

EPOT 50W Serie—Wide Input Range
Over Temperature Protection
 DC-DC Converter

Features

50W DIL PACKAGE
 INDUSTRY STANDARD PACKAGE
 18-36V,36-75V, WIDE INPUT RANGE
 REGULATED OUTPUT
 INPUT UVLO & OVLO
 HIGH EFFICIENCY
 UL 94V-0 PACKAGE MATERIAL
 Over Temperature Protection



Specification

Output Specification

Voltage Set-point Accuracy	+/-2% max.
Temperature Coefficient	+/-0.05%/°C
Ripple & Noise(20MHz BW) ¹	150mVp-p max.
Line Regulation ²	+/-0.5% max.
Load Regulation ³	+/-0.5% max.
Minimum Load	10% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Over Load Protection	130%~180%
Transient Response ⁴	500uS max.
External Trim Adj. Range	Vout:5V +/-10%
External Trim Adj. Range	Vout:12V,15V -20%~+10%

Input Specification

Input Voltage Range	2:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended
OVLO(Over Voltage Lockout)	See Page 4
UVLO(Under Voltage Lockout)	See Page 4
OVLO & UVLO Circuit Restart	Automatic
OTP(Over Temperature Protection)	120°C typ.
Start up Time(Nominal Input)	10mS max.

Environmental Specifications

Operating Temperature	5V output	-40°C to +50°C
	5V output(with 100LFM)	-40°C to +55°C
	12V & 15V output	-40°C to +55°C
Case Temperature		+115°C max.
Storage Temperature		-55°C to +125°C
Humidity		95% max.
Cooling		Free-Air Convection

General Specifications

Efficiency	92% typ.
Isolation Voltage	1500VDC min.
Isolation Resistance	109 ohms min.
Isolation Capacitance	3000pF max.
Switching Frequency	300 KHz typ.
MTBF ⁵	>300,000 Hours
Weight	43 g typ.
Case Material	Six-Side Shielded Case
Case Size	50.8mm*25.4mm*13.7mm
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD, AND 25 °C UNLESS OTHERWISE NOTED

¹ Measured with 1uF ceramic capacitor connect to the output pins.

² High Line to Low Line.

³ Load Regulation is for output load current change from 10% to 100%

⁴ 25% Step Load Change.

⁵ MIL-HDBK-217F @25°C, Ground Benign

Selection Guide 2:1 50W Output

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁶ CURRENT(mA)		EFF (%) ⁷	CAPACITOR LOAD (Max)
				FULL LOAD	NO LOAD		
EPOT2405	18-36	5	10000	2264	95	92	1000uF
EPOT2412	18-36	12	4170	2266	95	92	1000uF
EPOT2415	18-36	15	3333	2262	95	92	1000uF
EPOT4805	36-75	5	10000	1132	60	92	1000uF
EPOT4812	36-75	12	4170	1133	60	92	1000uF
EPOT4815	36-75	15	3333	1131	60	92	1000uF

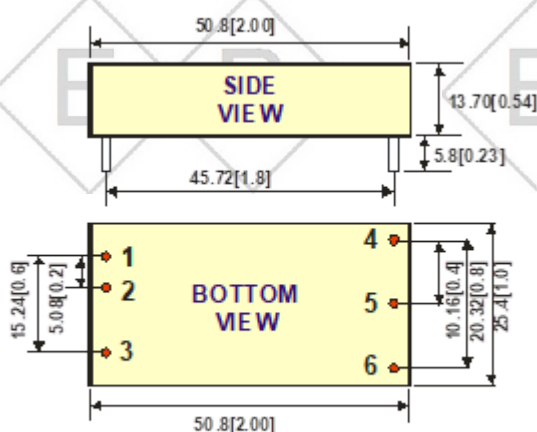
Note: Other input to output voltages may be available. Please contact factory.

Part Numbers Structure

Model Name	Difference
EPOT-x1x2	EP=Series Name x1=24V (18~36V Input voltage) ; 48V (36~75V Input voltage) x2=Output voltage(5V ; 12V ; 15V)

Mechanical Dimensions

Package



All dimensions are in millimeters [inches]

PIN	SINGLE
1	+Vin
2	-Vin
3	Remote On/Off
4	+Vout
5	-Vout
6	Trim

NOTE: Pin Size is Tolerance 1.00 ±0.10mm
All Dimensions In mm(Inches)
Tolerance .X or .XX= ±0.80mm

⁶ NOMINAL INPUT VOLTAGE.

⁷ NOMINAL INPUT VOLTAGE, FULL LOAD.

Recommended Footprint Details

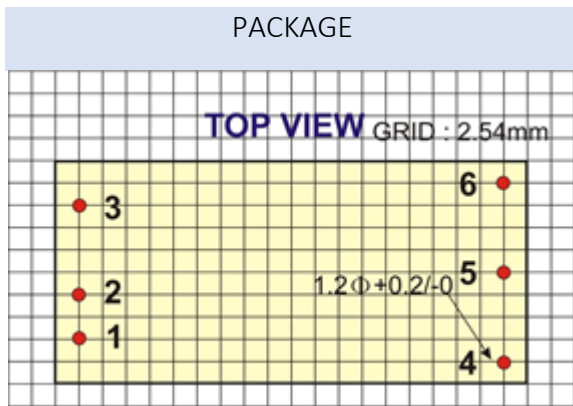
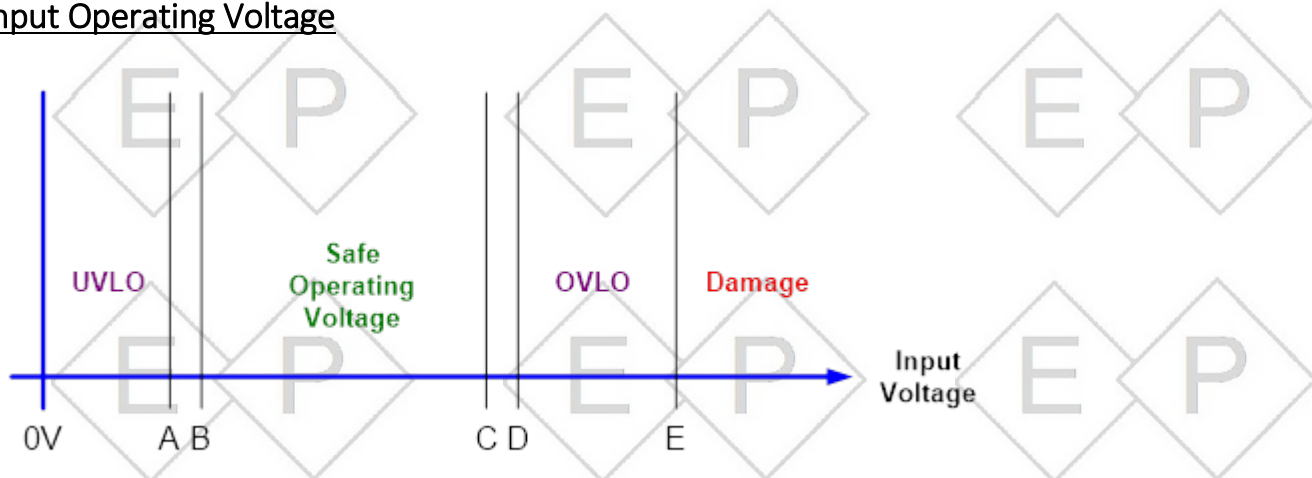


Table 1 (Remote On/Off Control)

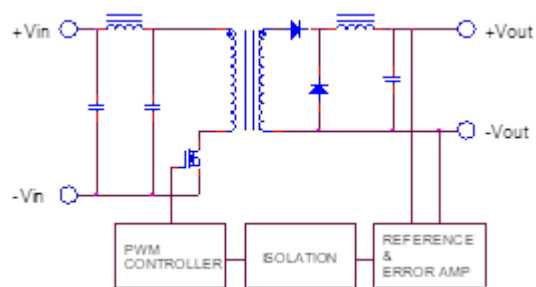
Remote On/Off Control			
Control Input	PIN3	Control Common	PIN2
Control Voltage		Converter Shutdown Idle Current	10mA
ON	>+2.5VDC or Open Circuit	Logic Compatibility	CMOS or Open
OFF	<+0.8VDC or Jumper to PIN2		Collector TTL

Input Operating Voltage



	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
EPOT24**	16V typ.	18V	36V	40V typ.	50V
EPOT48**	32V typ.	36V	75V	80V typ.	100V

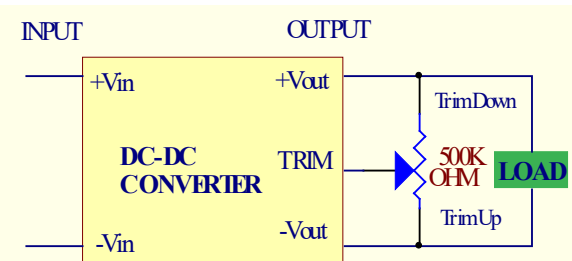
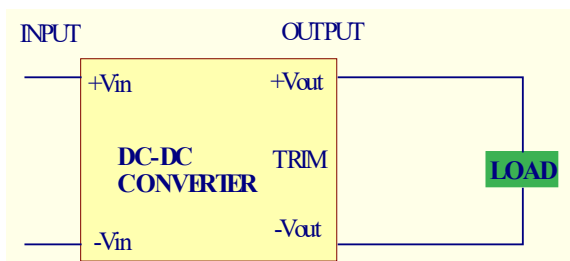
Simplified Schematic



Typical Applications

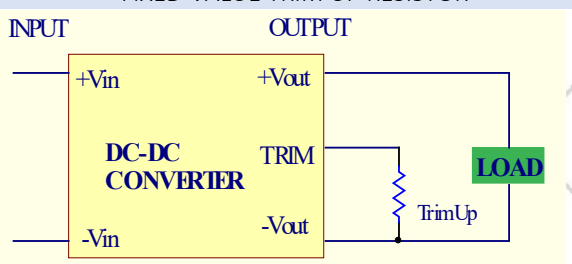
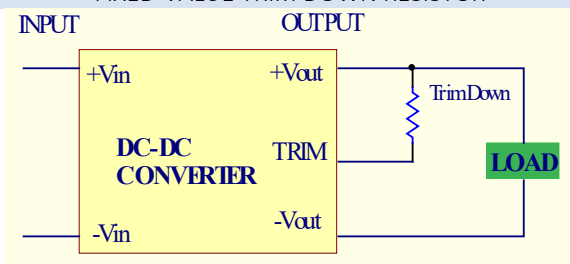
FIXED VOLTAGE OUTPUT

TRIM CONNECTIONS USING A TRIMPOT



FIXED-VALUE TRIM DOWN RESISTOR

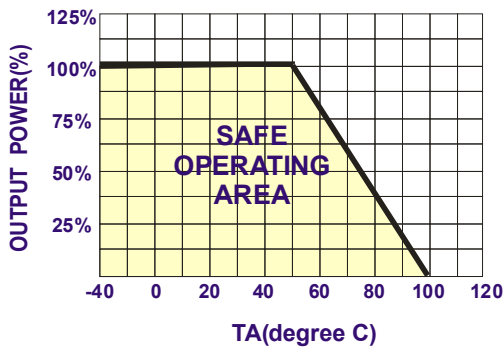
FIXED-VALUE TRIM UP RESISTOR



Typical Performance Curves

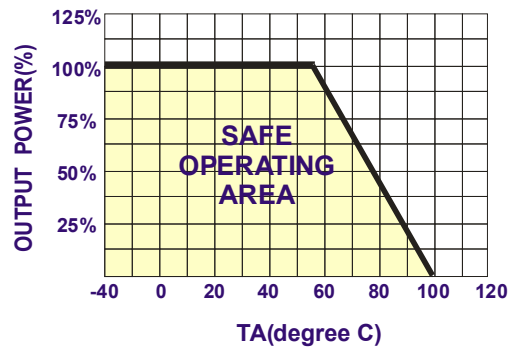
TEMPERATURE DERATING

5V OUTPUT



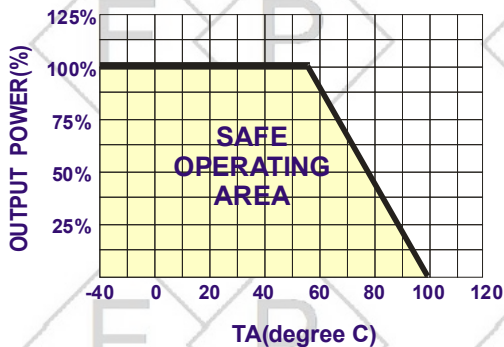
TEMPERATURE DERATING

5V OUTPUT(with 100LFM)

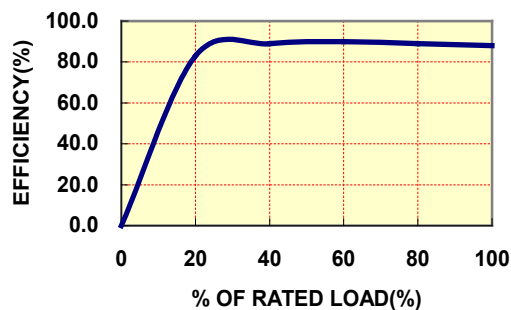


TEMPERATURE DERATING

(12V & 15V OUTPUT)



OUTPUT LOAD VS EFFICIENCY

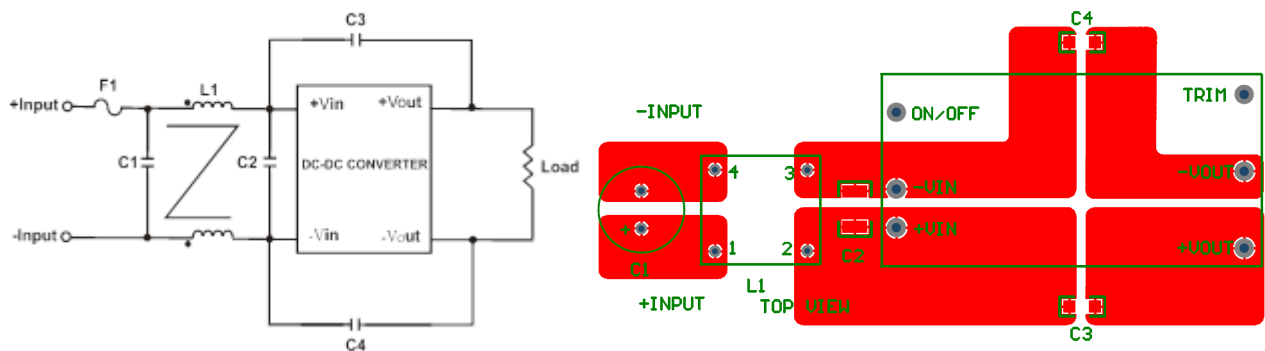


Specifications typical at Ta=25°C, nominal input voltage, rated output current unless otherwise specified.

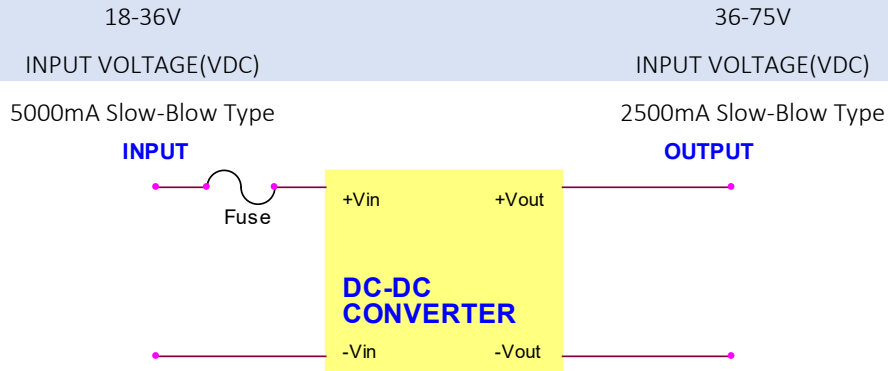
Recommended Filter for EN55022 Class B

The components used in the above figure, together with the manufacturer's part numbers for these components, are as follows:

	C1	C2	C3	C4	L1
EPOT24**	47μF/100V	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke
EPOT48**	47μF/100V	1.5uF/100V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke



Input Fuse Selection Guide



Note: Certain applications may require the installation of external fuse in front of the input.

EPOT 50W Series Application Notes:

EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the EPOT 50W series.

External output capacitance is not required for operation; however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

We Can Offer EMC-Filter According To EN55011/22 Class B.

Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

Remote ON/OFF:

The remote ON/OFF pin may be left floating if this function is not use. It is recommended to drive this pin with an open collector arrangement or a relay contact. When the ON/OFF pin is pulled low with respect to the -VIN, the converter is placed in a low power drain state.

Output TRIM:

The TRIM pin may be used to adjust the output +10% ~ -20% from the nominal setting .this function allows adjustment for voltage drops in the system wiring. If the TRIM function is not required the pin may be left floating.

Spezifikationen können sich ohne Vorankündigung ändern.

Für etwaige fehlerhafte Angaben oder unvollständige Bezeichnungen kann keine Haftung übernommen werden.