

0RQB-50Y05x

Isolated DC-DC Converter

The 0RQB-50Y05x is an isolated DC/DC converter providing 50 W of output power from a wide input range (24 / 48 / 72 / 96 / 110 V typical). Standard features include remote on/off, input under-voltage protection, output over-voltage protection, over current and short circuit protection.

This converter can also provide a 5 V/5 mA auxiliary supply. When a large hold-up capacitor is added, the converter can still work up to 12 ms when the input supply is interrupted.

Conformal coated PCB is used for environmental ruggedness.



Key Features & Benefits

- 24/48/72/96/110 VDC Input
- 5 VDC @ 10 A Output
- Reinforced Isolation
- High Efficiency
- Hold-Up Function
- Remote On/Off
- Conformal Coated
- Input Over-Voltage Lockout
- Input Under-Voltage Protection
- Output Over-Voltage Protection
- Over Current and Short Circuit Protection
- 5 V Auxiliary Supply at Primary Side
- Wide Input Range (24 V, 48 V, 72 V, 96 V, 110 V typical)
- Approved to IEC/EN 62368-1
- Approved to CSA/UL 62368-1
- Class II, Category 2, Isolated DC/DC Converter (refer to IPC-9592B)

Applications

- Industrial
- Railway

1. MODEL SELECTION

| MODEL NUMBER | OUTPUT VOLTAGE | INPUT VOLTAGE | MAX. OUTPUT CURRENT | MAX. OUTPUT POWER | TYPICAL EFFICIENCY |
|--------------|----------------|---------------------|---------------------|-------------------|--------------------|
| ORQB-50Y05x | 5 VDC | 24/48/72/96/110 VDC | 10 A | 50 W | 88 % @ 110 V |

NOTE: Add "G" suffix at the end of the model number to indicate packaging.

PART NUMBER EXPLANATION

| 0 | R | QB | - | 50 | Y | 05 | x | G |
|--------------------|-------------|-------------|---|--------------|-------------|----------------|--|------------------|
| Mounting Type | RoHS Status | Series Name | | Output Power | Input Range | Output Voltage | Active Logic | Package Type |
| Through hole mount | RoHS | 1/4th Brick | | 50 W | 14.4-154 V | 5 V | L- Active low, with baseplate 0- Active high, with baseplate F- Active low, with flange E- Active high, with flange | G – Tray package |

2. ABSOLUTE MAXIMUM RATINGS

| PARAMETER | DESCRIPTION | MIN | TYP | MAX | UNITS |
|--|---|------|-----|------|-------|
| Continuous non-operating Input Voltage | | -0.5 | - | 200 | V |
| Remote On/Off | | -0.3 | - | 15 | V |
| Operating Temperature | Hot spot temperature, see Thermal Derating Curves section | -40 | - | 105 | °C |
| Storage Temperature | | -55 | - | 125 | °C |
| Altitude | | - | - | 5000 | m |

NOTE: Ratings used beyond the maximum ratings may cause a reliability degradation of the converter or may permanently damage the device.

3. INPUT SPECIFICATIONS

All specifications are typical at 25°C unless otherwise stated.

| PARAMETER | DESCRIPTION | MIN | TYP | MAX | UNIT |
|--|--|------|------|------|------|
| Operating Input Voltage 1 | Fully functioning for long term operation. | 14.4 | 24 | 154 | V |
| | | | 48 | | |
| | | | 72 | | |
| | | | 96 | | |
| Operating Input Voltage 2 | Fully functioning for 0.1s operation. Full function is not guaranteed but undamaged for 1s operation. | 12.9 | - | 14.4 | V |
| | | | 154 | - | 200 |
| Input Voltage Rising Slope | | - | - | 2 | V/ms |
| Input Current (full load) | | - | - | 4.5 | A |
| Input Current (no load) | Vin=48V | - | 60 | 90 | mA |
| | Vin=110V | - | 35 | 50 | mA |
| Remote Off Input Current | | - | - | 40 | mA |
| Input Reflected Ripple Current (rms) | With simulated source impedance of 12uH, 5Hz to 20MHz. Use a 100uF/250V electrolytic capacitor with ESR=0.5ohm max, at 200kHz@20°C. | - | - | 150 | mA |
| Input Reflected Ripple Current (pk-pk) | | - | - | 500 | mA |
| Turn-on Voltage Threshold | | 12.5 | 13.5 | 14.4 | V |
| Turn-off Voltage Threshold | | 11 | 12 | 12.9 | V |
| Over-voltage Recovery Threshold | | 156 | 160 | 164 | V |
| Over-voltage Shutdown Threshold | | 162 | 165 | 168 | V |
| Input L/C | Inner inductance | - | 3.3 | - | uH |
| | Inner capacitance, Ctotal | - | 3.2 | - | uF |
| Input Capacitance | Outside capacitance, typically electrolytic capacitors. | 100 | - | - | uF |
| Recommended input fast-acting fuse on system board | CAUTION: This converter is not internally fused. An input line fuse must be used in application. | - | 15 | - | A |

4. OUTPUT SPECIFICATIONS

All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

| PARAMETER | DESCRIPTION | MIN | TYP | MAX | UNIT |
|------------------------------------|---|-----|-----|------|------|
| Output Voltage Set Point | | 4.9 | 5 | 5.1 | V |
| Load Regulation | | - | - | 20 | mV |
| Line Regulation | | - | - | 10 | mV |
| Regulation Over Temperature | | - | - | ±100 | mV |
| Output Ripple and Noise (Pk-Pk) | With a 100 uF ceramic and a 100 uF electrolytic capacitors at output. | - | 50 | 80 | mV |
| Output Ripple and Noise (RMS) | | - | 10 | 15 | mV |
| Output Current Range | | 0 | - | 10 | A |
| Output DC Current Limit | Enter a hiccup mode, non-latching. | 11 | - | 14 | A |
| Rise Time | | - | - | 70 | ms |
| Output pre-bias Voltage | | 0 | - | 3 | V |
| Start-up Time | Start up from Vin | - | - | 1500 | ms |
| | Start up from remote on/off | - | - | 150 | ms |
| Overshoot at Turn on | | - | 0 | 3 | % |
| Output Capacitance | Typically, 50% ceramic and 50% electrolytic capacitors. | 200 | - | 1000 | uF |
| 5V Auxiliary Supply Source Current | | - | - | 5 | mA |
| <i>Transient Response</i> | | | | | |
| ΔV 50%~75% of Max Load | | - | 250 | 350 | mV |
| Settling Time | di/dt=0.1 A/us, with a 100 uF ceramic and a 100 uF electrolytic capacitors near the brick output. | - | 0.5 | 1 | ms |
| ΔV 75%~50% of Max Load | | - | 250 | 350 | mV |
| Settling Time | | - | 0.5 | 1 | ms |

5. GENERAL SPECIFICATIONS

| PARAMETER | DESCRIPTION | MIN | TYP | MAX | UNIT |
|----------------------------------|--|--|-------|------|------------|
| Efficiency | Vin = 24 V, Iout = 10 A at 25°C | - | 86 | - | % |
| | Vin = 48 V, Iout = 10 A at 25°C | - | 87 | - | % |
| | Vin = 110 V, Iout = 10 A at 25°C | - | 88 | - | % |
| Switching Frequency | 1st stage | - | 150 | - | kHz |
| | 2nd stage | - | 250 | - | kHz |
| Over Temperature Protection | Temperature measured at semiconductor component | - | 125 | - | °C |
| Over Voltage Protection (Static) | Enter a latching, non-hiccup mode | - | 6 | - | V |
| FIT | Calculated Per Bell Core SR-332 | - | 193.7 | - | - |
| MTBF | (Vin = 48 V, Vo = 5 V, Io = 10 A Ta=40°C, FIT=10 ⁹ /MTBF) | - | 5.162 | - | Mhrs |
| Weight | Baseplate version | - | 63 | - | g |
| | Flange version | - | 71 | - | g |
| Dimensions (L x W x H) | Baseplate version | 2.30 x 1.45x 0.59 58.42 x 36.83 x 15.00 | | | inch mm |
| | Flange version | 2.386 x 2.20 x 0.59 | | | inch |
| | | 60.60 x 55.88 x 15.00 | | | mm |
| Isolation Characteristics | | | | | |
| Input to Output | | - | - | 3000 | Vdc |
| Input to Heatsink | | - | - | 3000 | Vdc |
| Output to Heatsink | | - | - | 3000 | Vdc |
| Isolation Resistance | Test with 500 VDC | 100M | - | - | Ohm |
| Isolation Capacitance | | - | - | 2200 | pF |

6. EFFICIENCY DATA

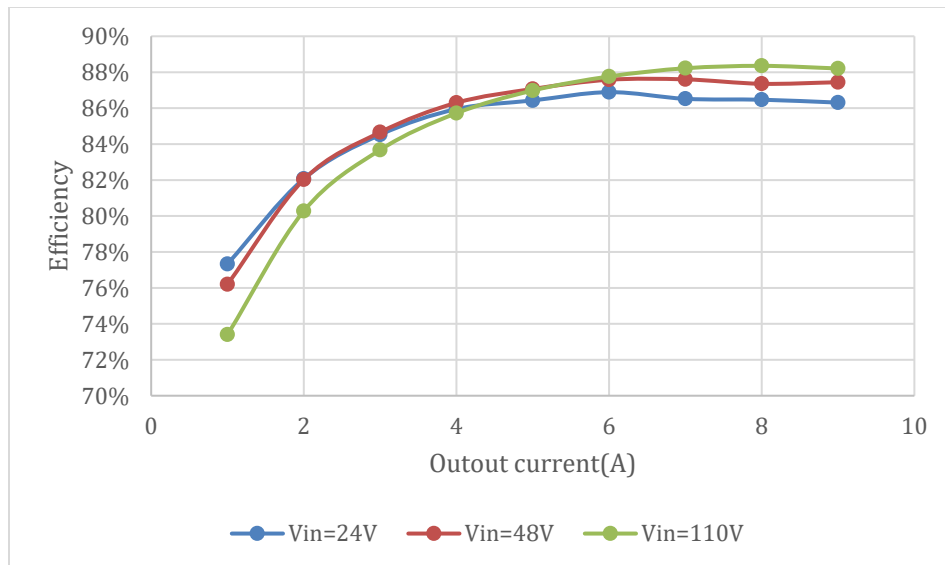


Figure 1. Efficiency data



Asia-Pacific
+86 755 298 85888

Europe, Middle East
+353 61 225 977

North America
+1 408 785 5200

7. REMOTE ON/OFF

| PARAMETER | | DESCRIPTION | MIN | TYP | MAX | UNIT |
|------------------------|-------------|--|------|-----|-----|------|
| Signal Low (Unit On) | Active Low | Remote On/Off pin is open, the module is off | -0.3 | - | 0.8 | V |
| Signal High (Unit Off) | | | 2.4 | - | 15 | V |
| Signal Low (Unit Off) | Active High | Remote On/Off pin is open, the module is on. | -0.3 | - | 0.8 | V |
| Signal High (Unit On) | | | 2.4 | - | 15 | V |
| Current Sink | | | 0 | - | 1 | mA |

Recommended remote on/off circuit for active low

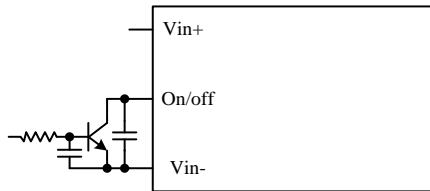


Figure 2. Control with open collector/drain circuit

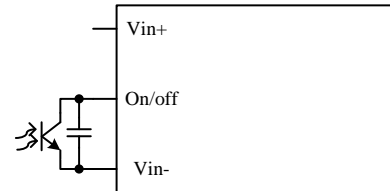


Figure 3. Control with photocoupler circuit

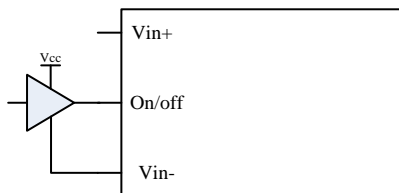


Figure 4. Control with logic circuit

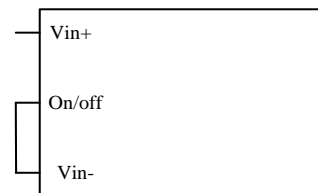


Figure 5. Permanently on

Recommended remote on/off circuit for active high

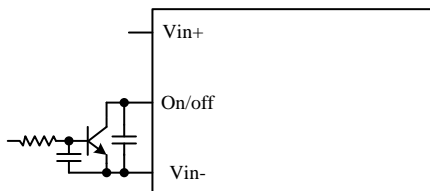


Figure 6. Control with open collector/drain circuit

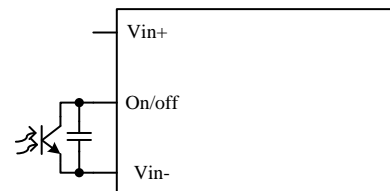


Figure 7. Control with photocoupler circuit

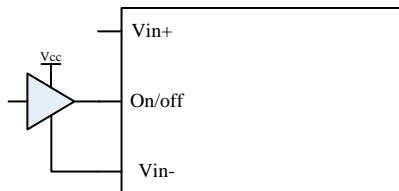


Figure 8. Control with logic circuit

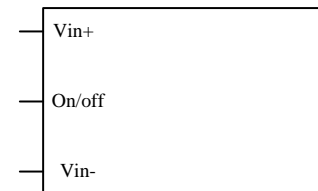


Figure 9. Permanently on

8. INPUT NOISE

Input reflected ripple current.

Testing setup:

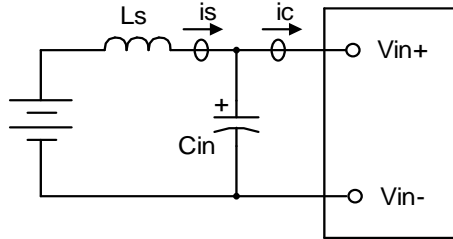


Figure 10. Test setup

Notes and values in testing:

is: Input Reflected Ripple Current

ic: Input Terminal Ripple Current

Ls: Simulated Source Impedance (12μH)

Cin: Electrolytic capacitor, should be as closed as possible to the power module to dampen ic ripple current and enhance stability.

Recommendation: 100μF, ESR<0.5R @ 100 kHz, 20°C

Below measured waveforms are based on above simulated and recommended inductance and capacitance.

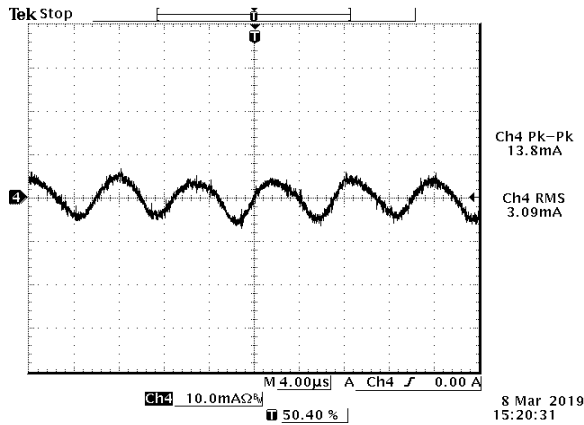


Figure 11. is (input reflected ripple current), AC component

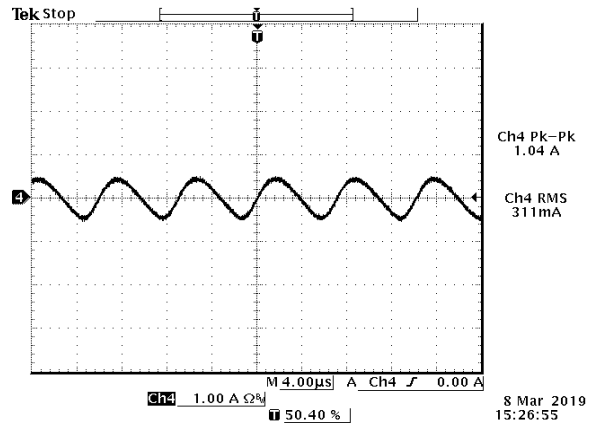


Figure 12. ic (input terminal ripple current), AC component

Test condition: 48Vdc input, 5Vdc/10A output and Ta=25 deg C, with 200μF capacitor at output

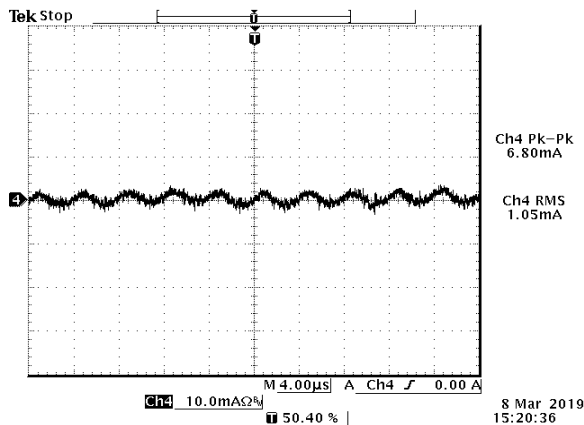


Figure 13. is (input reflected ripple current), AC component

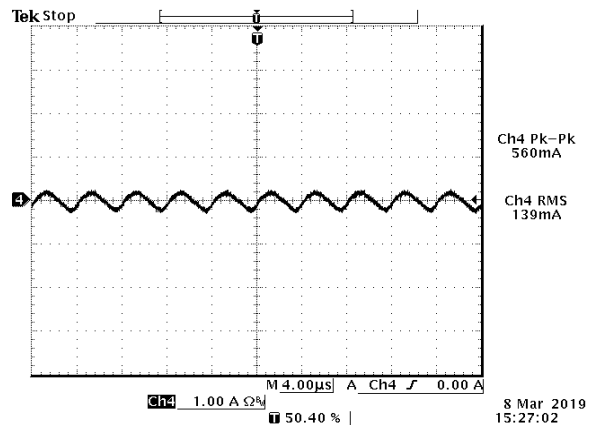


Figure 14. ic (input terminal ripple current), AC component

Test condition: 110Vdc input, 5Vdc/10A output and Ta=25 deg C, with 200μF capacitor at output

9. RIPPLE AND NOISE WAVEFORMS

TESTING SETUP

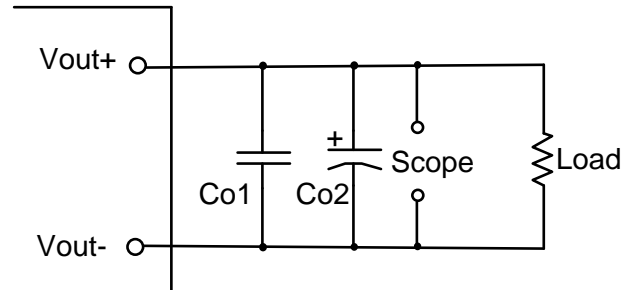


Figure 15.

Notes and values in testing:

Co1: 100 uF ceramic capacitor

Co2: 100 uF POSCAP capacitor

The capacitor should be as closed as possible to the power module to swallow ripple current and help with stability.

Below measured waveforms are based on above capacitance.

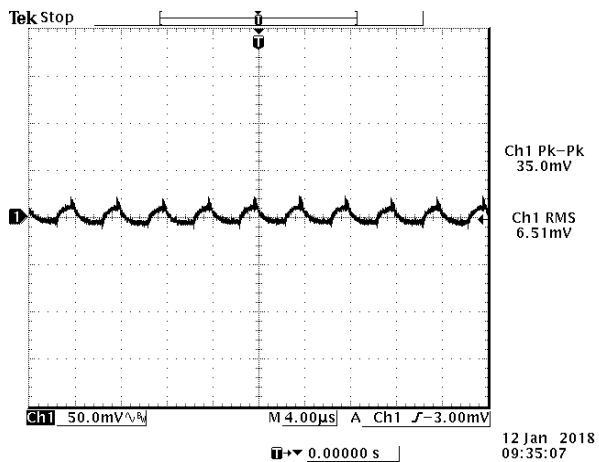


Figure 16. Ripple and noise at $V_{in} = 48\text{ V}$
5 Vdc/10 A output @ $T_a = 25^\circ\text{C}$ with $C_{ext} = 200\text{ }\mu\text{F}$

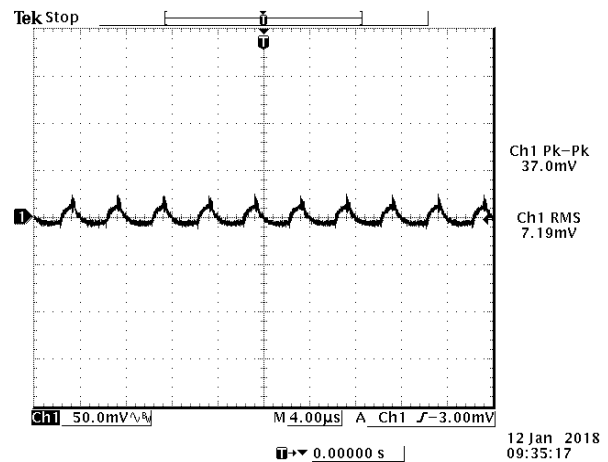


Figure 17. Ripple and noise at $V_{in} = 110\text{ V}$
5 Vdc/10 A output @ $T_a = 25^\circ\text{C}$ with $C_{ext} = 200\text{ }\mu\text{F}$

10. TRANSIENT RESPONSE WAVEFORMS

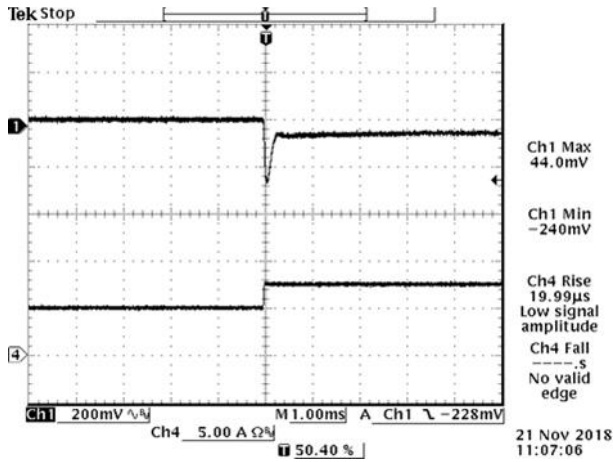


Figure 18. 50%-75% Load Transients at $V_{in} = 48\text{ V}$ @ $T_a = 25^\circ\text{C}$ with $C_{ext} = 200\ \mu\text{F}$

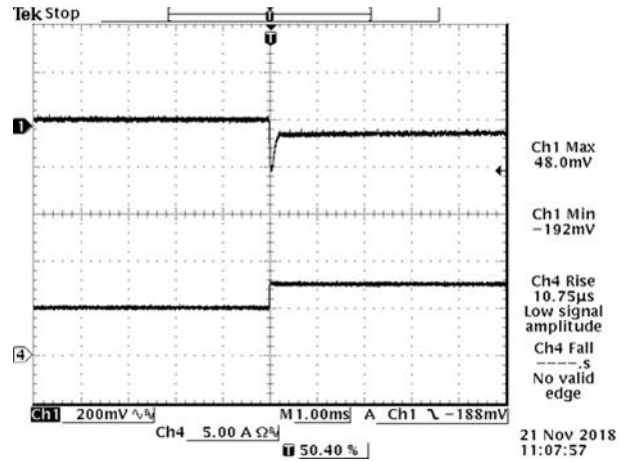


Figure 19. 50%-75% Load Transients at $V_{in} = 110\text{ V}$ @ $T_a = 25^\circ\text{C}$ with $C_{ext} = 200\ \mu\text{F}$

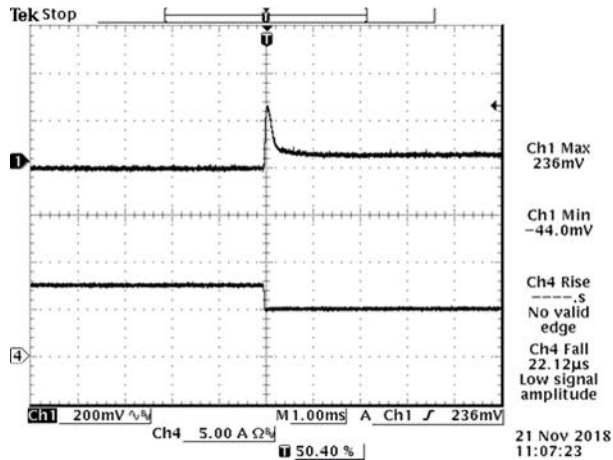


Figure 20. 75%-50% Load Transients at $V_{in} = 48\text{ V}$ @ $T_a = 25^\circ\text{C}$ with $C_{ext} = 200\ \mu\text{F}$

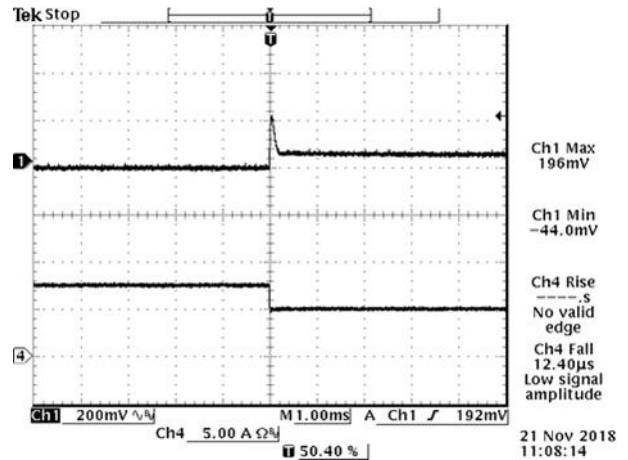


Figure 21. 75%-50% Load Transients at $V_{in} = 110\text{ V}$ @ $T_a = 25^\circ\text{C}$ with $C_{ext} = 200\ \mu\text{F}$

11. STARTUP & SHUTDOWN

Turn on rise time

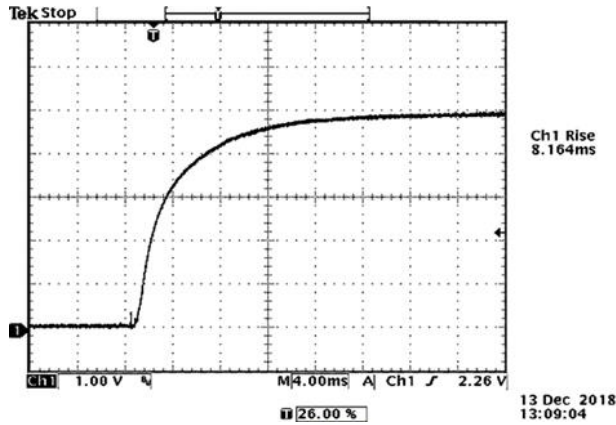


Figure 22. $V_{in}=48V$, $I_o=10A$, $V_o=5V$ with $C_{ext}=200\mu F$

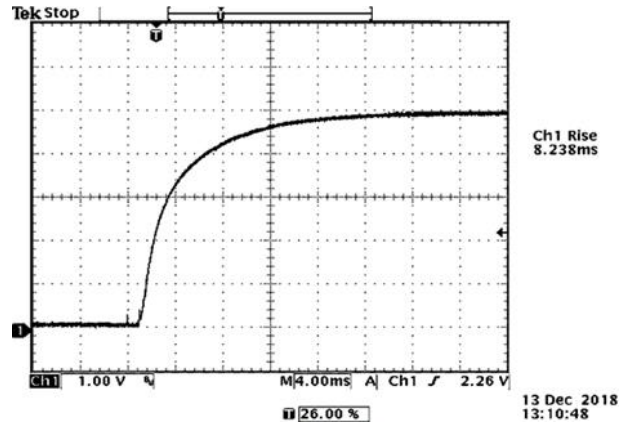


Figure 23. $V_{in}=110V$, $I_o=10A$, $V_o=5V$ with $C_{ext}=200\mu F$

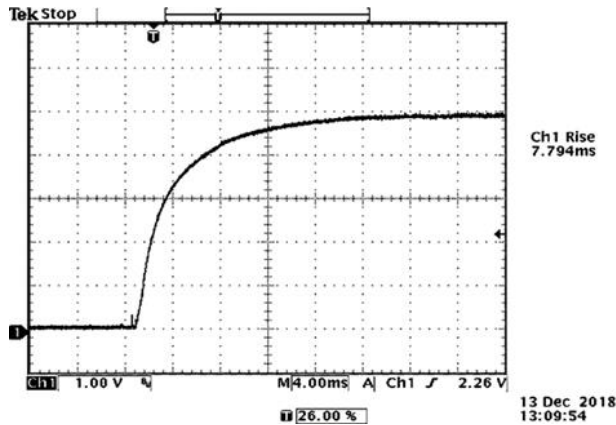


Figure 24. $V_{in}=48V$, $I_o=10A$, $V_o=5V$ with $C_{ext}=1200\mu F$

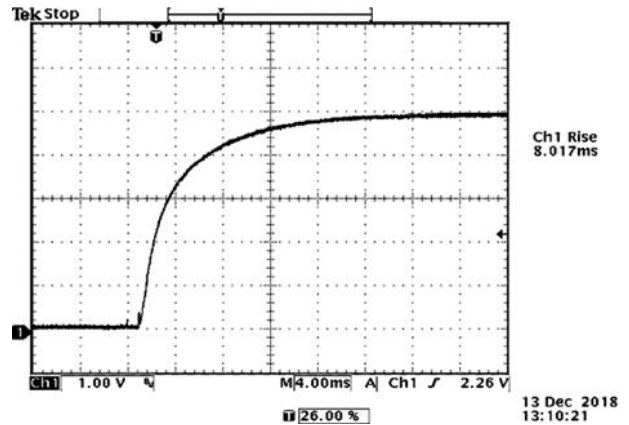


Figure 25. $V_{in}=110V$, $I_o=10A$, $V_o=5V$ with $C_{ext}=1200\mu F$

Turn on delay time

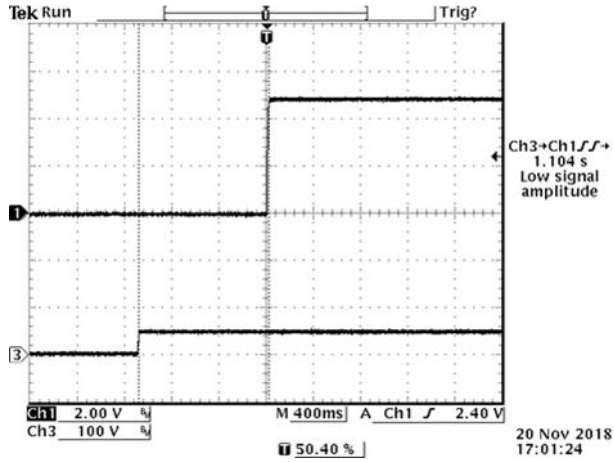


Figure 26. Startup from Vin

Ch1: Vo
Ch3: Vin

Test Condition: Vin=48V, Io=10A, Vo=5V with Cext=200uF

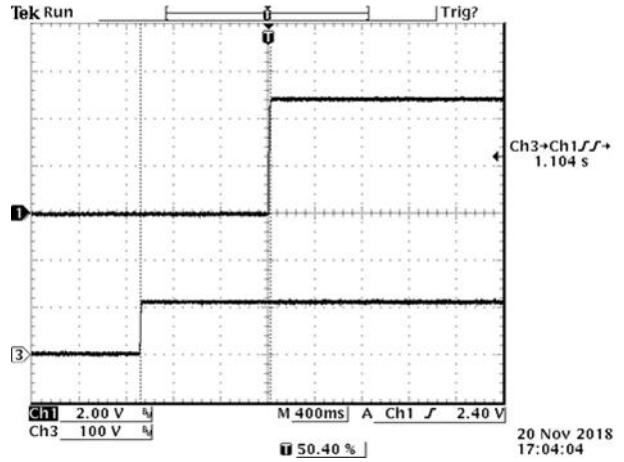


Figure 27. Startup from Vin

Ch1: Vo
Ch3: Vin

Test Condition: Vin=110V, Io=10A, Vo=5V with Cext=200uF

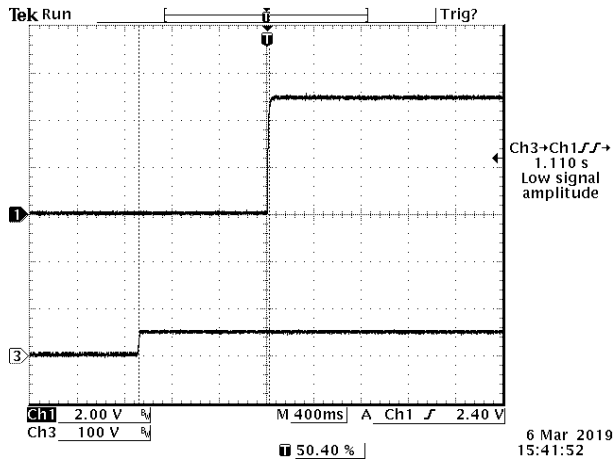


Figure 28. Startup from Vin

Ch1: Vo
Ch3: Vin

Test Condition: Vin=48V, Io=10A, Vo=5V with Cext=1200uF

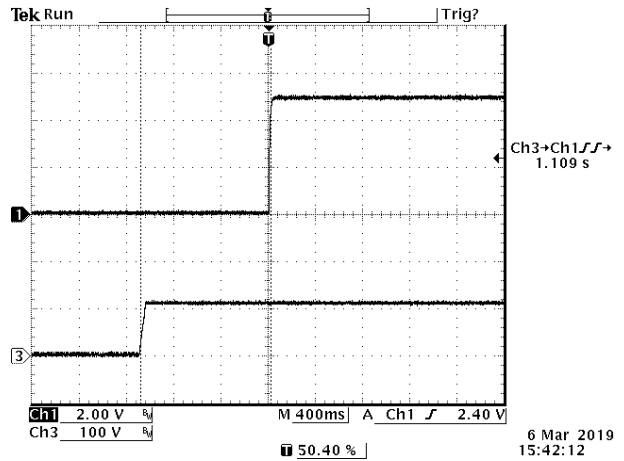


Figure 29. Startup from Vin

Ch1: Vo
Ch3: Vin

Test Condition: Vin=110V, Io=10A, Vo=5V with Cext=1200uF

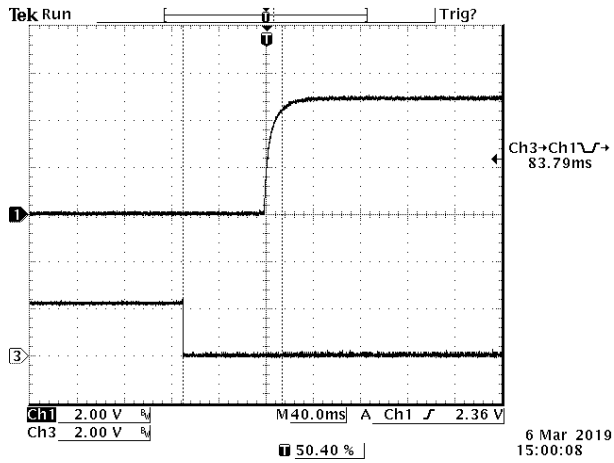


Figure 30. Startup from on/off
 Ch1: Vo
 Ch3: on/off
 Test Condition: Vin=48V, Io=10A, Vo=5V with Cext=200uF

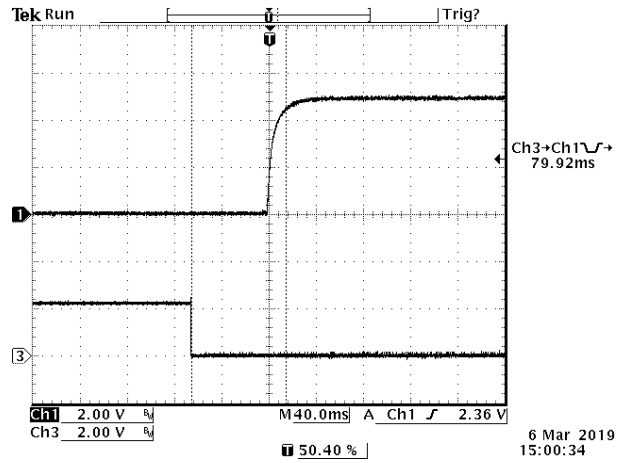


Figure 31. Startup from on/off
 Ch1: Vo
 Ch3: on/off
 Test Condition: Vin=110V, Io=10A, Vo=5V with Cext=200uF

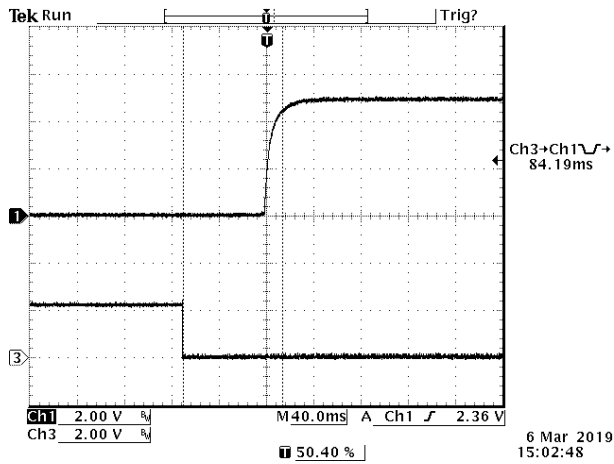


Figure 32. Startup from on/off
 Ch1: Vo
 Ch3: on/off
 Test Condition: Vin=48V, Io=10A, Vo=5V with Cext=1200uF

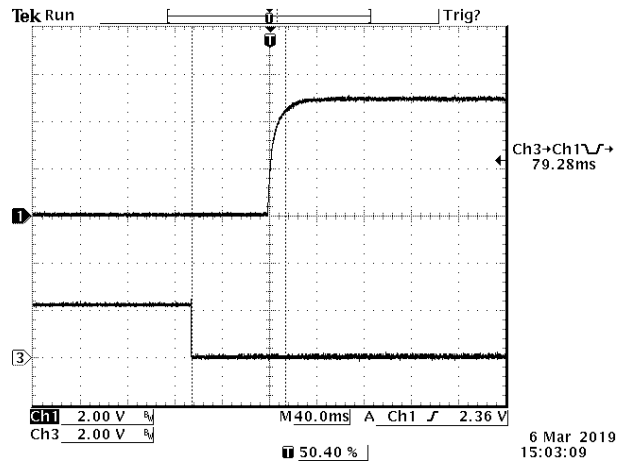


Figure 33. Startup from on/off
 Ch1: Vo
 Ch3: on/off
 Test Condition: Vin=110V, Io=10A, Vo=5V with Cext=1200uF

Shut down time

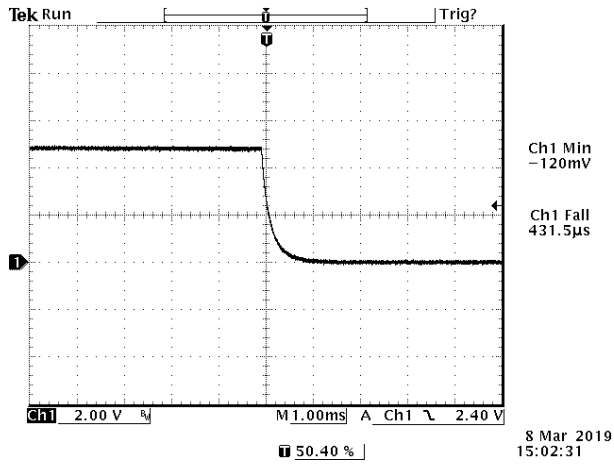


Figure 34. Typical Shut down From Vin

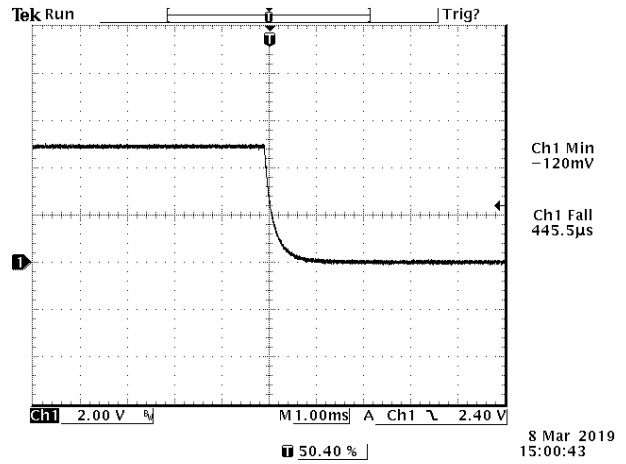


Figure 35. Typical Shut down From Venable

Test Condition: 48Vdc input, 5Vdc/10A output and Ta=25 deg C, with 200µF capacitor at output

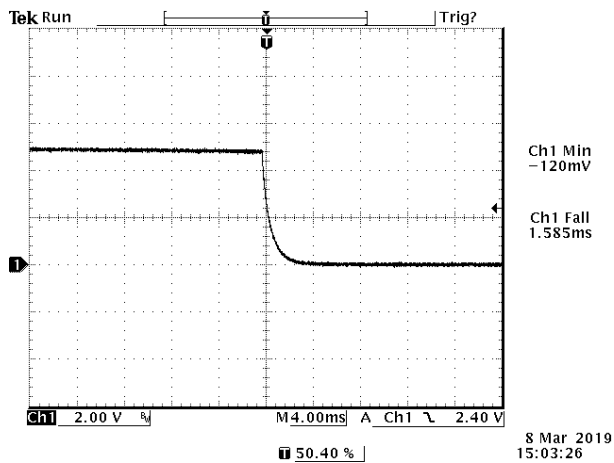


Figure 36. Typical Shut down From Vin

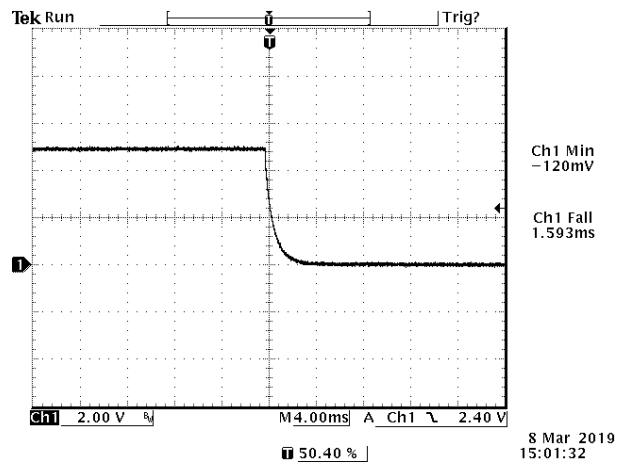


Figure 37. Typical Shut down From Venable

Test Condition: 48Vdc input, 5Vdc/10A output and Ta=25 deg C, with 1200µF capacitor at output

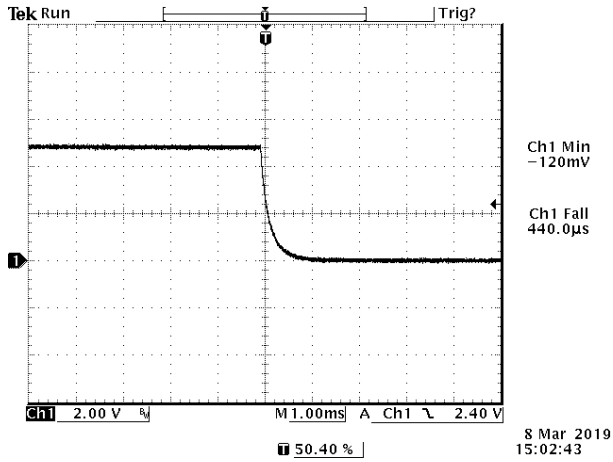


Figure 38. Typical Shut down From Vin

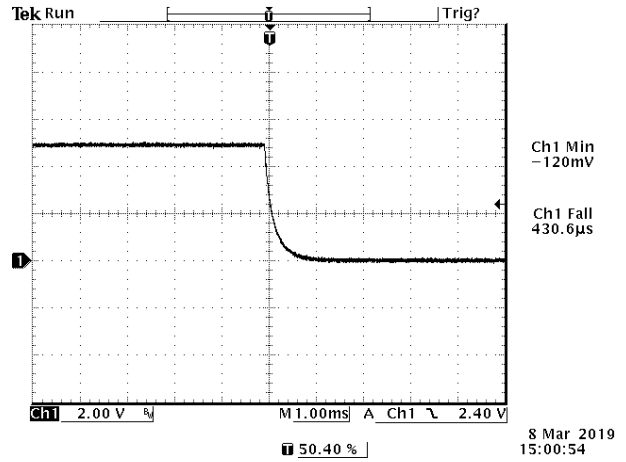


Figure 39. Typical Shut down From Venable

Test Condition: 110Vdc input, 5Vdc/10A output and Ta=25 deg C, with 200µF capacitor at output

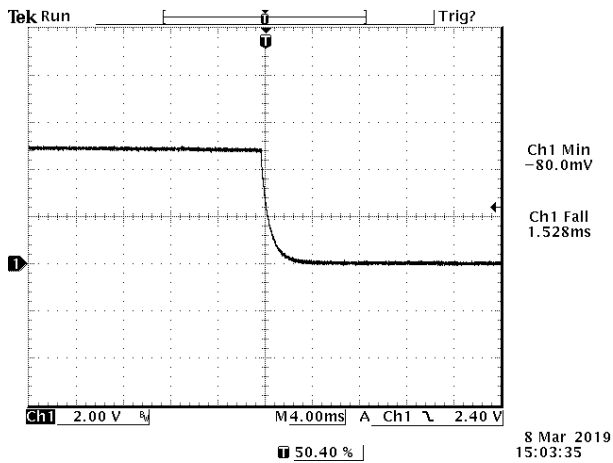


Figure 40. Typical Shut down From Vin

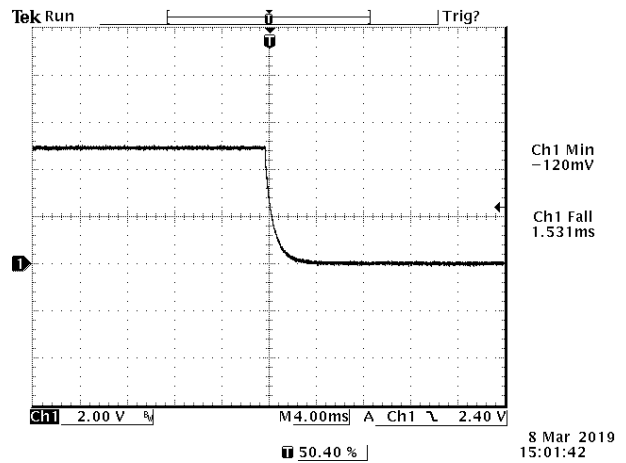


Figure 41. Typical Shut down From Venable

Test Condition: 110Vdc input, 5Vdc/10A output and Ta=25 deg C, with 1200µF capacitor at output

12. OVER CURRENT PROTECTION

Hiccup: To provide protection in a fault output overload condition, the module is equipped with internal current-limiting circuitry and can endure current limiting for a few milliseconds. If the overcurrent condition persists beyond a few milliseconds, the module will shut down into hiccup mode and restart once every 1600ms. The module operates normally when the output current goes into specified range.

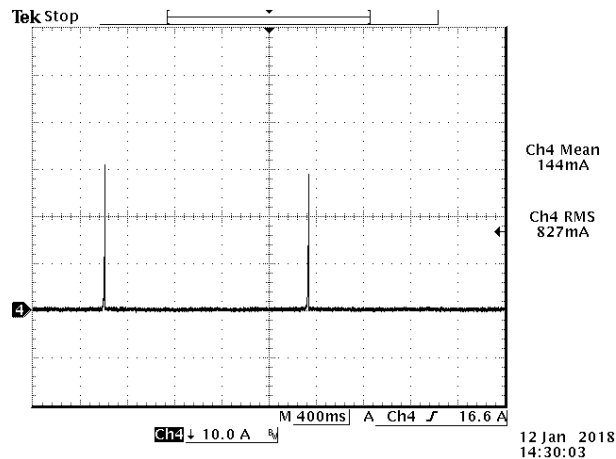


Figure 42. Over current protection

13. INPUT UNDER VOLTAGE LOCKOUT

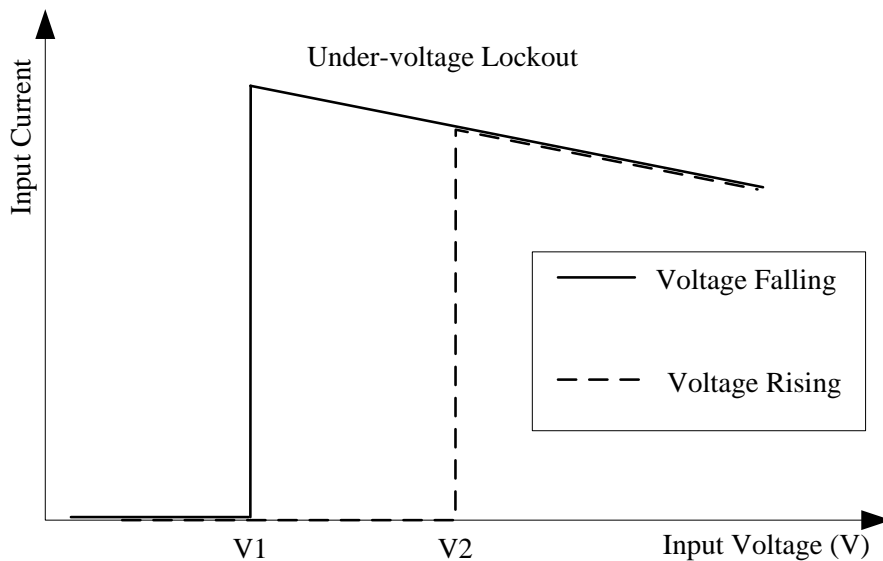
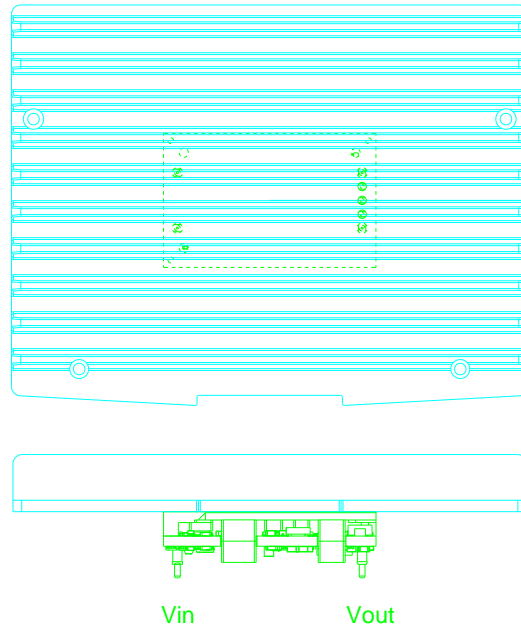


Figure 43. Input under voltage lockout
 $V1 = 12V$
 $V2 = 13.5V$

14. THERMAL DERATING CURVE

Test setup: Vin=24V,48V,110V, OLFM, external HSK Dimension: 142 x 110 x 16 mm



HSK Dimension:142x110x16mm (16 includes baseplate and ribs)

Figure 44. Thermal test setup

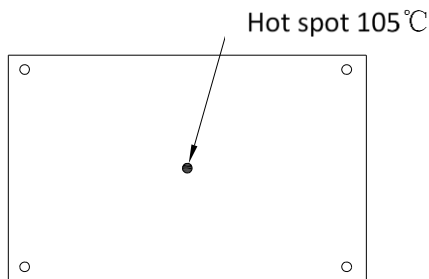


Figure 45. Hot spot

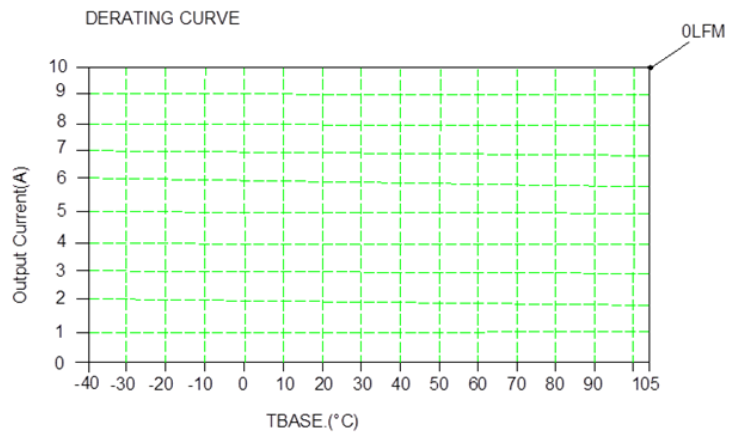


Figure 46. Thermal derating curve

15. HOLD UP CAPACITOR

Recommended external hold up circuit (Option 1)

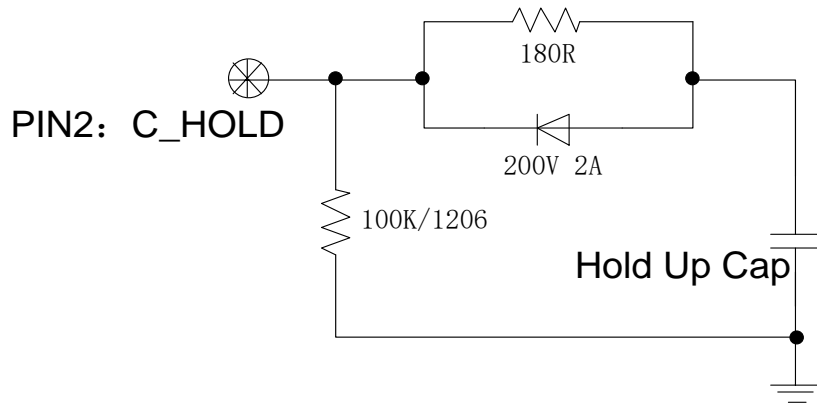


Figure 47. Recommended external hold up circuit-1

NOTE: The rated power of the current-limiting resistor 180R is determined by the rise slope of the input voltage.

| PARAMETER | NOTES | SYMBOL | MIN | TYP | MAX | UNITS |
|-------------------|--|--------|-----|-----|-----|-------|
| Hold up capacitor | Working voltage rating should be 200 V. Caution: This capacitor is necessary for both normal & hold up operation. | C_HOLD | 100 | 470 | - | uF |
| Hold up voltage | Normal operation | V_HOLD | 40 | 80 | 154 | V |
| Hold up time | 14.4-154 V input and all output range. | T_HOLD | - | 12 | - | ms |

Recommended external hold up circuit (Option 2)

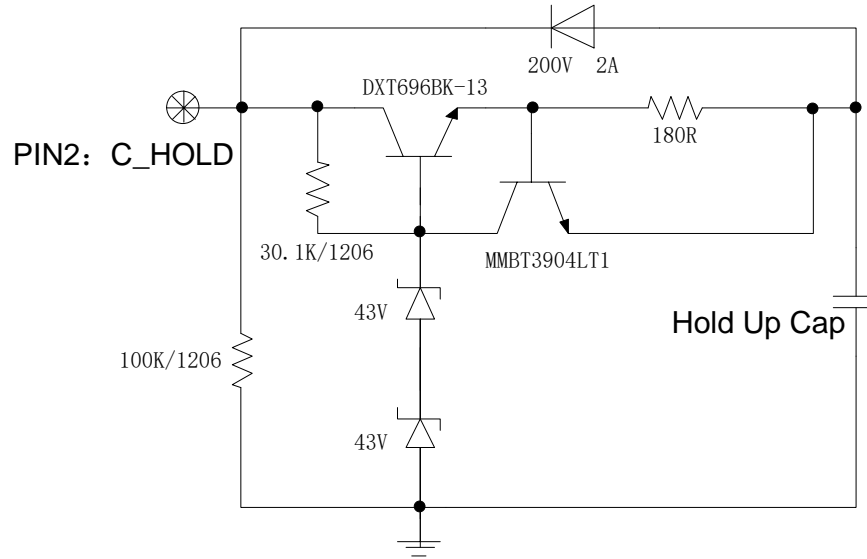


Figure 48. Recommended external hold up circuit-2

NOTE: The rated power of the current-limiting resistor 180R is determined by the rise slope of the input voltage.

| PARAMETER | NOTES | SYMBOL | MIN | TYP | MAX | UNITS |
|-------------------|---|--------|-----|-----|-----|-------|
| Hold up capacitor | Working voltage rating should be 100V. Caution: This capacitor is necessary for both normal and hold up operation. | C_HOLD | 100 | 470 | - | uF |
| Hold up voltage | Normal operation | V_HOLD | 40 | 80 | 86 | V |
| Hold up time | 14.4-154 V input and all output range. | T_HOLD | - | 12 | - | ms |

16. SAFETY & EMC SPECIFICATIONS

Safety:

1. Material flammability UL94V-0
2. Nemko certification EN 62368-1
3. CSA certification CSA/UL 62368-1
4. CB certification IEC/EN 62368-1

EMC

1. Conductive EMI: EN 55032 class A

Compliance to EN 55032 class A (both peak and average) with the following inductive and capacitive filter

Setup:

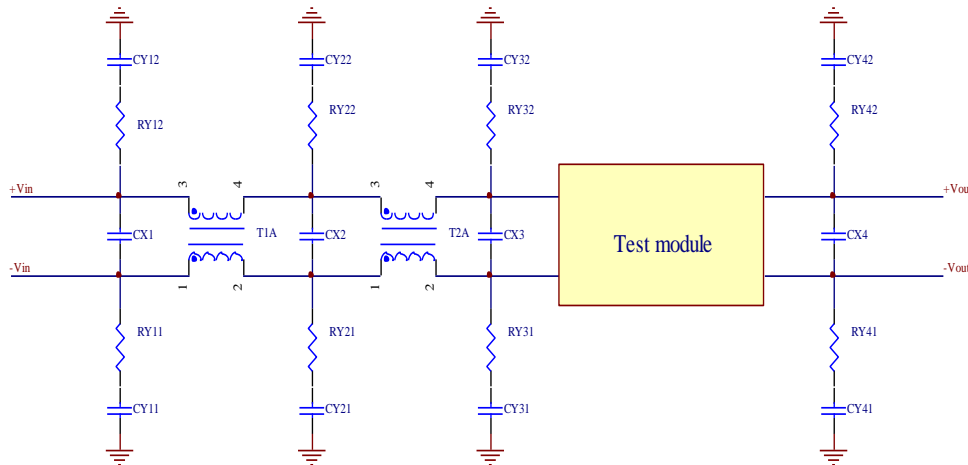


Figure 49.

| ITEM | DESIGNATOR | PARAMETER | VENDOR | VENDOR P/N |
|------|------------|---------------------------------------|--------|------------|
| 1 | CX2 | 1 μ F/305V, X2 | | |
| 2 | CX3 | 100 μ F/200V, AL cap | | |
| 3 | CX4 | 2*100 μ F/16V, tantalum capacitor | | |
| 4 | CY31 | 4700PF, Y2 | | |
| 5 | CY32 | 4700PF, Y2 | | |
| 6 | RY31 | 1206,0R, Resistor | | |
| 7 | RY32 | 1206,0R, Resistor | | |
| 8 | T2A | 2.4mH, common mode inductance | | |

Positive

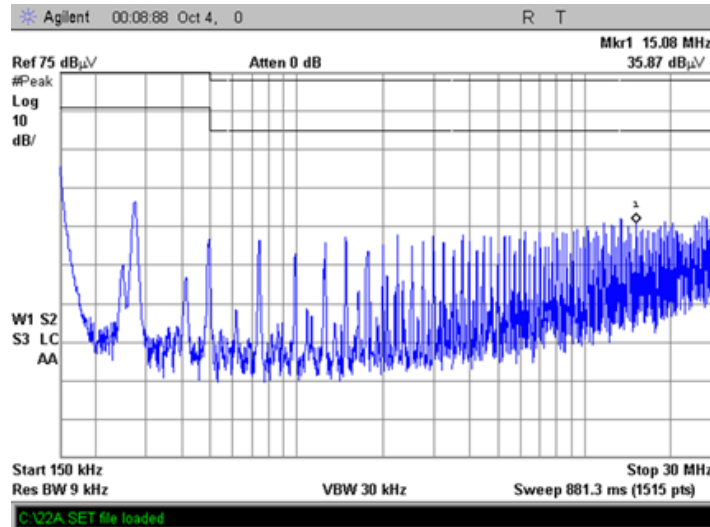


Figure 50.

Negative

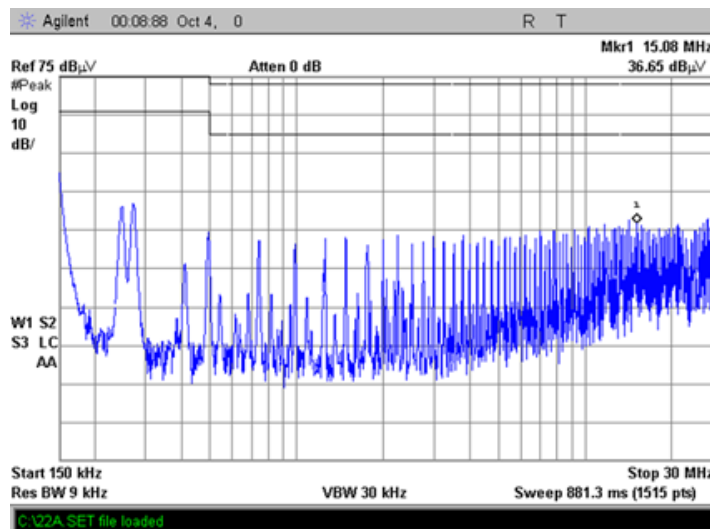


Figure 51.

17. MECHANICAL DIMENSIONS

ORQB-50Y05L/0 OUTLINE

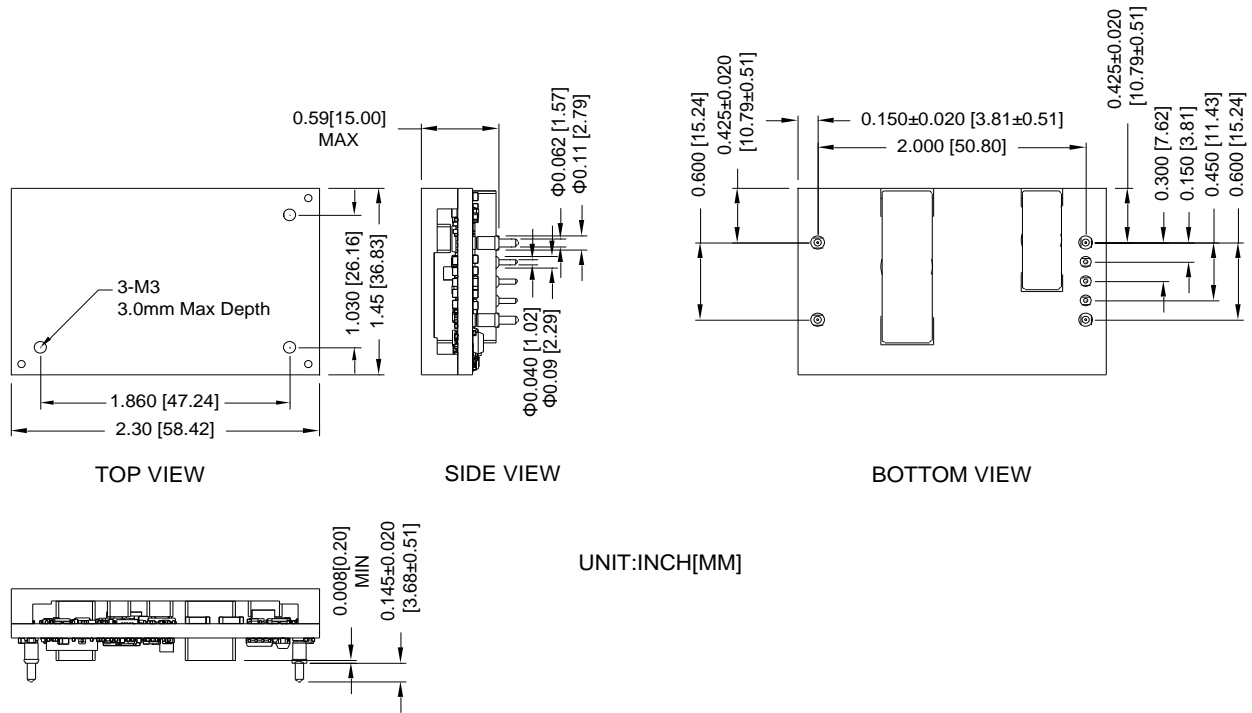


Figure 52. ORQB-50Y05L/0 Outline

Note: This module is recommended and compatible with Pb-Free Wave Soldering and must be soldered using a peak solder temperature of no more than 260 °C for less than 5 seconds.

Notes:

- 1) All Pins: Material - Copper Alloy;
Finish - Tin plated.
- 2) Un-dimensioned components are shown for visual reference only.
- 3) All dimensions in inches; Tolerances: x.xx +/-0.02 in [0.5 mm]. x.xxx +/-0.010 in [0.25 mm]. Unless otherwise stated.

ORQB-50Y05L/0 PIN DEFINITIONS

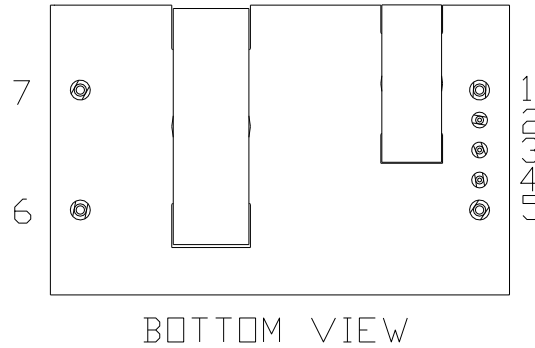


Figure 53. ORQB-50Y05L/0 Pins

| PIN | FUNCTION | PIN | FUNCTION |
|-----|-----------|-----|----------|
| 1 | Vin (+) | 5 | Vin (-) |
| 2 | C_HOLD | 6 | Vout (-) |
| 3 | ON/OFF | 7 | Vout (+) |
| 4 | V_AUX(5V) | | |

ORQB-50Y05L/0 RECOMMENDED PAD LAYOUT

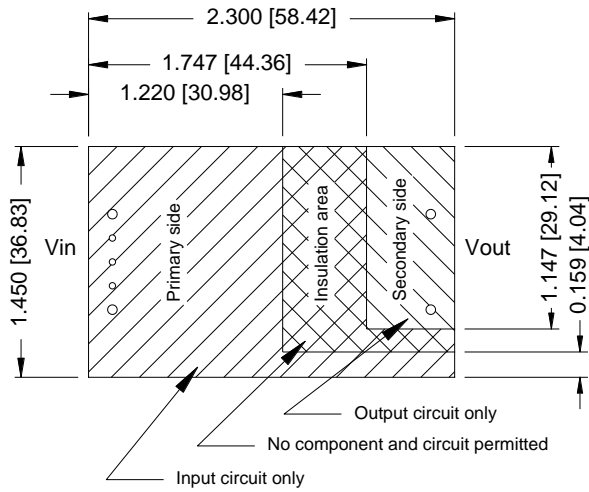


Figure 54. ORQB-50Y05L/0 Recommended pad layout-1

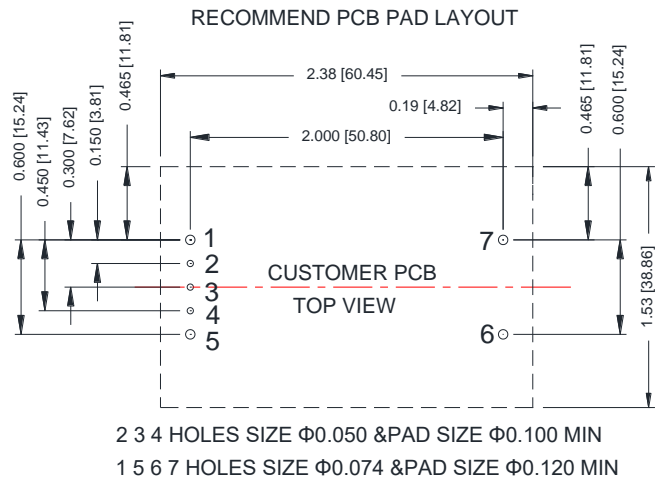


Figure 55. ORQB-50Y05L/0 Recommended pad layout-2

ORQB-50Y05E/F OUTLINE

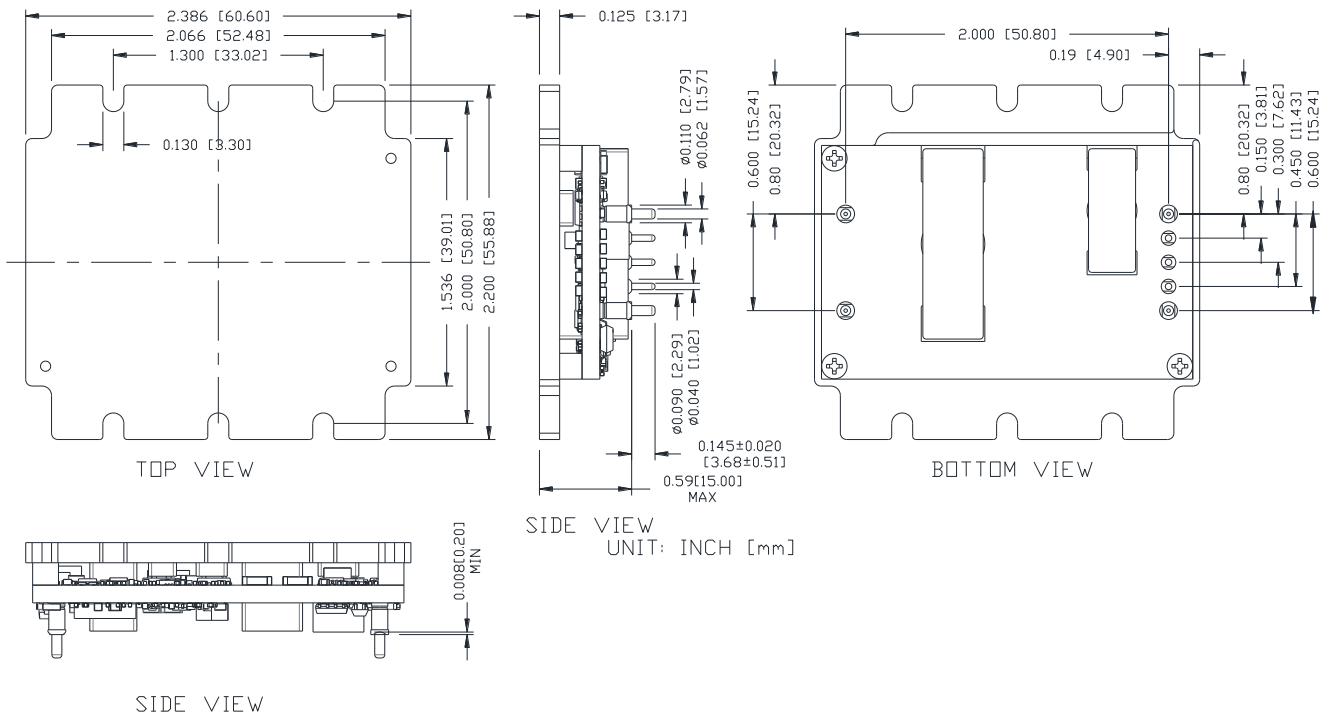


Figure 56. ORQB-50Y05E/F Outline

Note: This module is recommended and compatible with Pb-Free Wave Soldering and must be soldered using a peak solder temperature of no more than 260 °C for less than 5 seconds.

Notes:

- 1) All Pins: Material - Copper Alloy;
Finish - Tin plated.
- 2) Un-dimensioned components are shown for visual reference only.
- 3) All dimensions in inches; Tolerances: x.xx +/-0.02 in [0.5 mm]. x.xxx +/-0.010 in [0.25 mm]. Unless otherwise stated.

ORQB-50Y05E/F PIN DEFINITIONS

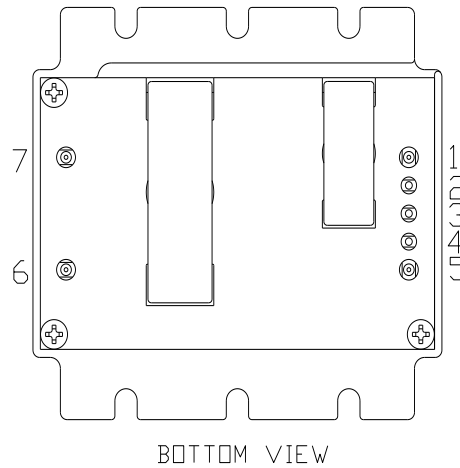


Figure 57. ORQB-50Y05E/F Pins

| PIN | FUNCTION | PIN | FUNCTION |
|-----|-----------|-----|----------|
| 1 | Vin (+) | 5 | Vin (-) |
| 2 | C_HOLD | 6 | Vout (-) |
| 3 | ON/OFF | 7 | Vout (+) |
| 4 | V_AUX(5V) | | |

ORQB-50Y05E/F RECOMMENDED PAD LAYOUT

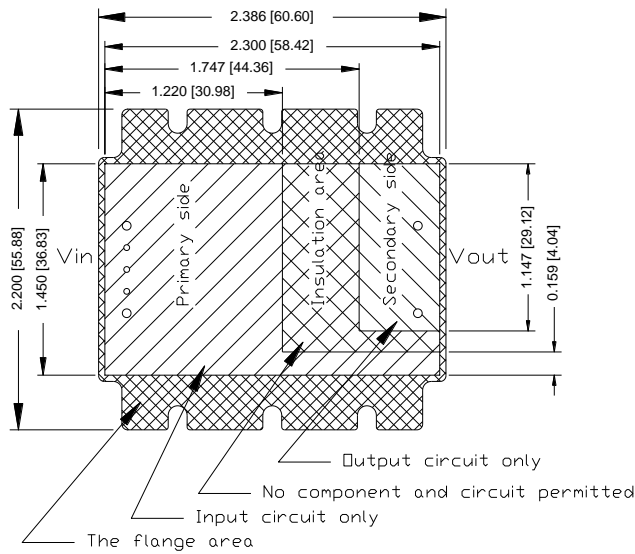


Figure 58. ORQB-50Y05E/F Recommended pad layout-1

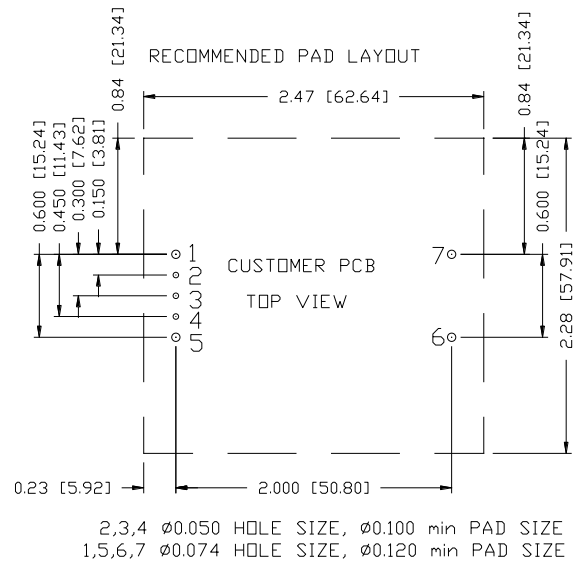


Figure 59. ORQB-50Y05E/F Recommended pad layout-2

18. REVISION HISTORY

| DATE | REVISION | CHANGES DETAIL | APPROVAL |
|------------|----------|---|----------|
| 2017-09-18 | AA | First release | S. Wang |
| 2018-05-07 | AB | Update Efficiency, TD, Specifications, Mechanical Dimensions and Key Features & Benefits Add Waveforms and Safety &EMC | S.Wang |
| 2018-12-14 | AC | Update input specifications, Transient Response, efficiency, TD, Mechanical dimensions, OCP and Safety &EMC | S.Wang |
| 2019-03-13 | AD | Update input specifications | S.Wang |
| 2019-04-10 | AE | Update general specifications | S.Wang |
| 2019-05-14 | AF | Update Transient Response and general specifications | S.Wang |
| 2019-09-06 | AG | Update output pre-bias ,star up time Turn-on Voltage Threshold and Turn-off Voltage Threshold | S.Wang |
| 2019-10-24 | AH | Add feature reinforced isolation | S.Wang |
| 2020-01-15 | AI | Add safety approved to IEC/EN 62368-1 and CSA/UL 62368-1. Update altitude to 5000m | F.Tao |
| 2020-05-19 | AJ | Add 0RQB-50Y050. Update absolute maximum ratings and input specifications | S. Wang |
| 2020-07-09 | AK | Add 0RQB-50Y05E/F and input L/C. Update startup & shutdown waveforms. | H.Yu |
| 2020-11-25 | AL | Update hold up capacitor. | H.Yu |
| 2021-04-01 | AM | Add object ID. Add weight and dimensions for flange version. | DW.Ren |

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.



Asia-Pacific
+86 755 298 85888

Europe, Middle East
+353 61 225 977

North America
+1 408 785 5200

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Isolated DC/DC Converters](#) category:

Click to view products by [Bel Fuse](#) manufacturer:

Other Similar products are found below :

[ESM6D044440C05AAQ](#) [FMD15.24G](#) [PSL486-7LR](#) [Q48T30020-NBB0](#) [JAHW100Y1](#) [SPB05C-12](#) [SQ24S15033-PS0S](#) [18952](#) [19-130041](#)
[CE-1003](#) [CE-1004](#) [GQ2541-7R](#) [RDS180245](#) [MAU228](#) [J80-0041NL](#) [DFC15U48D15](#) [XGS-0512](#) [XGS-1205](#) [XGS-1212](#) [XGS-2412](#) [XGS-](#)
[2415](#) [XKS-1215](#) [06322](#) [NCT1000N040R050B](#) [SPB05B-15](#) [SPB05C-15](#) [L-DA20](#) [DCG40-5G](#) [QME48T40033-PGB0](#) [XKS-2415](#) [XKS-2412](#)
[XKS-1212](#) [XKS-1205](#) [XKS-0515](#) [XKS-0505](#) [XGS-2405](#) [XGS-1215](#) [XGS-0515](#) [PS9Z-6RM4](#) [73-551-5038I](#) [AK1601-9RT](#) [VI-R5022-](#)
[EXWW](#) [PSC128-7iR](#) [RPS8-350ATX-XE](#) [DAS1004812](#) [VI-LJ11-iz](#) [PQA30-D24-S24-DH](#) [VI-LN2-EW](#) [VI-PJW01-CZY](#) [CK2540-9ERT](#)