



EA60004

75W SINGLE DC/DC CONVERTER
 US Patents 6,262,901 B1 & 6,473,317 B1
 $18-36V_{IN}$ $28V_{OUT}@2.67A$

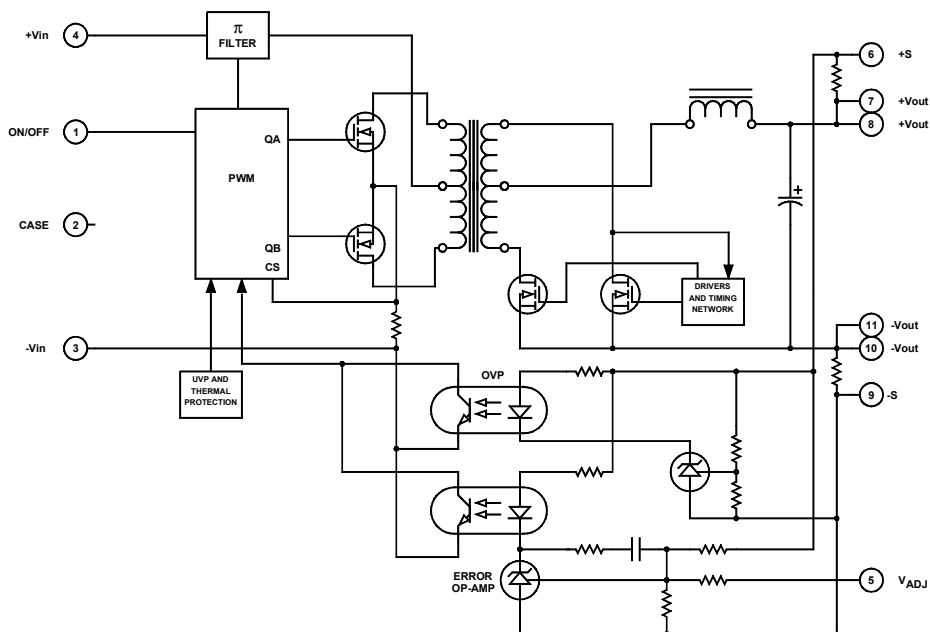
Key Features

- 90% efficiency
- Output overvoltage protection (OVP)
- Wide input voltage range (2:1)
- Six-sided shielding
- Soft start
- 1500Vdc input-to-output isolation
- Short circuit and thermal protection
- Adjustable output
- 300 μ A off state current
- Output synchronous rectification
- Input undervoltage protection



Functional Description

The EA60004 is an isolated 75W single output DC/DC converter that accepts $18V_{IN}$ to $36V_{IN}$ and provides $28V_{OUT}@2.67A$. Push-pull topology and output synchronous rectification allow for continuous operation even at low input voltages with maximum efficiency. Six-sided shielding with external synchronization minimizes EMI and RFI. Protection features allow the converters to operate in harsh environments. The case and header of the converter are connected to Pin 2 and is floating in respect to the internal circuitry.



Typical Block Diagram

Unless otherwise specified, all parameters are given under typical +25°C with nominal input voltage and under full output load conditions.

Electrical Specifications

INPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Input Voltage Range		18	24	36	Vdc
Input Filter	π				
Reverse Polarity Input Current	External series-blocking diode			12	A
Input Surge Current (20 μ S Spike)				10	A
No Load Input Current			150		mA
Full Load Input Current			3472		mA
Short Circuit Current Limit			150		% I _{IN}
Undervoltage Shutdown		15			Vdc
Off State Current			300		μ A
Remote ON/OFF Control					
Converter ON	Open (Open circuit voltage at Pin 1: 10V Max.)				
Converter OFF		-0.6	0	0.2	Vdc
Logic Input Reference	-Input				
Logic Compatibility	TTL Open Collector or CMOS Open Drain				

OUTPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Output Voltage			28		Vdc
Output Current			2.67		A
Output Voltage Accuracy			± 1	± 1.5	%
Output Voltage Adjustment			3	± 5	%
Minimum Load		10			% of FL
Ripple & Noise			1	2	% _{PP}
Line Regulation	Minimum V _{IN} to maximum V _{IN}		± 1	± 2	%
Load Regulation	NL to FL		± 1	± 2	%
Temperature Coefficient @ FL			0.02		%/°C of V _{OUT}
Transient Response Time (to within 1% of V _{OUT})	50% FL to FL to 50% FL, See Figure 3		50		μ S
Short Circuit Protection	By input current limiting				
Output Short Circuit Duration	Continuous				

GENERAL SPECIFICATIONS

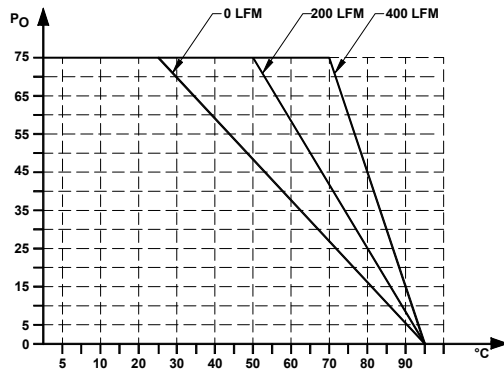
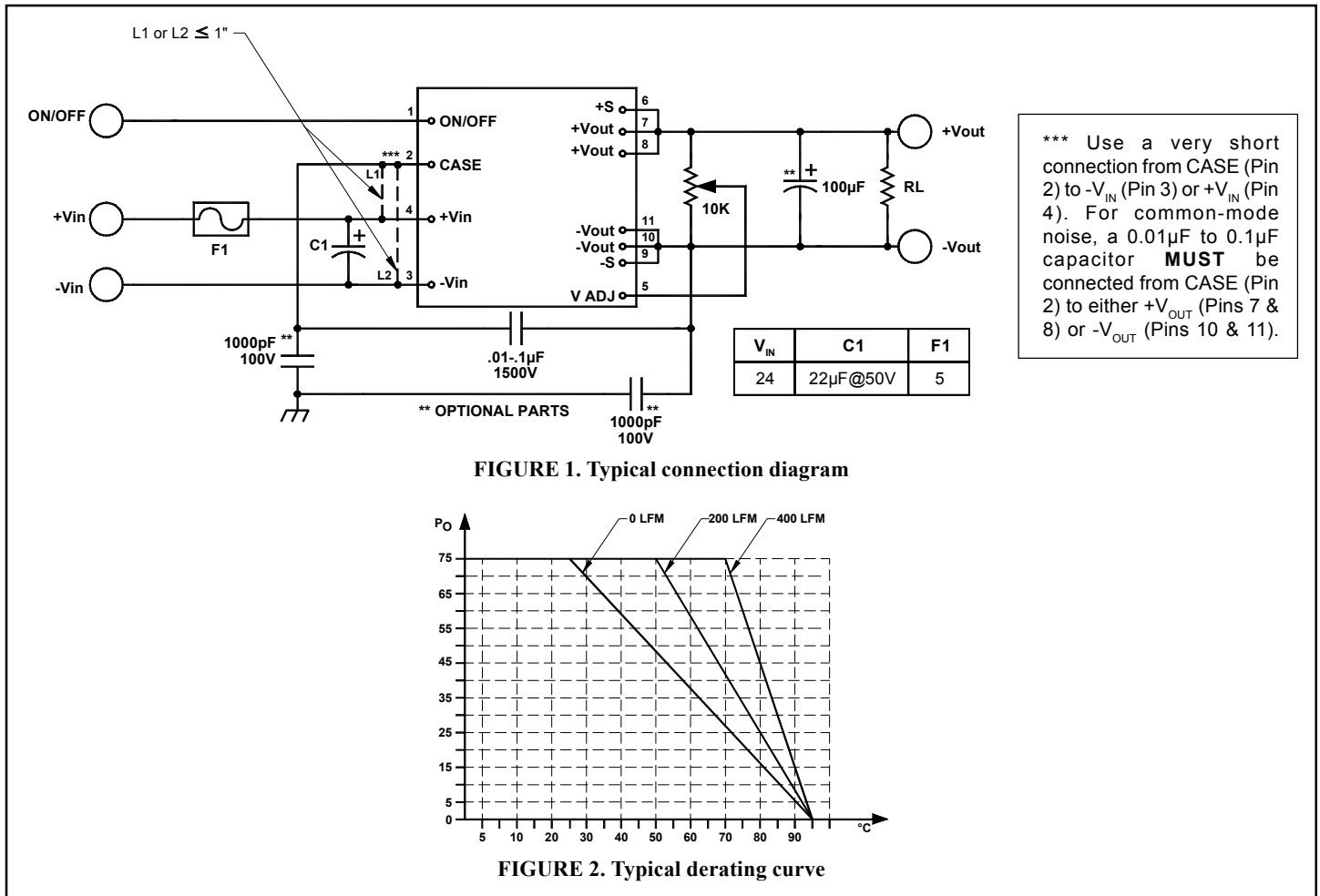
PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Efficiency			90		%
Isolation Voltage (1 min.)			1500		Vdc
Isolation Resistance			10 ⁹		Ω
Isolation Capacitance			80		pF
Switching Frequency			121		kHz

ENVIRONMENTAL SPECIFICATIONS

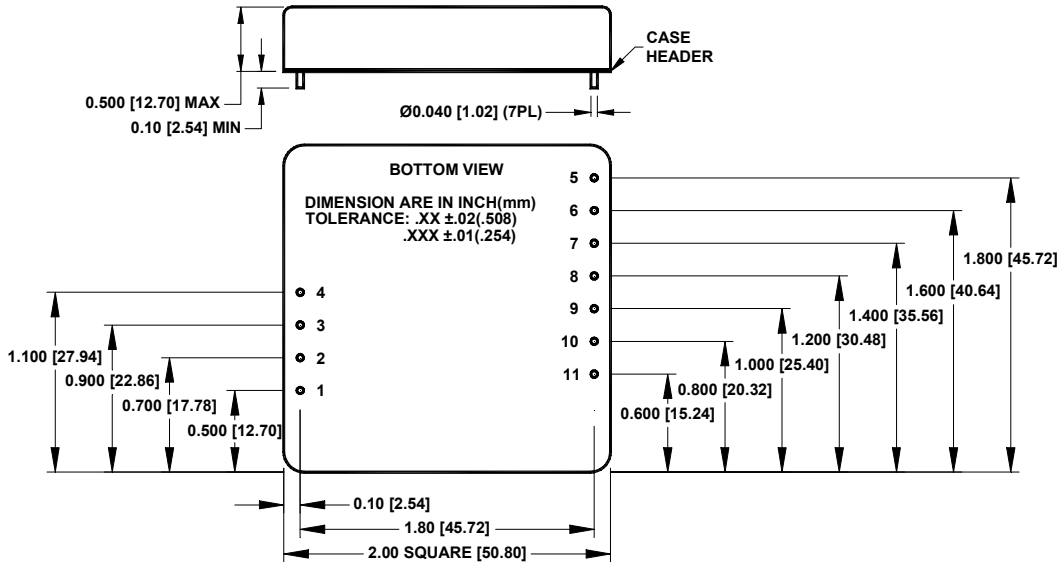
PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Operating Temperature, Industrial (Ambient)	See Figure 2	-40		+75	°C
Storage Temperature Range		-55		+125	°C
Thermal Resistance			1.50	2.25	°C/W _{DISS}
Maximum Operating Case Temperature				105	°C
Thermal Turn Off, Case Temperature		90	100	105	°C
Thermal Hysteresis			10		°C
Derating	See Figure 2				
Humidity	Up to 95% non-condensing				
Cooling	Free-air convection				
EM/RFI	Six-sided continuous shielded metal case				
MTBF	per MIL-HNBK-217F (Ground benign, +25°C)		625,000		hours

PHYSICAL CHARACTERISTICS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Dimensions (L×W×H)	2.00×2.00×0.50 in. (50.80×50.80×12.70mm)				
Weight	2.78 oz. (79g)				
Case Material	Coated metal				
Shielding Connection	Pin 2 to Case and Header				



MECHANICAL SPECIFICATIONS



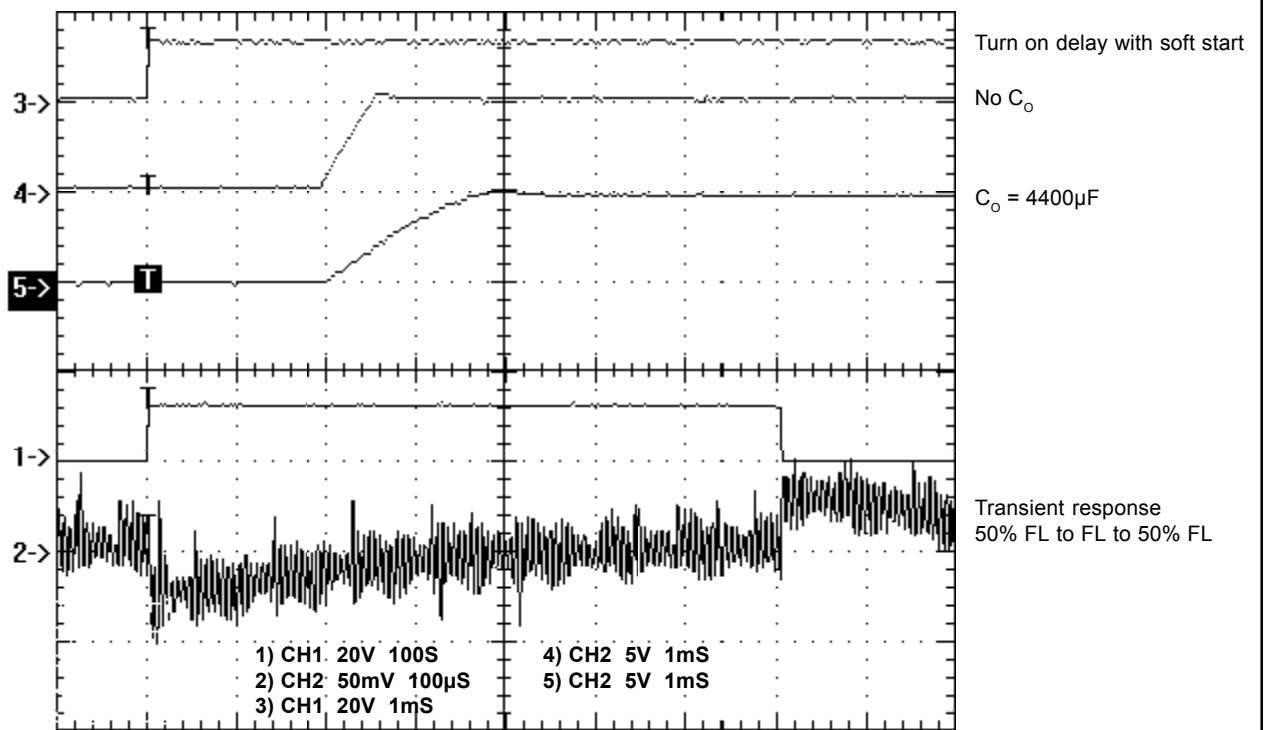


FIGURE 3. Turn on delay with soft start and transient response