max.		
MP-K78x6-1000R3	UL/EN/BS EN/IEC	24 (10-36)	6.5	1000	93/87	680

Note: *For input voltage exceeding 30V DC, an input capacitor of 22uF/50V is required;

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
No-load Input Current	Positive output	-	0.1	1	mA
Reverse Polarity at Input	-	Avoid / Not protected			
Input Filter	-	Capacitance filter			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Voltage Accuracy	Full load, input voltage range	-	±2	±3	%
Linear Regulation	Full load, input voltage range	-	±0.2	±0.4	
Load Regulation	Nominal input voltage, 10% -100% load	-	±0.4	±0.6	
Ripple & Noise*	20MHz bandwidth, nominal input voltage, 10% -100% load	-	20	75	mVp-p
Temperature Coefficient	Operating ambient temperature -40°C to +85°C	-	-	±0.03	%/°C
Transient Response Deviation	Nominal input voltage, 25% load step change	-	50	300	mV
Transient Recovery Time		-	0.1	1	ms
Short-circuit Protection	Nominal input	Continuous, self-recovery			

Notes:

*The "parallel cable" method is used for ripple and noise test, refer to DC-DC Converter Application Notes for specific information.

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General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Operating Temperature	-	-40	-	+85	°C
Storage Temperature	Product	-55	-	+125	
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	-	-	+260	
Storage Humidity	Non-condensing	5	-	95	%RH
Switching Frequency	100% load, input voltage range	420	520	620	kHz
MTBF	MIL-HDBK-217F@25°C	2000	-	-	k hours

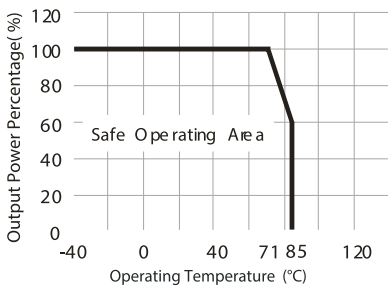
Note: * Meeting the vibration standard requires filling the bottom void of the product with silicone rubber.

Mechanical Specifications

Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	11.5mm × 9mm × 17.5mm
Weight	3.8g (Typ.)
Cooling Method	Free Air Convection

Typical Characteristic Curves

Temperature Derating Curves



Design Reference

Typical application

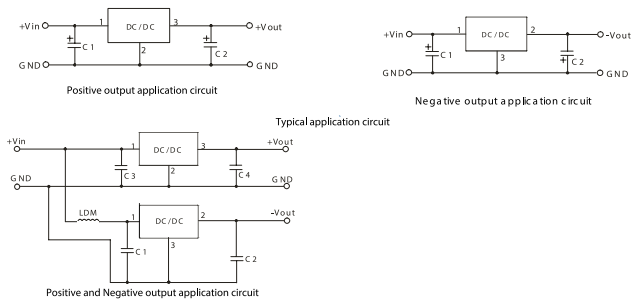


Table 1

Part Number	C1/C3 (ceramic capacitor)	C2/C4 (ceramic capacitor)
MP-K78x6-1000R3	10µF/50V	22µF/10V

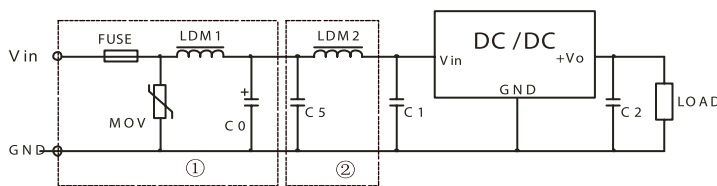
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Notes:

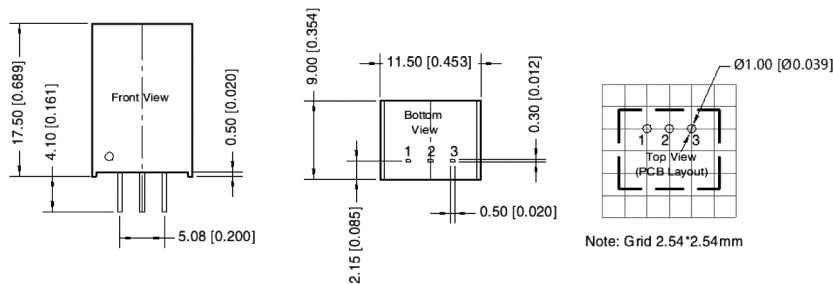
1. The required capacitors C1 and C2 (C3 and C4) must be connected as close as possible to the terminals of the module;
2. Refer to Table 1 for C1 and C2 (C3 and C4) capacitor values.
3. For certain applications, increased values for C2 and C4 and/or tantalum or low ESR electrolytic capacitors may also be used instead;
4. When using configurations as shown in figure 3, we recommended to add an inductor (LDM) with a value of up to 10 μ H which helps reducing mutual interference;
5. Converter cannot be used for hot swap and with output in parallel.

EMC compliance circuit



MOV	LDM1	C0	C1/C2	C5	LDM2
S20K30	82 μ H	680 μ F /50V	Refer to table 1	4.7 μ F /50V	12 μ H

Diagram



Pin-Out		
Pin	Positive Output	Negative Output
1	Vin	Vin
2	GND	-Vo
3	+Vo	GND

Part Number Table

Description	Part Number
Non Isolated Board Mount, DC / DC Converters, 6.5V, 1A	MP-K78x6-1000R3

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