Technical Specification

DQB100D300 Series

2:1 Input, 1/4th Brick 100Watts DC/DC Converters

FEATURES

- 2:1 input range: 200-425VDC
- Single outputs: 5, 12, 15, 24, 36, 48Volts DC
- Operation temperature range: -40°C to +85°C
- 100W isolated output
- Efficiency up to 88.5%
- Fixed switching frequency
- Remote on/off control
- 4.25kVDC I/O isolation
- DOSA standard 1/4th Brick footprint
- Extensive self-protection, UVLO, OVP, OTP, OCP and short-circuit protection
- Outstanding thermal dissipation
- Fully encapsulated, high reliability
- MTBF ⩾ 1 MHrs
- Compliance with RoHS

PRODUCT OVERVIEW

The DQB100D300 series are highly reliable, and efficient isolated DC/DC converter. Standard input range of 200-425V (300V 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, overcurrent protection with "hiccup" autorestart technique, provides short-circuit protection, along with output OVP. The operation temperature is -40°C to 85°C.

Advanced fully encapsulated package technology provides outstanding thermal performance, which is ideal for ruggedized applications involving harsh environments.

The DQB100D300 series are designed to safety standards IEC/EN62368-1.

Models Selections

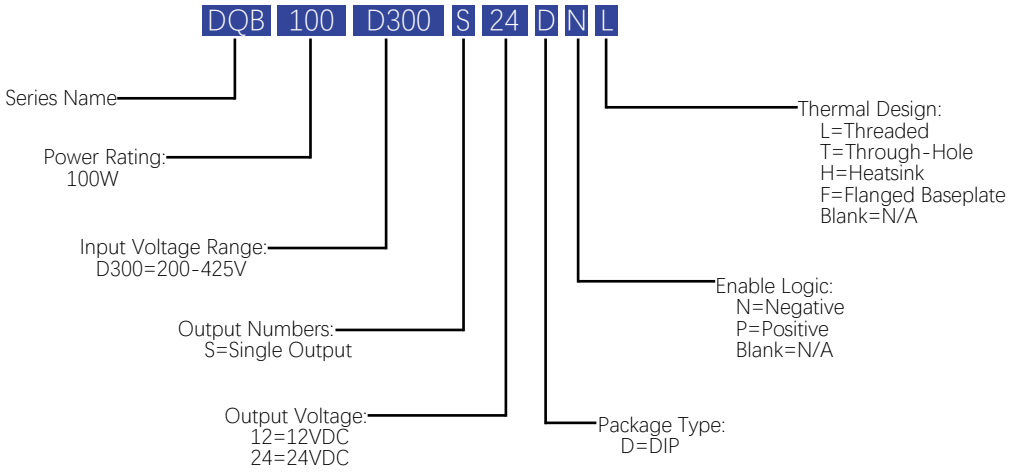
Basic Models	Input Voltage [VDC]	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency Typ. [%]	Capacitive Load Max [μF]	Form Fact
DQB100D300S05	300	200-425	5	15	83.0	5000	1/4th Brick
DQB100D300S12	300	200-425	12	8.34	86.0	2700	
DQB100D300S15	300	200-425	15	6.7	85.0	2000	
DQB100D300S24	300	200-425	24	4.17	86.5	1500	
DQB100D300S36	300	200-425	36	2.78	87.0	1000	
DQB100D300S48	300	200-425	48	2.08	88.5	680	

Technical Specification

DQB100D300 Series

2:1 Input, 1/4th Brick 100Watts DC/DC Converters

Model Numbering



Absolute Maximum Ratings					
Parameters	Conditions	Min.	Typ.	Max.	Units
Input Voltage Continuous		-0.7		440	VDC
Input Voltage Transient	< 100ms			455	VDC
On/Off Remote Control Voltage	Referred to -Vin	0		75	VDC
On/Off Remote Control Current	Referred to -Vin	0	0.25	1	mA
Operating Case Temperature		-40		100	°C
Operating Environment Temperature	With derating	-40		85	°C
Storage Temperature Range		-55		105	°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	10V/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: ±4KV Air: ±4KV Criteria A			
Isolation Safety Rating	Reinforced insulation				

General Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
On/Off Remote Control	Positive Logic, On state	Open or 3 ≤ Vr ≤ 75			VDC
	Positive Logic, Off state	Short or 0 ≤ Vr ≤ 1.2			VDC
	Negative Logic, ON state	Short or 0 ≤ Vr ≤ 1.2			VDC
	Negative Logic, OFF state	Open or 3 ≤ Vr ≤ 75			VDC
Remote Control Current		0	0.25	1	mA
Thermal Shut Down	Case temperature	100	105	115	℃
Thermal Shut Down Recover	Case temperature	80	85	95	℃
Isolation Voltage (Test for 1 minute)	Input to output	4250			VDC
	Input to case	3000			VDC
	Output to case	1500			VDC
Isolation Resistance (Viso=500VDC)	Input to output	100			MΩ
Isolation Capacitance	Input to output		1000		pF
Switching Frequency			300		KHz
Start-up Delay	From undervoltage shutdown recovery to 10% Vout		80	200	mS
Rise Time	From 10% Vout to 90% Vout capacitive load		25	50	mS
Vibration	IEC 60068-2-64, Environmental testing - Part 2				
Shock (Operational)	IEC 60068-2-27, Environmental Testing- Part 2.27				

Input Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Operating Voltage Range		200	300	425	VDC
Start-up Threshold		175	186	200	VDC
Under Voltage Shutdown		165	176	195	VDC
Input Over Voltage Protection		425	440	450	VDC
Input Over Voltage Recover		410	425	440	VDC
Input Current @ No Load			12	30	mA
Input Current @ Min. Line	Vin=min.line, Iout=full load			0.7	A
Input Current @ Shutdown Mode			15	30	mA
Reflect Ripple Current (Peak-Peak)	Measured at input pin with 10μH inductor and 100μF capacitance		60	100	mA
Recommended Input Fuse			1.5		A
Recommended External Input Capacitance	1μF CBB and 47μF E-cap used in combination	22	47		μF

Performance Data (5 Vout Model)

Output Specifications

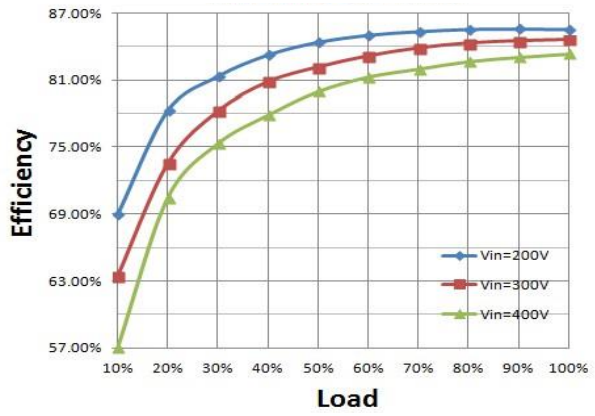
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% Load	4.92	5.00	5.08	V
Vout Accuracy		-1.5		+1.5	% of Vout
Adjustable Range	Trim up/ Trim down	-10		+10	% of Vout
Line Regulation		-0.2		+0.2	%
Load Regulation		-0.5		+0.5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-3		+3	%
Over Voltage Protection	Hiccup	115		140	% of Vout
Over Current Protection	Hiccup	110		160	% of Iout
Short Circuit Protection	Hiccup				
Remote Sense Voltage				10	%
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response				500	μS
Capacitive Load		0		5000	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 18 for more details.
② The load is set from 75%-100%-75% of Imax, di/dt=1A/μS, Cout=470μF, please refer to dynamic waveforms in performance data on page 5 for details.

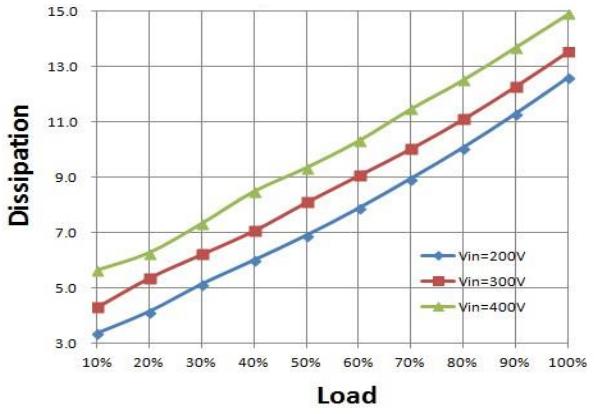
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (5 Vout Model)

EFFICIENCY VS LOAD

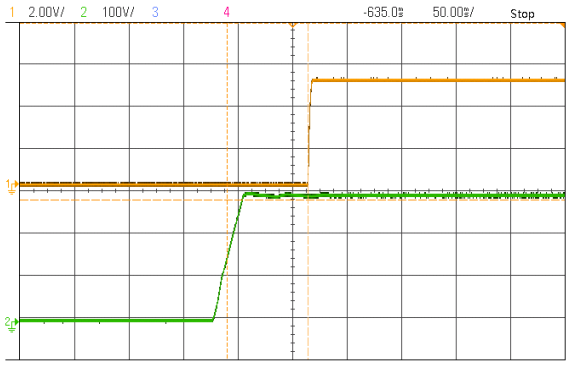


POWER LOSS VS LOAD



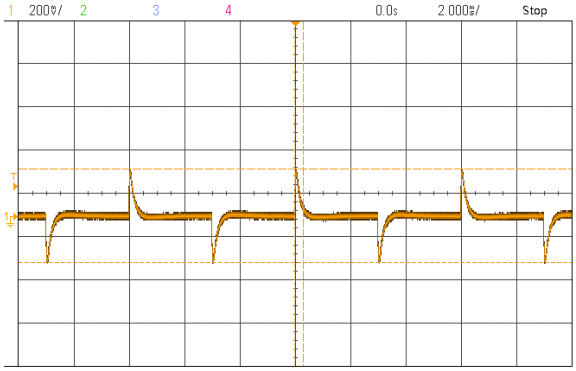
START UP

Ch1: Vout Ch2: Vin



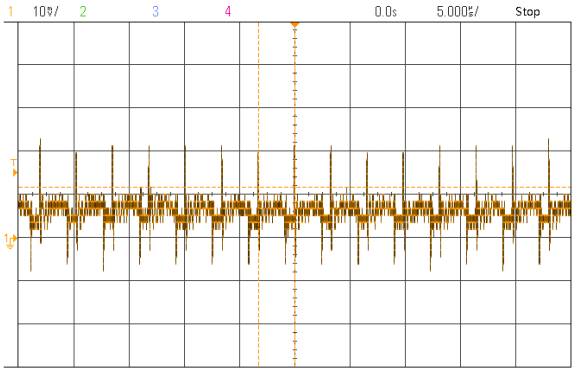
DYNAMIC RESPONSE Ch1:Vout

50%~75%~50% of I_{max}, di/dt=1A/μs

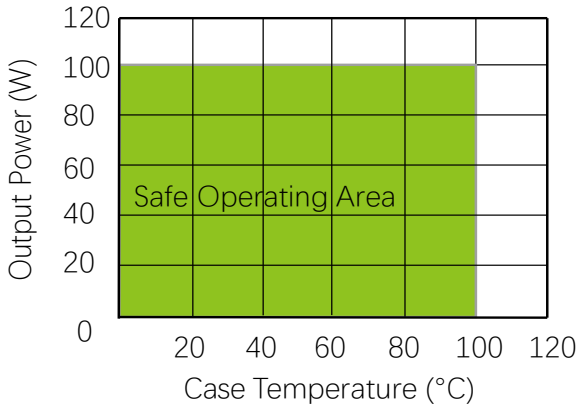


RIPPLE & NOISE 20M BANDWIDTH

Ch1:Vout



THERMAL DERATING



Performance Data (12 Vout Model)

Output Specifications

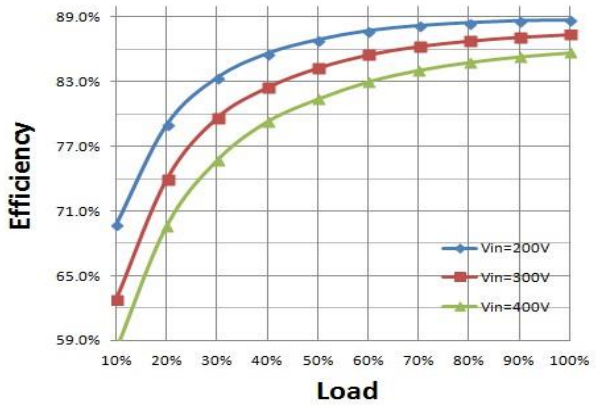
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% Load	11.82	12.00	12.18	V
Vout Accuracy		-1.5		+1.5	% of Vout
Adjustable Range	Trim up/ Trim down	-10		+10	% of Vout
Line Regulation		-0.2		+0.2	%
Load Regulation		-0.5		+0.5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-3		+3	%
Over Voltage Protection	Hiccup	115		140	% of Vout
Over Current Protection	Hiccup	110		160	% of Iout
Short Circuit Protection	Hiccup				
Remote Sense Voltage				10	%
Ripple & Noise Max. ①				120	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response				500	μS
Capacitive Load		0		2700	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 18 for more details.
② The load is set from 75%-100%-75% of Imax, di/dt=1A/μS, Cout=270μF, please refer to dynamic waveforms in performance data on page 7 for details.

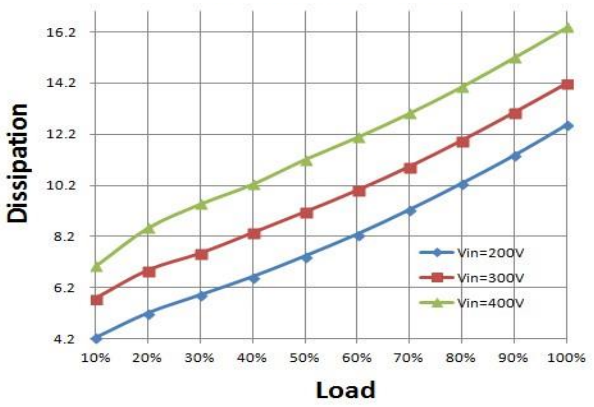
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (12 Vout Model)

EFFICIENCY VS LOAD

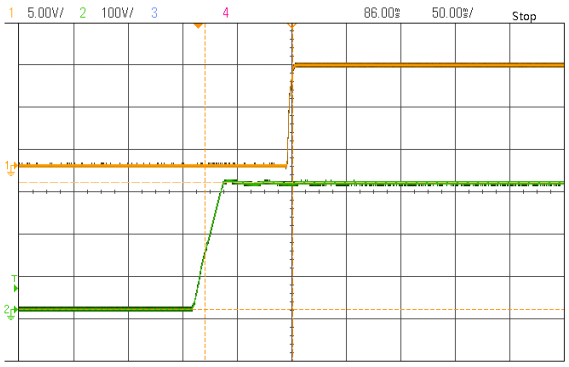


POWER LOSS VS LOAD



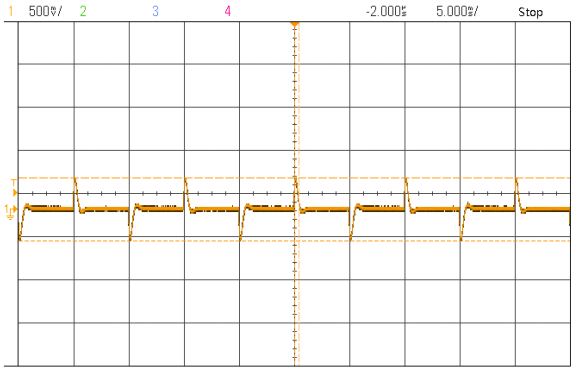
START UP

Ch1: Vout Ch2: Vin



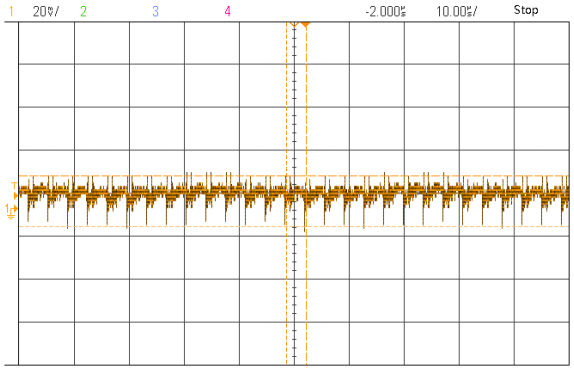
DYNAMIC RESPONSE Ch1:Vout

50%~75%~50% of $I_{max,}$ di/dt=1A/μs

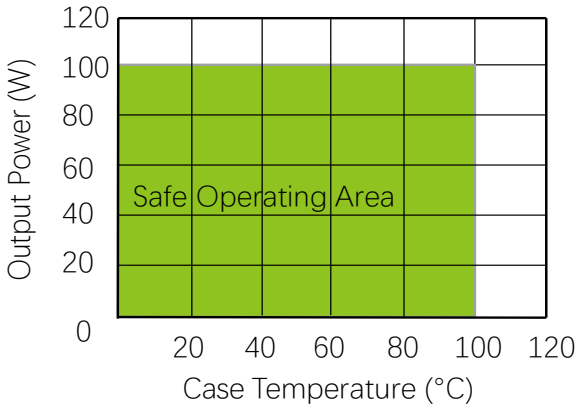


RIPPLE & NOISE 20M BANDWIDTH

Ch1:Vout



THERMAL DERATING



Performance Data (15 Vout Model)

Output Specifications

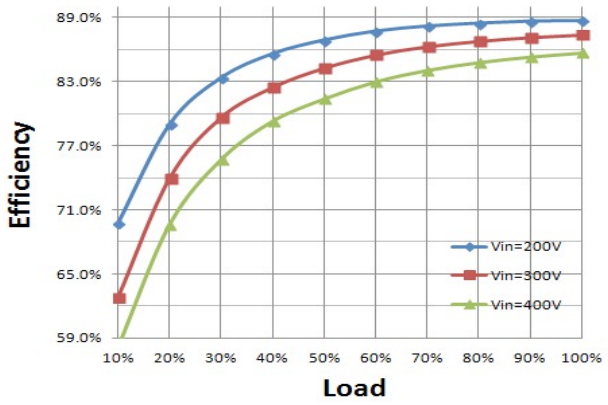
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% Load	14.78	15.00	15.23	V
Vout Accuracy		-1.5		+1.5	% of Vout
Adjustable Range	Trim up/ Trim down	-10		+10	% of Vout
Line Regulation		-0.2		+0.2	%
Load Regulation		-0.5		+0.5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-3		+3	%
Over Voltage Protection	Hiccup	115		140	% of Vout
Over Current Protection	Hiccup	110		160	% of Iout
Short Circuit Protection	Hiccup				
Remote Sense Voltage				10	%
Ripple & Noise Max. ①				150	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response				500	μS
Capacitive Load		100		2000	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 18 for more details.
② The load is set from 75%-100%-75% of Imax, di/dt=1A/μS, Cout=270μF, please refer to dynamic waveforms in performance data on page 9 for details.

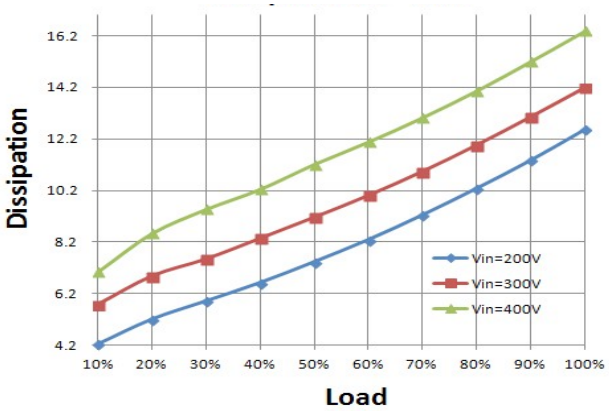
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (15 Vout Model)

EFFICIENCY VS LOAD

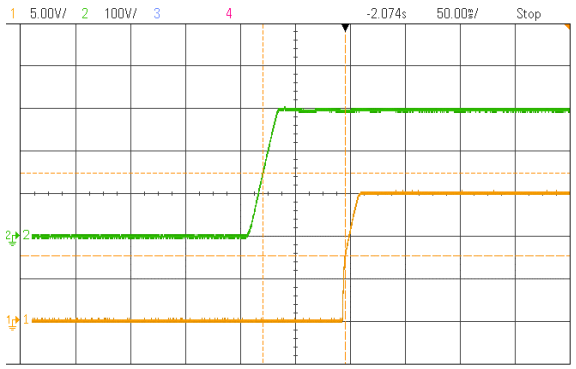


POWER LOSS VS LOAD



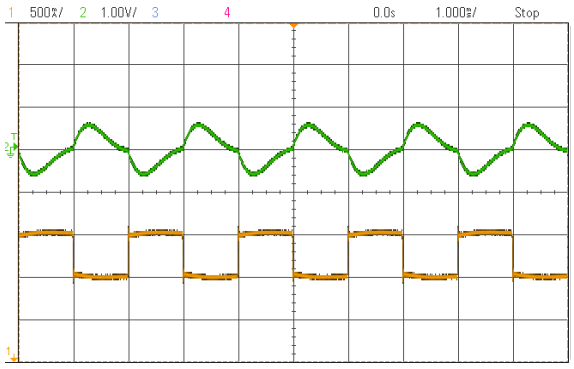
START UP

Ch1: Vout Ch2: Vin



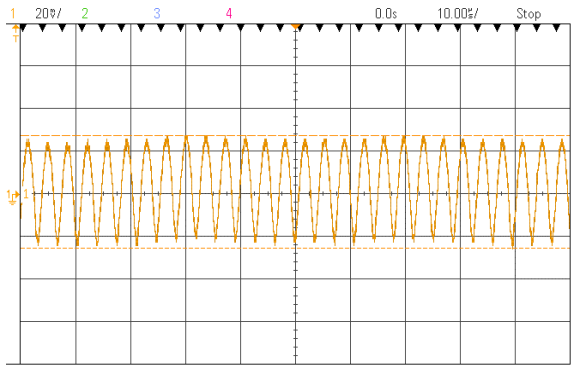
DYNAMIC RESPONSE Ch1: Iout Ch2: Vout

50%~75%~50% of I_{max}, di/dt=1A/μs

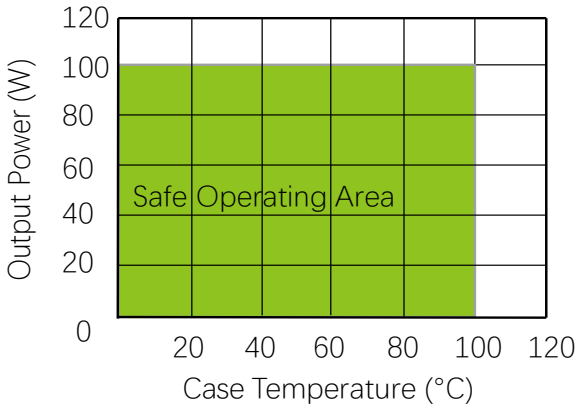


RIPPLE & NOISE 20M BANDWIDTH

Ch1:Vout



THERMAL DERATING



Performance Data (24 Vout Model)

Output Specifications

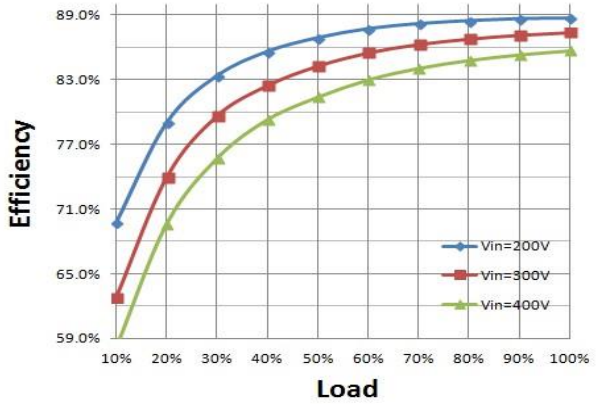
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% Load	23.64	24.00	24.36	V
Vout Accuracy		-1.5		+1.5	% of Vout
Adjustable Range	Trim up/ Trim down	-10		+10	% of Vout
Line Regulation		-0.2		+0.2	%
Load Regulation		-0.5		+0.5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-3		+3	%
Over Voltage Protection	Hiccup	115		140	% of Vout
Over Current Protection	Hiccup	110		160	% of Iout
Short Circuit Protection	Hiccup				
Remote Sense Voltage				10	%
Ripple & Noise Max. ①				240	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response				500	μS
Capacitive Load		100		1500	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 13 for more details.
② The load is set from 75%-100%-75% of Imax, di/dt=1A/μS, Cout=220μF, please refer to dynamic waveforms in performance data on page 11 for details.

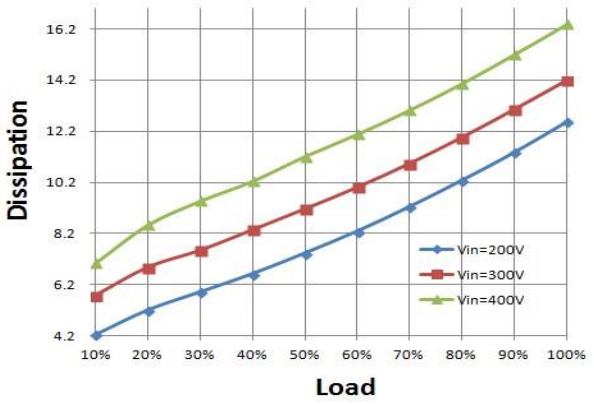
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (24 Vout Model)

EFFICIENCY VS LOAD

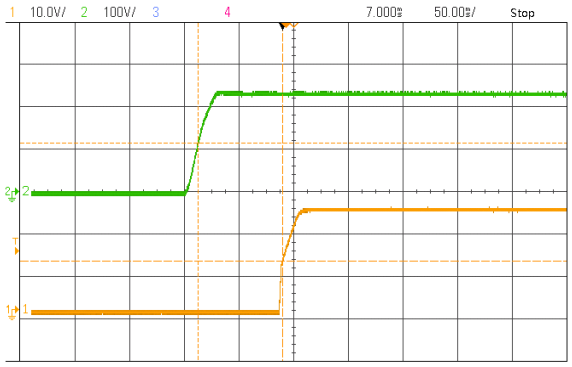


POWER LOSS VS LOAD



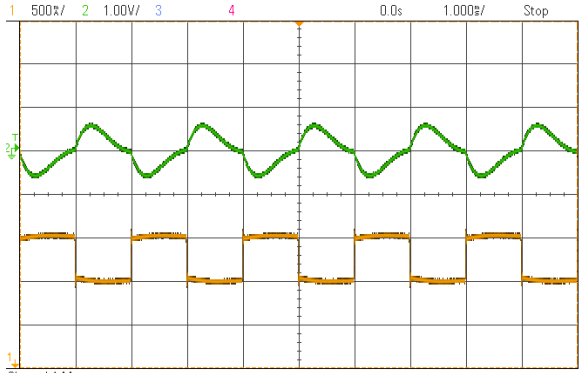
START UP

Ch1: Vout Ch2: Vin



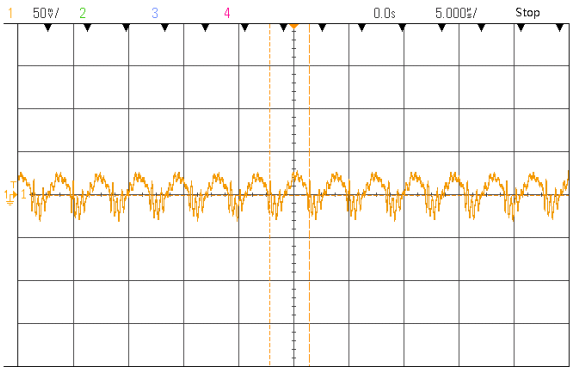
DYNAMIC RESPONSE Ch1: Iout Ch2: Vout

50%~75%~50% of I_{max}, di/dt=1A/μs

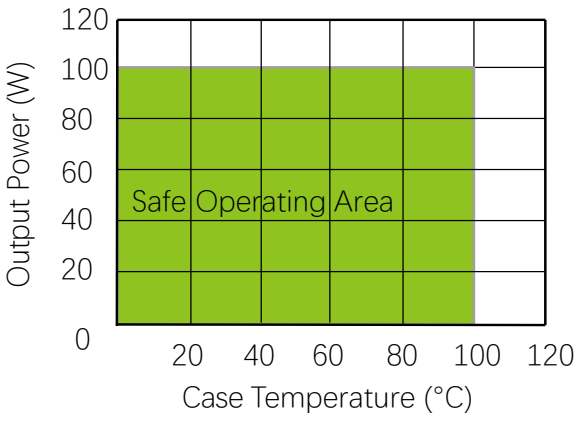


RIPPLE & NOISE 20M BANDWIDTH

Ch1:Vout



THERMAL DERATING



Performance Data (36 Vout Model)

Output Specifications

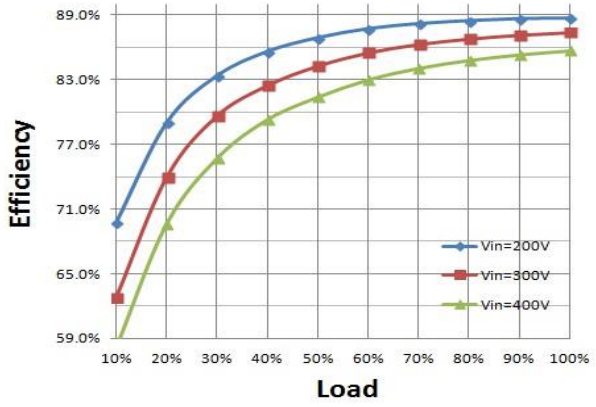
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% Load	35.46	36.00	36.54	V
Vout Accuracy		-1.5		+1.5	% of Vout
Adjustable Range	Trim up/ Trim down	-10		+10	% of Vout
Line Regulation		-0.2		+0.2	%
Load Regulation		-0.5		+0.5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-3		+3	%
Over Voltage Protection	Hiccup	110		140	% of Vout
Over Current Protection	Hiccup	105		180	% of Iout
Short Circuit Protection	Hiccup				
Remote Sense Voltage				10	%
Ripple & Noise Max. ①				360	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response				500	μS
Capacitive Load		100		1000	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 18 for more details.
② The load is set from 75%-100%-75% of Imax, di/dt=1A/μS, Cout=100μF, please refer to dynamic waveforms in performance data on page 13 for details.

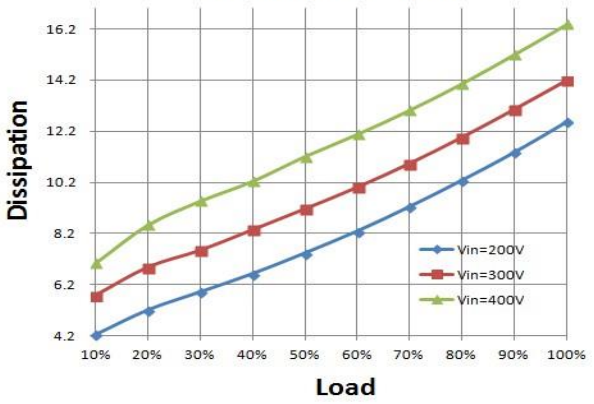
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (36 Vout Model)

EFFICIENCY VS LOAD

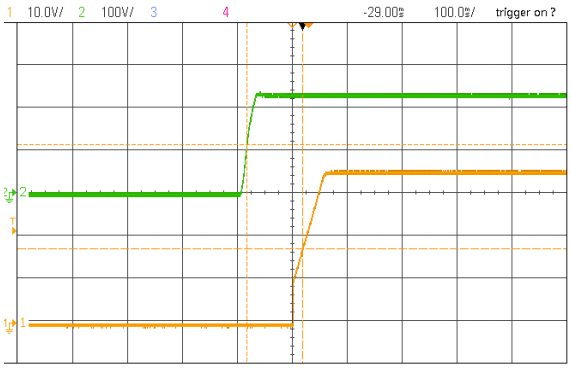


POWER LOSS VS LOAD



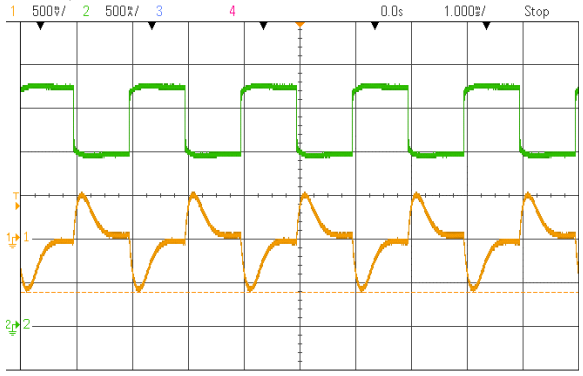
START UP

Ch1: Vout Ch2: Vin



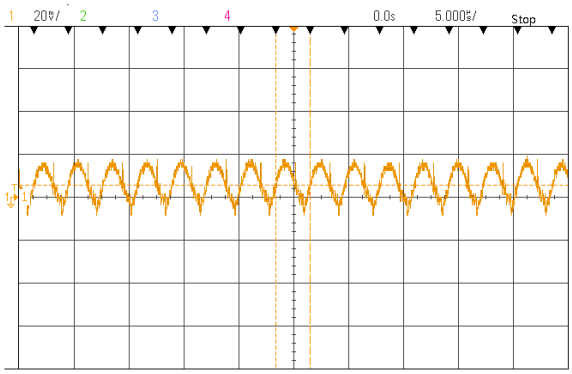
DYNAMIC RESPONSE Ch1: Vout Ch2: Iout

50%~75%~50% of I_{max}, di/dt=1A/μs

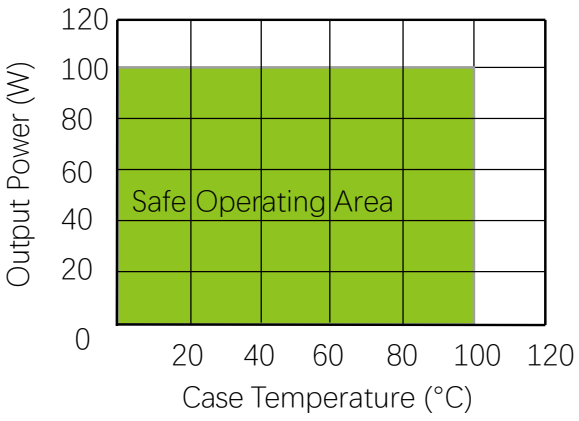


RIPPLE & NOISE 20M BANDWIDTH

Ch1:Vout



THERMAL DERATING



Performance Data (48 Vout Model)

Output Specifications

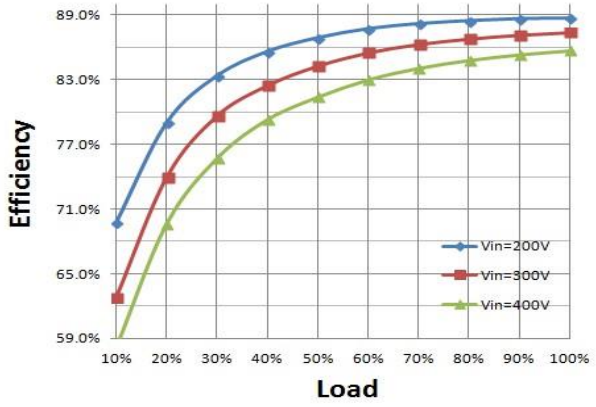
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Voltage Setpoint	Nom.line, 50% Load	47.28	48.00	48.72	V
Vout Accuracy		-1.5		+1.5	% of Vout
Adjustable Range	Trim up/ Trim down	-10		+10	% of Vout
Line Regulation		-0.2		+0.2	%
Load Regulation		-0.5		+0.5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-3		+3	%
Over Voltage Protection	Hiccup	110		140	% of Vout
Over Current Protection	Hiccup	105		180	% of Iout
Short Circuit Protection	Hiccup				
Remote Sense Voltage				10	%
Ripple & Noise Max. ①				480	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	% of Vout
Dynamic Load Response				500	μS
Capacitive Load		100		680	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 18 for more details.
② The load is set from 75%-100%-75% of Imax, di/dt=1A/μS, Cout=100μF, please refer to dynamic waveforms in performance data on page 15 for details.

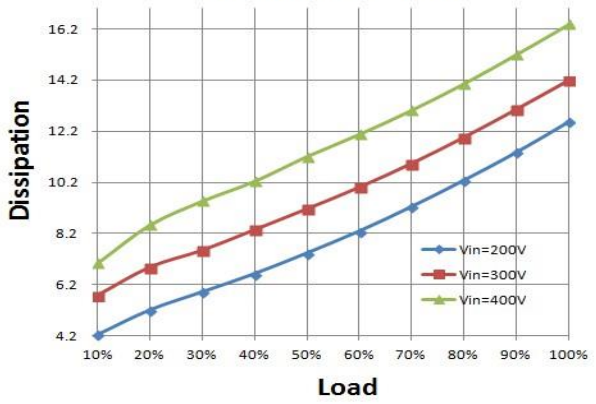
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (48 Vout Model)

EFFICIENCY VS LOAD

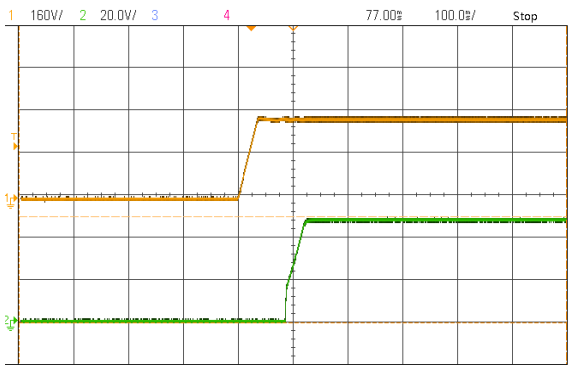


POWER LOSS VS LOAD



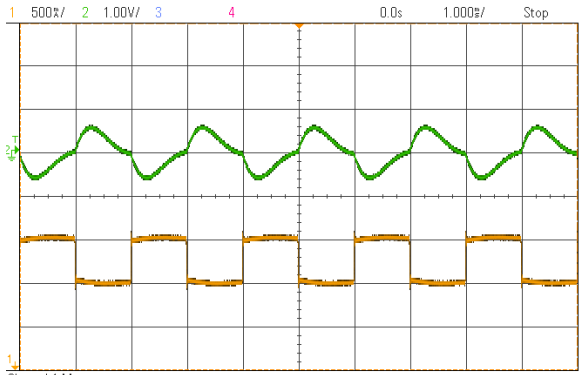
START UP

Ch1: Vin Ch2: Vout



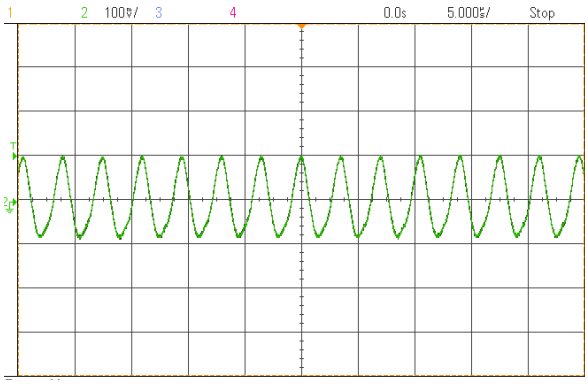
DYNAMIC RESPONSE Ch1: Iout Ch2: Vout

50%~75%~50% of I_{max}, di/dt=1A/μs

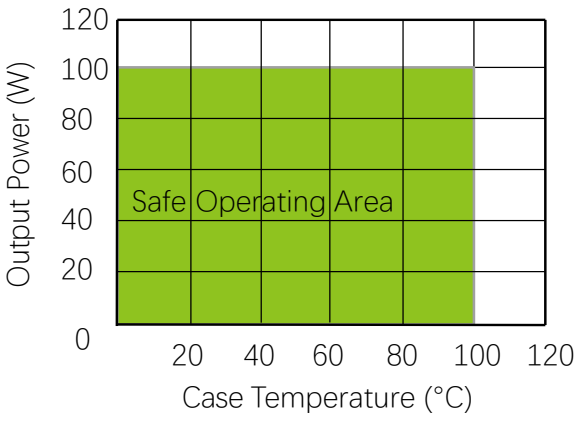


RIPPLE & NOISE 20M BANDWIDTH

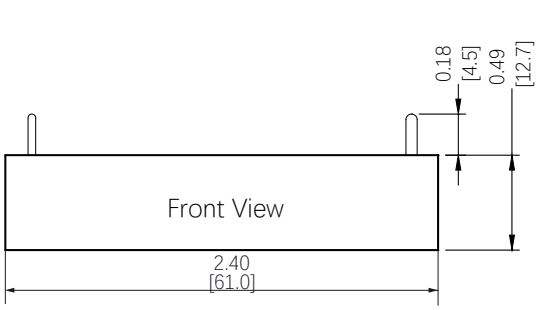
Ch2:Vout

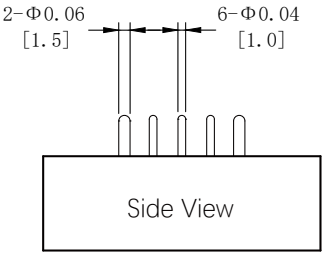


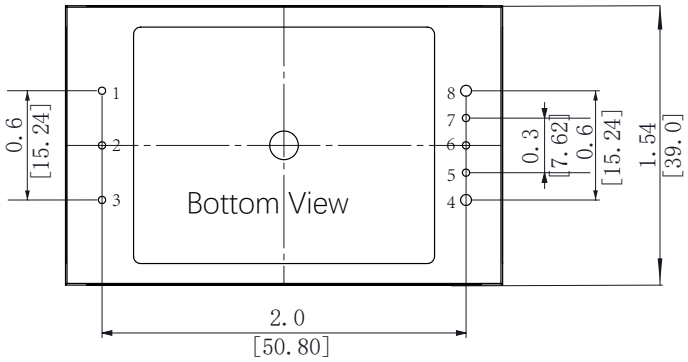
THERMAL DERATING



Mechanical Specifications







PIN CONNECTIONS	
Single Output	
Pin	Function
1	-Vi
2	RC
3	+Vi
4	+Vo
5	+S
6	Trim
7	-S
8	-Vo

PIN:
PIN1, PIN2, PIN3, PIN5, PIN6, PIN7:
Φ0.040±0.004 (1.02±0.10)
Force: Applied force not exceed 4.9N
PIN4, PIN8: Φ0.062±0.004(1.57±0.10)
Force: Applied force not exceed 9.8N
Material: Copper alloy
Finish: Gold 3 ~ 5μm(min.) over nickel 50μm(Min.)

Tolerance:
X.XX=±0.02 (0.5)

Dimensions are in inches [mm]
Weight: ~66g.

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 DQB100D300 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

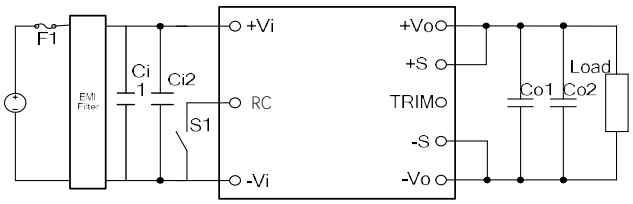


Figure 1· Typical Application Connection

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=47μF electrolytic capacitor. Output Capacitance Co1=10uF tantalum capacitor, Co2 ESR <0.1Ω. For output Capacitance, recommended value is 100μF/A(The current here refers to the output current).

REFLECTED RIPPLE CURRENT

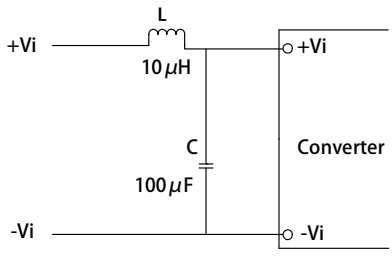


Figure 2· Reflected Ripple Current

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=10μH; 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.

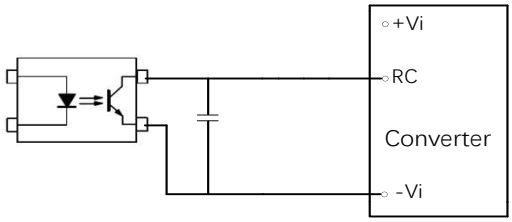


Figure 3· Remote Control

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.

REMOTE COMPENSATION FUNCTION

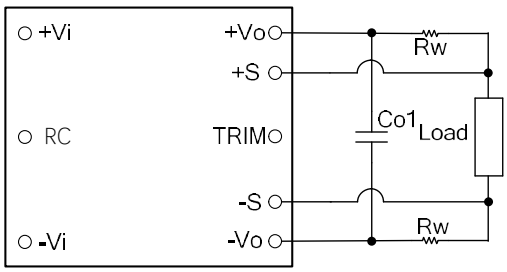


Figure 4· Remote Compensation

Technical Notes

The remote compensation function compensates for the voltage drop across the output line. Module compensation function can't exceed 10%, that is:
$[(+Vo) - (-Vo)]-[(+S) -(-S)] \leqslant 10\%V_{onom}$
Note:
If the remote compensation function is not used, the +Sense and +Vout pin, -Sense and -Vout pin must to be shorted directly close to the output.

OUTPUT RIPPLE & NOISE

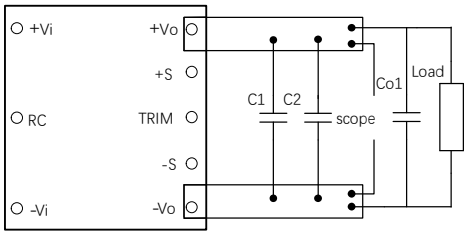


Figure 5· Output Ripple & Noise

These DQB100D300 modules' output ripple and noise is measured at the rated input voltage and output current, along with 10uF tantalum capacitor and 0.1uF MLCC used in parallel with appropriate voltage ratings and placed as C1,C2 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

DQB100D300 output voltages are monitored for an overvoltage condition via magnetic feedback. The signal is coupled to the primary side and if the output voltage rises to a level which could be damaging to the load, the sensing circuitry will power down the PWM controller causing the output voltages to decrease. Following a time-out period the PWM will restart, causing the output voltages to ramp to their appropriate values. If the fault condition persists, and the output voltages again climb to excessive levels, the overvoltage circuitry will initiate another shutdown cycle.

THERMAL SHUTDOWN

These DQB100D300 converters are equipped with thermal-shutdown circuitry. If environmental conditions cause the internal temperature of the

Technical Notes

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 temperature sensor, the unit will auto restart.

TRIMMING OUTPUT VOLTAGE

The DQB100D300 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 an appropriate value resistor between Trim Pin and +Vo Pin. Show as below:

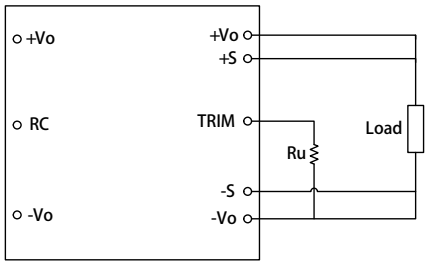


Figure 6· Trim Up Connection

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

$$Rtrim-up = R1\times\frac{\left(V_f-\frac{0.46\times R2}{R2+R3}\right)}{\Delta\%\times Vo,set}-\frac{R2\times R3}{R2+R3}(K\Omega)$$

R1, R2, R3 is resistance value. Vf is voltage value. Value of R1, R2, R3, Vf is shown below:

Vout	R1	R2	R3	Vf
5V	7.06K	5.11K	∞	1.24V
12V	8.25K	33K	5.6K	2.5V
15V	11.5K	33K	5.6K	2.5V
24V	20K	150K	5.6K	2.5V

"Voset" is the output voltage when TRIM is floating, "Δ%"is the change of output voltage, such as: 12V output is raised to 13.2V,
Δ%= (13.2-12) / 12 * 100% = 10%.

$$Rtrim-up = 8.25\times\frac{\left(2.5-\frac{0.46\times 33}{33+5.6}\right)}{\Delta\%\times Vo,set}-\frac{5.6\times 33}{5.6+33}(K\Omega)$$

Trim down:

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

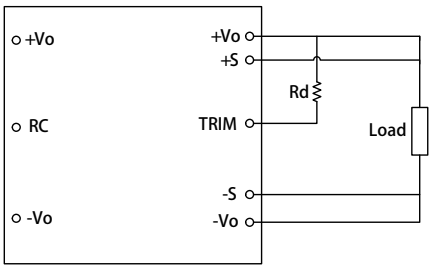


Figure 7· Trim Down Connection

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

$$Rtrim-down = R1\times\frac{(Vo,set-\Delta\%\times Vo,set-V_f)}{\Delta\%\times Vo,set}-R2(K\Omega)$$

R1, R2 is resistance value. Vf is voltage value. Value of R1, R2, Vf is shown as the front chart. "Voset" is the output voltage when TRIM is floating, "Δ%" is the change in output voltage, such as: 12V output is reduced to 10.8V, Δ%= (12-10.8) / 12 * 100% = 10%.

$$Rtrim-down = 8.25\times\frac{(Vo,set-\Delta\%\times Vo,set-2.5)}{\Delta\%\times Vo,set}-33(K\Omega)$$

Technical Notes

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