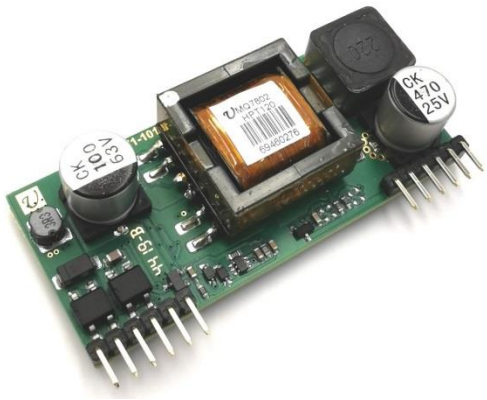
MQ7802HP

Isolated 42~57VDC input, 5/12V output, 30W DC-DC Converter with PoE AT interface



FEATURES

- Wide operating voltage:
  - 42V ~ 57V
- Full features 802.3af/at interface built-in
- Output Current:
  - 12V, 2.5A
  - 5V, 6A
- Output voltage ripple: 200mV$_{PP}$
- High Efficiency 90% (input 48V, 12V@2.5A)
- Over current /short circuit protection
- High reliability: designed to meet 5 million hour MTBF
- Minimal space on PCB:
  - 62.2 mm x 27 mm x 14.3mm or
  - 2.45 in x 1.06 in x 0.56in
- No derating to +65℃, without convection
- UL/IEC/EN60950 compliant
- RoHS Compliant available
- Operating Temperature: -40℃ ~ +85℃

APPLICATIONS

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

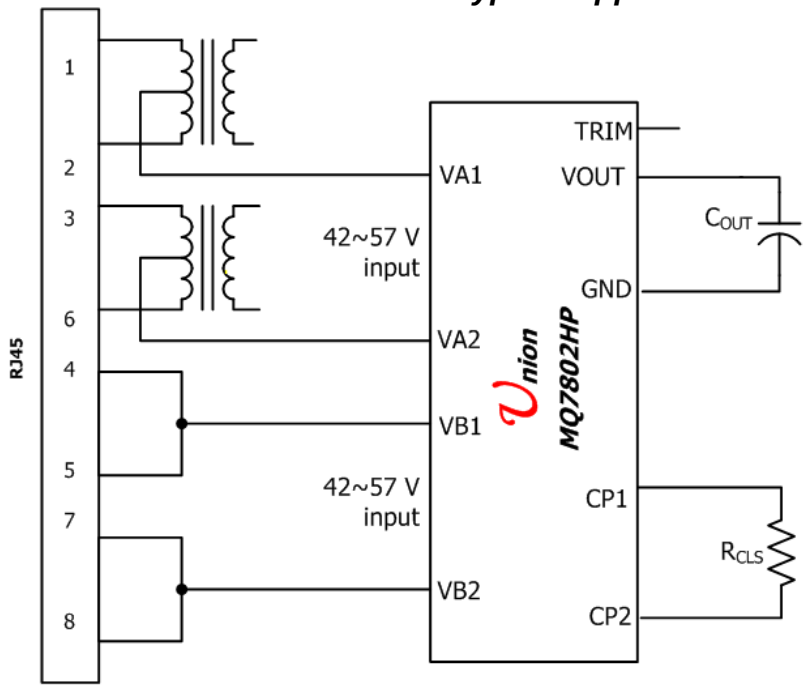
Description

The ***POE MQ7802HP*** 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 MQ7802HP have two pairs of power inputs pins: - VA1&2 and VB1&2 to accommodate this.

The MQ7802HP signature and control circuit provides the PoE AT compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 30W power to the port. The MQ7802HP is compatible with Class 0 to Class 4 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* **********



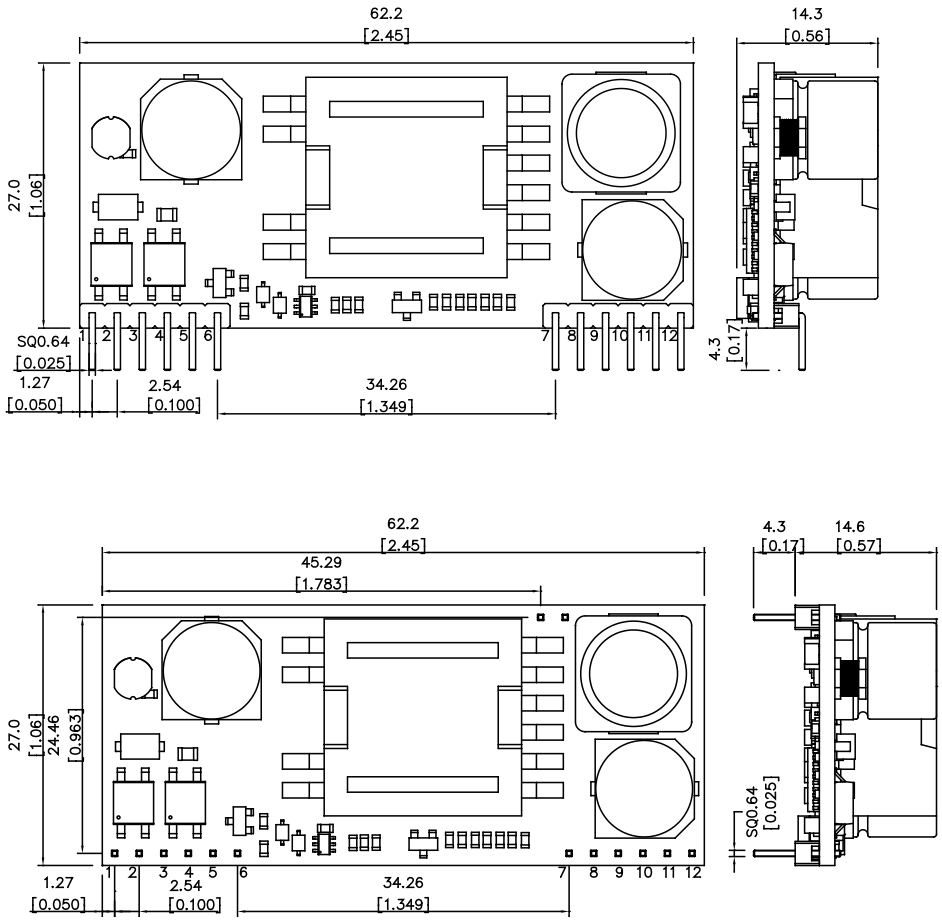
CLASS	POWER AT PD		RESISTOR (Ω)
	MINIMUM (W)	MAXIMUM (W)	
0	0.44	12.95	1270
1	0.44	3.84	243
2	3.84	6.49	137
3	6.49	12.95	90.9
4	12.95	25.5	63.4

Performance Specifications (at Ta=+25℃)

Model	Input V_{IN} Range (V)	Output				Efficiency (%)
		I_{OUT} (A)	V_{out} (V)	Regulation		
				Line (%)	Load (%)	
MQ7802HPT050	42~57	6	5	0.5	0.5	87
MQ7802HPT120		2.5	12	0.5	0.5	89

Mechanical Specifications

Dimensions are in millimeters (inches)



"–R" option for through hole

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

Ordering Information

MQ7802HPT120-R

- **Union Microsystems Power Module P/N**
- **Through Hole**
- **Right Angle Option**
- **Output Voltage Range: 050: 5 V 120: 12 V**

For examples:
MQ7802HPT120 means MQ7802HP in SIP package, output voltage is 12V

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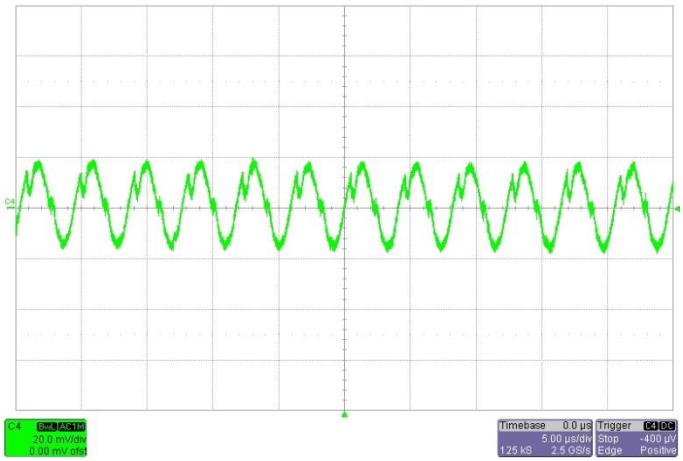
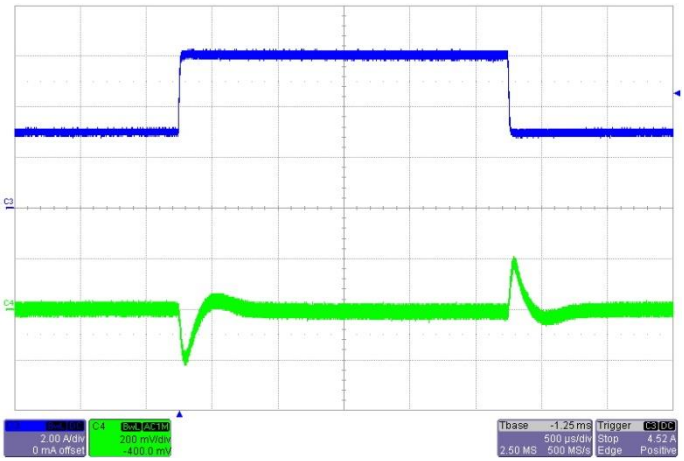
Typical Characteristics：V_{out}=5V

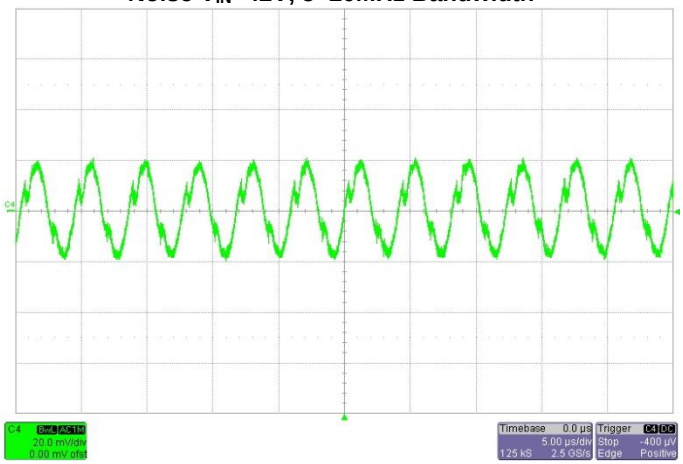
(Output Capacitor: 470uf/10V Electrolytic Capacitor*1)



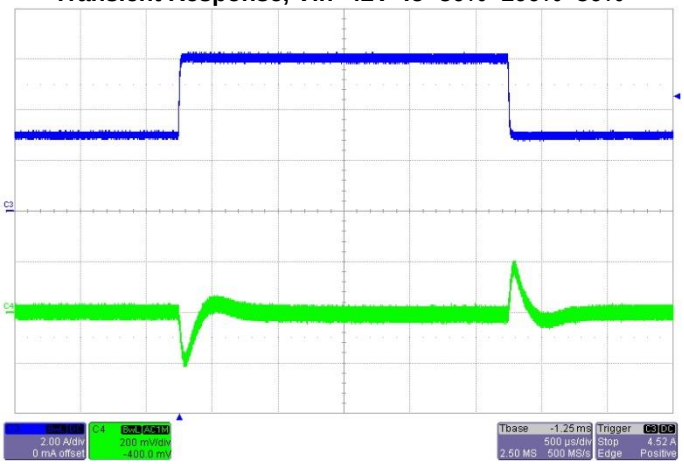
Noise V_{IN}=42V, 5~20MHz Bandwidth



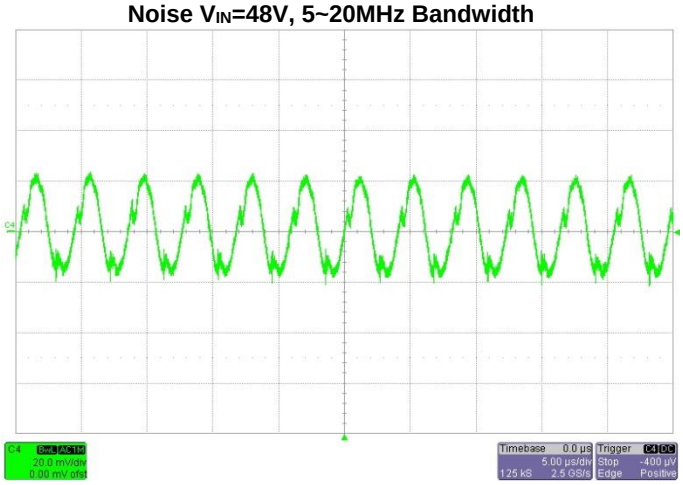
Transient Response, Vin=42V Io=50%~100%~50%



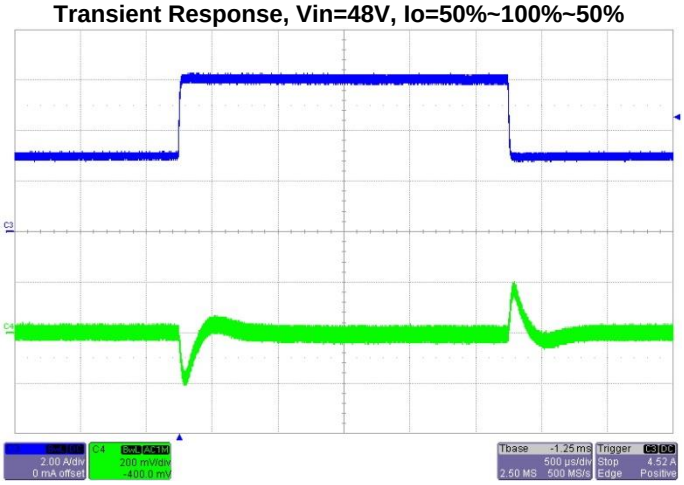
Noise V_{IN}=48V, 5~20MHz Bandwidth



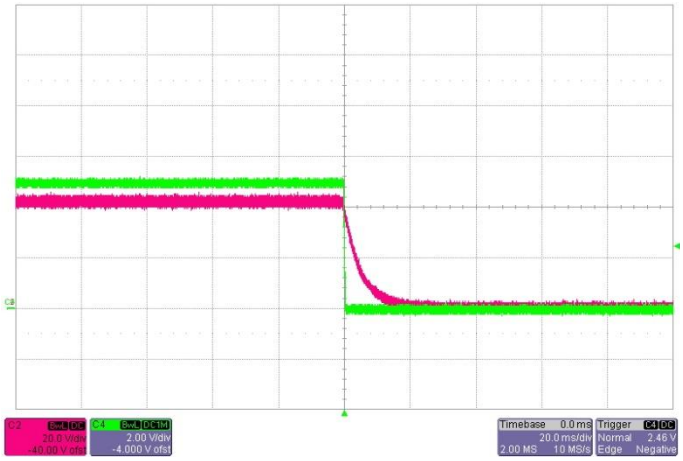
Transient Response, Vin=48V, Io=50%~100%~50%



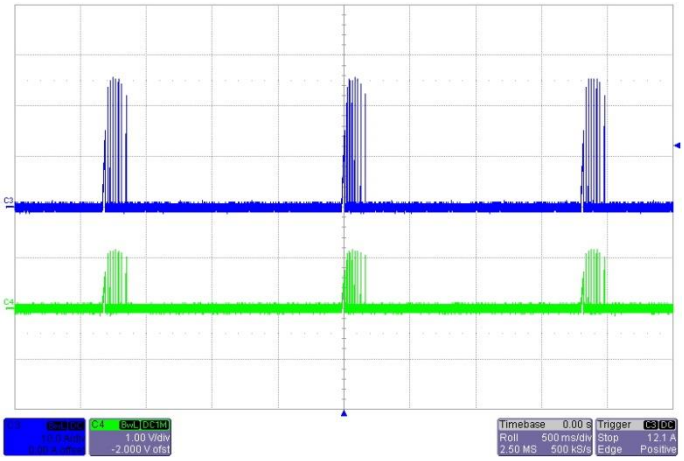
Noise V_{IN}=57V, 5~20MHz Bandwidth



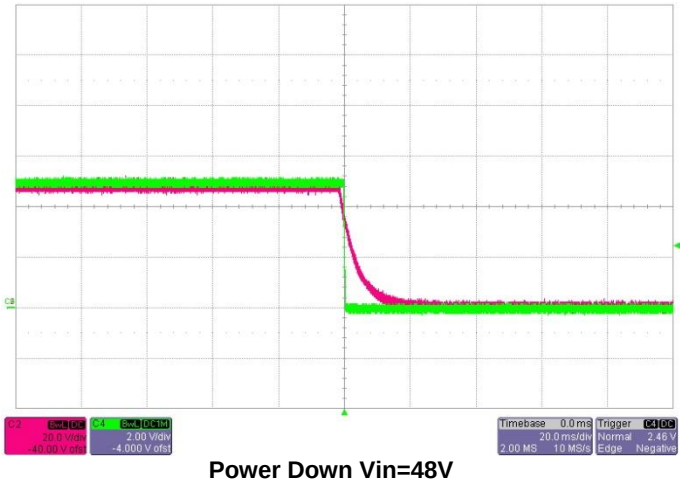
Transient Response V_{IN}=57V, Io=50%~100%~50%



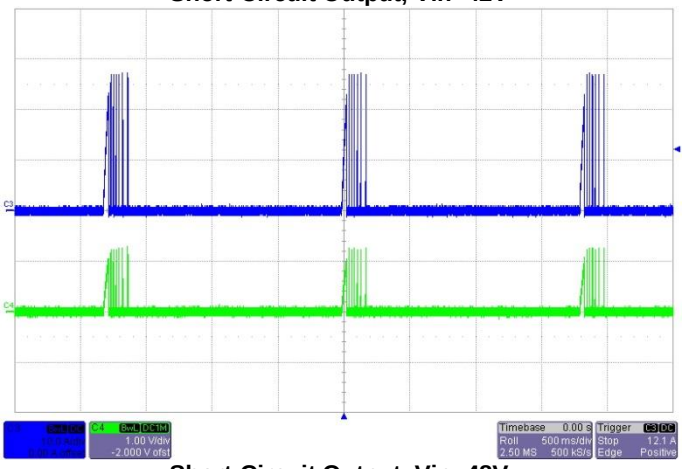
Power Down Vin=42V



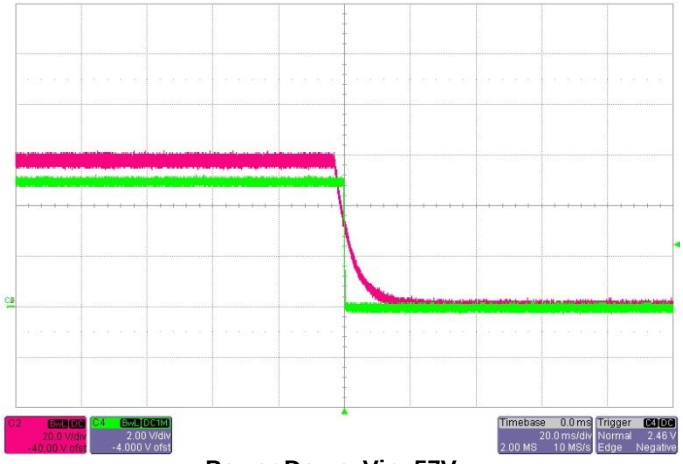
Short-Circuit Output, Vin=42V



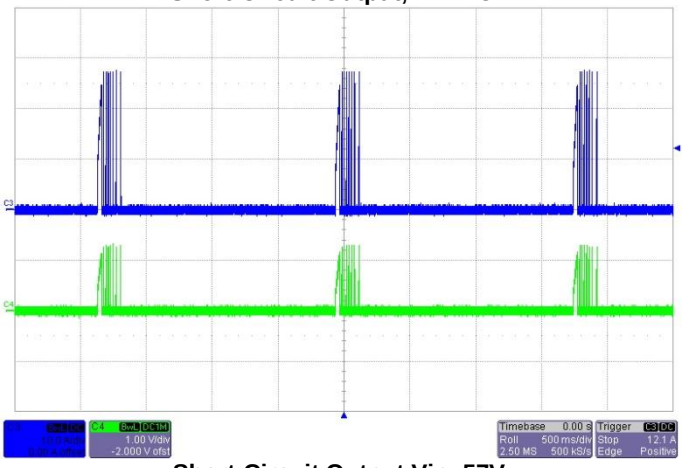
Power Down Vin=48V



Short-Circuit Output, Vin=48V



Power Down, Vin=57V



Short-Circuit Output Vin=57V

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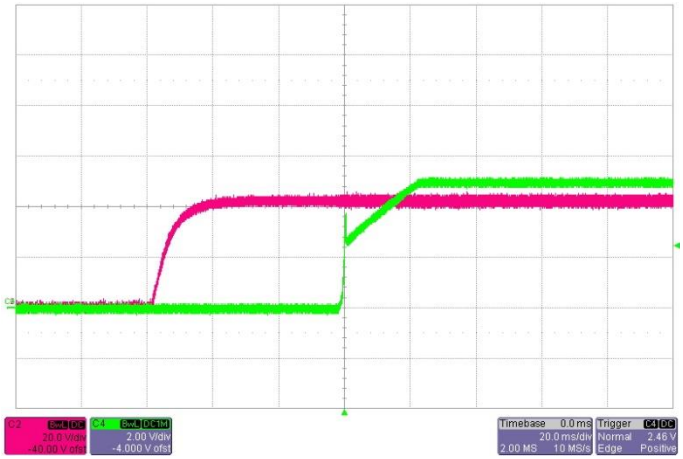
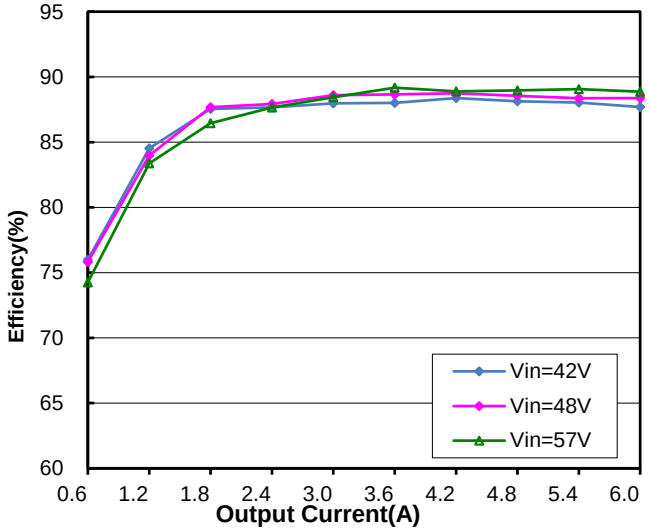
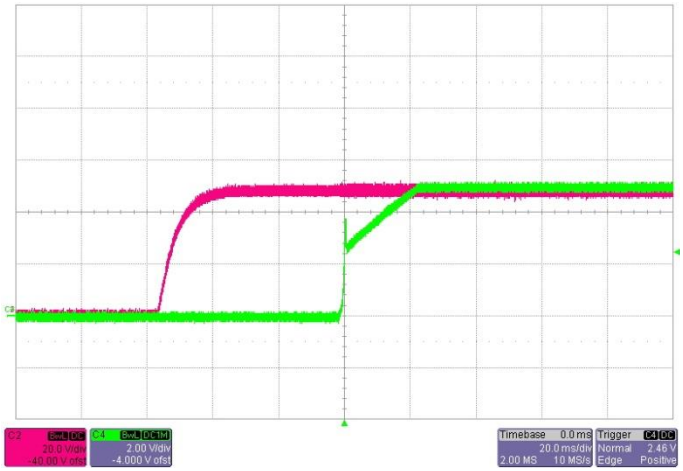


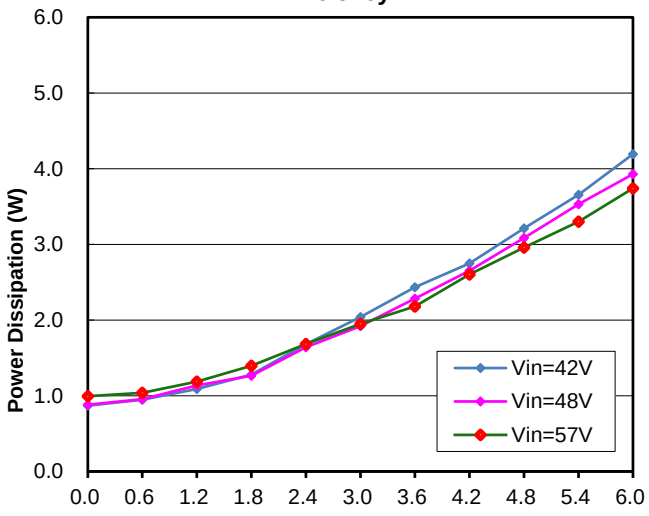
Power Up Vin=42V



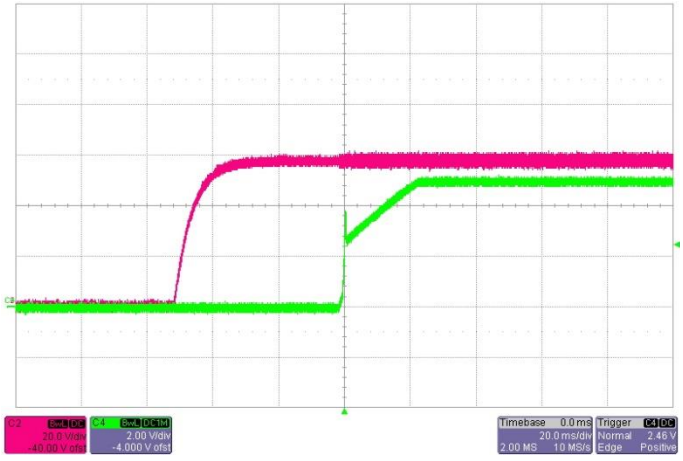
Efficiency



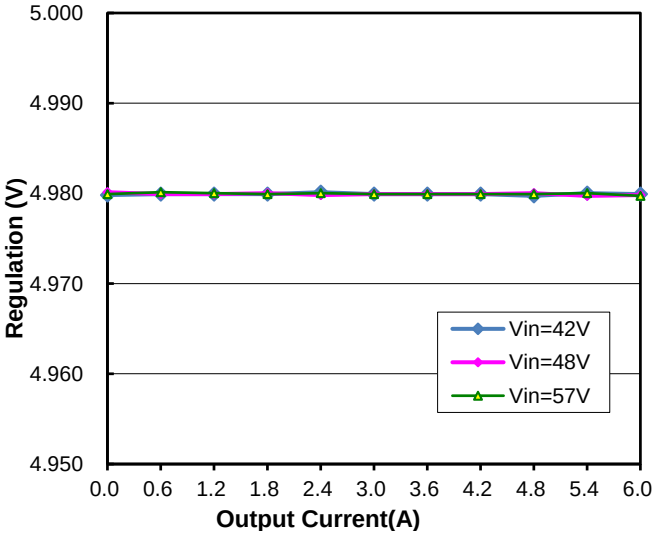
Power Up Vin=48V



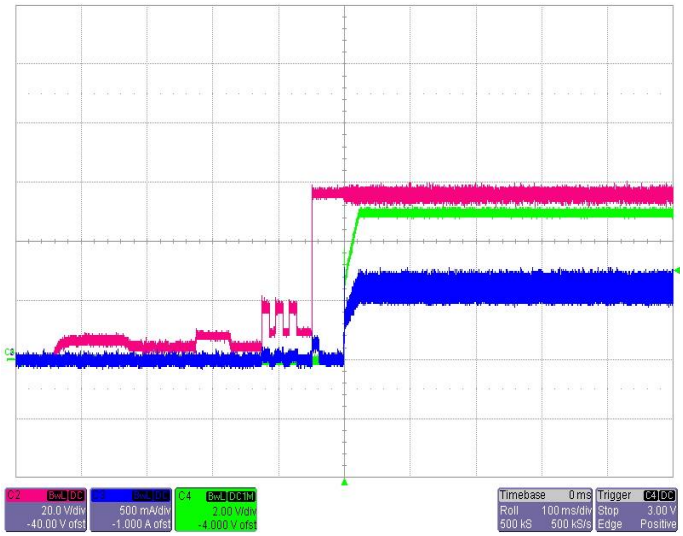
Power Dissipation



Power Up, Vin=57V



Regulation



Full load start up from PSE (Model: UM-PSE70M, Union)

Derating
Inside Closed Box

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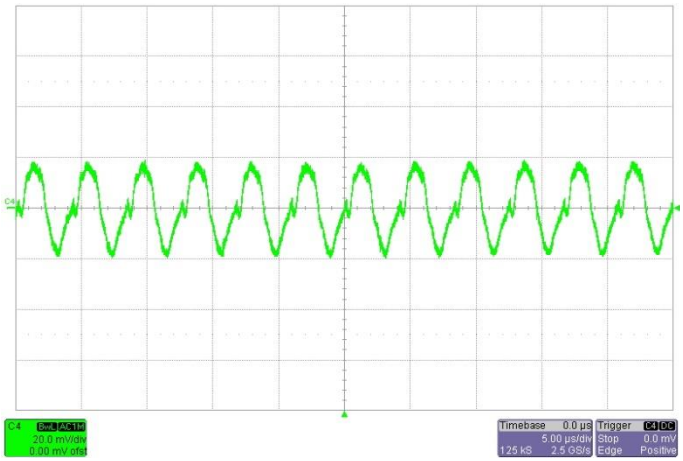
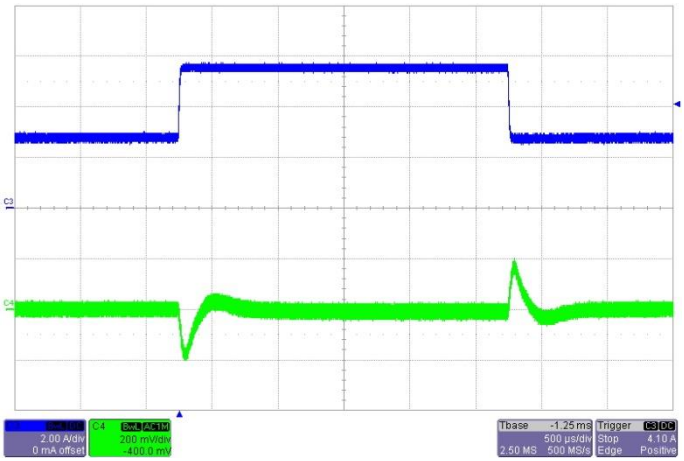
Typical Characteristics：V_{out}=5V5

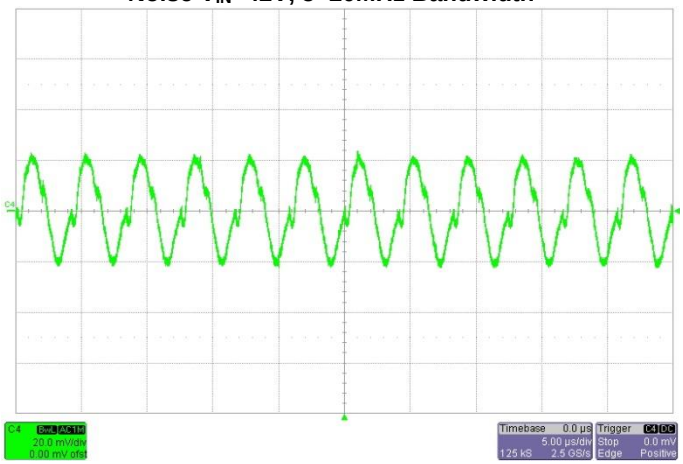
Output Capacitor: 470uf/10V Electrolytic Capacitor*1



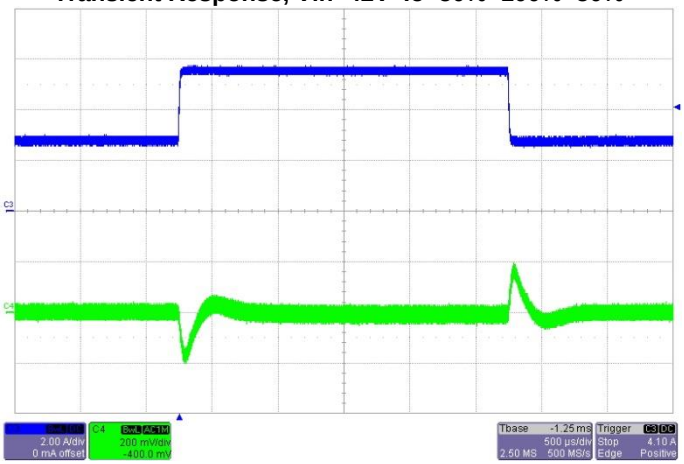
Noise V_{IN}=42V, 5~20MHz Bandwidth



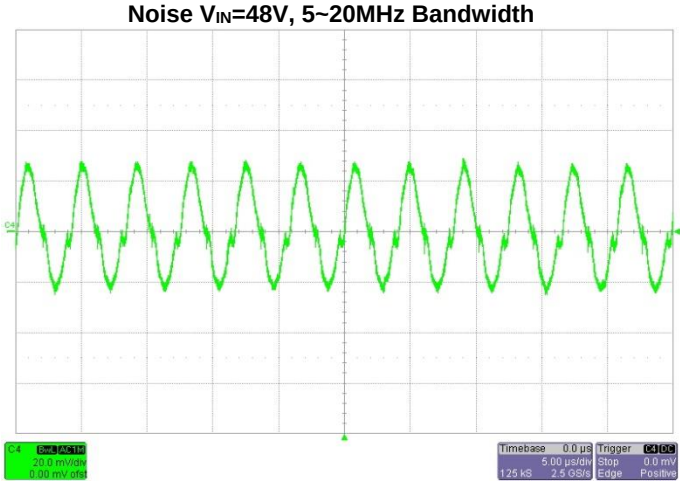
Transient Response, Vin=42V Io=50%~100%~50%



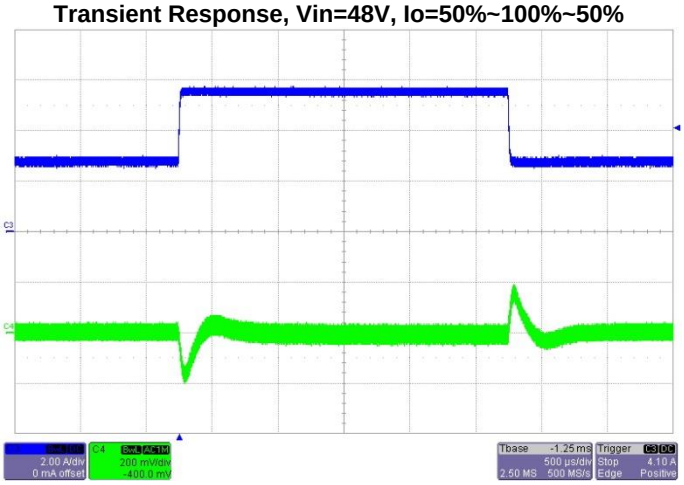
Noise V_{IN}=48V, 5~20MHz Bandwidth



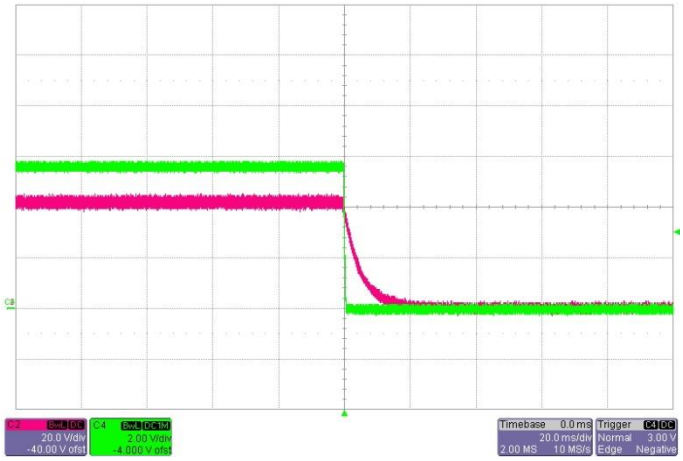
Transient Response, Vin=48V, Io=50%~100%~50%



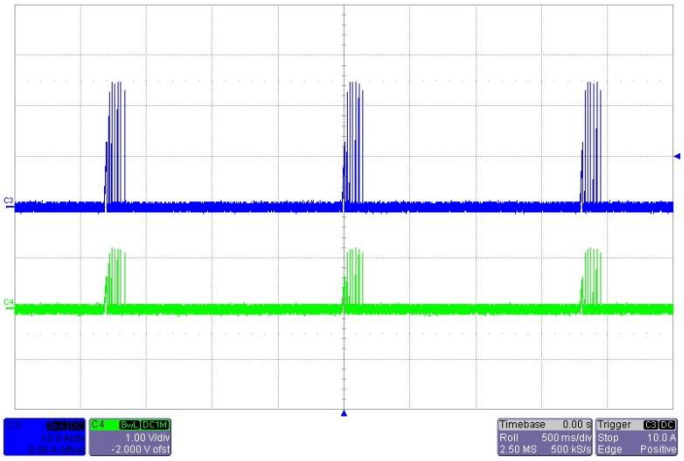
Noise V_{IN}=57V, 5~20MHz Bandwidth



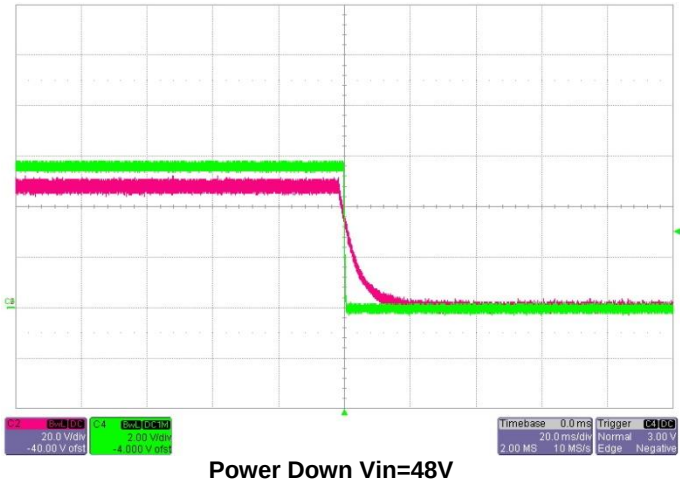
Transient Response V_{IN}=57V, Io=50%~100%~50%



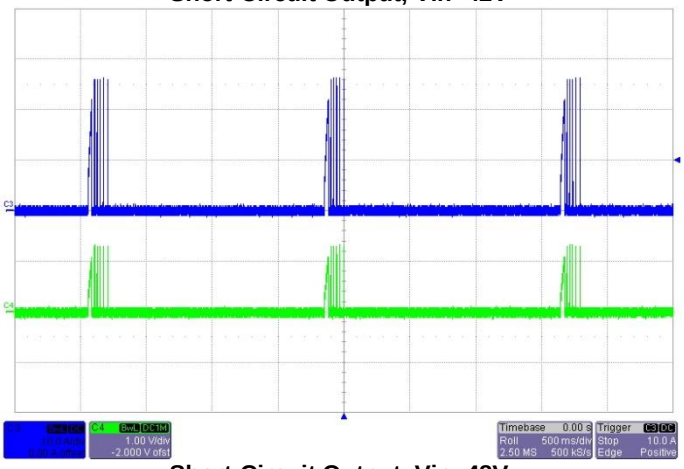
Power Down Vin=42V



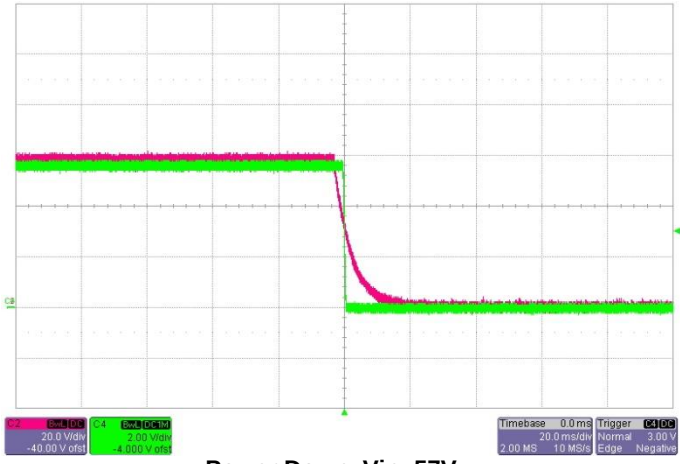
Short-Circuit Output, Vin=42V



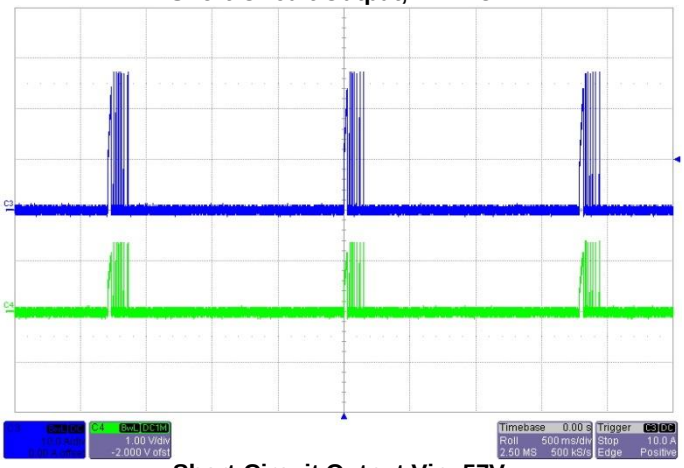
Power Down Vin=48V



Short-Circuit Output, Vin=48V



Power Down, Vin=57V



Short-Circuit Output Vin=57V

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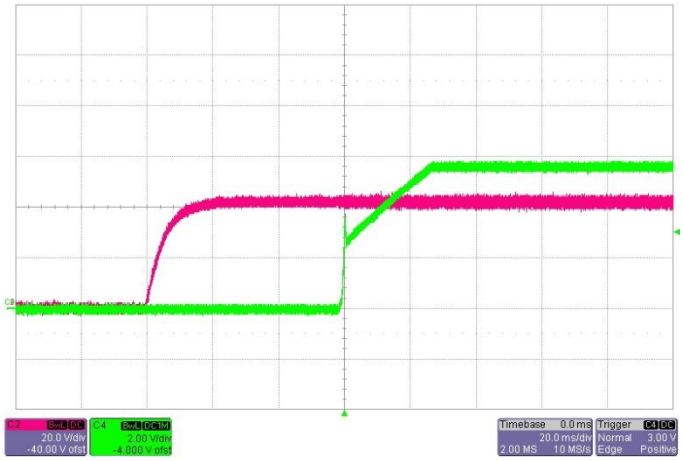
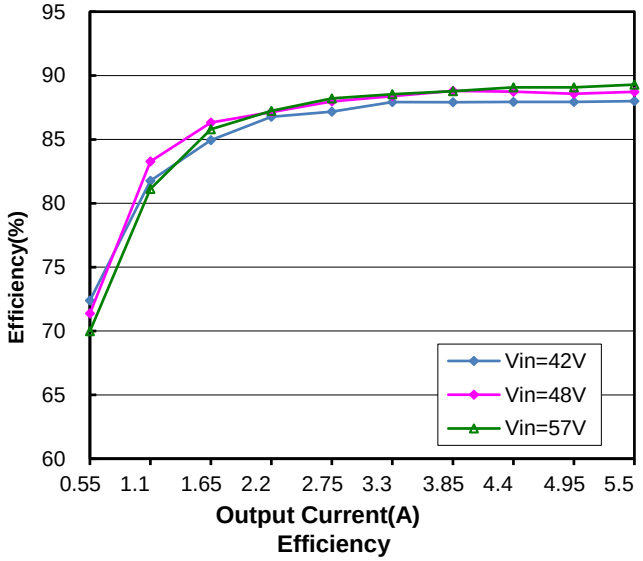
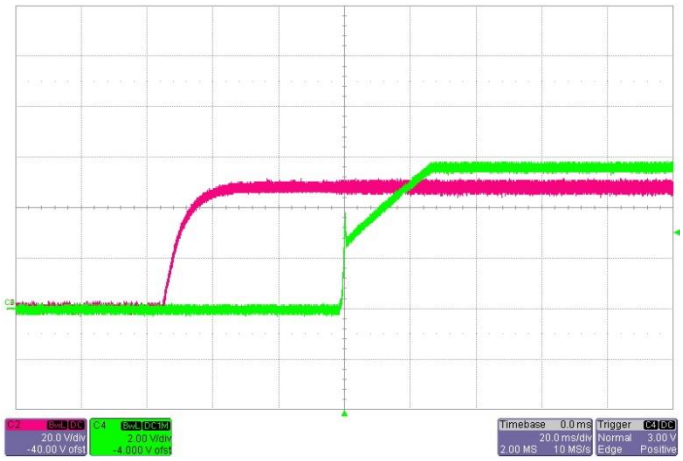


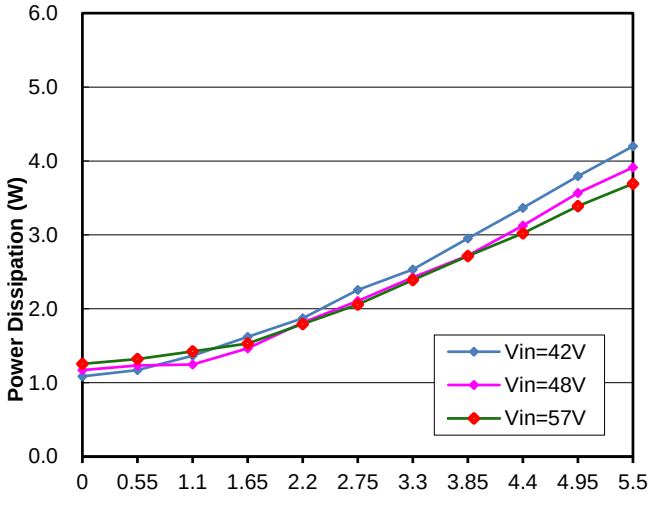
Power Up Vin=42V



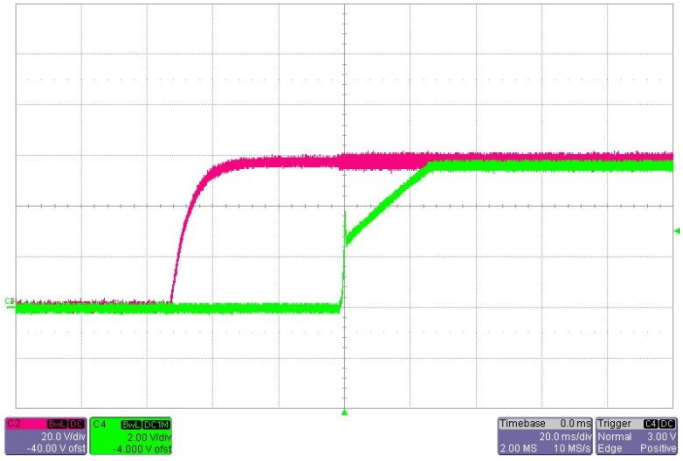
Efficiency



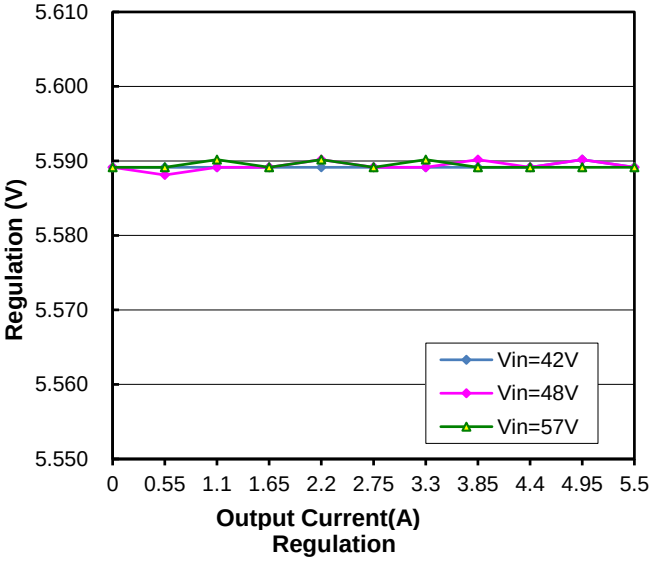
Power Up Vin=48V



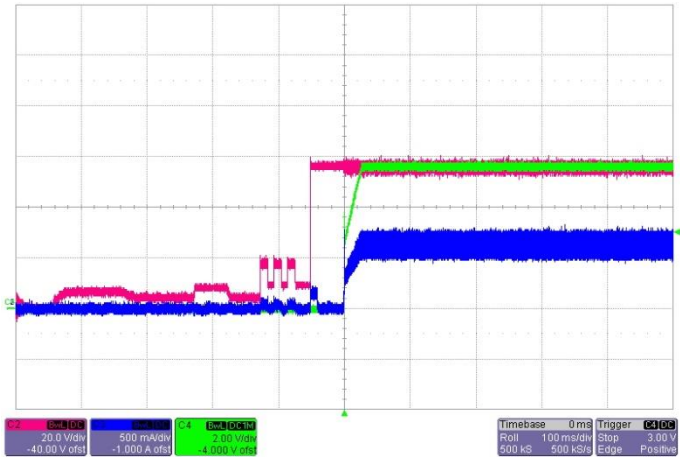
Power Dissipation



Power Up, Vin=57V



Regulation



Full load start up from PSE (Model: UM-PSE70M, Union)

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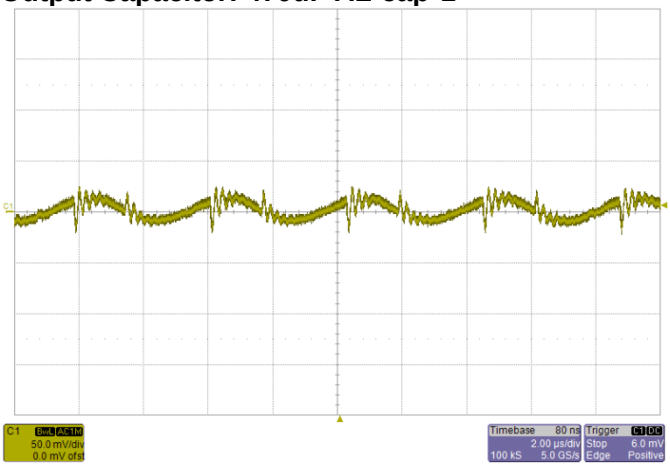
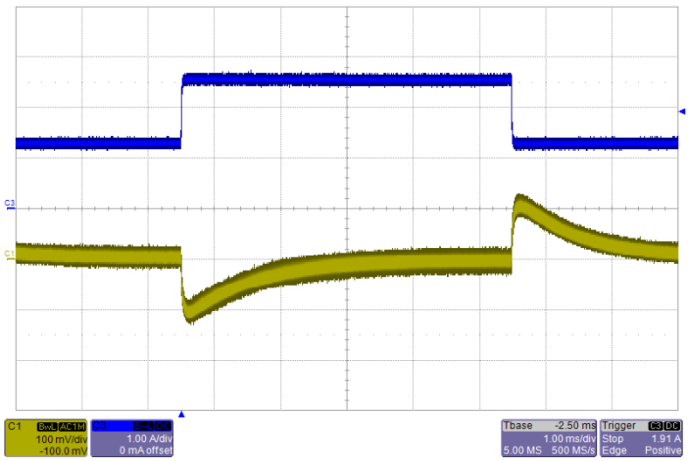
Typical Characteristics： V_{out}=12V

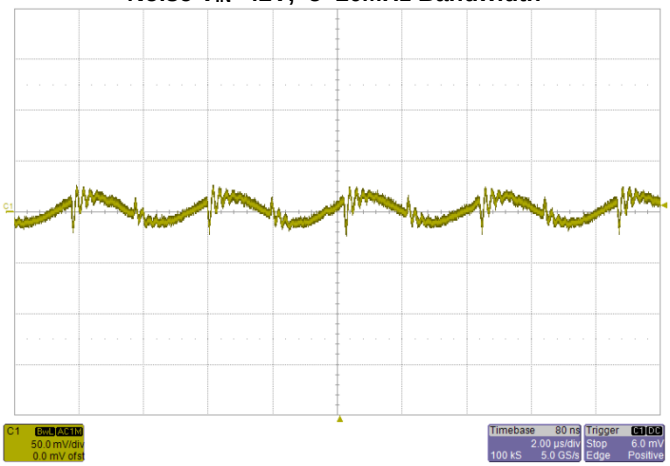
Output Capacitor: 470uF AL-cap*1



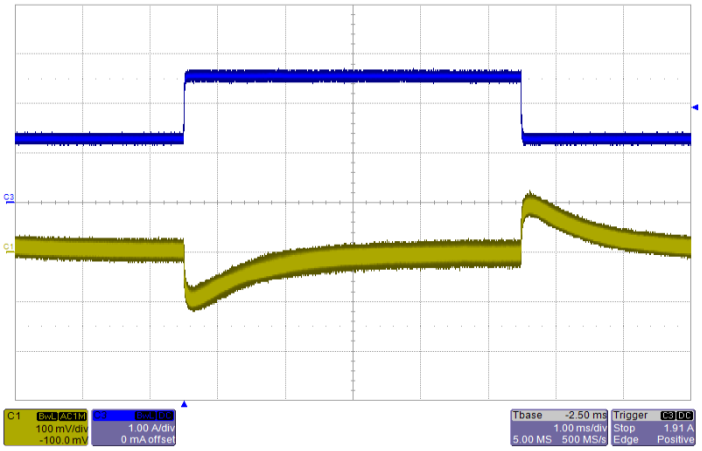
Noise V_{IN}=42V, 5~20MHz Bandwidth



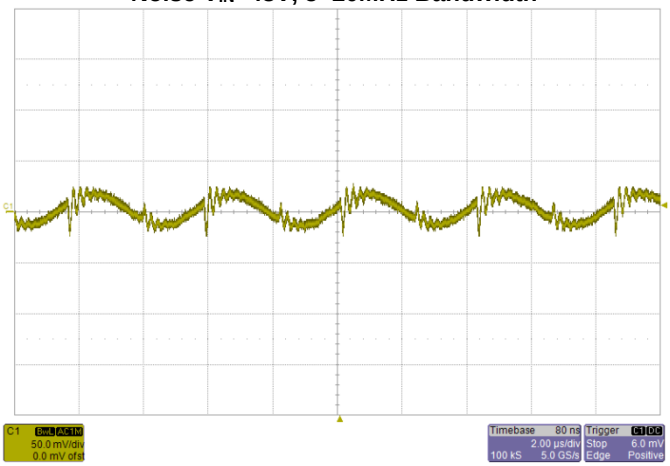
Transient Response, Vin=42V Io=50%~100%~50%



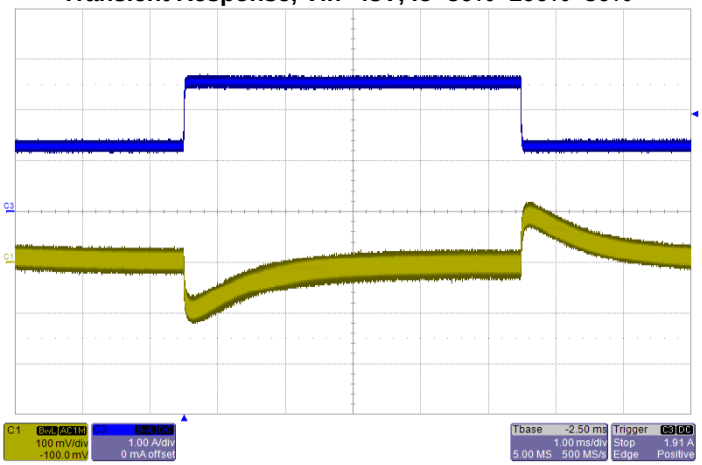
Noise V_{IN}=48V, 5~20MHz Bandwidth



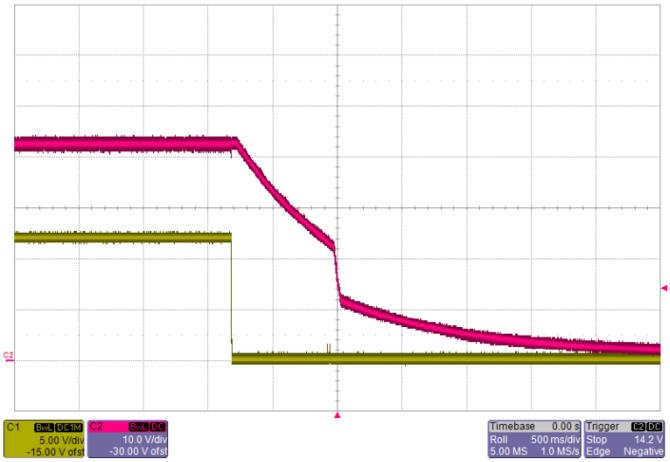
Transient Response, Vin=48V, Io=50%~100%~50%



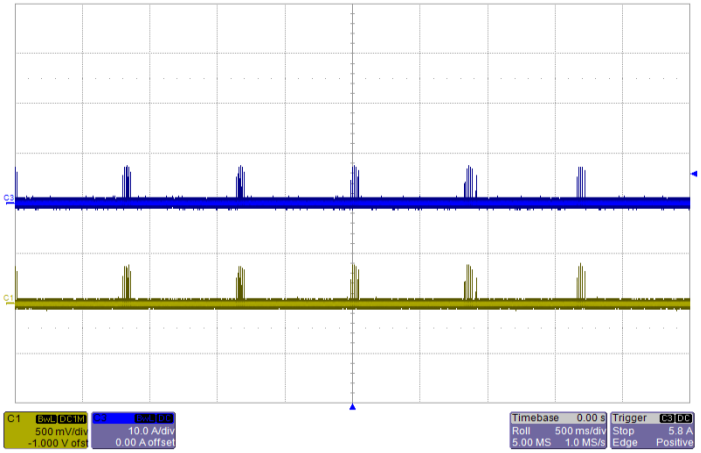
Noise V_{IN}=57V, 5~20MHz Bandwidth



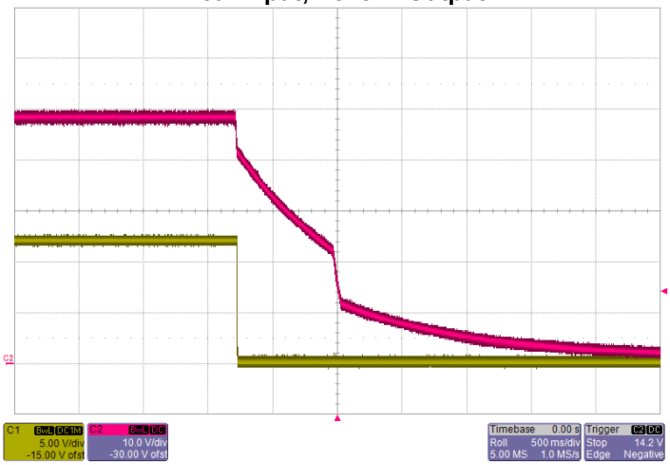
Transient Response V_{IN}=57V, Io=50%~100%~50%



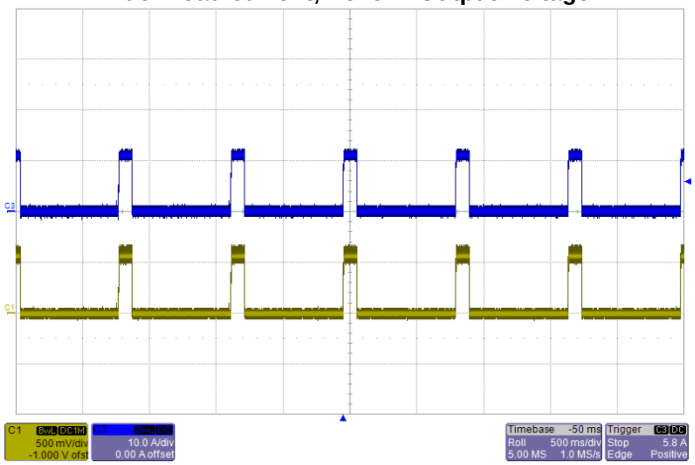
Power Down Vin=42V
Red: Input; Yellow: Output



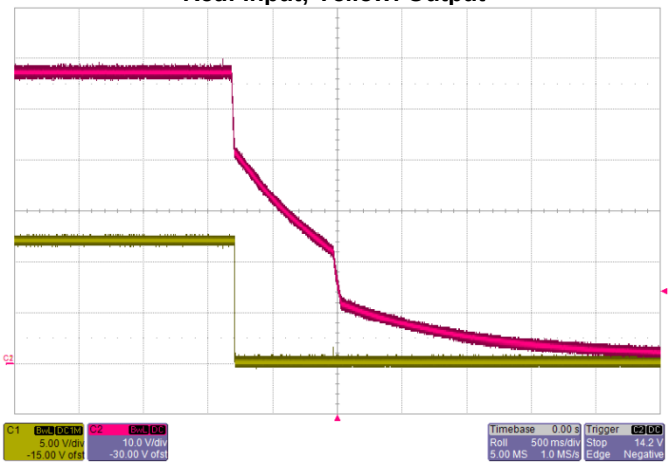
Short-Circuit Output, Vin=42V
Blue: Load current; Yellow: Output Voltage



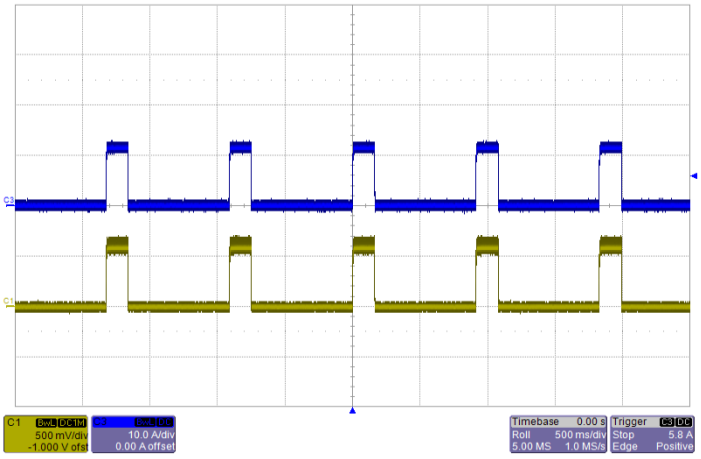
Power Down Vin=48V
Red: Input; Yellow: Output



Short-Circuit Output, Vin=48V
Blue: Load current; Yellow: Output Voltage



Power Down, Vin=57V
Red: Input; Yellow: Output



Short-Circuit Output Vin=57V
Blue: Load current; Yellow: Output Voltage

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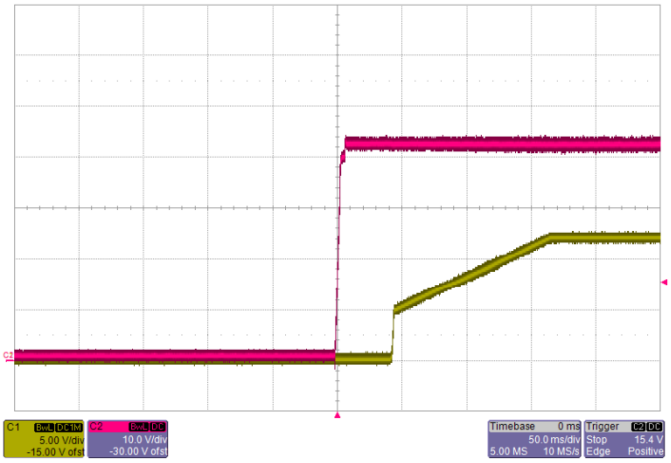
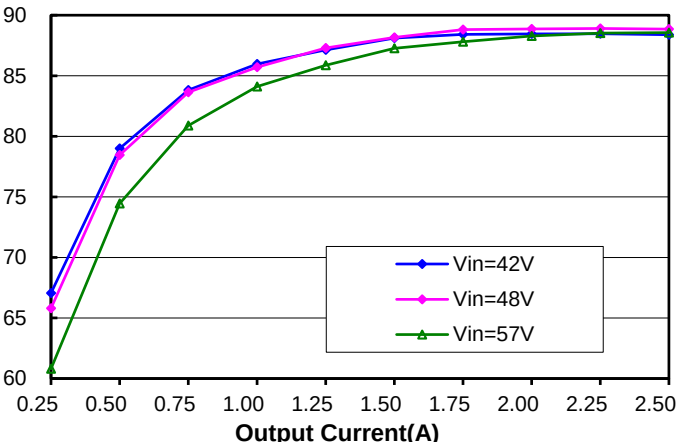
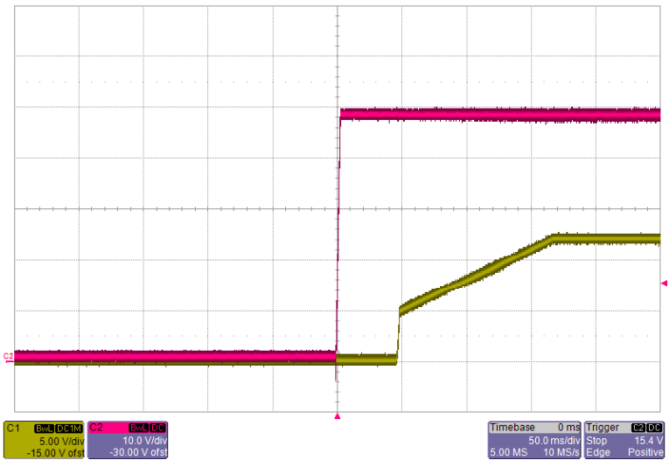


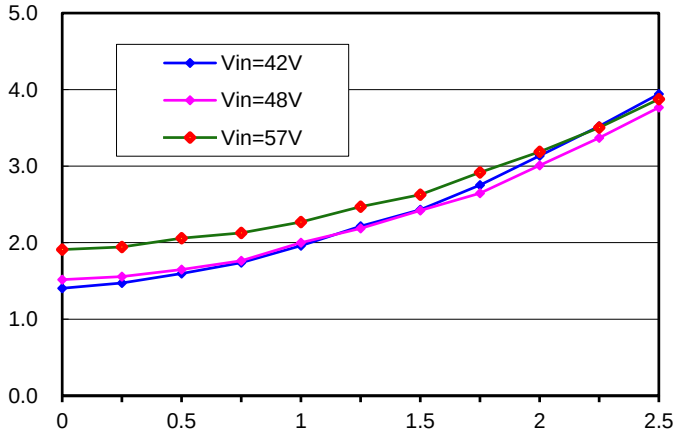
Power Up Vin=42V
Red: Input; Yellow: Output



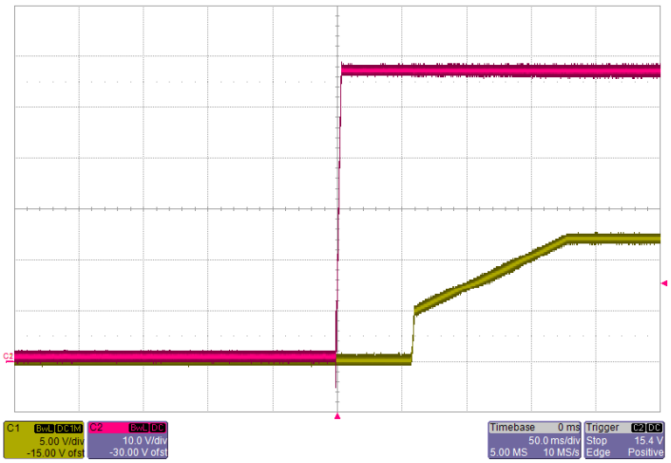
Efficiency (%)



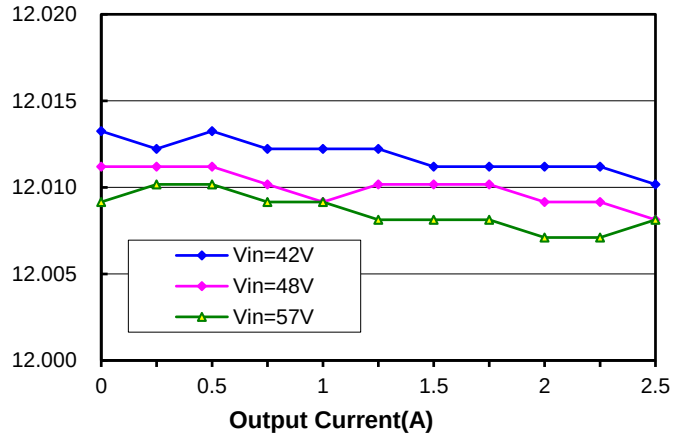
Power Up Vin=48V
Red: Input; Yellow: Output



Power Dissipation (W)



Power Up, Vin=57V
Red: Input; Yellow: Output



Regulation（V）

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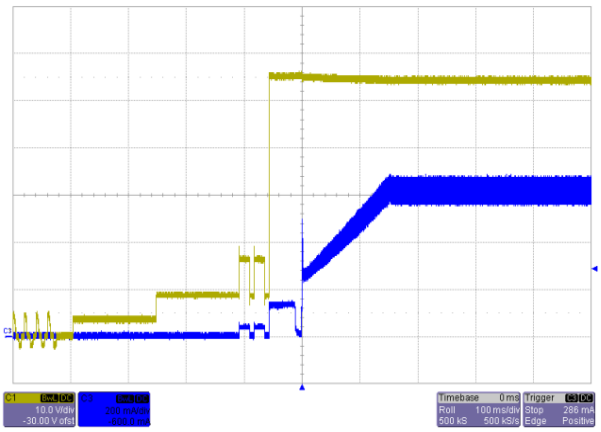
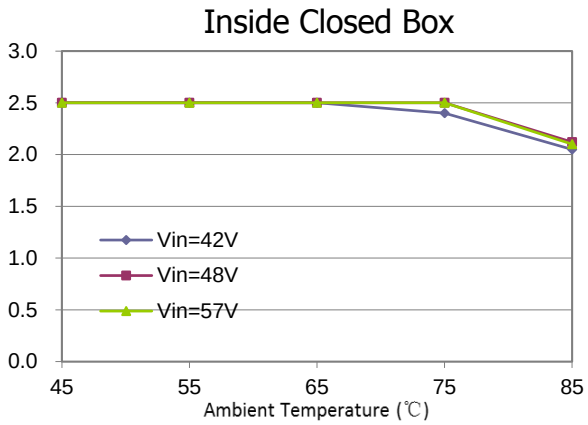


Full load start up from PSE (Model: UM-PSE40M, Union)
Yellow: Input; Blue: Input current



Derating

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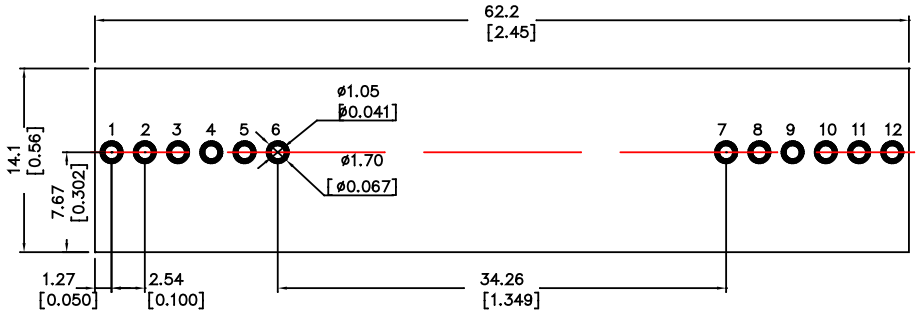
Recommended Hole Pattern

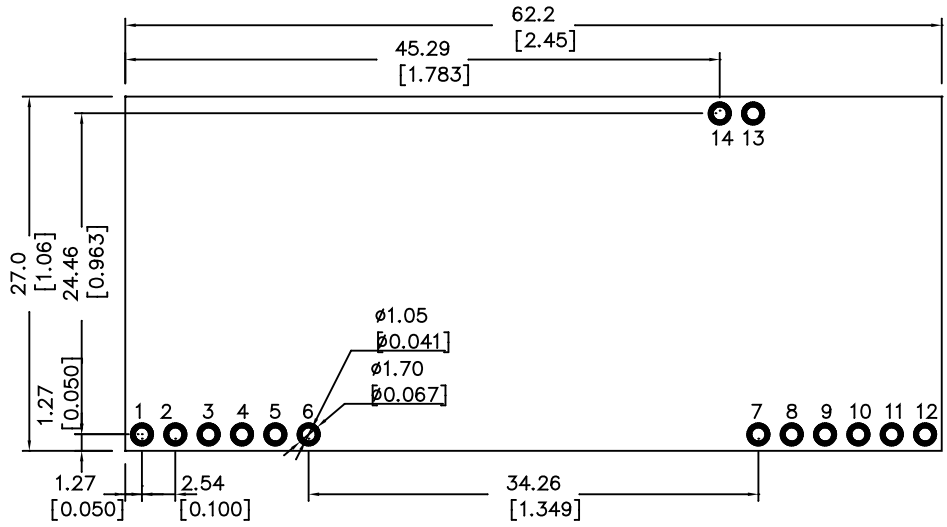
Dimensions are in millimeters (inches)



Component-side footprint

Recommended Hole Pattern for "-R" suffix

Dimensions are in millimeters (inches)



Component-side footprint

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