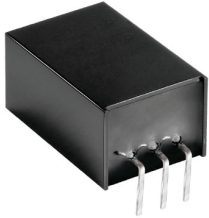


# Non Isolated Board Mount DC / DC Converters

**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-K78x6-1000R3L	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 22µF/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.

Newark.com/multicomp-pro  
Farnell.com/multicomp-pro  
sg.element14.com/b/multicomp-pro

**multicomp** PRO

# Non Isolated Board Mount DC / DC Converters



## 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

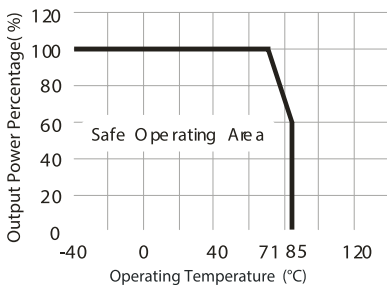
Note: \* Meeting the vibration standard requires filling the bottom void of the product with silicone rubber.

## Mechanical Specifications

Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	19mm × 11.5mm × 9mm
Weight	3.8g (Typ.)
Cooling Method	Free Air Convection

## Typical Characteristic Curves

### Temperature Derating Curves



## Design Reference

### Typical application

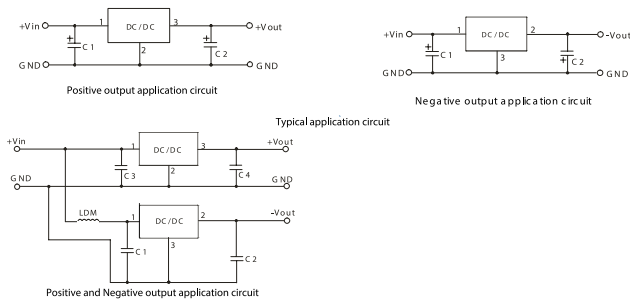


Table 1

Part Number	C1/C3 (ceramic capacitor)	C2/C4 (ceramic capacitor)
MP-K78x6-1000R3L	10µF/50V	22µF/10V

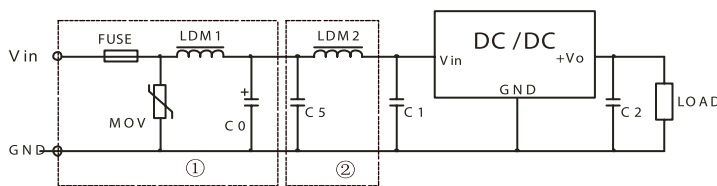
# Non Isolated Board Mount DC / DC Converters



### Notes:

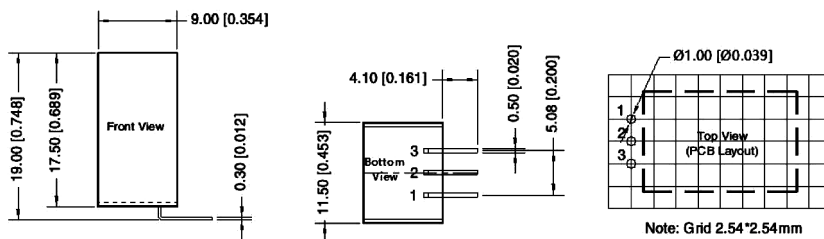
1. The required capacitors C1 and C2 (C3 and C4) must be connected as close as possible to the terminals of the module;
2. Refer to Table 1 for C1 and C2 (C3 and C4) capacitor values.
3. For certain applications, increased values for C2 and C4 and/or tantalum or low ESR electrolytic capacitors may also 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 10µH 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	82µH	680µF /50V	Refer to table 1	4.7µF /50V	12µH

### Diagram



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

Dimensions : Millimetres (Inches)  
 Pin Diameter Tolerances: ±0.1mm (±0.004")  
 General Tolerances: ±0.5mm (±0.02")

### Part Number Table

Description	Part Number
Non Isolated Board Mount, DC / DC Converters, 6.5V, 1A	MP-K78x6-1000R3L

**Important Notice** : This data sheet and its contents (the "Information") belong to the members of the AVNET group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp Pro is the registered trademark of Premier Farnell Limited 2019.

Newark.com/multicomp-pro  
 Farnell.com/multicomp-pro  
 sg.element14.com/b/multicomp-pro

