Nafe
Electronic-Products
EP

30W Wide Input Range
DC-DC Converter **2" x 2"**

Features:

Six-Side Shielded Case
9-18V,18-36V,36-72V,9-36V,18-72V WIDE INPUT RANGE
SHORT CIRCUIT PROTECTION
REMOTE ON/OFF AND TRIM
No External Components Requierd
Typical Efficiency 80%
100% Burned In
Industry Standard Package
MTBF > 700,000 Hours

Specifications:

Output Specifications	Voltage Setpoint Accuracy	+/-2% max
	Temperature Coefficient	+/-0.03%/ °C
	Ripple & Noise (20MHz BW)	100mVp-p max
	Line Regulation[1]	+/-0.2% max
	Load Regulation[2]	+/-0.2% max
	Short Circuit Protection	Continuous
	OverVoltage Protection	Built-in
	External Trim Adj. Range	+/-10%
Input Specifications	Input Voltage Range	2:1or4:1 INPUT RANGE
	Input Filter	Pi Network
Environmental Specifications	Operating Temperature	-40 OC to +71 °C
	Storage Temperature	-55 OC to +100 °C
	Cooling	Free-Air Convection
General Specifications	Efficiency	75% min
	Transient Response(Full to 1/2 Load)	<500uSec
	Isolation Voltage1	1000 VDC min
	Isolation Resistance	10^9 ohms min
	Switching Frequency	100 KHz min
	MTBF	700,000 Hours
	Weight	110g Typ
	Case Material	Six-Side Shielded Case
	Case Size	50.8mm*50.8mm*21mm

All Specifications Typical At Nominal Line, Full Load , And 25 °C Unless Otherwise Noted.

Footnotes:
1 High Line to Low Line.
2 Load Regulation is for output load current change from 10% to 100%.
3 For 10 seconds

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Selection Guide 2:1 30w Output

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[1] CURRENT(mA) FULL LOAD	INPUT[1] CURRENT(mA) NO LOAD	EFF (%)[2]	ISOLATION (VDC)
EP9-18-05S5000	9-18	5	5000	2604	40	80	1000
EP9-18-12S2500	9-18	12	2500	2950	40	84	1000
EP9-18-15S2000	9-18	15	2000	2950	38	84	1000
EP9-18-24S1250	9-18	24	1250	2941	36	85	1000
EP9-18-05D2500	9-18	+/-5	+/-2500	2604	40	80	1000
EP9-18-12D1250	9-18	+/-12	+/-1250	3125	40	80	1000
EP9-18-15D1000	9-18	+/-15	+/-1000	3125	38	80	1000
EP9-18-05S12D	9-18	+5,+/-12	3500,+/-310	2598	40	80	1000
EP9-18-05S15D	9-18	+5,+/-15	3500,+/-250	2604	40	80	1000
EP18-36-05S5000	18-36	5	5000	1302	20	80	1000
EP18-36-12S2500	18-36	12	2500	1470	18	85	1000
EP18-36-15S2000	18-36	15	2000	1470	18	85	1000
EP18-36-24S1250	18-36	24	1250	1453	16	86	1000
EP18-36-05D2500	18-36	+/-5	+/-2500	1302	20	80	1000
EP18-36-12D1250	18-36	+/-12	+/-1250	1470	18	85	1000
EP18-36-15D1000	18-36	+/-15	+/-1000	1470	18	85	1000
EP18-36-05S12D	18-36	+5,+/-12	3500,+/-310	1267	18	82	1000
EP18-36-05S15D	18-36	+5,+/-15	3500,+/-250	1270	18	82	1000
EP18-36-05S5000	36-72	5	5000	651	10	80	1000
EP36-72-12S2500	36-72	12	2500	762	9	82	1000
EP36-72-15S2000	36-72	15	2000	762	9	82	1000
EP36-72-24S1250	36-72	24	1250	753	8	83	1000
EP36-72-05D2500	36-72	+/-5	+/-2500	651	10	80	1000
EP36-72-12D1250	36-72	+/-12	+/-1250	762	9	82	1000
EP36-72-15D1000	36-72	+/-15	+/-1000	762	9	82	1000
EP36-72-05S12D	36-72	+5,+/-12	3500,+/-310	634	9	82	1000
EP36-72-05S15D	36-72	+5,+/-15	3500,+/-250	635	9	82	1000

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

Footnotes: [4] Nominal Input Voltage
[5] Nominal Input Voltage,full Load

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Selection Guide 4:1 30w Output

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[1] CURRENT(mA) FULL LOAD	INPUT[1] CURRENT(mA) NO LOAD	EFF (%)[2]	ISOLATION (VDC)
EP9-36-05S5000	9-36	5	5000	2604	40	80	1000
EP9-36-12S2500	9-36	12	2500	3100	40	81	1000
EP9-36-15S2000	9-36	15	2000	3100	38	81	1000
EP9-36-24S1250	9-36	24	1250	3100	36	81	1000
EP9-36-05D2500	9-36	+/-5	+/-2500	2604	40	80	1000
EP9-36-12D1250	9-36	+/-12	+/-1250	3125	40	80	1000
EP9-36-05D1000	9-36	+/-15	+/-1000	3125	38	80	1000
EP9-36-05S12D	9-36	+5,+/-12	3500,+/-310	2598	40	80	1000
EP9-36-05S15D	9-36	+5,+/-15	3500,+/-250	2604	40	80	1000
EP18-72-05S5000	18-72	5	5000	1302	20	80	1000
EP18-72-12S2500	18-72	12	2500	1550	18	81	1000
EP18-72-15S2000	18-72	15	2000	1550	18	81	1000
EP18-72-24S1250	18-72	24	1250	1550	16	81	1000
EP18-72-05D2500	18-72	+/-5	+/-2500	1302	20	80	1000
EP18-72-12D1250	18-72	+/-12	+/-1250	1550	18	81	1000
EP18-72-15D1000	18-72	+/-15	+/-1000	1550	18	81	1000
EP18-72-05S12D	18-72	+5,+/-12	3500,+/-310	1267	18	82	1000
EP18-72-05S15D	18-72	+5,+/-15	3500,+/-250	1270	18	82	1000

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

Footnotes: [4] Nominal Input Voltage
[5] Nominal Input Voltage,full Load

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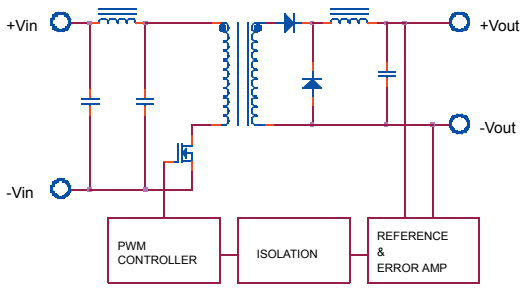
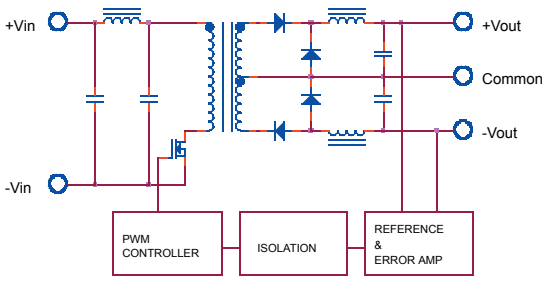
DC-DC Converter **2" x 2"**

Simplified Schematic

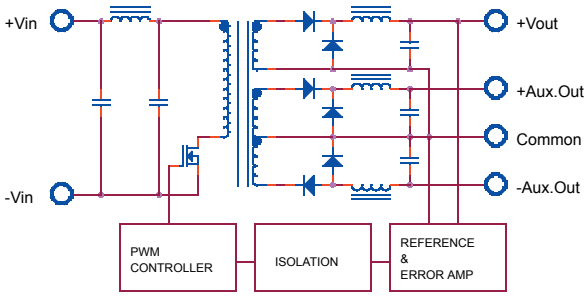
Single Output



Dual Output

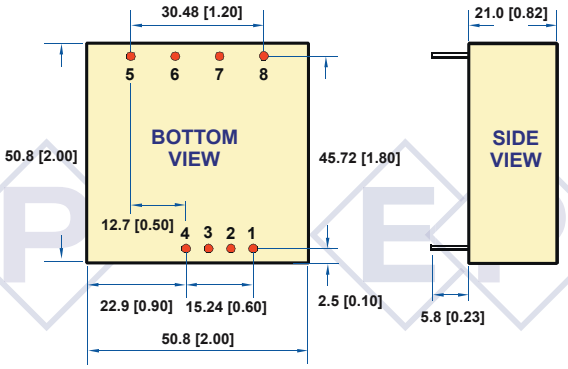


Triple Output



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]

Remote On/Off Control

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

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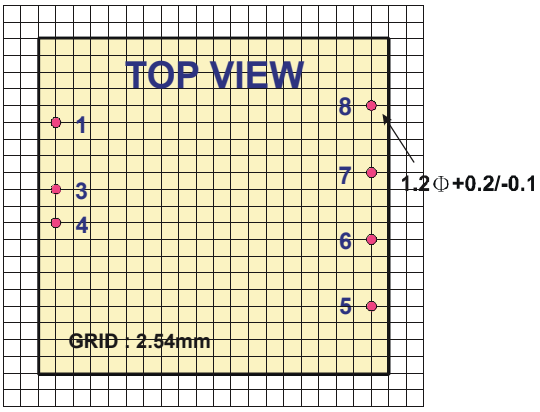
DC-DC Converter **2" x 2"**

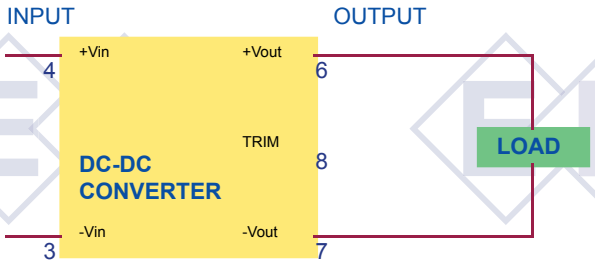
Recommended Footprint Details



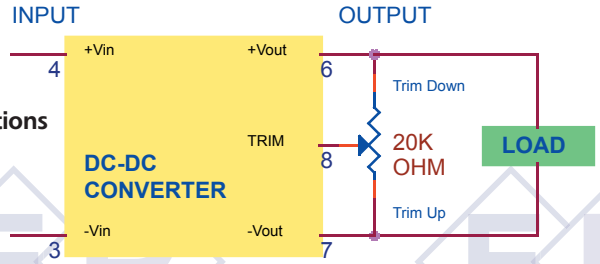
Typical Applications

Single Output

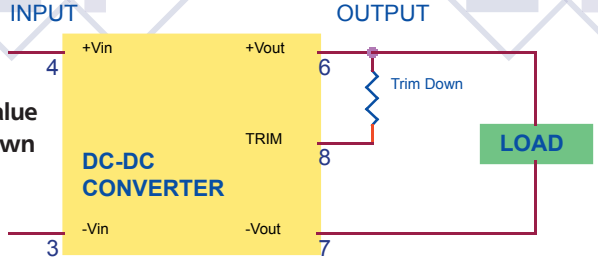
Fixed Voltage Output



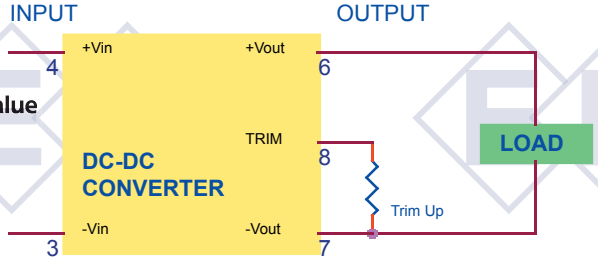
Trim Connections using a Trimpot



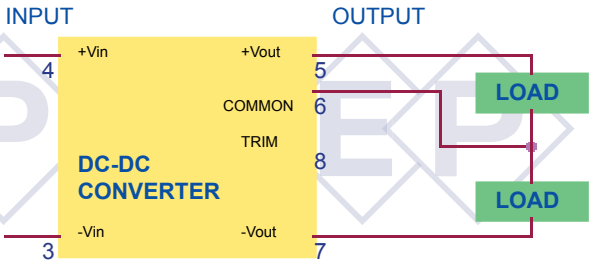
Fixed-Value Trim Down Resistor

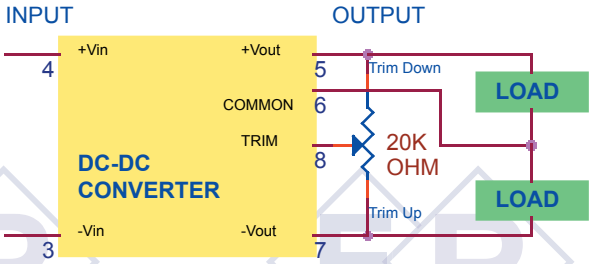


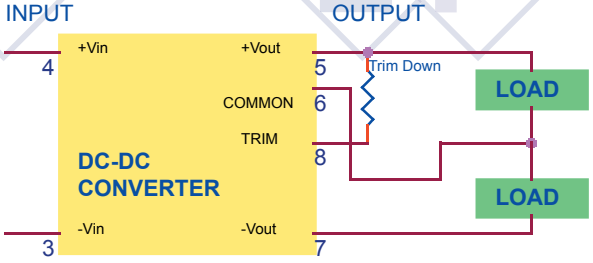
Fixed-Value Trim Up Resistor

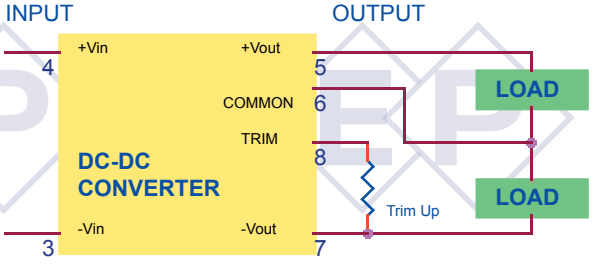


Dual Output









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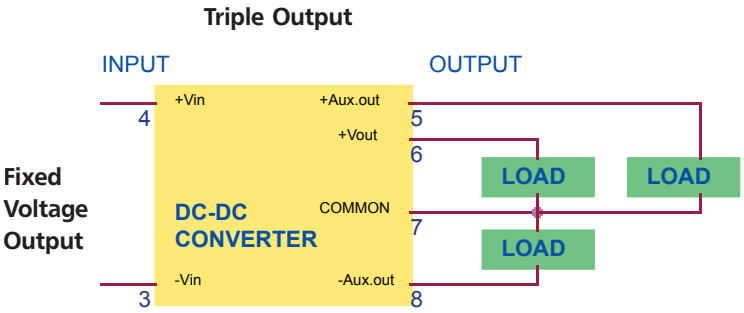
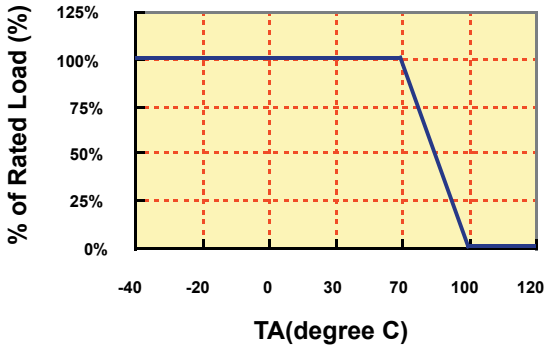
Typical Applications



Temperature Derating



EP 30 Series Application Notes

External Capacitance Requirements:
No external capacitance is required for operation of the EP 30 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.

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.