MQ7801

Isolated 36~57VDC input, 3.3/5/12V output, DC-DC Converter compliance with 802.3af

APPLICATIONS

- IP Camera
- IP Phone
- Wireless Access Point
- Video Supervisory

FEATURES

- Wide operating voltage:
  - MQ7801: 36V ~ 57V
- Output Current
  - 12V, 1.1A
  - 5V, 2A
  - 3.3V, 2A
- Output voltage ripple: 100mV$_{PP}$
- High Efficiency 84% (input 48V, Load12V@1.1A)
- Startup to 6A/5mS, optimized to wireless application
- Minimum Load: 1W
- Overcurrent /shortcircuit protection
- High reliability: designed to meet 5 million hour MTBF
- Minimal space on PCB:
  - 62.2 mm x 14 mm x 16 mm or
  - 2.45 in x 0.55 in x 0.63in
- No derating to +85℃, inside closed box
- UL/IEC/EN60950 compliant

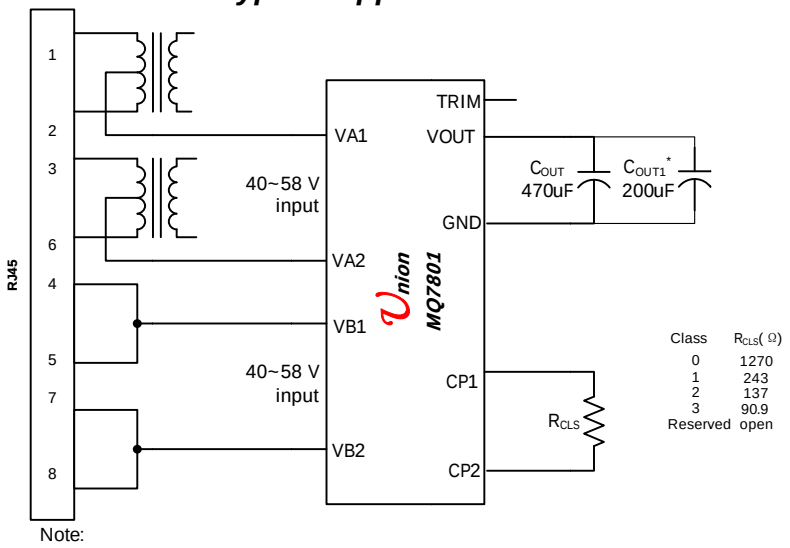
Description

The ***POE MQ7801*** series of modules are designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af/at Power-over-Ethernet (PoE) standard. IEEE 802.3af/at allows for two power options for Category 5 cables and the MQ7801 have two pairs of power inputs pins: - VA1&2 and VB1&2 to accommodate this.

The MQ7801 signature and control circuit provides the PoE compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 15W power to the port. The MQ7801 is compatible with Class 0 to Class 3 equipment.

The high efficiency DC/DC converter operates over a wide input voltage range and provides a regulated low ripple and low noise output. The DC/DC converter also has built-in overload and short-circuit output protection.

********** ***Typical Application Circuit*** **********



Note:

* : For low temperature operating, 200uF TAN capacitor is required.

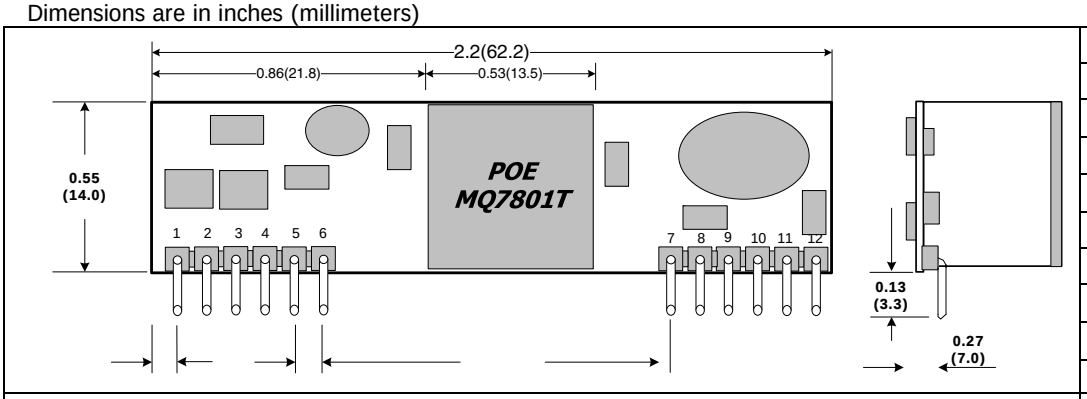
* : For keeping part operating normally, 1W minimum load is required.

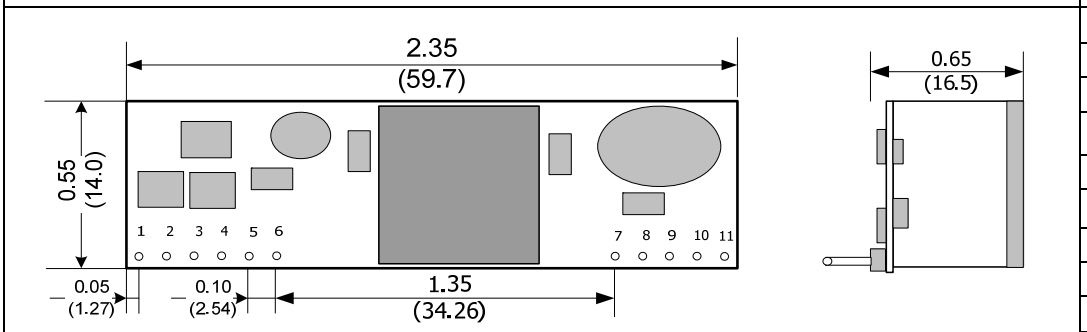
Performance Specifications (at Ta=+25℃)

Model	Input V_{IN} Range (V)	Output				Efficiency (%)
		I_{OUT} (A)	V_{out} (V)	Regulation		
				Line (%)	Load (%)	
MQ7801T033	40~57	2	3.3V	TBD	TBD	TBD
MQ7801T050		2	5V	0.5	1	81%
MQ7801T120		1.1	12V	0.5	0.5	84%

Mechanical Specifications

Dimensions are in inches (millimeters)





PIN	DESCRIPTION
1	VA1
2	VA2
3	VB1
4	VB2
5	CP1
6	CP2
7、8	GND
9、10	VOUT
11	TRIM

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1	VA1
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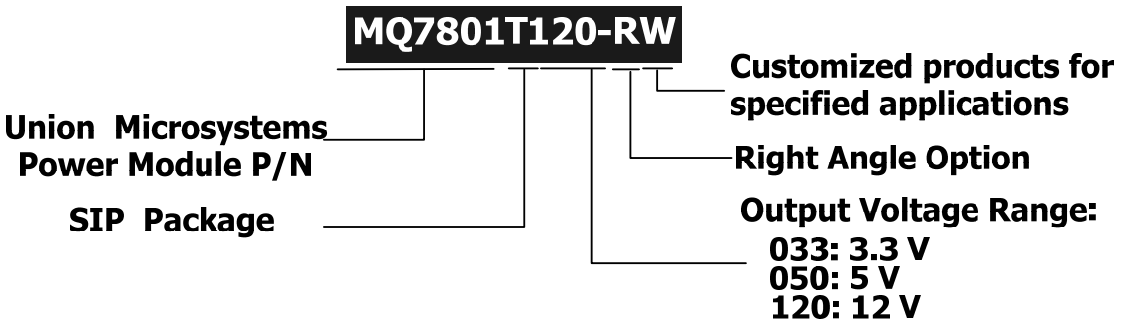
Ordering Information



For examples:
MQ7801T120 means MQ7801 in SIP package, output voltage is 12V

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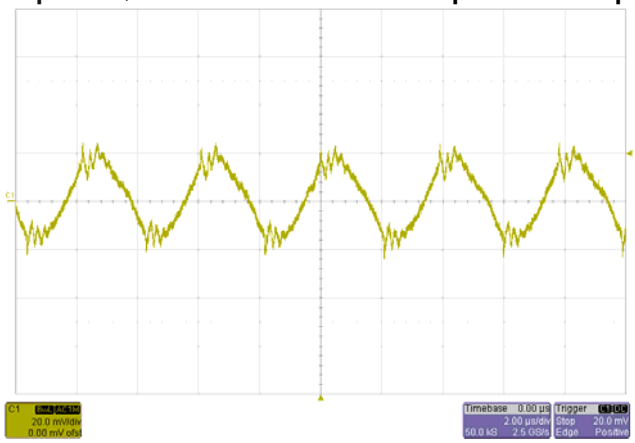
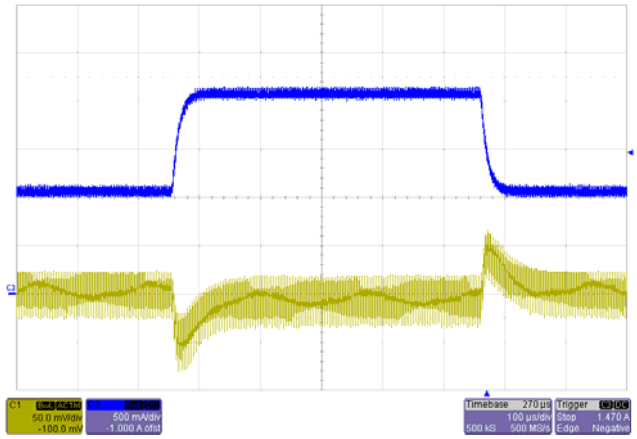
Typical Characteristics

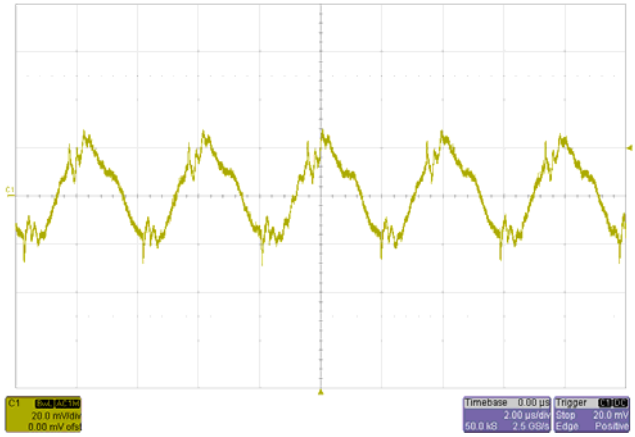
Output=5V， General conditions: Output filter: 330μF AL-CAP



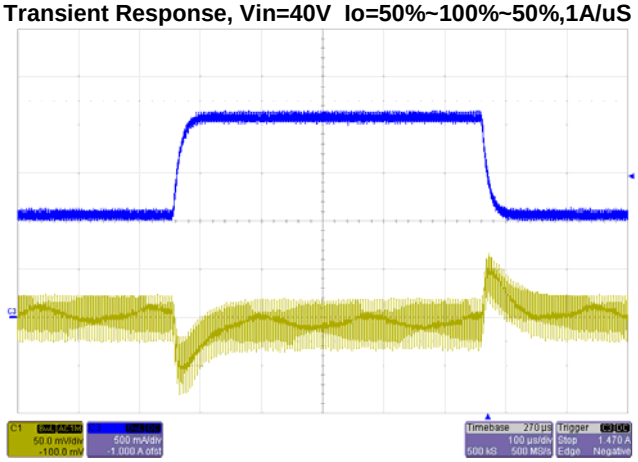
Noise V_{IN}=40V, Io=1A, 5~20MHz Bandwidth



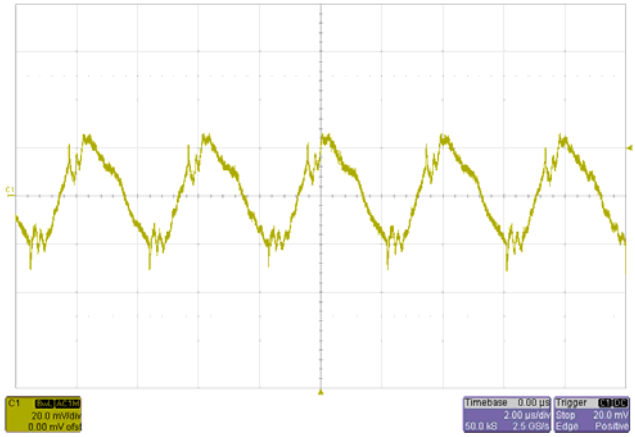
Transient Response, Vin=40V Io=50%~100%~50%,1A/uS



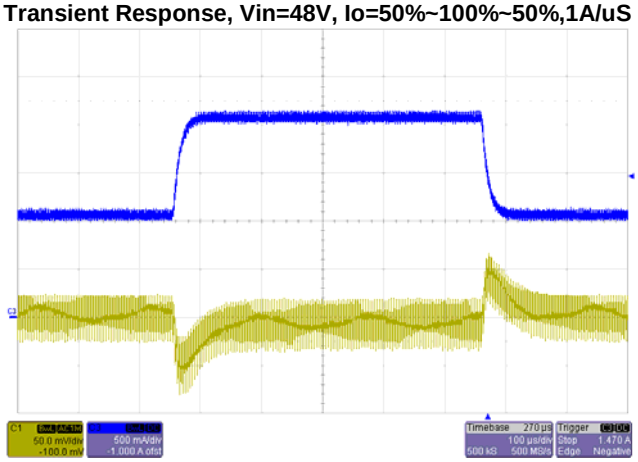
Noise V_{IN}=48V, Io=1A, 5~20MHz Bandwidth



Transient Response, Vin=48V, Io=50%~100%~50%,1A/uS



Noise V_{IN}=58V, I_O=1A, 5~20MHz Bandwidth



Transient Response V_{IN}=58V, Io=50%~100%~50% 1A/uS

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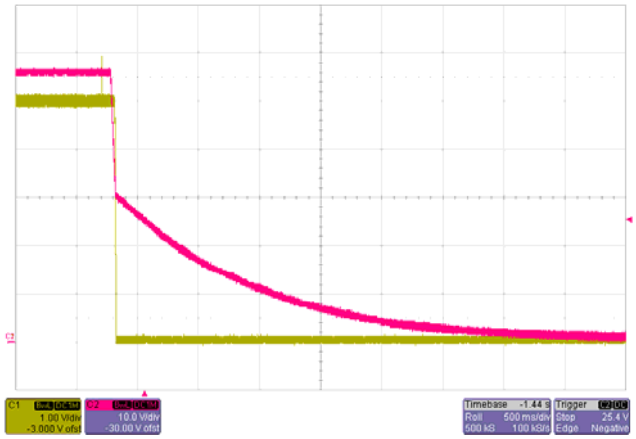
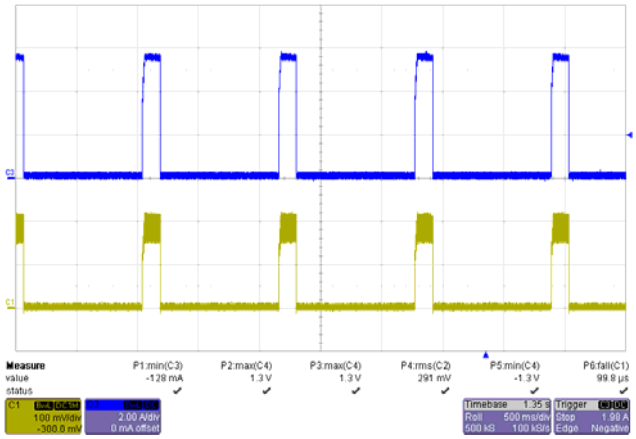
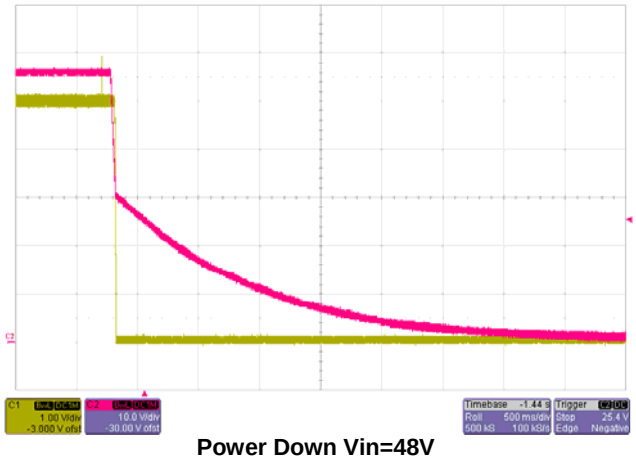


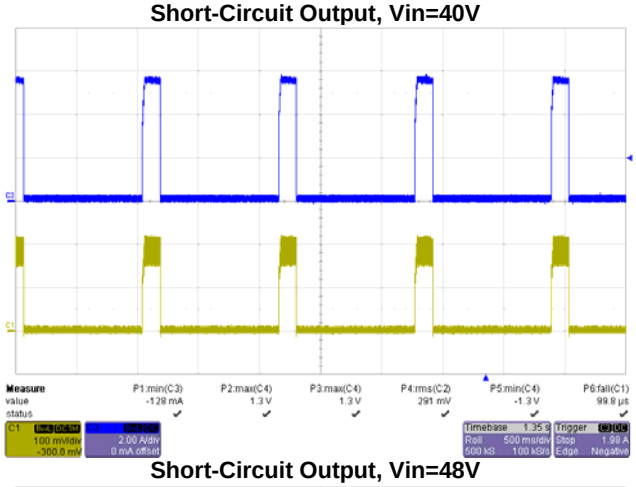
Power Down Vin=40V



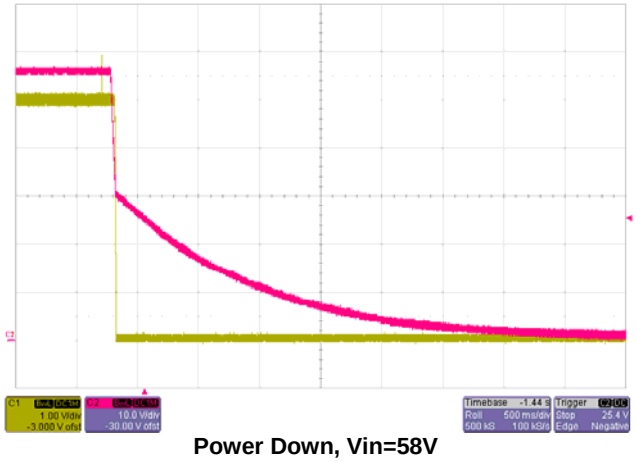
Short-Circuit Output, Vin=40V



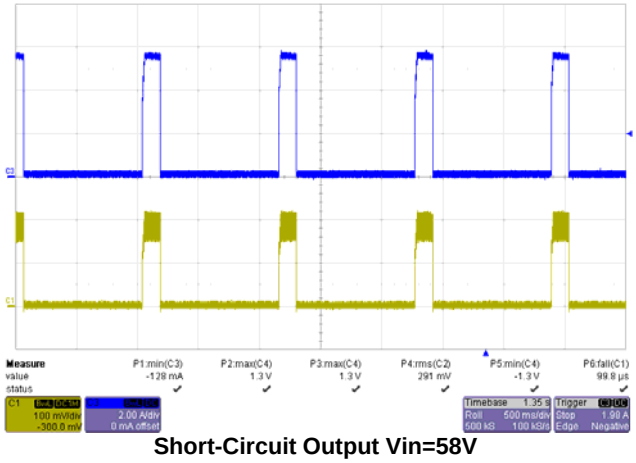
Power Down Vin=48V



Short-Circuit Output, Vin=48V



Power Down, Vin=58V



Short-Circuit Output Vin=58V

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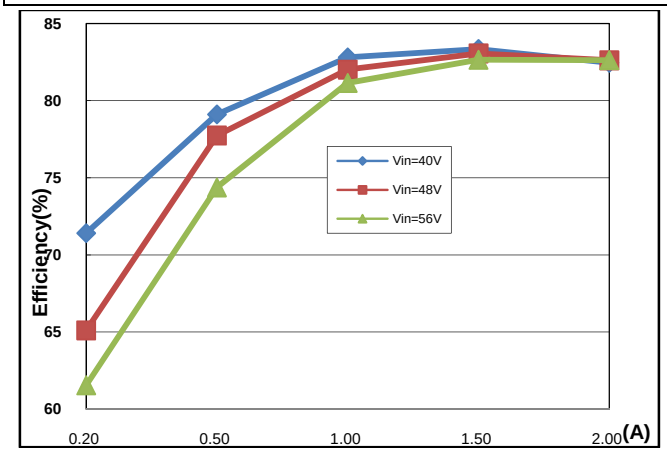
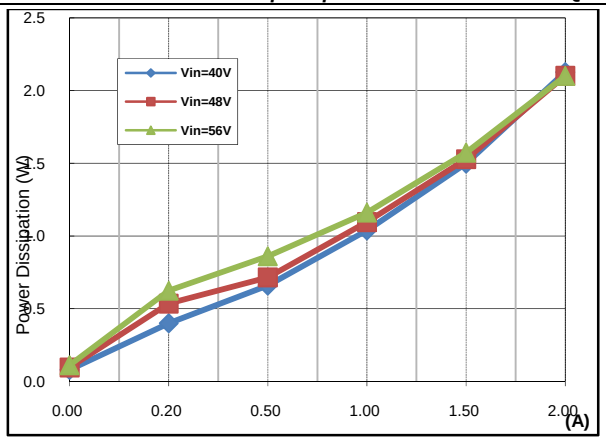
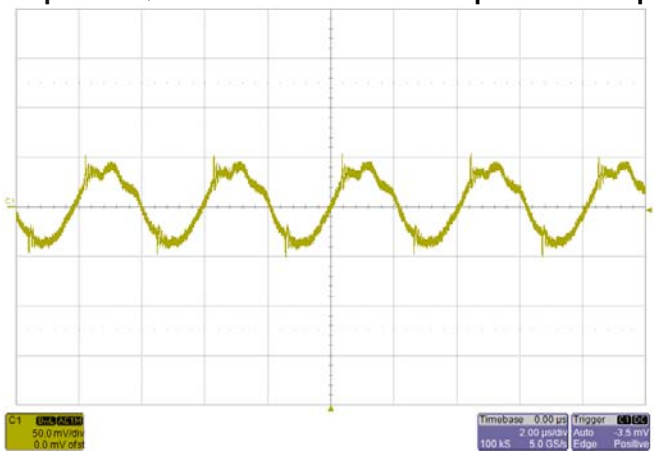


Efficiency

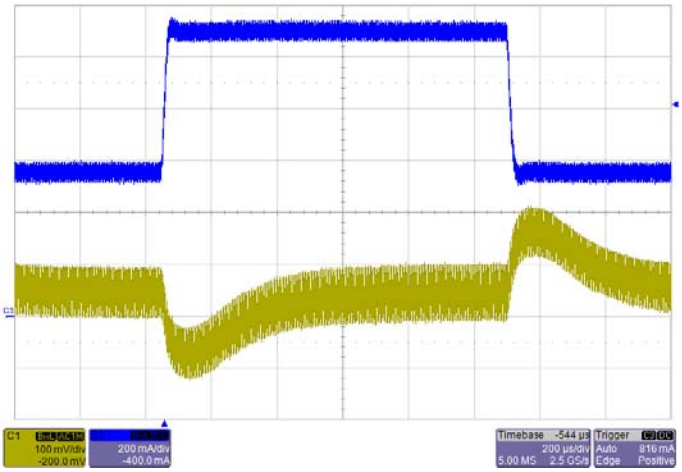


Power Dissipation

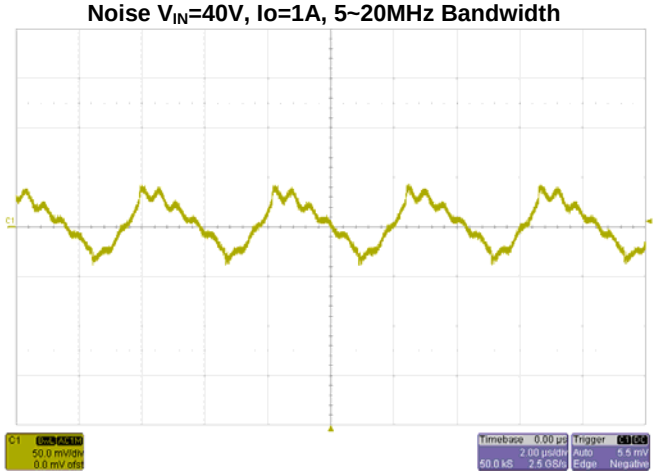
Output=12V， General conditions: Output filter: 330μF AL-CAP



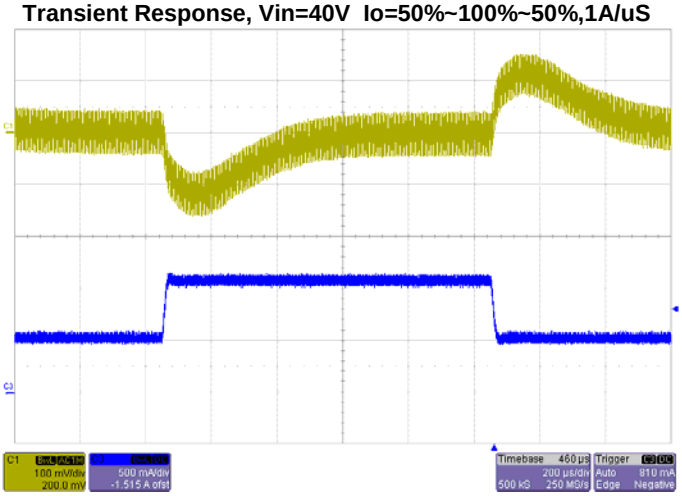
Noise V_{IN}=40V, Io=1A, 5~20MHz Bandwidth



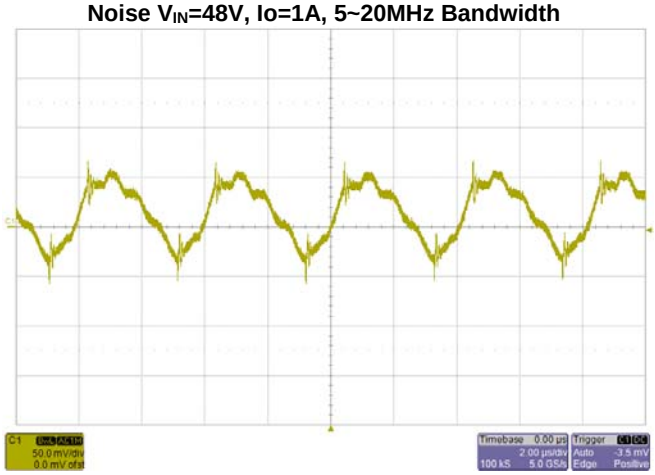
Transient Response, Vin=40V Io=50%~100%~50%,1A/uS



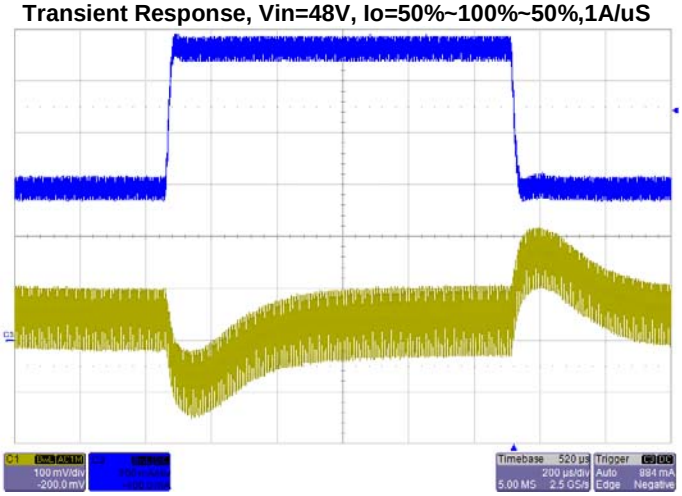
Noise V_{IN}=48V, Io=1A, 5~20MHz Bandwidth



Transient Response, Vin=48V, Io=50%~100%~50%,1A/uS



Noise V_{IN}=58V, I_O=1A, 5~20MHz Bandwidth



Transient Response V_{IN}=58V, Io=50%~100%~50% 1A/uS

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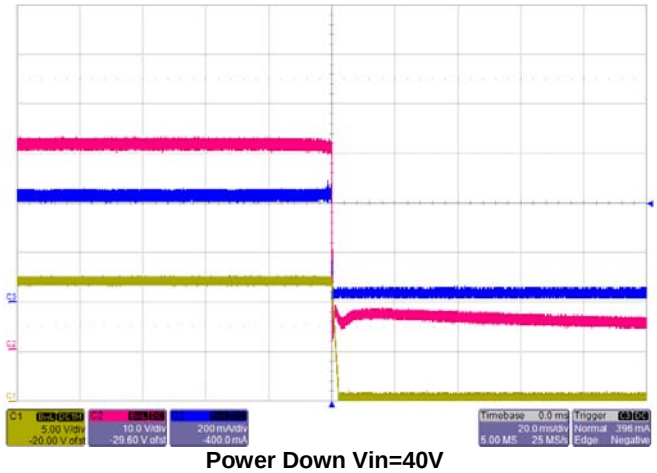
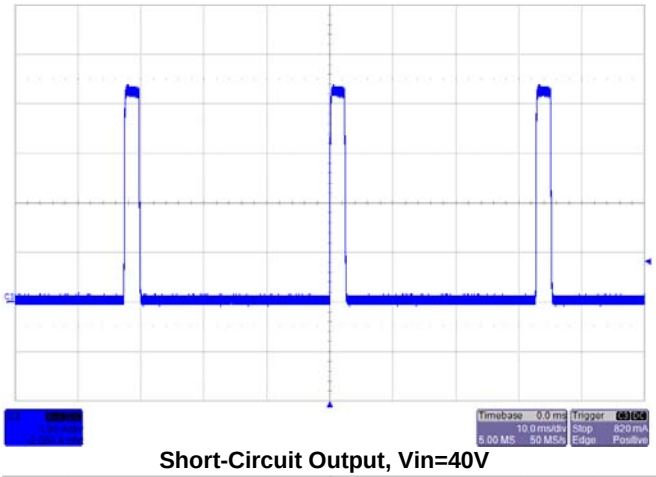
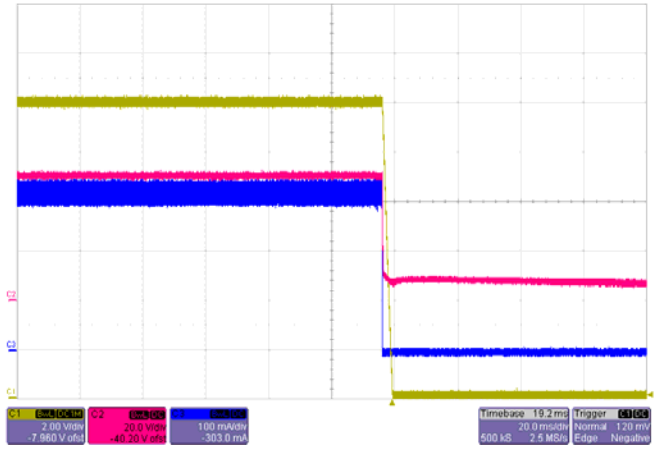


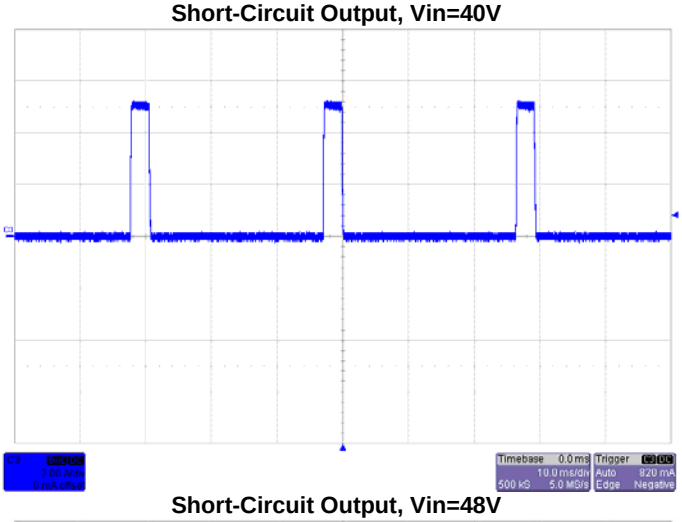
Power Down Vin=40V



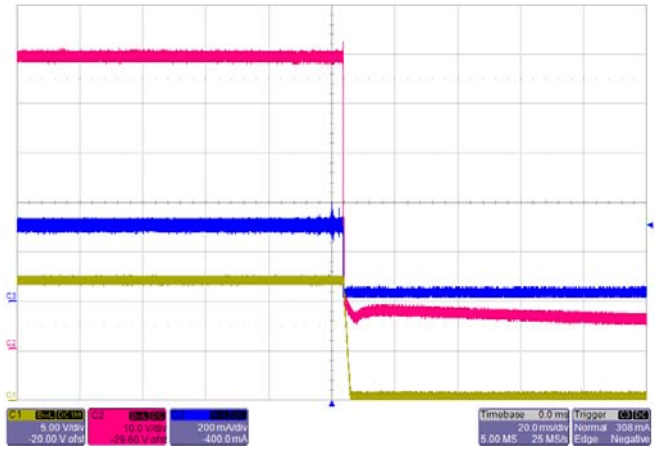
Short-Circuit Output, Vin=40V



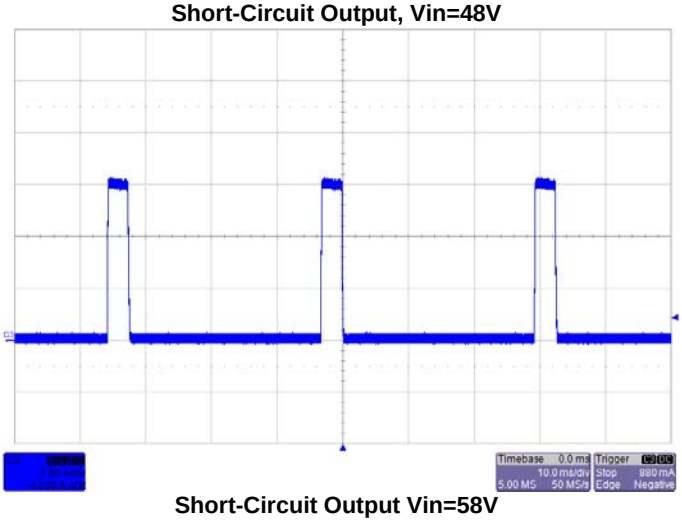
Power Down Vin=48V



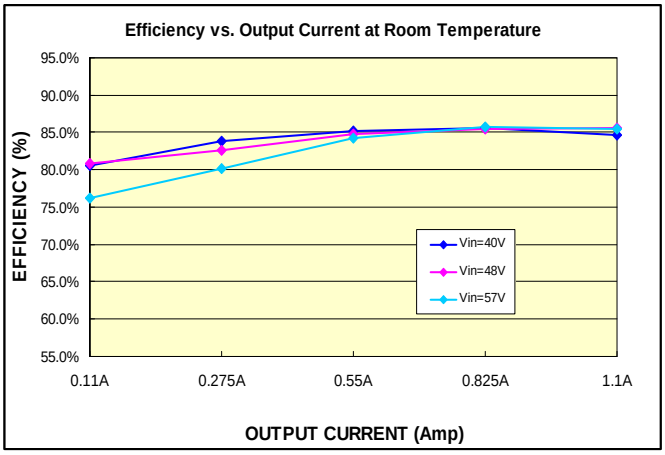
Short-Circuit Output, Vin=48V



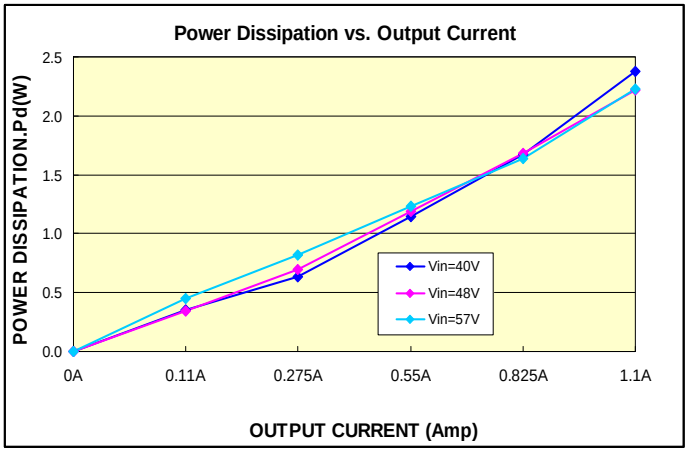
Power Down, Vin=58V



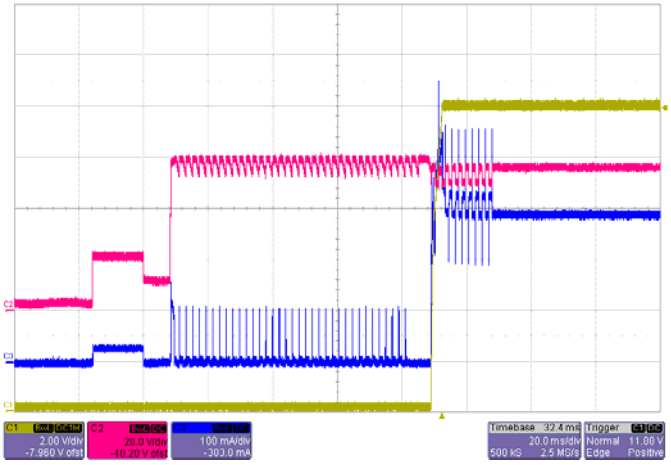
Short-Circuit Output Vin=58V



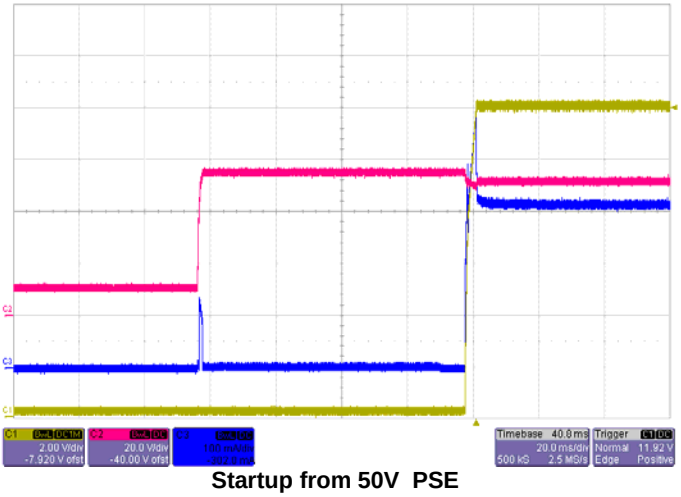
Efficiency



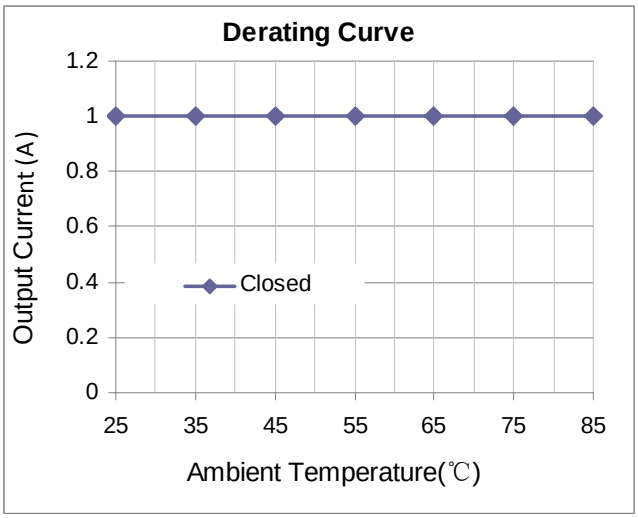
Power Dissipation



Startup form 56V PSE
C1: Output Voltage, C2: PSE Out, C3: Input Current
ILoad=100%Io.max



Startup from 50V PSE
C1: Output Voltage, C2: PSE Out, C3: Input Current
Load=100%Io.max



Derating

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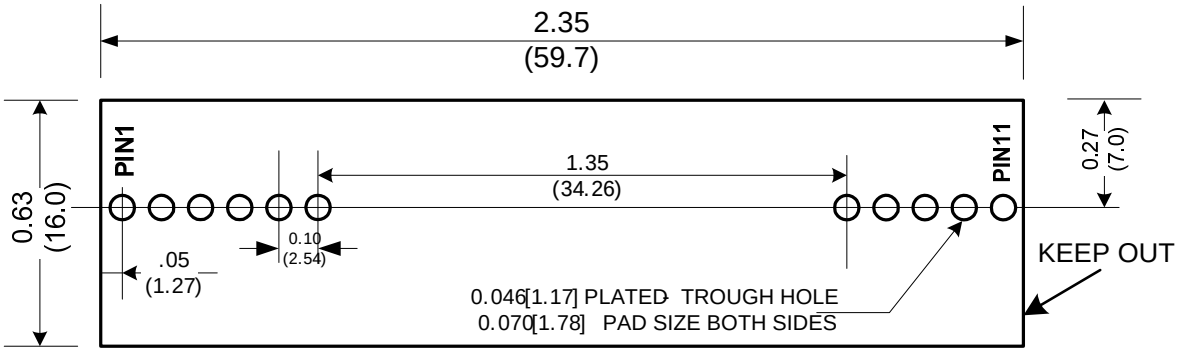
Recommended Hole Pattern

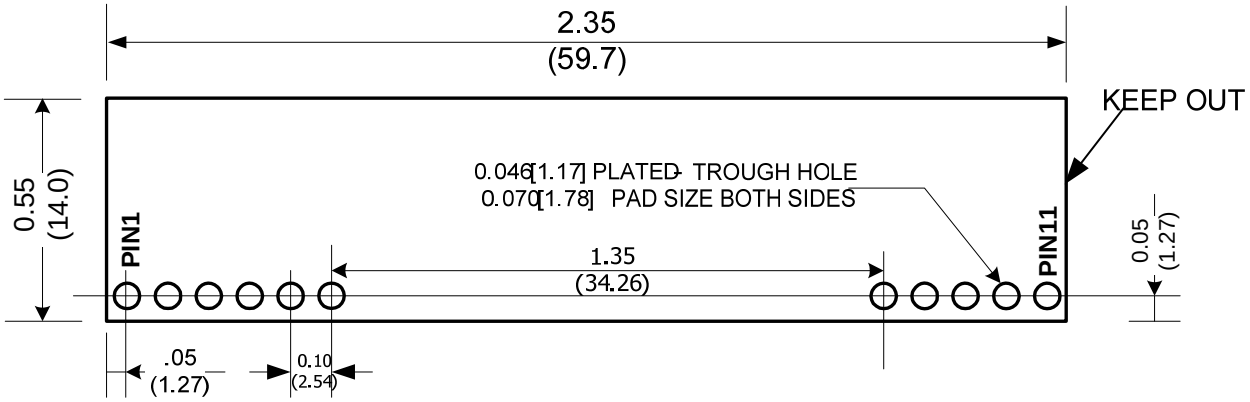
Dimensions are in inches (millimeters)



Component-side footprint

Recommended Hole Pattern for “R” suffix

Dimensions are in inches (millimeters)



Component-side footprint