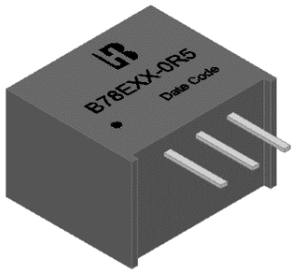
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B78EXX-0R5 Series

Non-isolated DC-DC Converters

Pulse a YAGEO company



Features

- Pin-Out Compatible with Lm78xx Linear Regulators
- High Efficiency
- Short Circuit Protection
- Over Temperature Protection
- Lead Free Design, RoHS Compliant
- Designed according to IEC/EN/UL 62368-1

Description

The B78EXX-0R5 Series are non-isolated DC/DC converters suited to replace 0.5 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 circuit protection and over temperature protection.

Models and Ratings

Model Number	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)		Efficiency typ. (%)		Capacitive Load max. (µF)
			Min. Load	Full Load	Min. Vin	Max. Vin	
B78E03-0R5	6 - 30 24V nominal	3.3	0	500	90	80	680
B78E05-0R5	7 - 36 24V nominal	5	0	500	94	84	680
B78E6R5-0R5	8 - 36 24V nominal	6.5	0	500	94	84	470
B78E12-0R5	15 - 36 24V nominal	12	0	500	97	92	100
B78E15-0R5	18 - 36 24V nominal	15	0	500	97	94	100

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B78EXX-0R5 Series

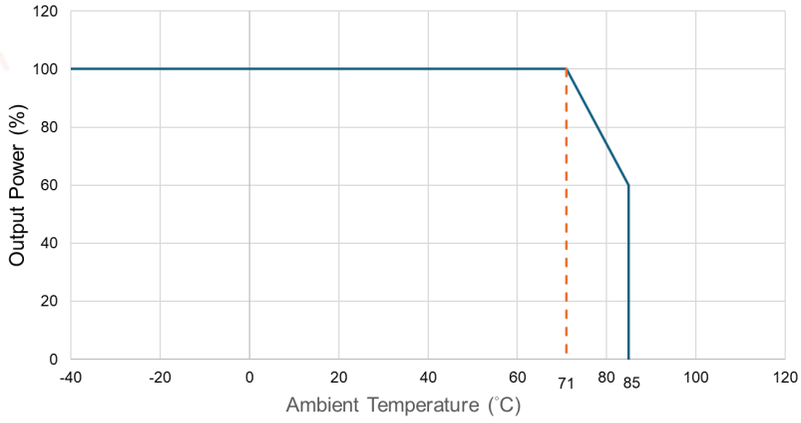
Non-isolated DC-DC Converters

Input Specifications		
Input voltage range		See Models and Ratings table
Input filter		Capacitor Type
Output Specifications		
Output current		0.5 A max.
Voltage accuracy	Nominal Vin	±3% max.
Minimum load		See Models and Ratings table
Line regulation	At full load	±0.5% max.
Load regulation	10% to 100% load	±0.75% max.
Ripple and noise	20MHz bandwidth	85 mVp-p max.
Capacitive load		See Models and Ratings table
Short circuit protection		Continuous, automatic recovery
Temperature coefficient		±0.03% / °C max.
General Specifications		
Efficiency	Nominal Vin and full load	See Models and Ratings table
Switching frequency	PWM	410 kHz typ.
Reliability, calculated MTBF	MIL-HDBK-217F, Ground Benign	1×10^6 h
Operating ambient temperature	With derating	-40°C to +85°C
Maximum case temperature		+105°C
Storage temperature range		-55°C to +125°C
Relative humidity		95% RH max.
Over temperature protection	The IC Thermal Shutdown Temperature	+150°C typ.
Physical Specifications		
Case material		Plastic (UL 94 V-0)
Dimensions		11.6 × 7.5 × 10.2 mm
Weight		1.6 g typ.

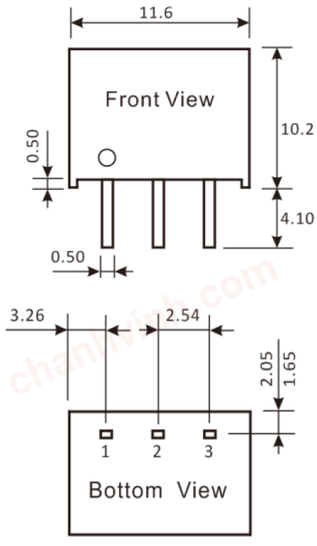
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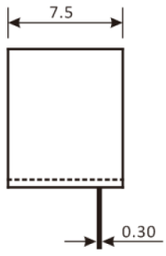
Characteristic Curves

Power Derating Curve



Mechanical





Dimensions in mm
Tolerances: xx.x ±0.5
x.xx ±0.25
Pins: ±0.10

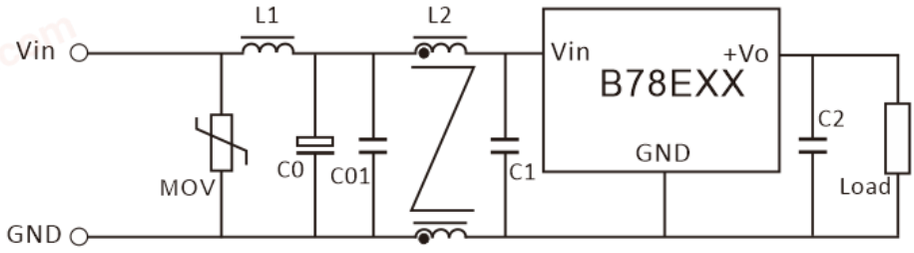
Pinout	
PIN	Function
1	+Vin
2	GND
3	+Vout

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Design and feature configurations

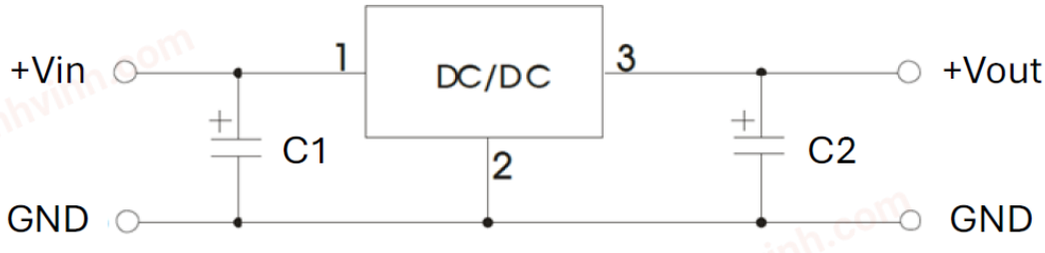
EMI Filter

Input filter components are used to meet emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease EMI noise.



EN55032 Class B							
Models	MOV	L1	C0	C01	L2	C1	C2
B78EXX-0R5	20D470K	300µH	470µF/50V	4.7µF/50V MLCC	5mH CMC	10µF/50V MLCC	22µF/25V MLCC

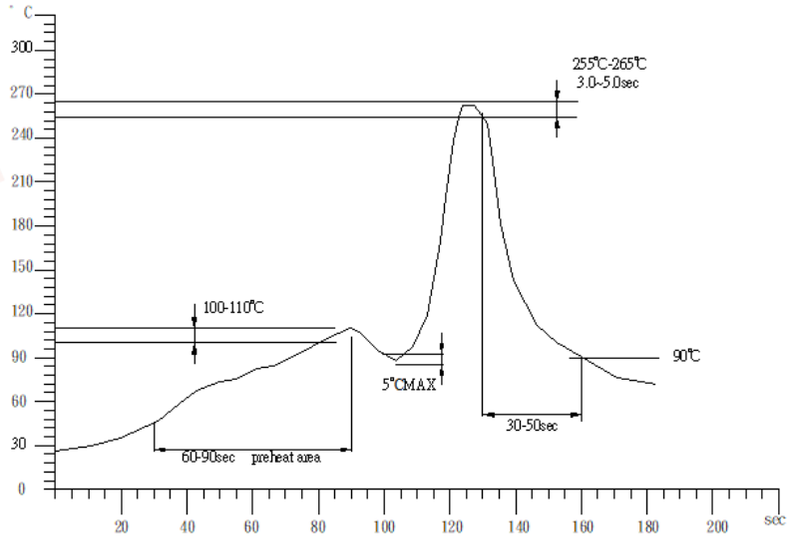
Typical Application



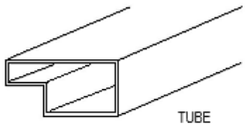
C1=10µF/50V MLCC, C2 =22µF/25V MLCC

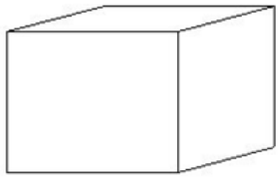
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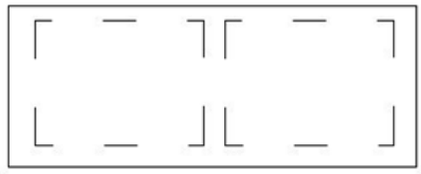
Wave Soldering Temperature Curve



Carton Package







TUBE = 42PCS
INNER CARTON = 50 TUBE = 50*42 = 2100PCS
EXPORT CARTON = 2 INNER CARTON = 2*2100 = 4200PCS

For More Information:

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