

EMERALD TECH

12Vin 16.5V/5A, 16.5V/2A (Battery charge) 120Watts

Technical Specification

EMV120C12T16R5

High Efficiency Converter

120 Watts

Description

The EMC120C12T16R5 brick DC/DC converters is a high density, high density, wide input voltage range, high reliability DC/DC converter and battery charge. The high efficiency DC/DC converters offer a fully enclosed size only is 1.89X1.57 X0.30 inch (48mm X 40mm X 8mm) and current levels that exceed all other same size of power converters on the market. With a wide input voltage range of 9-36VDC, it offers an output 16.5V for DC-DC converter and 16.5V for battery charge. The model features input undervoltage lockout and overvoltage protection, input reverse protection, output overvoltage protection, overtemperature protection, output overload protection, short circuit and multi-function. The fully enclosed, encapsulated construction with aluminum heat spreader design achieves efficient heat transfer with no hot spots. The use of patent-pending hybrid planar transformer technology and other patent-pending design concepts facilitate maximum power delivery with the highest efficiency of up to 97%. The converters combine creative design concepts with highly derated power devices to achieve very high reliability, high performance and low cost solution to systems designers requiring maximum power in small footprints.

Applications

- GPS, Computer notebook, Workstation.
- Distributed Power Architecture
- Data Communications, Telecommunications
- Wireless Communications
- Servers, Switches and Data Storage
- Semiconductor Test Equipment
- Aerospace, Aircraft

- Complex power system
- Portable weaponry

Features

- Wide input voltage range: 9-36V
- 16.5V/5A output for DC-DC converter
- 16.5V/2A for battery charge
- Input surge withstand: 50V < 100ms
- Ripple & Noise (20Mhz BW) <100 mv (pk-pk) typical
- Remote On/Off control
- Output adjustment +/-10% range
- Output Regulation: +/- 0.2% no load to full load
- Output overcurrent and overvoltage protection
- Over Temperature protection
- Input Under voltage protection and reverse protection
- Power density: 100W/Cubic inch
- Efficiency: 97%
- No minimum load required
- Low profile of only 0.39 inch (10mm).
- -40°C to +85°C ambient operation
- MTBF of 1,000,000 hours @ 50°C (Bellcore))

EMV120C12T16R5

16.5V/5A DC-DC Converter 16.5V/2A: Battery Charge

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Product Brief

Part Number and Selection Information

Model Part Number	Input			Output		Efficiency 75% Load (%)
	Voltage (Volts)	Current (A)		Voltage (Volts)	Current (Amps)	
	Nominal	No load	Full load	(Volts)	(Amps)	
EMV120C12T16R5	12	0.06	2.2	16.5	5, 2	> 90

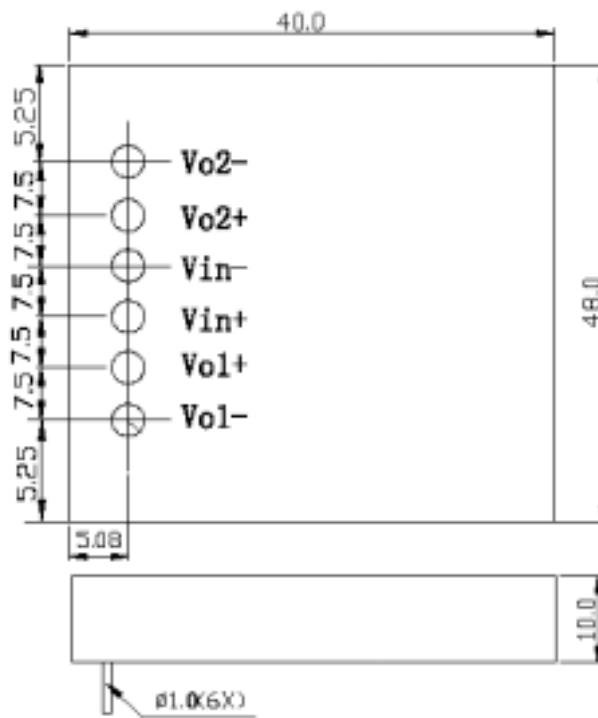
Consult factory for other output voltage configurations

Outline Information and Pin-out

Function	Function
Vin +	Positive input voltage
Vin -	Negative input voltage
Vo1+	DC-DC convert positive output voltage
Vo2+	Charge Positive output voltage
Vo1-	DC-DC converter negative output voltage
Vo2-	Charge negative output voltage

Notes:

- 1). All dimensions are in inches [mm]
0.039" [1.0mm],
- 2). Pin material: Brass
- 3). Pin finish: Tin/Lead plated
- 4). Baseplate material: Aluminum.
- 5). Outline dimension:
1.89X1.57 X0.30 inch
48mm X 40mm X 8mm)
- 6). Max. Weight: 35g



单位: mm.

48mm X 40mm X 10mm

Electrical Specification

Typical operating condition at Ta=25°C, Vin=12V unless otherwise noted.

PARAMETER	NOTES	MIN	TYP	MAX	UNIT
Absolute maximum rating					
Input voltage		9	12	40	V
Output current				4	A
Operating case temperature		-40		85	°C
Storage temperature		-55		125	°C
Input characteristics					
			4.0	5.0	mA
Operating input voltage range		9	12	40	V
Turn on voltage threshold		8.4	8.7	9	V
Turn off voltage threshold		8.1	8.4	8.7	V
Maximum input current	Maximum load, 12Vin		15.6	16.0	A
Off converter input current	12Vin		4.0	5.0	mA
Output characteristics					
Output voltage	16.5V Output for DC-DC converter	16.3	16.5	16.7	V
	16.5V Output for battery charge	16.3	16.5	16.7	
Output current	16.5V Output for DC-DC converter	0		5	A
	16.5V Output for battery charge			2	A
Output ripple and noise	16.5V output, 75% full load, 12Vin, 20Mz bandwidth,		200	220	mV(pk-pk)
Output over voltage protection	16.5V Output	18.3	18.7	19.1	V
Output over current protection	100% full load	110	120	130	%
Over-temperature protection	At 100°C baseplate temperature	100	105	110	°C
Temperature coefficient				±0.05	%/°C
Capacitive Load	All Output			1,000	µF
Short circuit protection	No Limit				
Output dynamic characteristics					
Startup time	5% 到 95% Output Voltage		4	10	ms
Start up overshoot				300	mV
Transient Peak	Over Voltage (Peak)			400	mV
Transient recovery time	Recover time			300	uS
Efficiency					
Full Load efficiency	12V input, 50W output		90		%
Operation Environment					
Operating temperature		-55		125	C
Ambient air pressure		Vacuum		Normal	
Humidity				95%	
Mechanical shock & vibration	Per customer specification				
Feature Characteristics					
Switching frequency		340	350	360	KHz
ON/OFF control (Positive logic) Converter On Converter Off		2V		0.8V	V V
Calculated MTBF	Bellcore @ 50°C		1,000,000		Hrs
weight				50	gram

Basic operation and functions

Input Power (Pin Vin+, Vin-)

Input power Vin(+) must be connected to Positive input voltage Pin Vin+; Input power common Vin(-) must be connected to Negative input voltage Pin Vin-.

Output Power (Pin Vo+, Vo-)

Output power Vout(+) must be connected to Positive output voltage Pin Vo1+; Vo2 Output power . Vout(-) must be connected to Negative output voltage Pin Vo1-, Vo2-.

On/Off (Pin On/Off)

Control input pin to control on/off of the converter unit. Positive logic. On when voltage on this pin is greater than 2.5V and off when below 1.2V.