

Features

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

Description

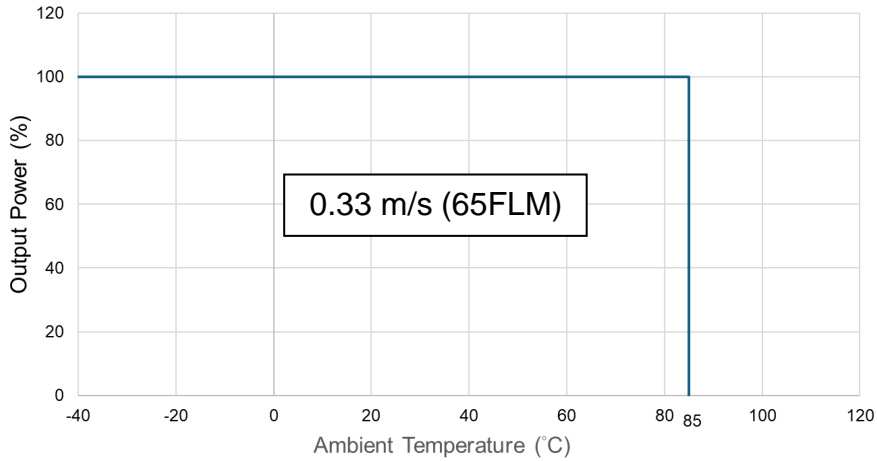
The B78CXX-2R0 Series are non-isolated DC/DC converters suited to replace 2Amp LM78xx linear regulators. Designed with highly efficiency, allow the operating temperature range of these units to be -40°C to +85°C in a 11.6*8.5*17.5mm. Further features include wide 4.75 ~ 36VDC input voltage range, short-circuits protection and over current 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	
B78C03-2R0	4.75 - 36 12V nominal	3.3	0	2000	90	86	1200
B78C05-2R0	6.5 - 36 12V nominal	5	0	2000	93	90	660
B78C12-2R0	15 - 36 24V nominal	12	0	2000	97	93	470

Input Specifications		
Input voltage range		See Models and Ratings table
Input filter		Capacitor Type
Input current	At no load	10 mA typ.
Input reverse polarity		Not allowed
Hot swap		Not supported
Output Specifications		
Output current		2 A max.
Voltage accuracy	At 50% load	±4% max.
Minimum load		See Models and Ratings table
Line regulation	At full load	±0.8% max.
Load regulation	10% load to full load	±1.5% max.
Ripple and noise	20MHz bandwidth	75 mVp-p max.
Capacitive load		See Models and Ratings table
Over current protection		200% typ. of full load
Short circuit protection		Continuous, automatic recovery
Transient recovery time	25% load step change (75% - 100% of I _o)	100 μs max.
Temperature coefficient		±0.02% / °C max.
General Specifications		
Efficiency	Nominal V _{in} and full load	See Models and Ratings table
Switching frequency	PWM	410 kHz typ.
Reliability, calculated MTBF	MIL-HDBK-217F, Ground Benign	2 × 10 ⁶ h
Operating ambient temperature	0.33m/s (65 FLM)	-40°C to +85°C
Storage temperature range		-55°C to +125°C
Relative humidity		95% RH max.
Physical Specifications		
Case material		Plastic (UL 94 V-0)
Dimensions		11.6 × 8.5 × 17.5 mm
Weight		4 g typ.

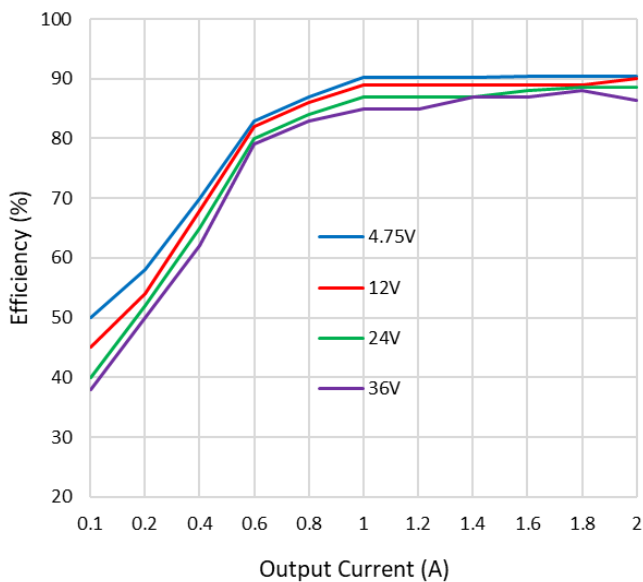
Characteristic Curves

Power Derating Curve

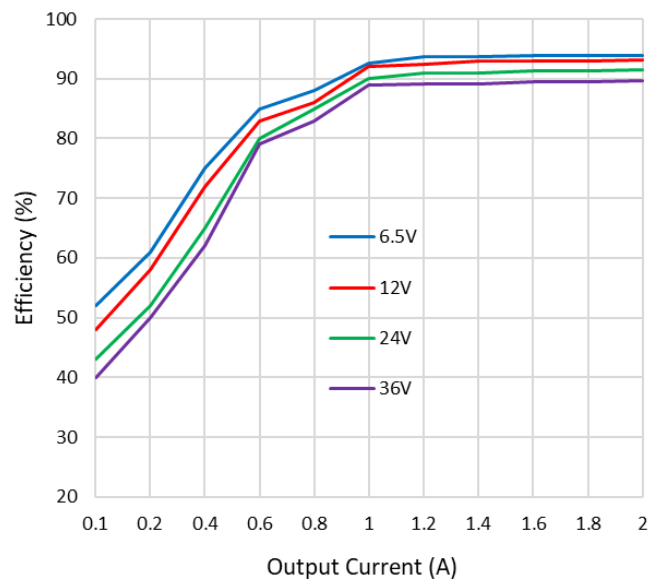


Efficiency vs Output Current

B78C03-2R0



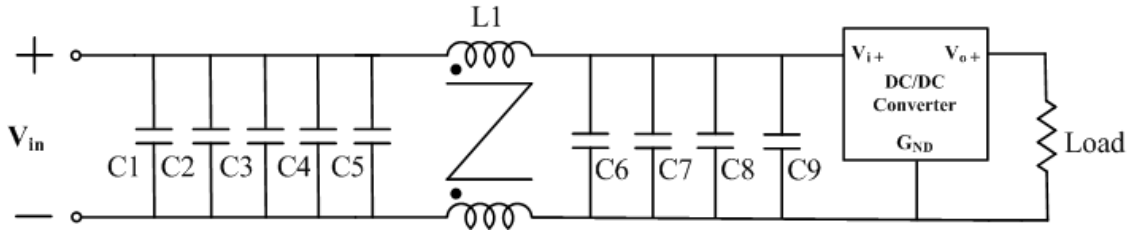
B78C05-2R0



Design and feature configurations

EMI Filter

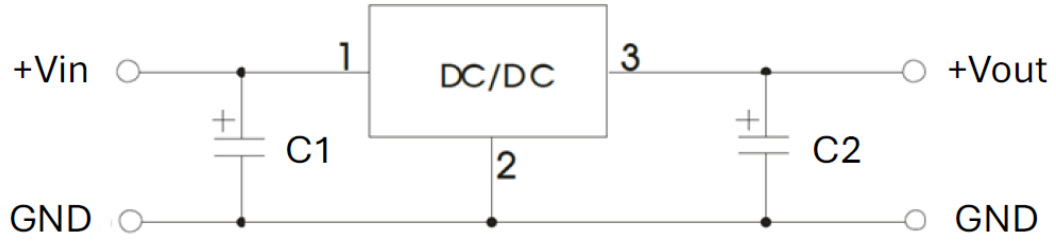
Input filter components are used to meet emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease EMI noise.



EN55032 Class A			
Models	C1	C9	L1
B78C03-2R0 B78C05-2R0	10µF/50V MLCC	10µF/50V MLCC	PCM090704S-701 SMD CMC
B78C12-2R0	10µF/50V MLCC	10µF/50V MLCC	PCM090704S-102 SMD CMC

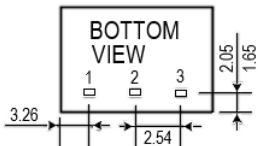
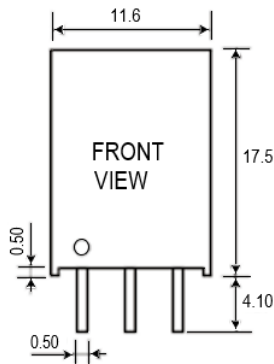
EN55032 Class B						
Models	C1	C2, C3	C4, C5	C6	C7, C8, C9	L1
B78C03-2R0 B78C05-2R0	100µF/50V Aluminum electrolytic solid capacitors	10µF/50V MLCC	-	100µF/50V Aluminum electrolytic solid capacitors	10µF/50V MLCC	PCM090704S-701 SMD CMC
B78C12-2R0	100µF/50V Aluminum electrolytic solid capacitors	100µF/50V Aluminum electrolytic solid capacitors	10µF/50V MLCC	100µF/50V Aluminum electrolytic solid capacitors	10µF/50V MLCC	PCM090704S-102 SMD CMC

Typical Application



C1=100 μ F/50V, C2 =47 μ F/16V MLCC

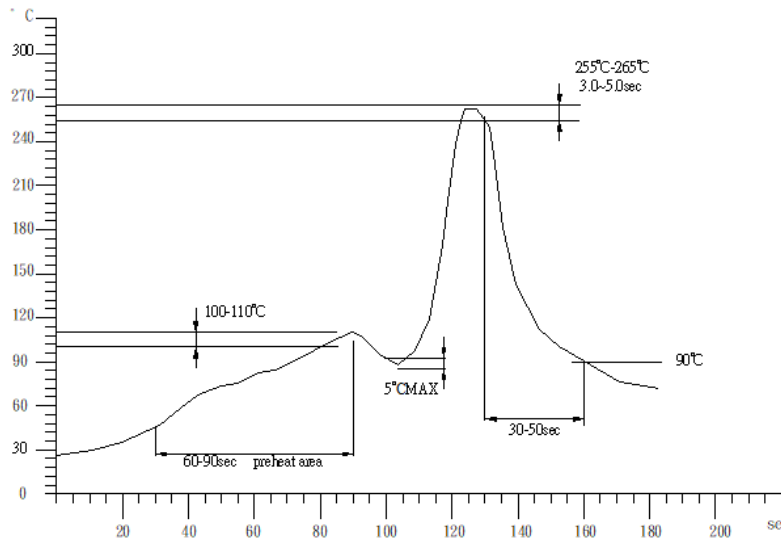
Mechanical



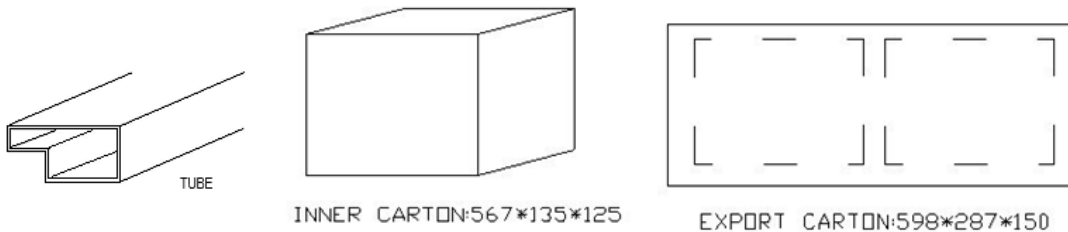
Dimensions in mm
Tolerances: xx.x \pm 0.5
 x.xx \pm 0.25
Pins: \pm 0.10

Pinout	
PIN	Function
1	+Vin
2	GND
3	+Vout

Wave Soldering Temperature Curve



Carton Package



TUBE = 42PCS
 INNER CARTON = 40 TUBE = 40*42 = 1680PCS
 EXPORT CARTON = 2 INNER CARTON = 2*1680 = 3360PCS

For More Information:

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