

EP 30 W Series– Wide Input Range DC-DC Converter

Features

30W DIL PACKAGE
 INDUSTRY STANDARD PACKAGE
 9-18V,18-36V,36-72V,9-36V,18-72V WIDE INPUT RANGE
 100% BURN IN
 HIGH EFFICIENCY
 UL 94V-0 PACKAGE MATERIAL
 CUSTOM SOLUTIONS AVAILABLE
 RoHS COMPLIANT



Specification

Output Specification

Voltage Setpoint Accuracy	+/-2% max.
Single Output	+/-2% max.
Dual Output	5V +/-2% max.
Triple	12V/15V +/-5% max.
Over Voltage Protection	Built-in
Temperature Coefficient	+/-0.05%/°C
Ripple & Noise(20MHz BW) ¹	100mVp-p max
Line Regulation ²	
Single	+/-0.5% max
Dual	+/-0.5% max
Triple	5V +/-0.5% max 12V/15V +/-1.0% max
Load Regulation ³	
Single	+/-0.5% max
Dual	+/-0.5% max
Triple	+/-5% max
Minimum load	10% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
External Trim Adj. Range	+/-10%
Over Load Protection	180% Typ
Transient Response ⁴	500uS max
Input Voltage Range	2:1 or 4:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended

Input Specification

Environmental Specifications

Operating Temperature	-40°C to +71°C
Storage Temperature	-55°C to +100°C
Case Temperature	+95°C max
Humidity	95% max
Cooling	Free-Air Convection

General Specifications

Efficiency	75% min
Isolation Voltage	1500 VDC min.
Isolation Resistance	109 ohms min.
Isolation Capacitance	2500pF max
Switching Frequency	100KHz min.
MTBF	>400,000 Hours
Weight	110g Typ
Case Material	Six-Side Shielded Case
Case Size	50.8mm*50.8mm*21mm
Potting Material	Epoxy(UL94-V0)
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 For 10 seconds.

² High Line to Low Line.

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

⁴ 25% Step Load Change.

Selection Guide (1) 2:1 25-30W Output

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁵ CURRENT(mA)		EFF (%) ⁶	CAPACITOR LOAD (Max)
				FULL LOAD	NO LOAD		
EP9-18-3.3S6000	9-18	3.3	6000	2063	40	80	2700uF
EP9-18-05S5000	9-18	5	5000	2604	40	80	2700uF
EP9-18-09S3333	9-18	9	3333	2950	40	84	2200uF
EP9-18-12S2500	9-18	12	2500	2950	40	84	1800uF
EP9-18-15S2000	9-18	15	2000	2950	38	84	1500uF
EP9-18-24S1250	9-18	24	1250	2941	36	85	1000uF
EP9-18-05D2500	9-18	+/-5	+/-2500	2604	40	80	+/-1200uF
EP9-18-12D1250	9-18	+/-12	+/-1250	3125	40	80	+/-820uF
EP9-18-15D1000	9-18	+/-15	+/-1000	3125	38	80	+/-680uF
EP9-18-05S12D	9-18	+5,+/-12	3500,+/-310	2598	55	80	2700uF,+/-820uF
EP9-18-05S15D	9-18	+5,+/-15	3500,+/-250	2604	40	80	2700uF,+/-680uF
EP18-36-3.3S6000	18-36	3.3	6000	1012	20	82	2700uF
EP18-36-05S5000	18-36	5	5000	1302	20	80	2700uF
EP18-36-5.1S5000	18-36	5.1	5000	1302	20	80	2700uF
EP18-36-09S3333	18-36	9	3333	1470	20	85	2200uF
EP18-36-10S3000	18-36	10	3000	1470	19	85	2200uF
EP18-36-12S2500	18-36	12	2500	1470	30	85	1800uF
EP18-36-15S2000	18-36	15	2000	1470	30	85	1500uF
EP18-36-24S1250	18-36	24	1250	1453	16	86	1000uF
EP18-36-42S710	18-36	42	710	1497	16	83	560uF
EP18-36-05D2500	18-36	+/-5	+/-2500	1302	20	80	+/-1200uF
EP18-36-12D1250	18-36	+/-12	+/-1250	1470	18	85	+/-820uF
EP18-36-15D1000	18-36	+/-15	+/-1000	1470	30	85	+/-680uF
EP18-36-24D625	18-36	+/-24	+/-625	1470	18	85	+/-560uF
EP18-36-05S12D	18-36	+5,+/-12	3500,+/-310	1267	18	82	2700uF,+/-820uF
EP18-36-05S15D	18-36	+5,+/-15	3500,+/-250	1270	18	82	2700uF,+/-680uF
EP36-72-3.3S6000	36-72	3.3	6000	522	10	80	2700uF
EP36-72-05S5000	36-72	5	5000	651	10	80	2700uF
EP36-72-09S3333	36-72	9	3333	762	10	82	2200uF
EP36-72-12S2500	36-72	12	2500	762	9	82	1800uF
EP36-72-15S2000	36-72	15	2000	762	9	82	1500uF
EP36-72-24S1250	36-72	24	1250	753	8	83	1000uF
EP36-72-05D2500	36-72	+/-5	+/-2500	651	10	80	+/-1200uF
EP36-72-12D1250	36-72	+/-12	+/-1250	762	9	82	+/-820uF
EP36-72-15D1000	36-72	+/-15	+/-1000	762	9	82	+/-680uF
EP36-72-05S12D	36-72	+5,+/-12	3500,+/-310	634	9	82	2700uF,+/-820uF
EP36-72-05S15D	36-72	+5,+/-15	3500,+/-250	635	9	82	2700uF,+/-680uF

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

⁵ NOMINAL INPUT VOLTAGE.

⁶ NOMINAL INPUT VOLTAGE, FULL LOAD.

Selection Guide (2) 4:1 25W-30W Output

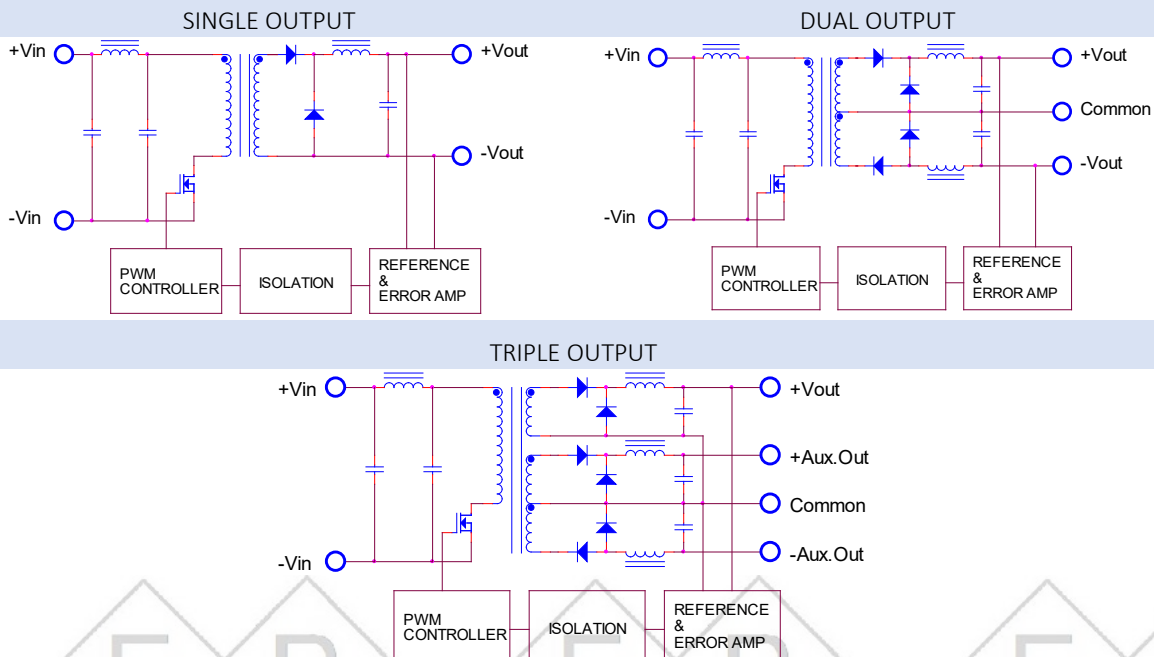
MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁷		EFF (%) ⁸	CAPACITOR LOAD (Max)
				CURRENT(mA)			
				FULL LOAD	NO LOAD		
EP9-36-05S5000	9-36	5	5000	2604	40	80	2700uF
EP9-36-09S3333	9-36	9	3333	3182	40	79	2200uF
EP9-36-12S2500	9-36	12	2500	3100	40	81	1800uF
EP9-36-15S2000	9-36	15	2000	3100	38	81	1500uF
EP9-36-24S1250	9-36	24	1250	3100	36	81	1000uF
EP9-36-05D2500	9-36	+/-5	+/-2500	2604	40	80	+/-1200uF
EP9-36-12D1250	9-36	+/-12	+/-1250	3125	40	80	+/-820uF
EP9-36-15D1000	9-36	+/-15	+/-1000	3125	38	80	+/-680uF
EP9-36-05S12D	9-36	+5,+/-12	3500,+/-310	2598	40	80	2700uF,+/-820uF
EP9-36-05S15D	9-36	+5,+/-15	3500,+/-250	2604	40	80	2700uF,+/-680uF
EP18-72-05S5000	18-72	5	5000	1302	20	80	2700uF
EP18-72-12S2500	18-72	12	2500	1550	18	81	1800uF
EP18-72-15S2000	18-72	15	2000	1550	18	81	1500uF
EP18-72-24S1250	18-72	24	1250	1550	16	81	1000uF
EP18-72-30S1000	18-72	30	1000	1550	18	81	820uF
EP18-72-05D2500	18-72	+/-5	+/-2500	1302	20	80	+/-1200uF
EP18-72-12D1250	18-72	+/-12	+/-1250	1550	18	81	+/-820uF
EP18-72-15D1000	18-72	+/-15	+/-1000	1550	18	81	+/-680uF
EP18-72-05S12D	18-72	+5,+/-12	3500,+/-310	1267	18	82	2700uF,+/-820uF
EP18-72-05S15D	18-72	+5,+/-15	3500,+/-250	1270	18	82	2700uF,+/-680uF

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

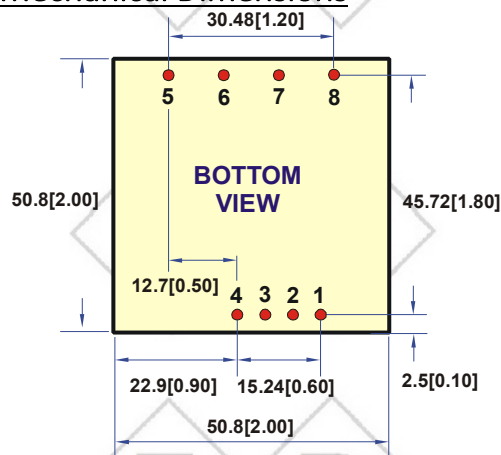
⁷ NOMINAL INPUT VOLTAGE.

⁸ NOMINAL INPUT VOLTAGE, FULL LOAD.

Simplified Schematic



Mechanical Dimensions



PIN	SINGLE	DUAL	TRIPLE
1	Remote On/Off		
2	NO PIN		
3	-Vin	-Vin	-Vin
4	+Vin	+Vin	+Vin
5	NC	+Vout	+Aux. out
6	+Vout	Common	+5V out
7	-Vout	-Vout	Common
8	TRIM	TRIM	-Aux. out

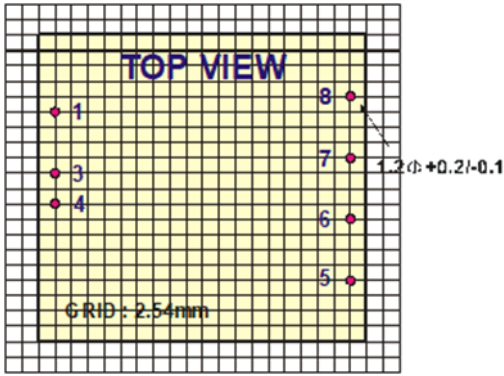
All dimensions are in millimeters[inches]

Note: **SINGLE OUTPUT for 24V : PIN 5 = NO PIN

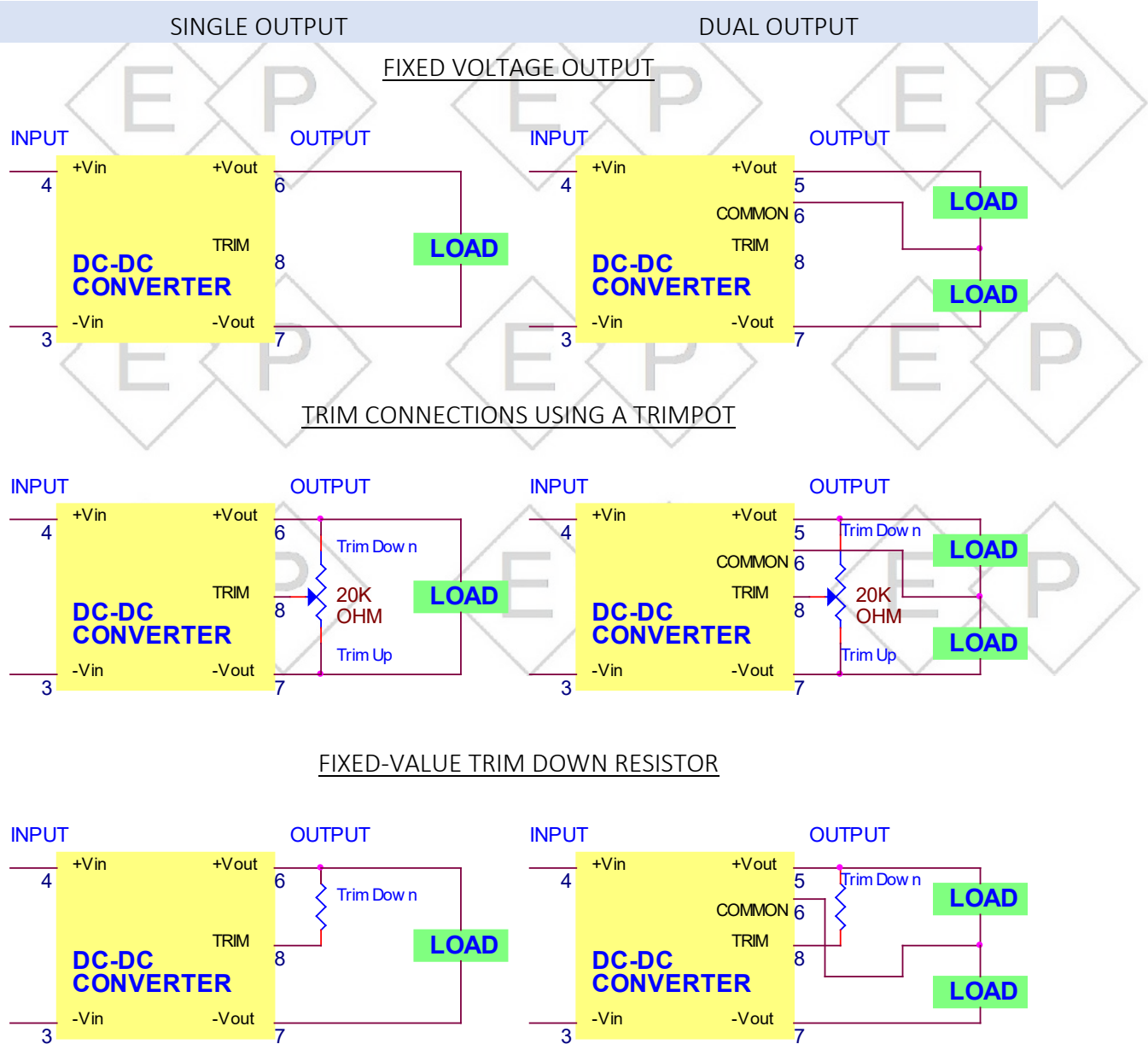
Remote On/Off Control

Control Input	PIN1	Control Common	PIN3
Control Voltage		Converter Shutdown Idle Current	10mA
ON	>+2.5VDC or Open Circuit	Logic Compatibility	CMOS or Open
OFF	<+0.8VDC or Juper to PIN3		Collector TTL

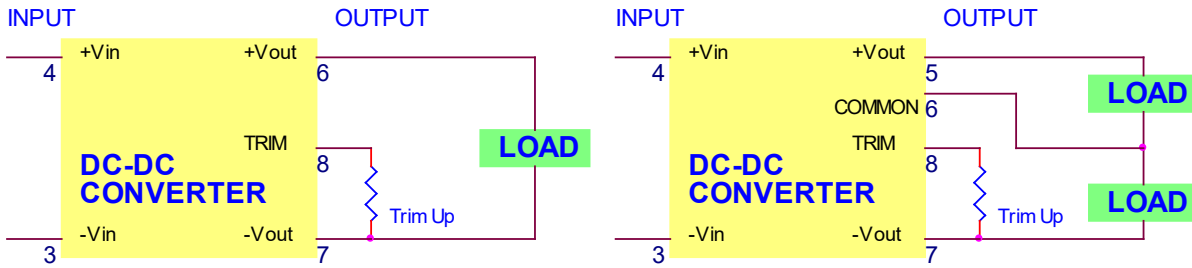
Recommended Footprint Details



Typical Applications

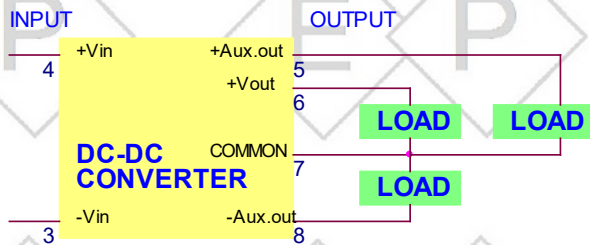


FIXED-VALUE TRIM UP RESISTOR



TRIPLE OUTPUT

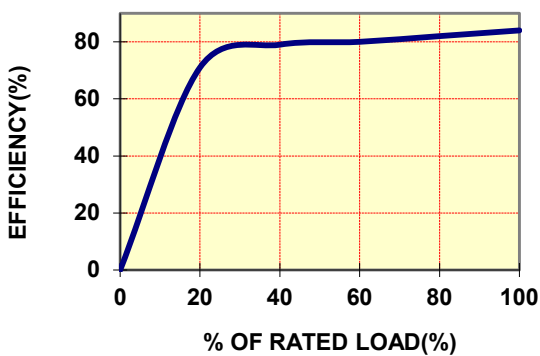
FIXED VOLTAGE OUTPUT



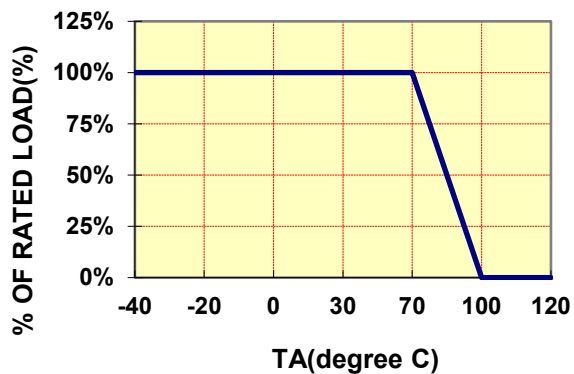
Typical Performance Curves

Specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

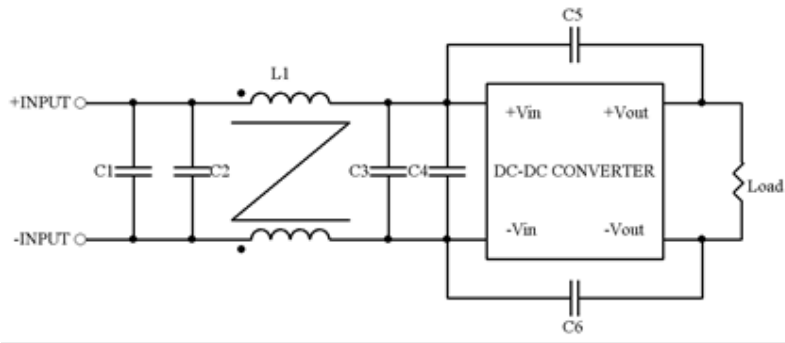
OUTPUT LOAD VS EFFICIENCY



TEMPERATURE DERATING

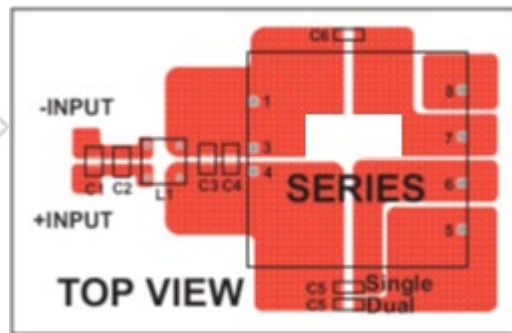


Recommended Filter for EN55022 Class B Compliance



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

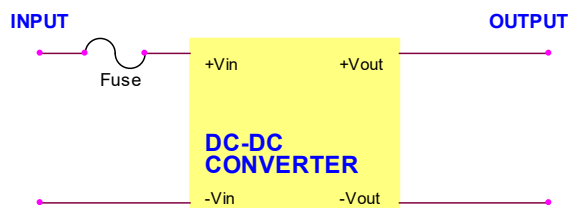
	C1	C2	C3	C4	C5	C6	L1
EP9-18-****	4.7uF/50V 1812 MLCC	N/A	4.7uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	450uH Common Choke
EP18-36-****	6.8uF/50V 1812 MLCC	N/A	6.8uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	450uH Common Choke
EP36-72-****	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	2.2uF/100V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	450uH Common Choke



Recommended EN55022 Class B Filter Circuit Layout

Input Fuse Selection Guide

9-18V or 9-36V INPUT VOLTAGE(VDC)	18-36V or 18-72V INPUT VOLTAGE(VDC)	36-72V INPUT VOLTAGE(VDC)
6000mA Slow-Blow Type	3000mA Slow-Blow Type	1500mA Slow-Blow Type



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

EP 30 W Series Application Notes:

EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the EP30 W series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 220KHz is required.

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.

Additional output capacitance may be added for increased filtering, but should not exceed 2200uF.

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% 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.