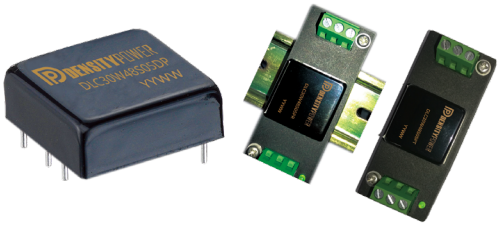
Technical Specification

DLC30W48 Series

Wide Input, Isolated 30Watts DC/DC Converters



FEATURES

- 4:1 wide input range: 18-75VDC
- Single & bipolar outputs: 5, 12, 28, ±5, ±12Volts DC
- 30W isolated output
- Efficiency up to 90%
- Six sides shielding
- Build-in EMI filter and input anti-reverse options
- Remote on/off control
- 1.6KVDC I/O isolation
- Operation case temperature: -40°C to +100°C
- Standard 1.0"×1.0"×0.4" DIP footprint, Din-rail & wall mount type options
- Extensive self-protection, UVLO, OTP, OVP, OCP and short-circuit protection
- Outstanding thermal dissipation
- Fully encapsulated, high reliability
- MTBF ⩾ 1 MHrs
- Compliance with RoHS

PRODUCT OVERVIEW

The DLC30W48 series are highly reliable, and efficient isolated DC/DC converter. Wide input range of 18-75V (48V nominal) is ideal for automation, power grid, railway, semiconductor equipment, instrumentation, test and measurement, and distribution power system.

A wealth of self-protection features included input under-voltage lockout, over temperature shutdown; overcurrent protection with "hiccup" autorestart technique, provides short-circuit protection, along with output OVP. The operation temperature is -40°C to 85°C, the module delivers full output power @ 100°C case temperature.

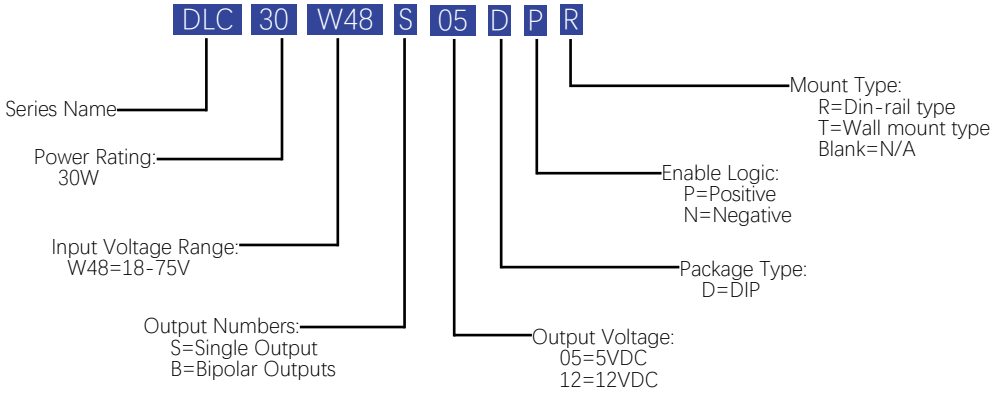
Advanced fully encapsulated package technology with six sides shielding and build-in EMI filter provides outstanding EMC and thermal performance, which is ideal for ruggedized applications involving harsh environments. Wall mount and Din-rail mount type are available for maximum design-in flexibility.

The DLC30W48 series are designed to safety standards IEC/EN 62368-1.

Models Selections

Basic Models	Input Voltage [VDC]	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency Typ. [%]	Capacitive Load Max. [μF]	Package [inch]
DLC30W48S05	48	18-75	5	6	90	7200	1"×1"×0.4" DIP
DLC30W48S12	48	18-75	12	2.5	89	1200	
DLC30W48S28	48	18-75	28	1.07	89	360	
DLC30W48B05	48	18-75	±5	±3	85	±1000	
DLC30W48B12	48	18-75	±12	±1.25	88	±700	

Model Numbering



Absolute Maximum Ratings					
Parameters	Conditions	Min.	Typ.	Max.	Units
Input Voltage Continuous		-0.7		75	VDC
Input Voltage Transient	< 100ms			100	VDC
On/Off Remote Control	Referred to -Vin			15	VDC
Remote Control Source Current		0		1.5	mA
Remote Control Sink Current		0		1.5	mA
Operating Case Temperature		-40		100	°C
Operating Environment Temperature	> 50℃ with derating	-40		85	°C
Storage Temperature Range		-55		125	°C
Soldering Temperature	Wave soldering < 10s			260	°C
Cooling	Free air convection				
Safety and EMC Compliance					
Conducted Emission	EN55032	Class B (With external filter)			
Radiated Emission	EN55032	Class B (With external filter)			
Conducted Susceptibility	IEC6100-4-6	10Vrms Criteria A			
Radiated Susceptibility	IEC6100-4-3	20V/m Criteria A			
EFT	IEC6100-4-4	±2KV Criteria A (With external filter)			
Surge	IEC6100-4-5	±2KV Criteria A (With external filter)			
ESD	IEC6100-4-2	Contact: ±6KV Air: ±8KV Criteria A			
Isolation Safety Rating	Basic insulation				

Input Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Operating Voltage Range		18	48	75	VDC
Start-up Threshold		16		18	VDC
Under Voltage Shutdown		15		17	VDC
Recommended Input Fuse			4		A

General Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
On/Off Remote Control	Positive Logic, On state	Open or 2.4 ≤ Vr ≤ 15			VDC
	Positive Logic, Off state	Short or 0 ≤ Vr ≤ 0.8			VDC
	Negative Logic, On state	Short or 0 ≤ Vr ≤ 0.8			VDC
	Negative Logic, Off state	Open or 2.4 ≤ Vr ≤ 15			VDC
Remote Control Current		-0.5		1.5	mA
Isolation Voltage (Test for 1 minute)	Input to output	1600			VDC
	Input to case	1000			VDC
	Output to case	1000			VDC
Isolation Resistance (Viso=500VDC)	Input to output	100			MΩ
	Input to case	100			MΩ
	Output to case	100			MΩ
Isolation Capacitance	Input to output		1000		pF
Switching Frequency	3.3, 5Vout types		275		KHz
	Other types		300		KHz
Thermal Shurdown		105	115	125	℃
Thermal Shurdown Recover		95	105	115	℃
Start-up Delay	From undervoltage shutdown recovery to 10% Vout		30		mS
Rise Time	From 10% Vout to 90% Vout capacitive load		30		mS
Vibration	IEC 60068-2-64, Environmental testing - Part 2				
Shock (Operational)	IEC 60068-2-27, Environmental Testing- Part 2.27				

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (5 Vout Model)

Input Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Input Reflected Ripple Current	Measured at input pin with 4.7μH inductor and 100μF capacitance		30	200	mA pk-pk
Input Current @ No Load			8	20	mA
Input Current @ Min. Line				2.5	A
Input Current @ Shutdown Mode			1	3	mA
Power Loss @ No Load				0.7	W
Recommended External Input Capacitance	1μF CBB and 100μF E-cap used in combination		100		μF

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% load	4.95	5	5.05	VDC
Vout Accuracy		-1		+1	%
Adjustable Range	Trim up/Trim down	-10		+10	%
Line Regulation	Vin from min. line to max. line, 50% load	-0.2		+0.2	%
Load Regulation	From min. load to full load, Vin=nom.line	-0.5		+0.5	%
Temperature Coefficient	From -40℃ to 85℃	-0.02		+0.02	% of Vout /℃
Total Regulation		-2		+2	%
Over Current Protection	Hiccup, auto-recover	110		250	%
Over Voltage Protection		112		140	%
Output Short Protection	Hiccup, auto-recover				
Ripple & Noise Max. ①			75	150	mV Pk-Pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response	Within 1% band of Vout deviation		250	500	μS
Capacitive Load		220		7200	μF
Minimum Load	No minimum load required				

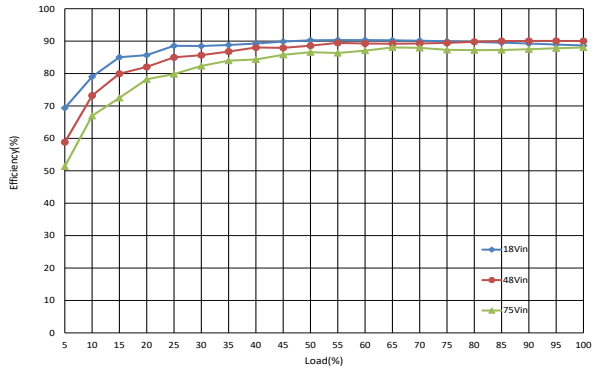
Notes

① Ripple & noise is tested with certain filter parameters, please see output ripple & noise intechnical notes on page 17 for more details.

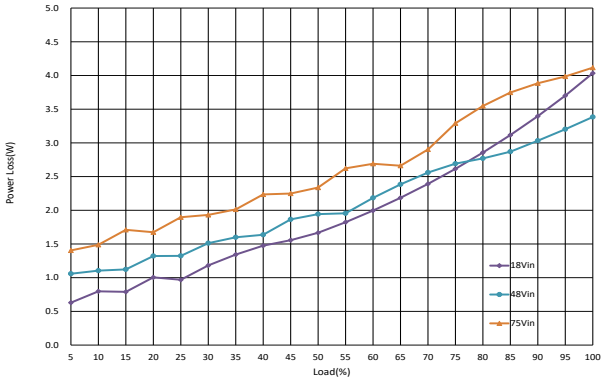
② Load is set from 50%-75%-50% of full load, di/dt=1A/μS, Cout=220μF.

Performance Data(5 Vout Model)

EFFICIENCY VS LOAD

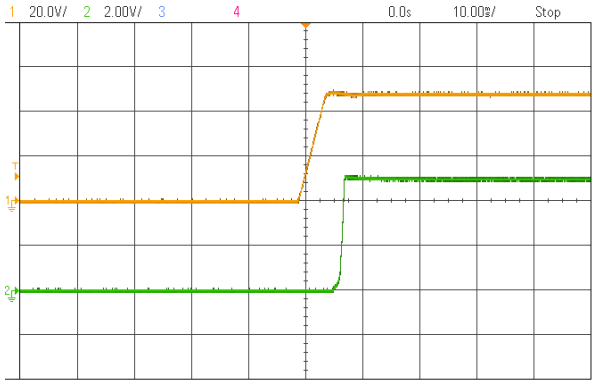


POWER LOSS VS LOAD



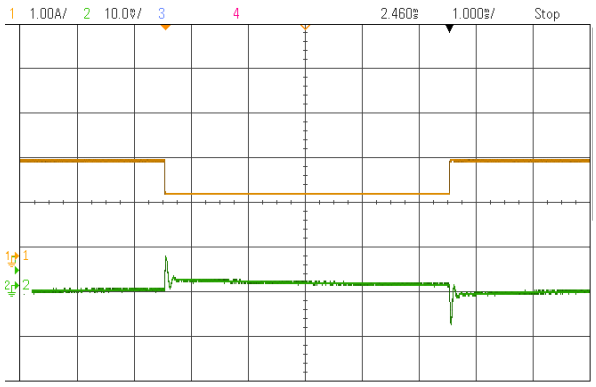
START UP

Ch1:Vin Ch2: Vout



DYNAMIC RESPONSE Ch1: Iout Ch2: Vout

50%~75%~50% of I_{max}, di/dt=1A/μs



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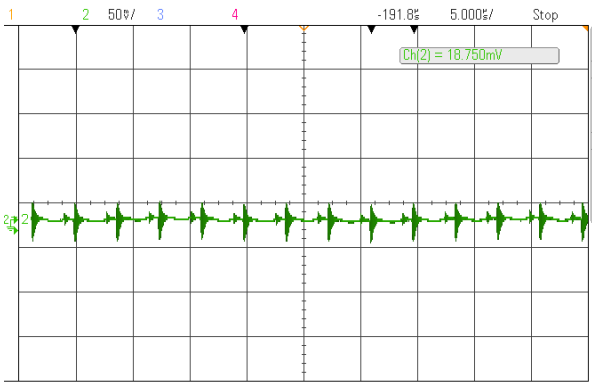
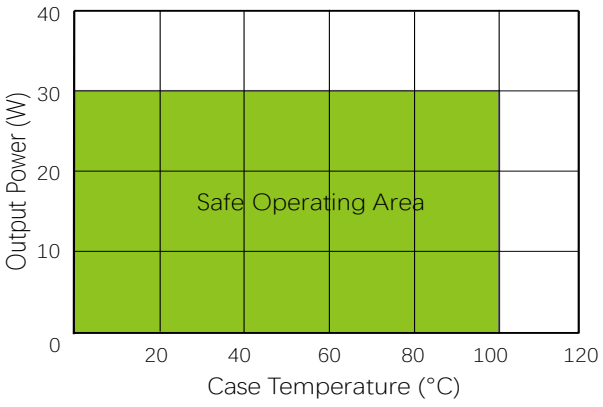
Ch2:Vout



THERMAL DERATING



Performance Data (12 Vout Model)

Input Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Input Reflected Ripple Current	Measured at input pin with 4.7μH inductor and 100μF capacitance		30	200	mA pk-pk
Input Current @ No Load			8	20	mA
Input Current @ Min. Line				2.5	A
Input Current @ Shutdown Mode			1	3	mA
Power Loss @ No Load				0.7	W
Recommended External Input Capacitance	1μF CBB and 100μF E-cap used in combination		100		μF

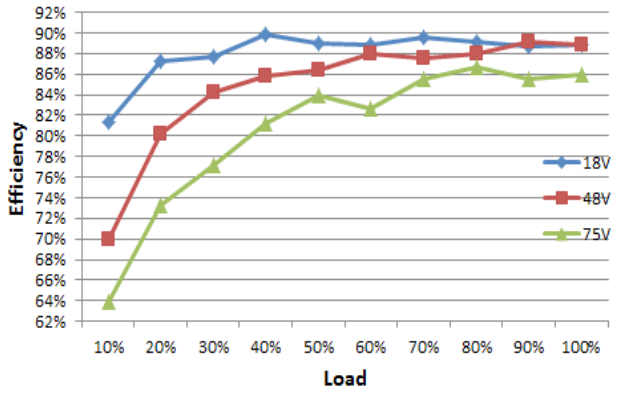
Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% load	11.88	12	12.12	VDC
Vout Accuracy		-1		+1	%
Adjustable Range	Trim up/Trim down	-10		+10	%
Line Regulation	Vin from min. line to max. line, 50% load	-0.2		+0.2	%
Load Regulation	From min. load to full load, Vin=nom.line	-0.5		+0.5	%
Temperature Coefficient	From -40℃ to 85℃	-0.02		+0.02	% of Vout /℃
Total Regulation		-2		+2	%
Over Current Protection	Hiccup, auto-recover	110		320	%
Over Voltage Protection		112		160	%
Output Short Protection	Hiccup, auto-recover				
Ripple & Noise Max. ①			75	200	mV Pk-Pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response	Within 1% band of Vout deviation		250	500	μS
Capacitive Load		100		1200	μF
Minimum Load	No minimum load required				

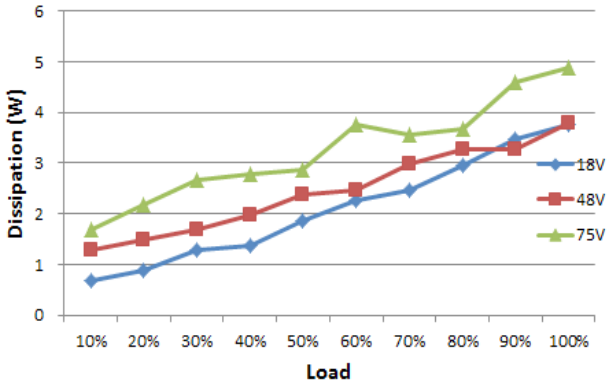
Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise intechnical notes on page 17 for more details.
② Load is set from 50%-75%-50% of full load, di/dt=1A/μS, Cout=100μF.

Performance Data(12 Vout Model)

EFFICIENCY VS LOAD

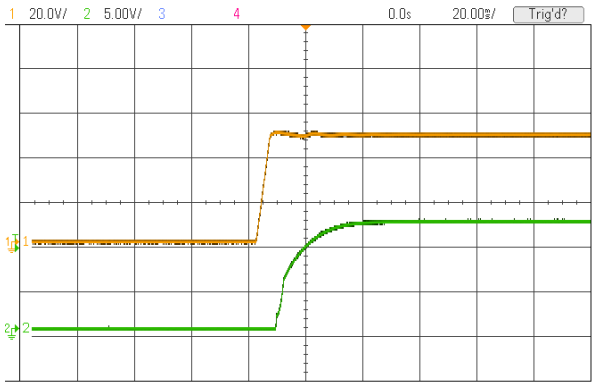


POWER LOSS VS LOAD



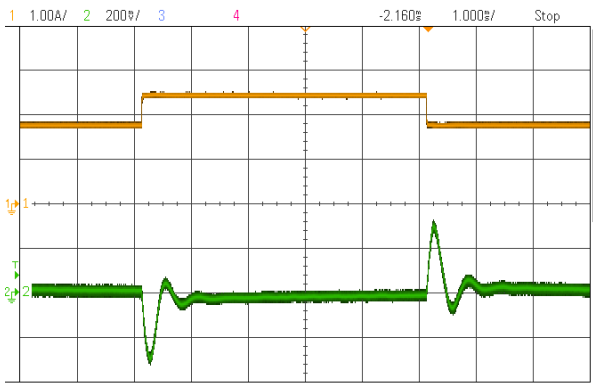
START UP

Ch1:Vin Ch2: Vout



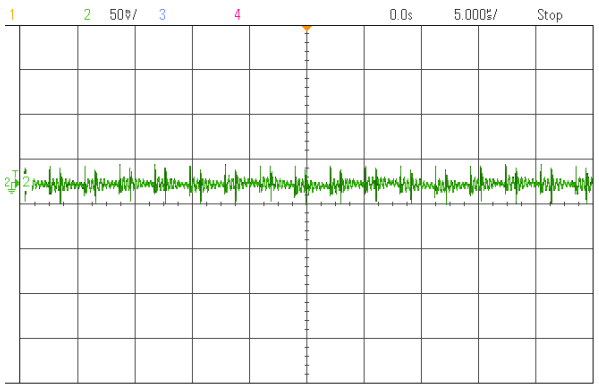
DYNAMIC RESPONSE Ch1: Iout Ch2: Vout

50%~75%~50% of I_{max}, di/dt=1A/μs

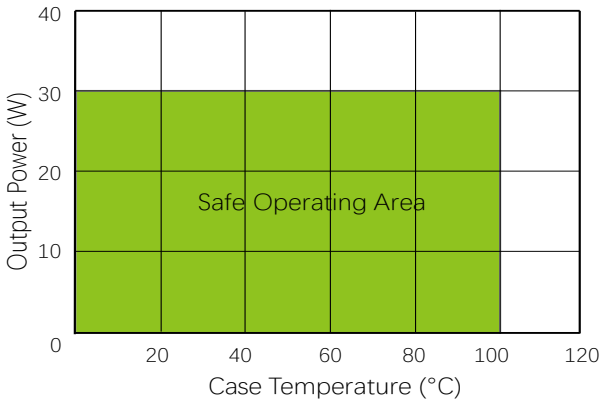


RIPPLE & NOISE 20MHz BANDWITH

Ch2:Vout



THERMAL DERATING



Performance Data (28 Vout Model)

Input Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Input Reflected Ripple Current	Measured at input pin with 4.7μH inductor and 100μF capacitance		30	200	mA pk-pk
Input Current @ No Load			8	20	mA
Input Current @ Min. Line				2.5	A
Input Current @ Shutdown Mode			1	3	mA
Power Loss @ No Load				0.7	W
Recommended External Input Capacitance	1μF CBB and 100μF E-cap used in combination		100		μF

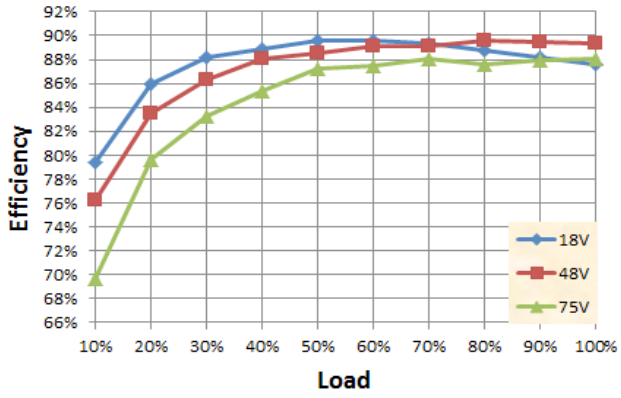
Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% load	27.72	28	28.28	VDC
Vout Accuracy		-1		+1	%
Adjustable Range	Trim up/Trim down	-10		+10	%
Line Regulation	Vin from min. line to max. line, 50% load	-0.2		+0.2	%
Load Regulation	From min. load to full load, Vin=nom.line	-0.5		+0.5	%
Temperature Coefficient	From -40℃ to 85℃	-0.02		+0.02	% of Vout /℃
Total Regulation		-2		+2	%
Over Current Protection	Hiccup, auto-recover	110		280	%
Over Voltage Protection		112		160	%
Output Short Protection	Hiccup, auto-recover				
Ripple & Noise Max. ①			100	280	mV Pk-Pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response	Within 1% band of Vout deviation		250	500	μS
Capacitive Load		100		360	μF
Minimum Load	No minimum load required				

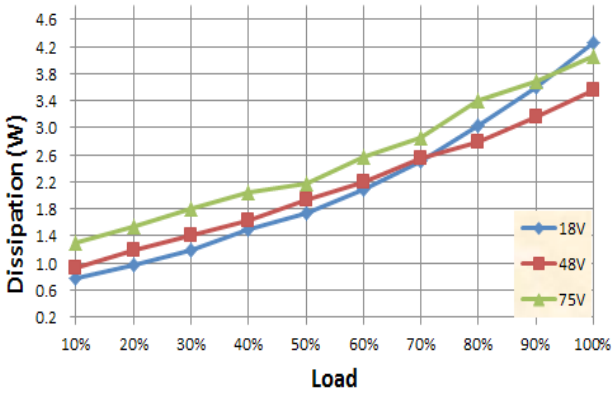
Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise intechnical notes on page 17 for more details.
② Load is set from 50%-75%-50% of full load, di/dt=1A/μS, Cout=100μF.

Performance Data(28 Vout Model)

EFFICIENCY VS LOAD

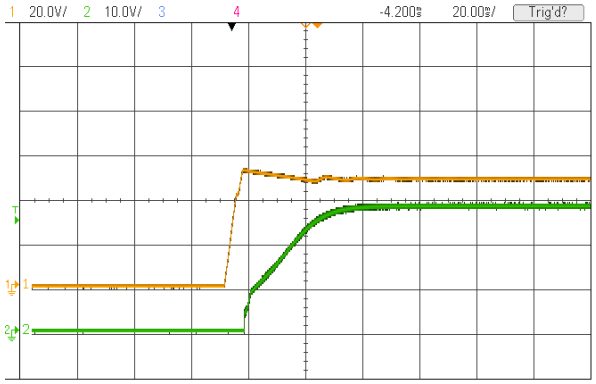


POWER LOSS VS LOAD



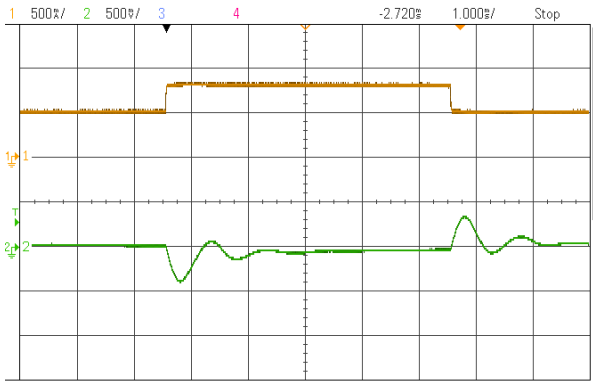
START UP

Ch1:Vin Ch2: Vout



DYNAMIC RESPONSE Ch1: Iout Ch2: Vout

50%~75%~50% of I_{max} di/dt=1A/μs



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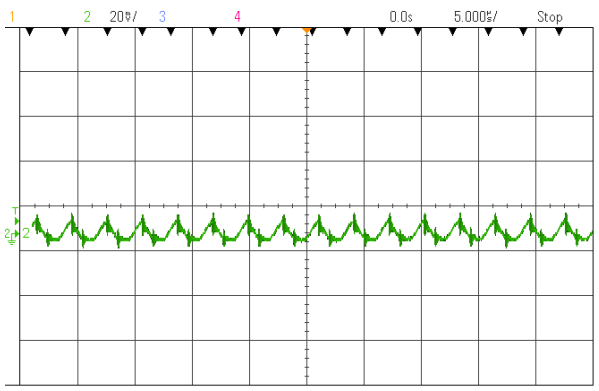
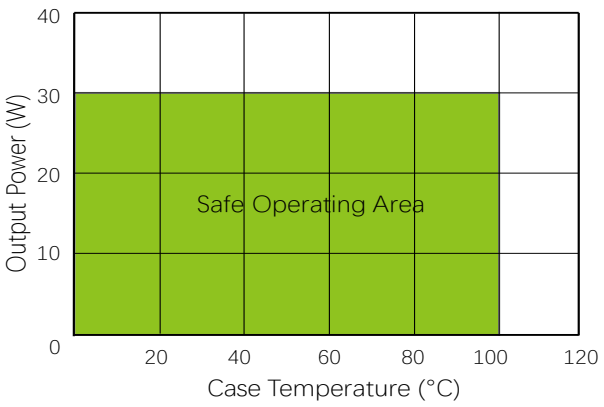
Ch2:Vout



THERMAL DERATING



Performance Data (±5 Vout Model)

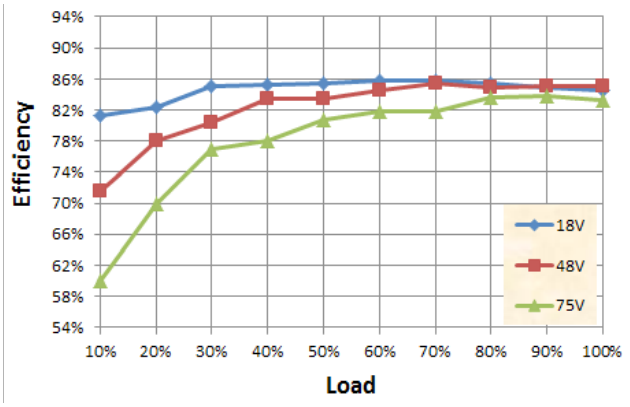
Input Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Input Reflected Ripple Current	Measured at input pin with 4.7μH inductor and 100μF capacitance		30	200	mA pk-pk
Input Current @ No Load			8	20	mA
Input Current @ Min. Line				2.5	A
Input Current @ Shutdown Mode			1	3	mA
Power Loss @ No Load				0.7	W
Recommended External Input Capacitance	1μF CBB and 100μF E-cap used in combination		100		μF

Output Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% load	±4.95	±5	±5.05	VDC
Vout Accuracy		-1		+1	%
Line Regulation	Vin from min. line to max. line, 50% load	-0.5		+0.5	%
Load Regulation	From half load to full load, Vin=nom. line	-1		+1	%
Temperature Coefficient	From -40℃ to 85℃	-0.02		+0.02	% of Vout /℃
Cross Regulation	Unbalanced 25%/100% load	-5		+5	%
Total Regulation		-2		+2	%
Over Current Protection	Hiccup, auto-recover	110		300	%
Over Voltage Protection		112		165	%
Output Short Protection	Hiccup, auto-recover				
Ripple & Noise Max. ①			75	150	mV Pk-Pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response	Within 1% band of Vout deviation		250	500	μS
Capacitive Load		±220		±1000	μF
Minimum Load	No minimum load required				

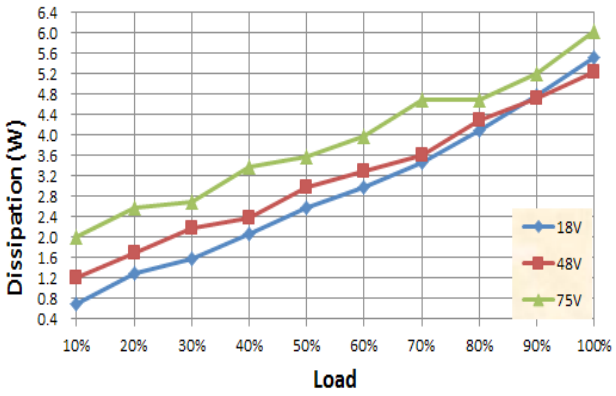
Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise intechnical notes on page 17 for more details.
② Load is set from 50%-75%-50% of full load, di/dt=1A/μS, Cout=±220μF.

Performance Data(±5 Vout Model)

EFFICIENCY VS LOAD

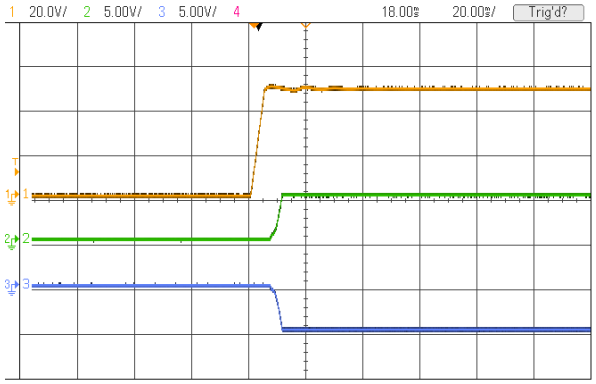


POWER LOSS VS LOAD



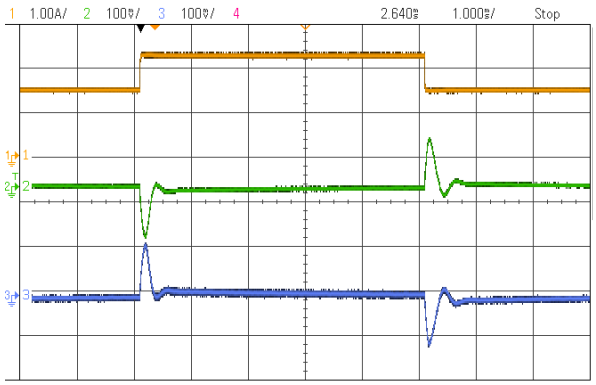
START UP

Ch1:Vin Ch2: Vout1 Ch3: Vout2



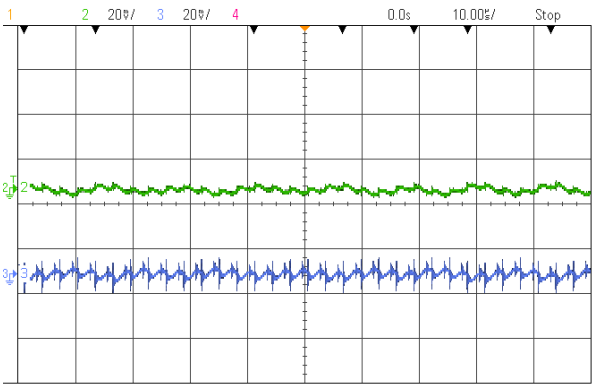
DYNAMIC RESPONSE Ch1: Iout Ch2: Vout1 Ch3: Vout2

50%~75%~50% of I_{max} di/dt=1A/μs

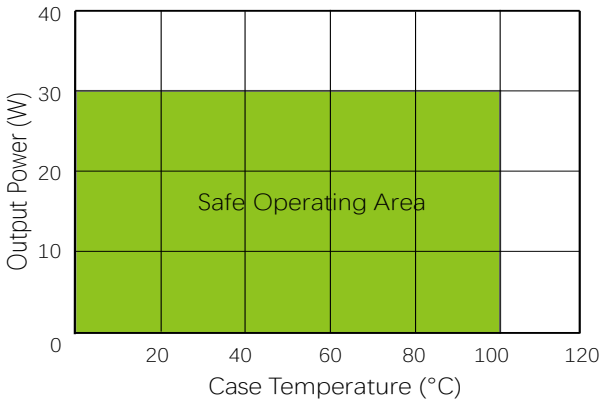


RIPPLE & NOISE 20MHz BANDWITH

Ch2:Vout1 Ch3: Vout2



THERMAL DERATING



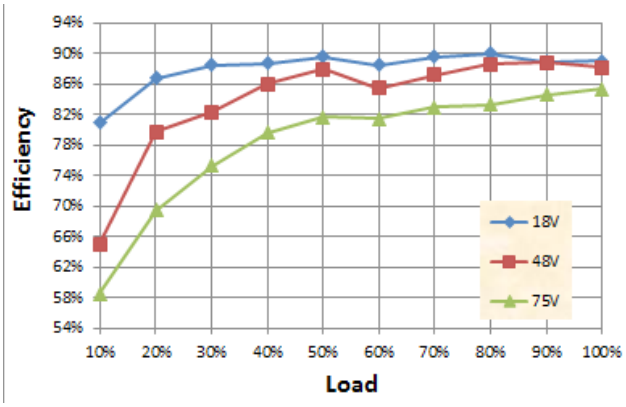
Performance Data (±12 Vout Model)

Input Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Input Reflected Ripple Current	Measured at input pin with 4.7μH inductor and 100μF capacitance		30	200	mA pk-pk
Input Current @ No Load			8	20	mA
Input Current @ Min. Line				2.5	A
Input Current @ Shutdown Mode			1	3	mA
Power Loss @ No Load				0.7	W
Recommended External Input Capacitance	1μF CBB and 100μF E-cap used in combination		100		μF
Output Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% load	±11.88	±12	±12.12	VDC
Vout Accuracy		-1		+1	%
Line Regulation	Vin from min. line to max. line, 50% load	-0.5		+0.5	%
Load Regulation	From half load to full load, Vin=nom. line	-1		+1	%
Temperature Coefficient	From -40℃ to 85℃	-0.02		+0.02	% of Vout /℃
Cross Regulation	Unbalanced 25%/100% load	-5		+5	%
Total Regulation		-2		+2	%
Over Current Protection	Hiccup, auto-recover	104		300	%
Over Voltage Protection		112		165	%
Output Short Protection	Hiccup, auto-recover				
Ripple & Noise Max. ①			75	150	mV Pk-Pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response	Within 1% band of Vout deviation		250	500	μS
Capacitive Load		±100		±700	μF
Minimum Load	No minimum load required				

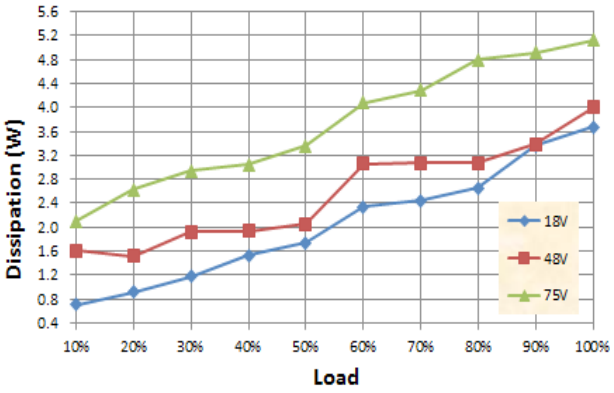
Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise intechnical notes on page 17 for more details.
② Load is set from 50%-75%-50% of full load, di/dt=1A/μS, Cout=±100μF.

Performance Data(±12 Vout Model)

EFFICIENCY VS LOAD

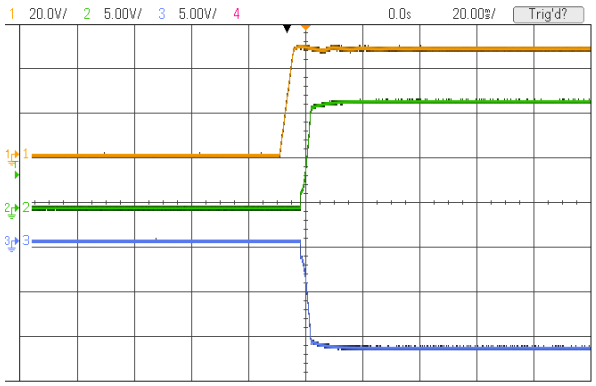


POWER LOSS VS LOAD



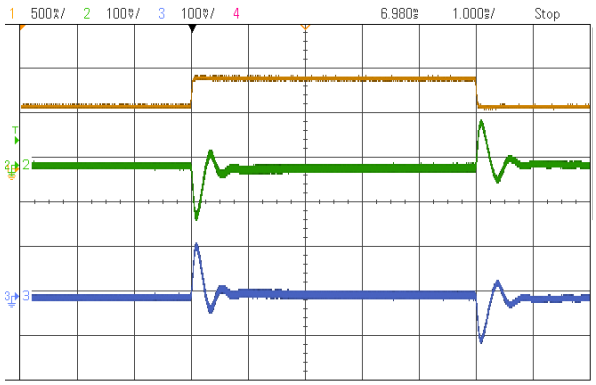
START UP

Ch1:Vin Ch2: Vout1 Ch3: Vout2



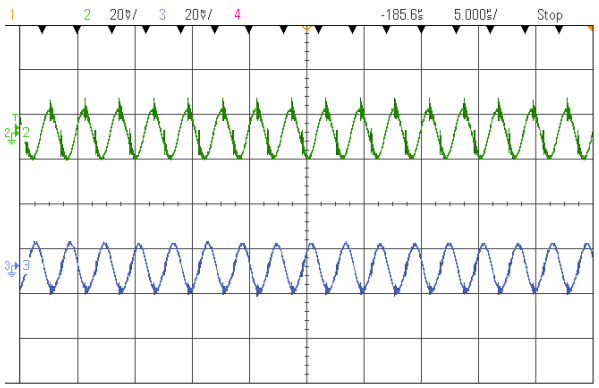
DYNAMIC RESPONSE Ch1: Iout Ch2: Vout1 Ch3: Vout2

50%~75%~50% of I_{max}, di/dt=1A/μs

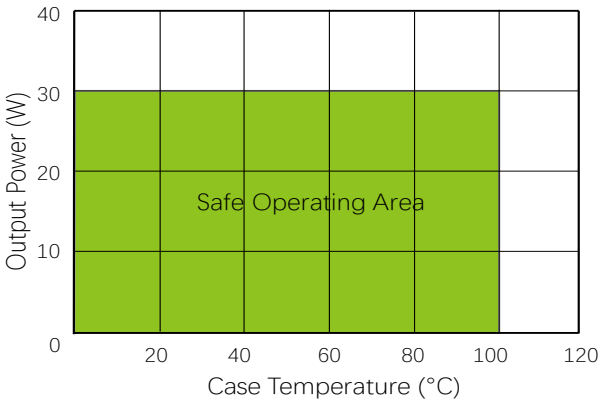


RIPPLE & NOISE 20MHz BANDWITH

Ch2:Vout1 Ch3: Vout2

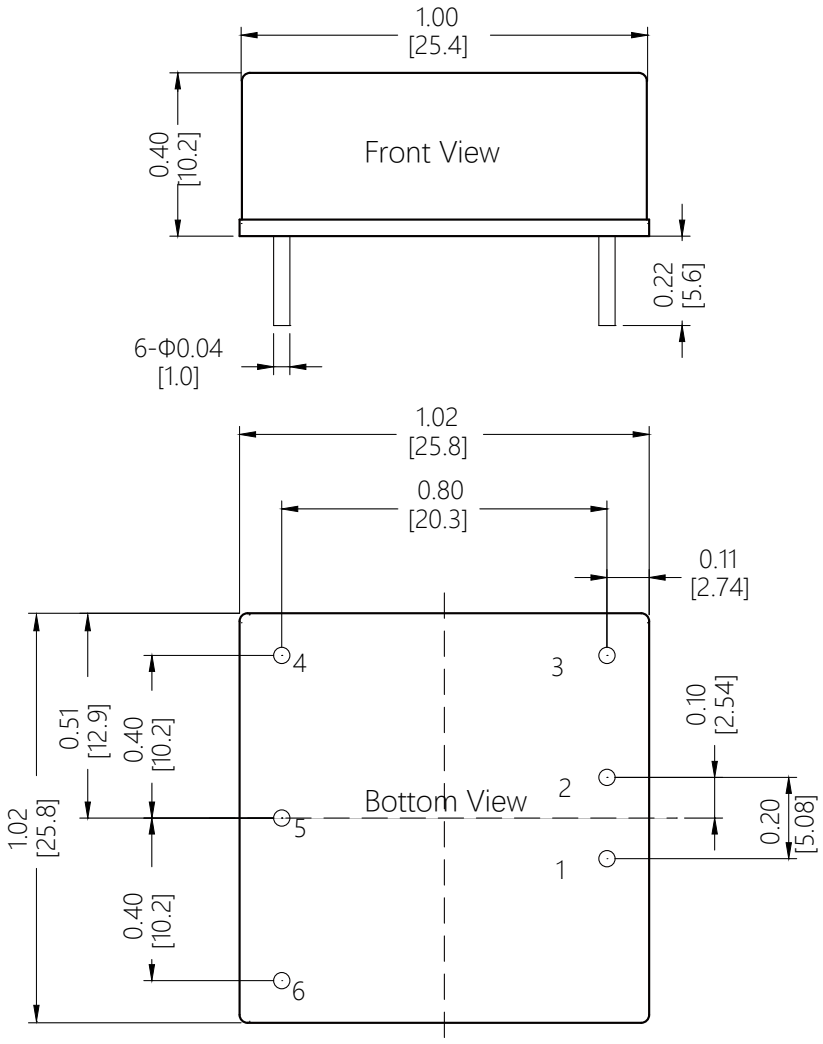


THERMAL DERATING



Mechanical Specifications

DLC30W48 SERIES: DIP TYPE

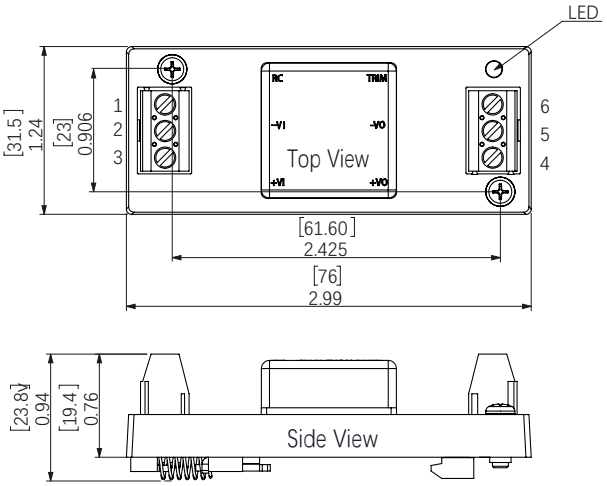


PIN:
Pin1, PIN2, PIN3, PIN4, PIN5, PIN6: Φ0.040
Force: Applied force not exceed 4.9N
Material: Copper alloy
Finish: Gold 3 ~ 5μm(min.) over nickel 50μm(Min.)
TOLERANCE:
X.XX=±0.02 (0.5)
X.XXX= ±0.010 (0.25)
Dimensions are in inches [mm]
Weight: ~20g.

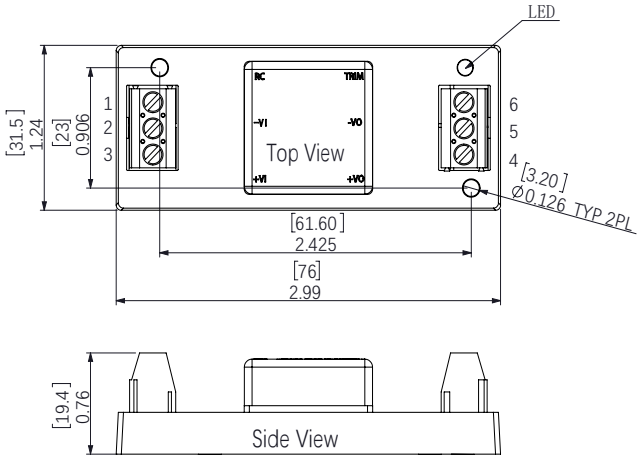
PIN CONNECTIONS			
Single Output		Bipolar Output	
Pin	Function	Pin	Function
1	+Vin	1	+Vin
2	-Vin	2	-Vin
3	RC	3	RC
4	-Vout	4	-Vout
5	TRIM	5	COM
6	+Vout	6	+Vout

Mechanical Specifications

DLC30W48 SERIES: DIN-RAIL TYPE



DLC30W48 SERIES: WALL MOUNT TYPE



Hole screw locked torque: 0.4N·m Max
Terminal screw locked torque: 0.25N·m Max

Tolerance:
X.XX=±0.02 (0.5)
X.XXX= ±0.010 (0.25)

Dimensions are in inches [mm]
Weight:
Din-rail Type: ~65g
Wall Mount Type: ~45g.

PIN CONNECTIONS			
Pin	Function	Pin	Function
1	RC	1	RC
2	-Vin	2	-Vin
3	+Vin	3	+Vin
4	+Vout	4	+Vout
5	-Vout	5	-Vout
6	TRIM	6	GND

Technical Notes

INPUT FUSING

Certain applications may require fuse at the inputs of power conversion components. Fuses should also be used when there is possibility of sustained input voltage reversal which is not current limited. The DLC30W48 modules are not internally fused. We strongly recommend a slow-blown fuse to be used in the ungrounded input supply line.

For safety agency approvals, the installer must install the converter in compliance with the end user safety standard.

TYPICAL APPLICATION CONNECTION

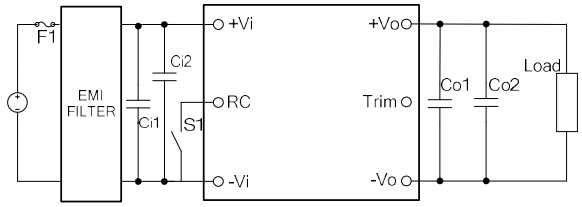


Figure 1· Typical Application Connection Single Output

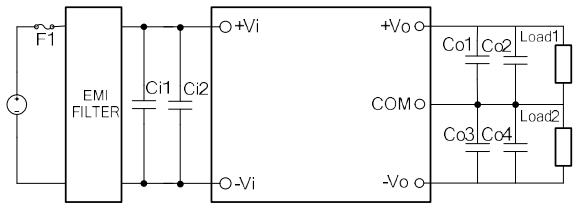


Figure 2· Typical Application Connection Bipolar Outputs

In order to prevent the input line from causing the input oscillation, it is recommended to add the input capacitor close to the input of the module. Similarly, the output capacitor is added to the output of the module. Specific recommended parameters: input capacitance Ci1=100μF electrolytic capacitor, Ci2 = 1uF CBB capacitor. Output Capacitance Co1=10uF tantalum capacitor, Co2 ESR <0.1Ω. For bipolar outputs, Co3 & Co4 are the same as Co1 & Co2. Please refer to capacitive load for details.

REFLECTED RIPPLE CURRENT

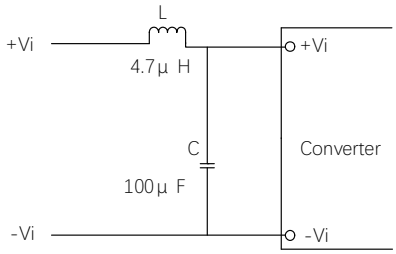


Figure 3· Reflected Ripple Current

Add LC filter at the front of the power module to reduce the interference of reflected ripple current on the DC bus, recommended value of L and C with appropriate current and voltage rating as below: L=4.7μH; C=100μF.

REMOTE CONTROL FUNCTION

Module Power Remote Control or called ON/OFF pin is for the user to enable or disable the output. Control use high and low level control, there are two general control logic, positive logic or negative logic control. Recommend to use optocoupler to control ON/OFF Pin as below.

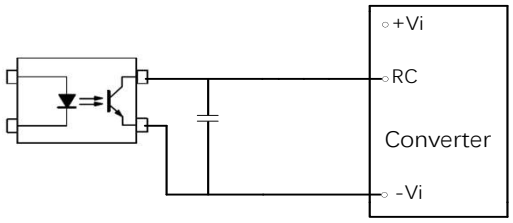


Figure 4· Remote Control

Remote Control Pin can be connected in parallel for multiple converters which with the same Remote Control characters. However, when several converters share the same remote control circuits, the total sink and source current must be taken into consideration, and make sure that the optocoupler has enough drive capability.

To reduce external PCB trace interference, it is recommended to add high frequency bypass capacitor between RC pin and -Vi, recommended capacitor value is 100-1000pF.

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OUTPUT RIPPLE & NOISE

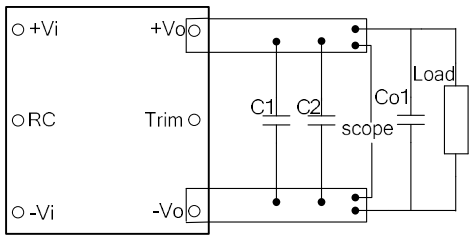

Figure 5· Output Ripple & Noise For Single Output

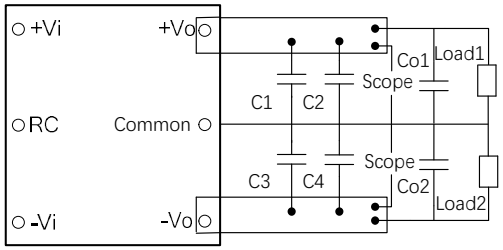

Figure 6· Output Ripple & Noise For Bipolar Outputs

These DLC30W48 modules' output ripple and noise is measured at the rated input voltage and output current, along with 10uF and 0.1uF MLCC used in parallel with appropriate voltage ratings and placed as C1,C2, C3, C4 shown in the figure above. The scope's bandwidth is set to 20MHz.
External output capacitors are required to reduce the ripple & noise. The output capacitors should be low ESR and appropriate frequency response with appropriate voltage ratings, and must be located as close to the converters as possible, also PCB layout must be taken into consideration.

INPUT UNDERVOLTAGE SHUTDOWN AND START-UP THRESHOLD

Once operating, module will not turn off until the input voltage drops below the Undervoltage Shutdown threshold. Subsequent re-start will not occur until the input is brought back up to the Start-Up Threshold. This built in hysteresis prevents any unstable on/off situations from occurring at a single input voltage.

CURRENT LIMITING

The maximum current limit remains constant as the output voltage drops. However, once the impedance of the short across the output is small enough to make the output voltage drop below the specified Output Current Limit Shutdown Voltage, the converter turns off.
The converter then enters into “hiccup mode” where it repeatedly turns on and off until the short circuit condition is removed. This prevents excessive heating of the converter or the load board.

SHORT CIRCUIT CONDITION

When the converter is in current-limit mode, the output voltage will drop as the output current demand increases and then the converter will be shut down. If the short-circuit condition persists, another shutdown cycle will be initiated. This on/off cycling is referred to as "hiccup" mode. The hiccup cycling reduces the average output current, thereby preventing internal temperatures from rising to excessive levels. The module is capable of enduring an indefinite short circuit output condition.

OUTPUT OVERVOLTAGE PROTECTION

When the output voltage exceeds the overvoltage protection set point, the module enters the overvoltage protection mode. The output voltage is keeped at the overvoltage protection point and is limited to the continuous increase of the output voltage. When the external overvoltage condition disappears, the module automatically returns to normal operation.

THERMAL SHUTDOWN

These DLC30W48 converters are equipped with thermal-shutdown circuitry. If environmental conditions cause the internal temperature of the DC-DC converter to rise above the designed operating temperature, a precision temperature sensor will power down the unit. When the internal temperature decreases below the threshold of the

Technical Notes

temperature sensor, the unit will auto restart.

TRIMMING OUTPUT VOLTAGE

The DLC30W48 converters have a trim capability that allows users to adjust the output voltages. Output voltage can be trimmed up or down by a trim pin by connecting a single fixed resistor between Trim Pin and +Vo or -Vo, the output voltage can be increased or decreased depending on its connection. The maximum output voltage adjustment range is -10% to +10%. If the trim function is not used, keep TRIM pin floating.

Trim up:

Increase the output voltage by connecting anappropriate value resistor between Trim Pin and +Vo Pin. Show as below:

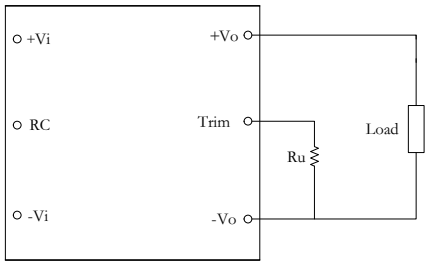

Figure 5· Trim Up Connection

Please follow up the Trim Up formula to calculate the resistor value according to the desired output voltage.

$$5V: Ru=(5.11\times\frac{2.5}{\Delta\%\times Voset}-2)(k\Omega)$$

$$12V: Ru=(10\times\frac{2.5}{\Delta\%\times Voset}-5.11)(k\Omega)$$

"Voset" is the output voltage when TRIM is floating, "Δ%" is the change of output voltage, such as: 5V output is raised to 5.5V,
Δ% = (5.5-5) / 5 * 100% = 10%.

Trim down:

Decrease the output voltage by connecting an appropriate value resistor between Trim Pin and -Vo Pin. Show as below:

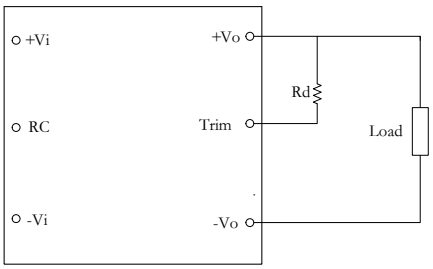

Figure 6· Trim Down Connection

Please follow up the Trim Down formula to calculate the resistor value according to the desired output voltage.

$$5V: Rd=(5.11\times\frac{Voset-\Delta\%\times Voset-2.5}{\Delta\%\times Voset}-2)(k\Omega)$$

$$12V: Rd=(10\times\frac{Voset-\Delta\%\times Voset-2.5}{\Delta\%\times Voset}-5.11)(k\Omega)$$

"Voset" is the output voltage when TRIM is floating, "Δ%" is the amount of change in output voltage. such as: 5V output is reduced to 4.5V,
Δ% = (5-4.5) / 5 * 100% = 10%.

This product is subject to the following operating requirements and the Life and Safety Critical Application Sales Policy:
Refer to: http://www.densitypower.com