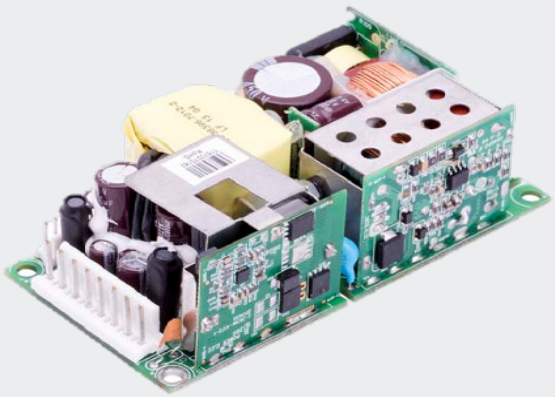
SL POWER CINT3110 SERIES

110 Watts Triple Output
Industrial Grade



Industrial

Advanced Energy's SL Power CINT3110 family is the latest offering in high density triplle output open-frame AC/DC power supplies. Approved to EN/CSA/IEC/UL62368-1, the CINT3110 family is ideal for lighting, industrial printers, gaming equipment, and many other applications where power density and cost are critical. The CINT3110 operates at universal input rang of 90 to 264 VAC and wide temperature range -10°C to +70°C, devering full rated output power up to +50°C. In addition, these models feature Power Fail and DC OK signals.

AT A GLANCE

Total Power

110 Watts

Input Voltage

90 to 264 VAC

# of Outputs

Tripple

RoHS CE

SPECIAL FEATURES

- 2"W x 4"L x 1.3"H Size
- For 1U Applications
- Universal Input 90 to 264 VAC
- 110 W w/air, 80 W Convection Cooled
- Power Fail/DC OK/Remote Sense
- Approved to EN/CSA/IEC/UL62368-1
- ROHS Compliant
- 3 Years Warranty

SAFETY

- EN/CSA/IEC/UL62368-1

ELECTRICAL SPECIFICATIONS

Input	
Input Range	90 to 264 VAC, 47 to 63 Hz, 1Ø 120 to 370 VDC
Switching Frequency	PFC: 75 kHz typical
Inrush Current	45 A max., cold start @ 264 VAC input
Input Current	115 VAC: 1.5 A, 230 VAC: 0.75 A
Input Fuses	2.5 A, 250 VAC fuses provided in both line & neutral For DC input, an external DC safety rated fuse must be used
Earth Leakage Current	<290 µA @ 264 VAC, 60 Hz, NC <420uA @ 264 VAC, 60 Hz, SFC
Touch Current	<90 µA @ 264 VAC, 60 Hz, NC <170uA @ 264 VAC, 60 Hz, SFC
Efficiency	87% typical at 230 VAC
Isolation Voltage	Input/Ground: 1800 VAC Input/Output: 4000 VAC Output/Ground: 500 VAC
Output	
Maximum Power	110 W continuous with 200 LFM airflow, 80 W convection cooled
Ripple and Noise	See chart
Total Regulation	See chart
Minimum Load	Not required
Dynamic Load Regulation	<3% Vo nominal, load change is 50%, di/dt is 0.2A/uS
Output Voltage	See chart
Adjustment Range	+/-5% from nominal on 5 V output
Transient Response	500 uS typical for return to within 0.5% of nominal, 50% load step, $\Delta i/\Delta t$<0.2 A/µs. Max. voltage deviation is 3%
Auxiliary Signals	
AC Power Fail	During normal operations, stays HIGH. Signal goes LOW with at least 6mS warning before loss of DC output from AC failure
Remote Sense	(5V output, optional) Will compensate for 0.5V drop min. Will operate without remote sense connected. Reverse connection protected
DC OK	Open collector logic signal goes and stays HIGH 100 mS to 500 mS after main output reaches regulation.
Reliability	
MTBF	245K hrs at 110 VAC input, 25ºC ambient
Warranty	3 years
Protection	
Overvoltage Protection	Latch. Recycle AC input to reset. See chart for trip range.
Short circuit Protection	Hiccup mode, no damage will occur if the output is shorted
Overload Protection	Hiccup mode. 150% - 300% above rating for V2 & V3. 110 to 200% for V1.

EMI/EMC COMPLIANCE

Conducted Emissions	EN55011/22: Class B, FCC Part 15, Subpart B, Class B
Radiated Emissions	EN55011/22: Class A, FCC Part 15, Subpart A, Class A
Line Harmonic Emissions	EN61000-3-2, Class A, B, C, D
Voltage Fluctuations & Flicker	EN61000-3-3, Complies (dmax<6%)
Static Discharge Immunity	EN61000-4-2, 6kV Contact, 8kV Air, Criteria A
Radiated RF EM Immunity	EN61000-4-3, 3 V/m, Criteria A
Electrical Fast Transients / Bursts	EN61000-4-4, 2 kV/5 Khz, Criteria A
Surges Line to Line (DM) and Line to Ground (CM)	EN61000-4-5, 1kV DM, 2kV CM, Criteria A
Conducted Disturbances Induced by RF fields	EN61000-4-6, 3 Vrms, Criteria A
Power Frequency Magnetic Fields Immunity	EN61000-4-8, 3 A/m, Criteria A
Voltage Dips	EN61000-4-11: --0% Vin, 0.5 cycle --40% Vin, 5 cycle --70% Vin, 25 cycle Criteria A

ENVIRONMENTAL SPECIFICATIONS

Vibration	Operating: 0.003 g/Hz, 1.5 grams overall, 3 axes, 10 min/axis Non-operating: 0.026 g²/Hz, 5 grams overall, 3 axes, 1 hr/axis
Shock	Operating: Half-sine, 20 gpk, 10 ms, 3 axes, 6 shocks total Non-operating: Half-sine waveform, 40 gpk, 10 ms, 3 axes, 6 shocks total
Operating Temperature	-10°C to +70°C
Temperature Derating	Derate output power above 50°C to 50% at 70°C
Storage Temperature	-40°C to +85°C
Altitude	Operating: -500 to 10,000 ft. Non-operating: -500 to 40,000 ft
Relative Humidity	5% to 95%, non-condensing
Weight	200 g

ORDERING INFORMATION

Model Number	Output Voltage[1]		Output Current[2]		Ripple & Noise[3]	Total Regulation	OVP Threshold
			w/200 LFM air	Convection			
CINT3110A0508K01	V1	5 V	14.0 A	10.0 A	1.0% pk-pk	+/-2% Vo nom	7.5 V max
	V2	12 V	6.0 A	4.5 A	1.0% pk-pk	+/-3% Vo nom	115% - 135%
	V3	-12 V	1.0 A	1.0 A	2.0% pk-pk	+/-10% Vo nom	115% - 135%
CINT3110A1708K01	V1	5 V	14.0 A	10.0 A	1.0% pk-pk	+/-2% Vo nom	7.5 V max
	V2	15 V	4.5 A	3.5 A	1.0% pk-pk	+/-3% Vo nom	115% - 135%
	V2	-15 V	1.0 A	1.0 A	2.0% pk-pk	+/-10% Vo nom	115% - 135%
CINT3110A1908K01	V1	5 V	12.0 A	8.0 A	1.0% pk-pk	+/-2% Vo nom	7.5 V max
	V2	24 V	4.0 A	3.0 A	1.0% pk-pk	+/-3% Vo nom	115% - 135%
	V3	-24 V	1.0 A	1.0 A	2.0% pk-pk	+/-10% Vo nom	115% - 135%

Notes:
1. 5 V output is adjustable with +/-5% range.
2. Total convection power is 80 W.
3. Measured with noise probe directly across output terminals, and load terminated with 0.1 µF ceramic and 10 µF low ESR capacitors. Ripple & Noise of V2 at no load is 2% maximum

SAFETY

EN	EN62368-1
CSA	CAN/CSA-C22.2 No. 62368-1
IEC	IEC62368-1
UL	UL62368-1

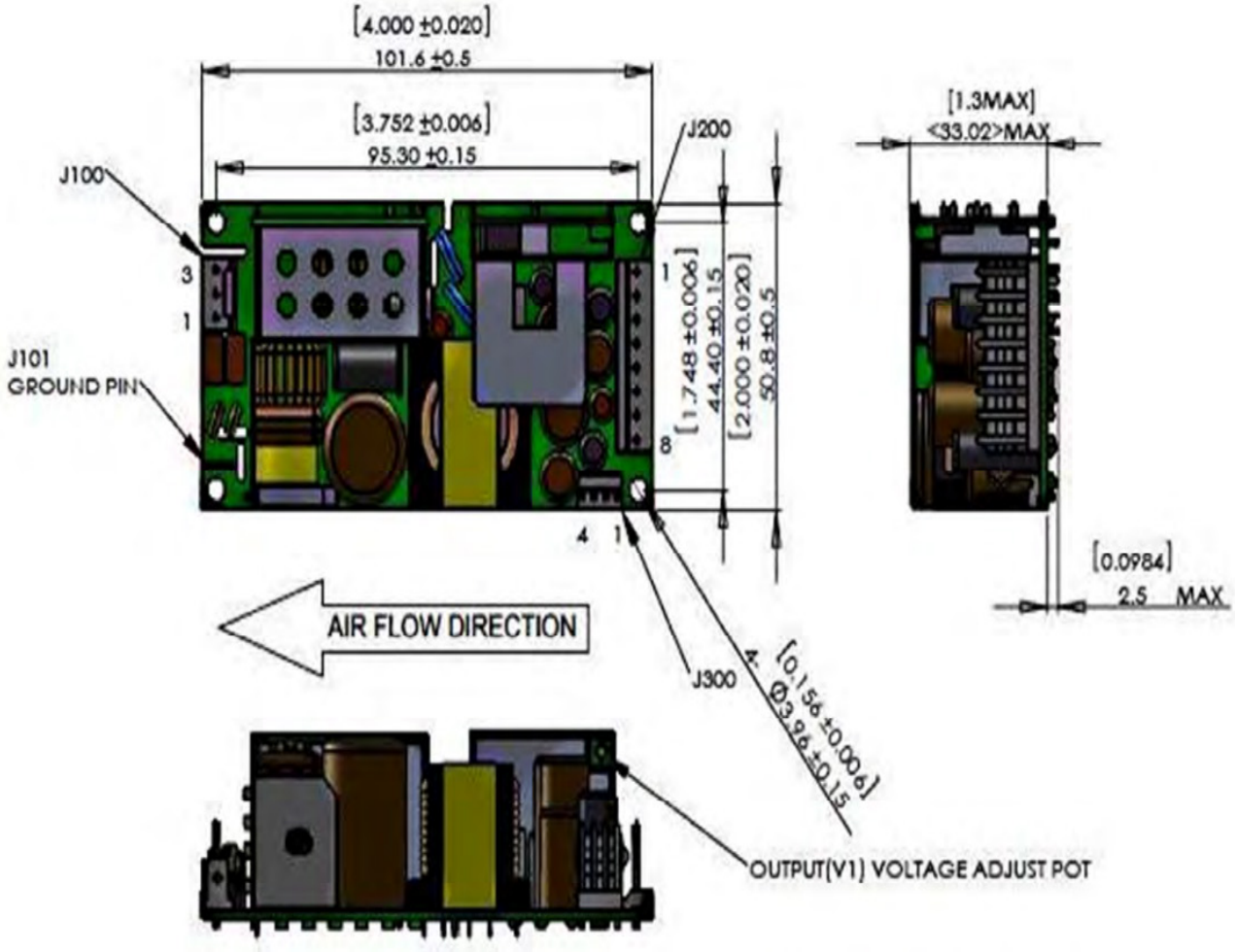
SYSTEM TIMING SPECIFICATIONS

Parameter	Min	Typ	Max	Unit
Turn On Time - 115 VAC inversely proportional to input voltage and thermistor temperature	-	-	2000	ms
Hold Up Time - 120 VAC @ 100% load	16	-	-	ms

PIN ASSIGNMENTS

Type	Connector	Pin #	Assignment	Mating Connector
INPUT	J100	1	AC Neutral	Molex: 09-50-3031 Pins: 08-52-0072 AMP: #640250-3 Pins: 3-640706-1
		2	Empty	
		3	AC Line	
GROUND	J101	0.187" FASTON TAB		Molex: 01-90020001
OUTPUT	J200	1	+Vout1	AMP: 640250-8 Pins: AMP #3-640706-1
		2	+Vout1	
		3	GND	
		4	GND	
		5	GND	
		6	GND	
		7	+Vout2	
		8	+Vout3	
SIGNAL CONNECTOR	J300	1	PF/DC OK	AMP: #1375820-4 Pins: AMP #1375819
		2	GND	
		3	+ Remote Sense	
		4	- Remote Sense	

MECHANICAL DRAWING

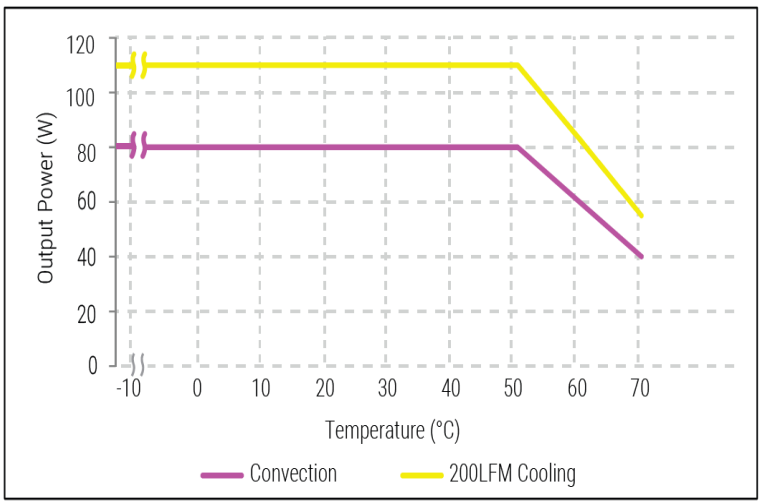


Notes:
1. All dimensions in mm (inches), tolerance is +/-0.02".
2. Mounting holes should be grounded for EMI purpose.
3. Mounting J101 is safety ground connection.
4. This power supply requires mounting on metal standoffs 0.20" (5 mm) in height.
5. Dimensions: W: 2" x L: 4" x H: 1.3".
6. Unit weight: 200 g.

CHARACTERISTIC CURVES

Output VS. Temperature

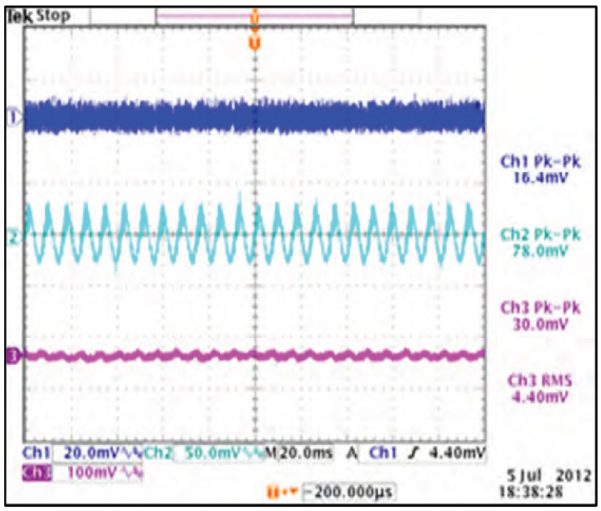
80 W convection cooled and 110 W continuous with 200 LFM airflow, derating output power to 50% at 70°C.



CHARACTERISTIC CURVES

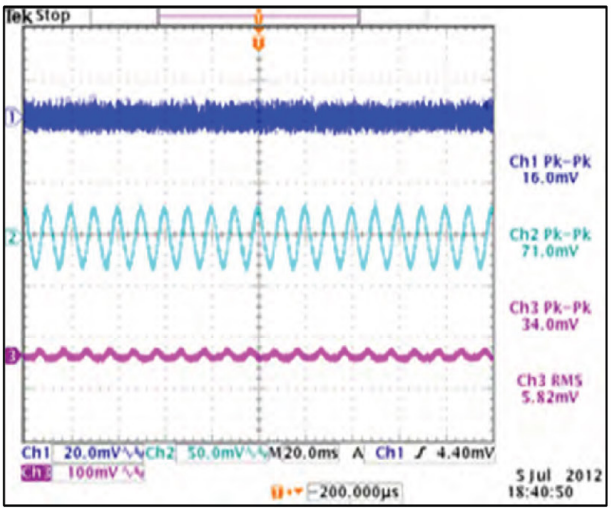
Ripple & Noise

To verify that the output ripple and noise does not exceed the level specified in the product specification. Measured using a scope probe socket with 0.1 uF ceramic and a 10 uF electrolytic capacitor connected in parallel across it, 20 MHz BW.



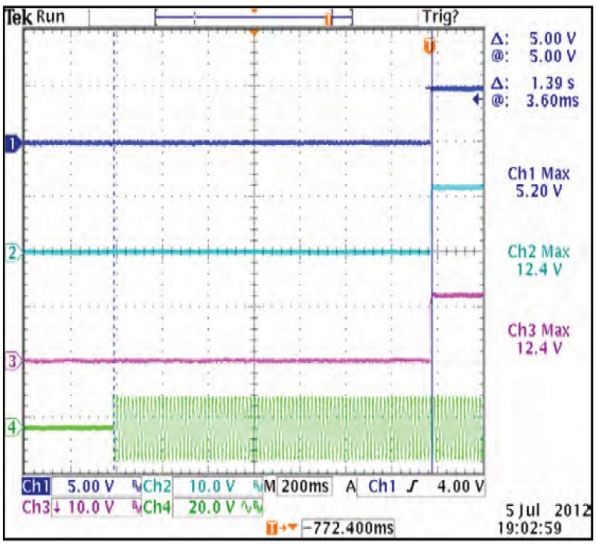
Startup Time

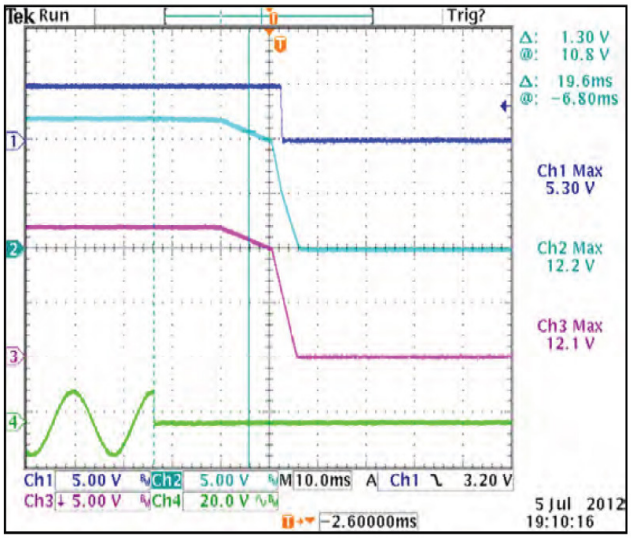
Start up time is <2 seconds



Holdup Time

Holdup time is 16 ms minimum

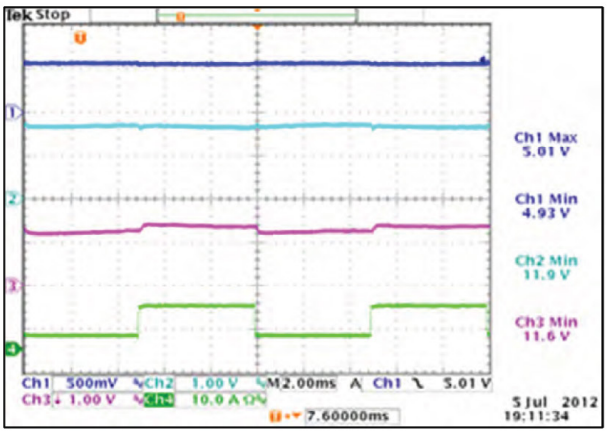


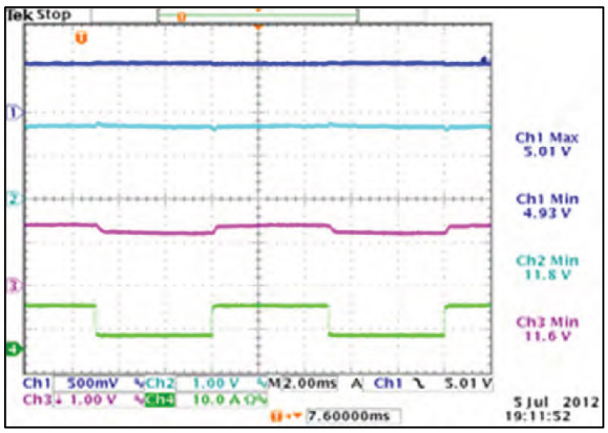


CHARACTERISTIC CURVES

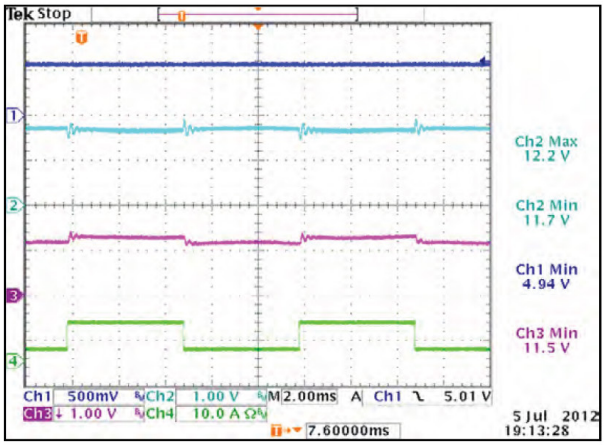
Output Transient Response V1

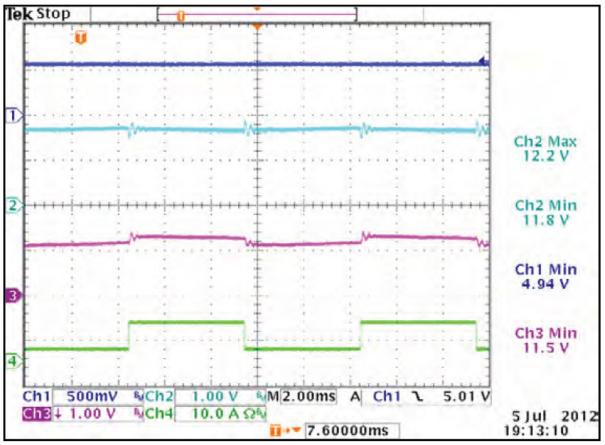
50% load step within the regulation limits of minimum and maximum load, di/dt<0.2 A/µSec. Recovery time not specified as there is no laps in regulation with a 50% Load Step. Maximum voltage deviation is 3%.



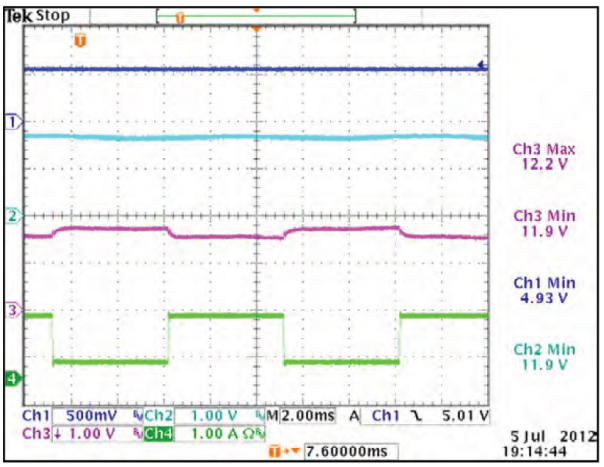


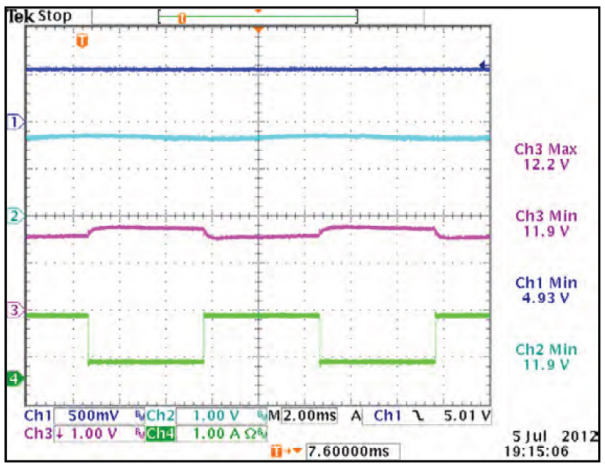
Output Transient Response V2





Output Transient Response V3

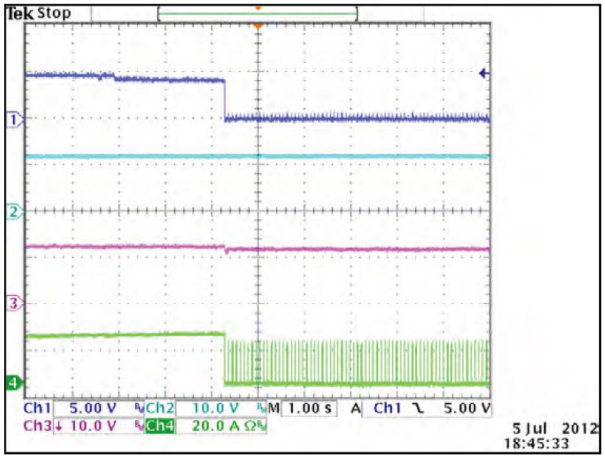


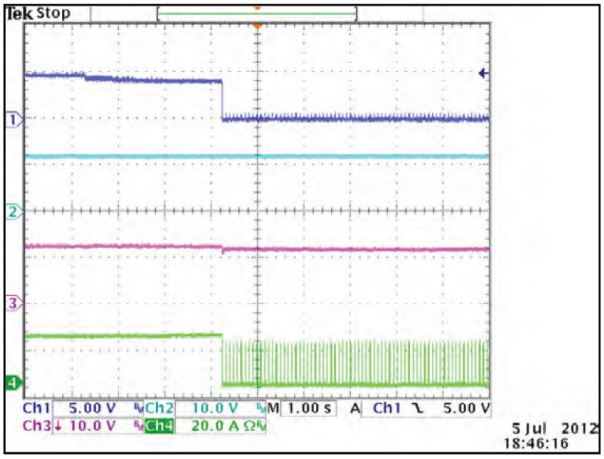


CHARACTERISTIC CURVES

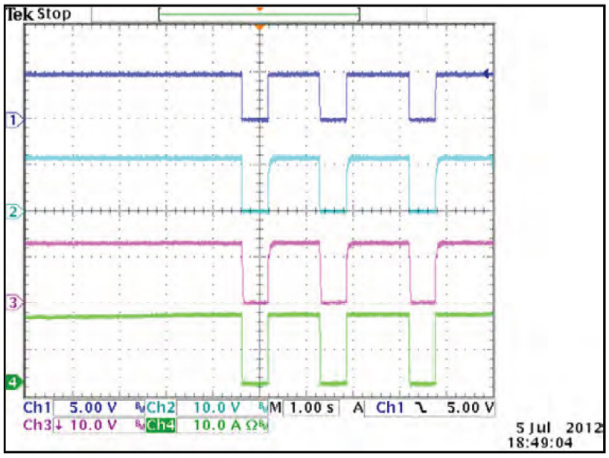
Overload Protection V1

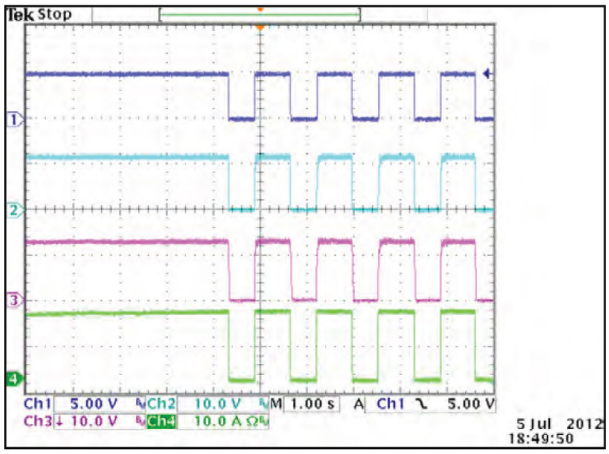
Supply shall protect itself against overload conditions. The power supply shall recover from overload conditions without operator intervention.



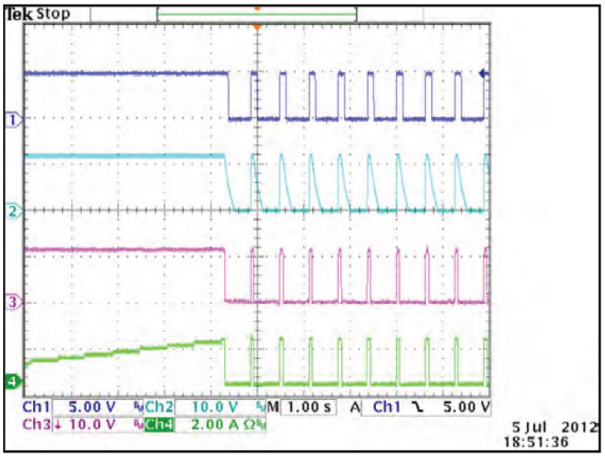


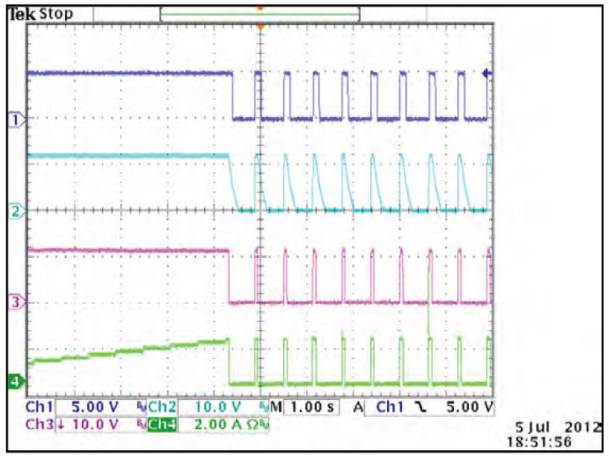
Overload Protection V2





Overload Protection V3

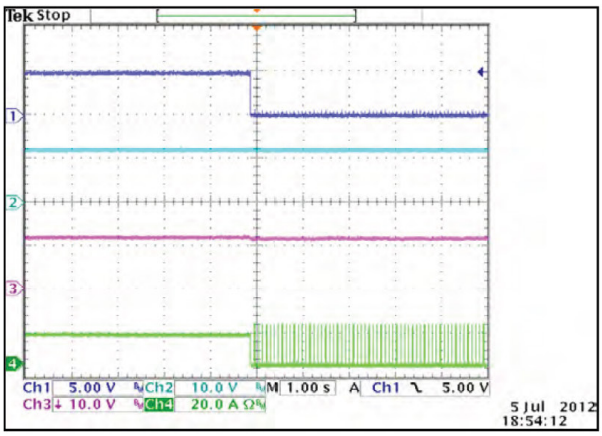


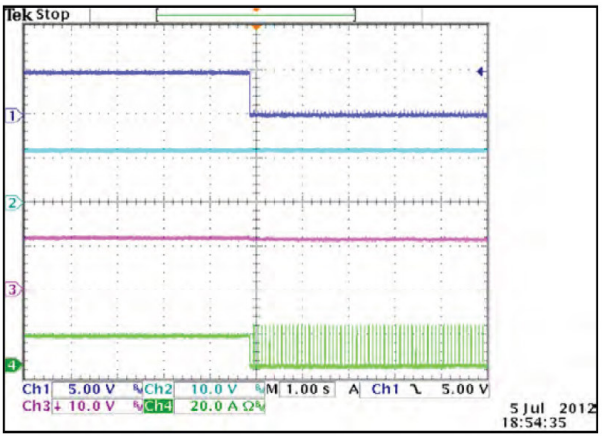


CHARACTERISTIC CURVES

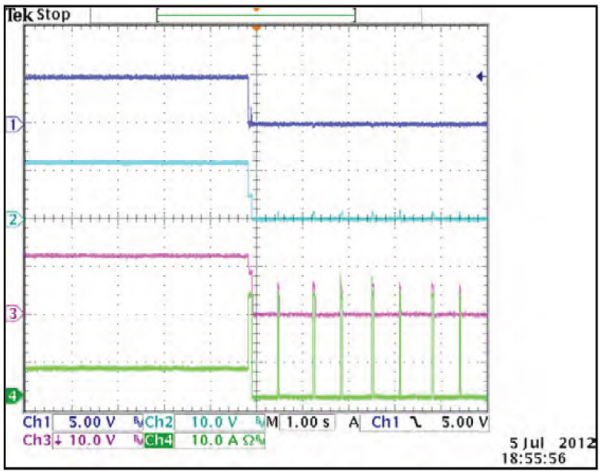
Output Short Circuit Protection V1

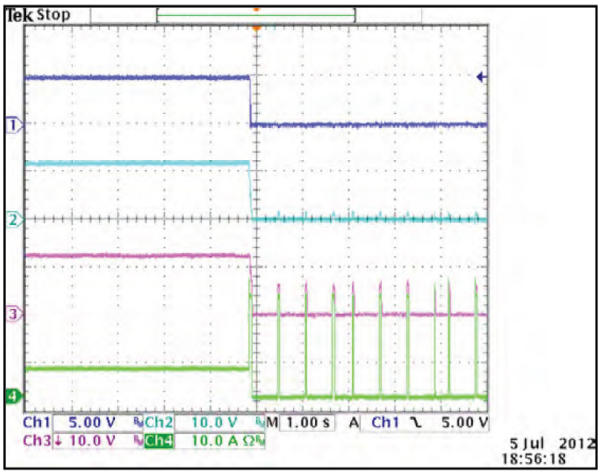
Supply shall protect itself against Short Circuit conditions. The Power Supply shall recover from short circuit conditions without operator intervention.



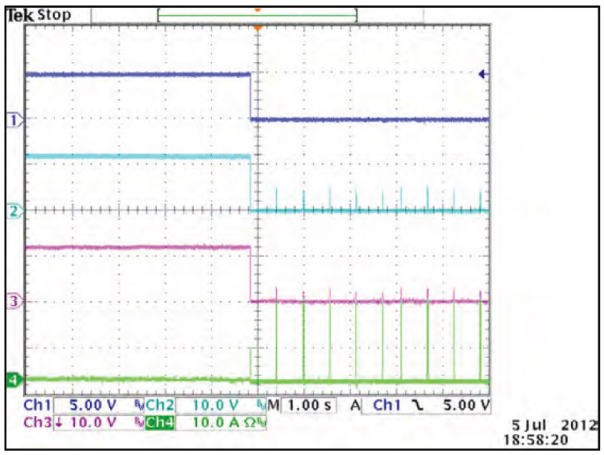


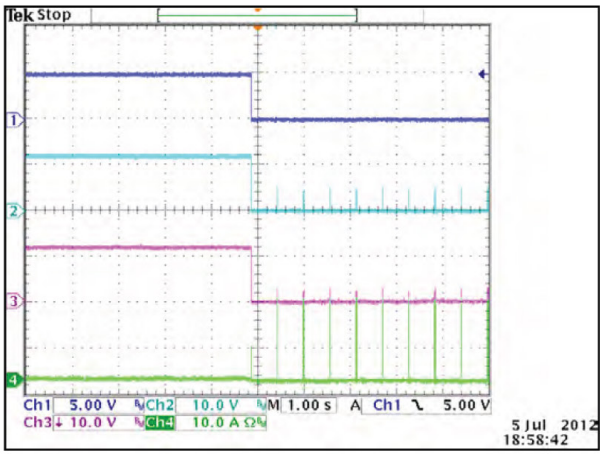
Overload Protection V2





Overload Protection V3

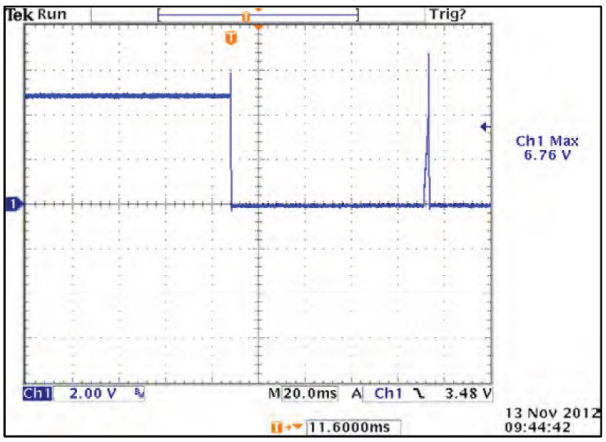


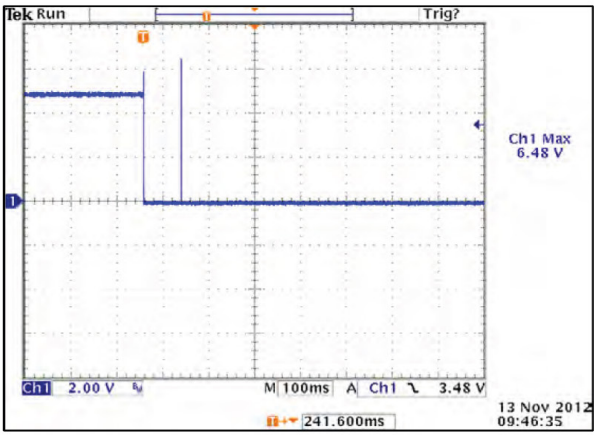


CHARACTERISTIC CURVES

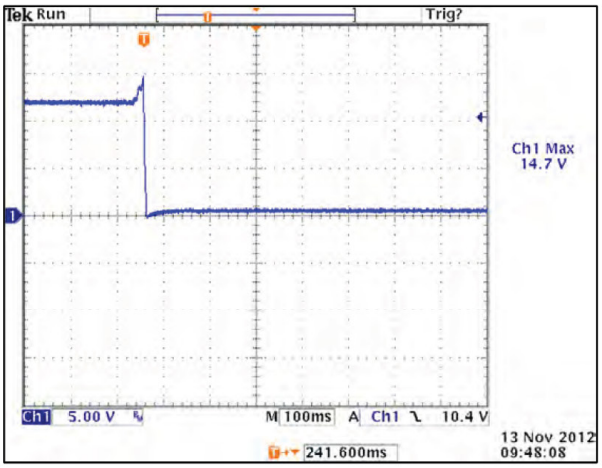
Output Overvoltage Protection V1

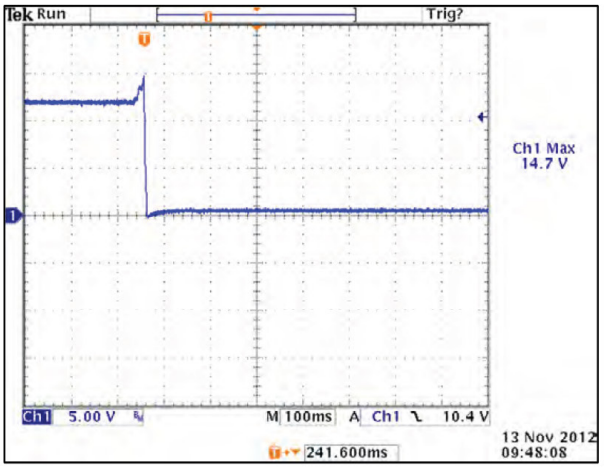
Supply shall protect itself against over voltage conditions. The Power Supply shall latch and require AC input recycle to reset.



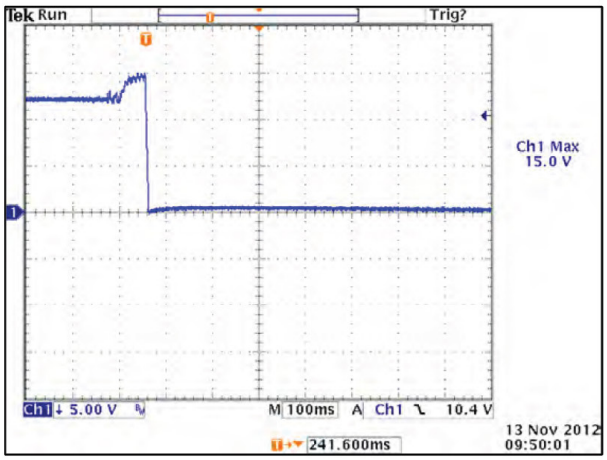


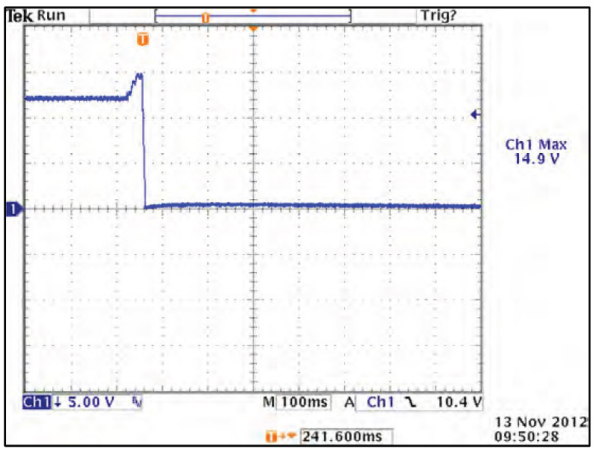
Output Short Circuit Protection V2





Output Short Circuit Protection V3

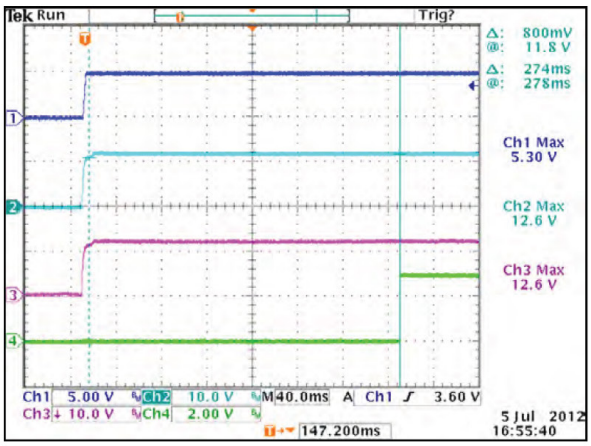


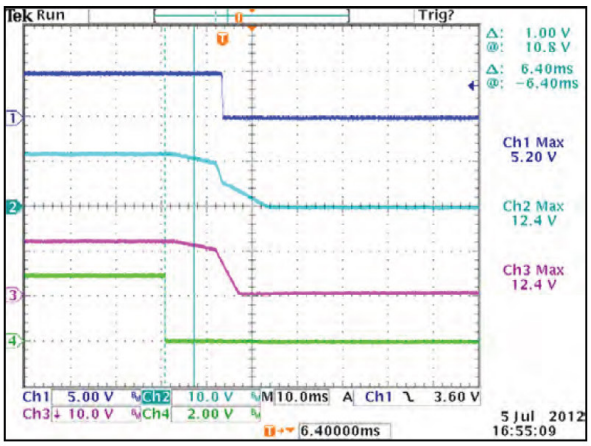


CHARACTERISTIC CURVES

Power Fail Signal Timing

Active Low TTL logic signal goes high 100mS–500mS after main output; it goes low at least 6mS before loss of regulation.





ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE | TRUST

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