



150 watt DC/DC solutions include 91% efficient, 1/4-brick converters and MIL-STD-461F EMI filters



QB150 COTS DC/DC converters incorporate high-efficiency topologies and advanced thermal management techniques to deliver high power densities for a wide range of harsh environment, aerospace and ground-based applications.

QBF150 input filters facilitate compliance to MIL-STD-461F without any additional components.

EATON

Powering Business Worldwide

Features

- 400kHz fixed frequency operation and six sided shielding simplify EMI management
- Full-rated power available up to 100°C baseplate temperature
- Protections include short circuit and over voltage, current and temperature
- Power dense, 2.3" X 1.45" X 0.52" 1/4-brick packages

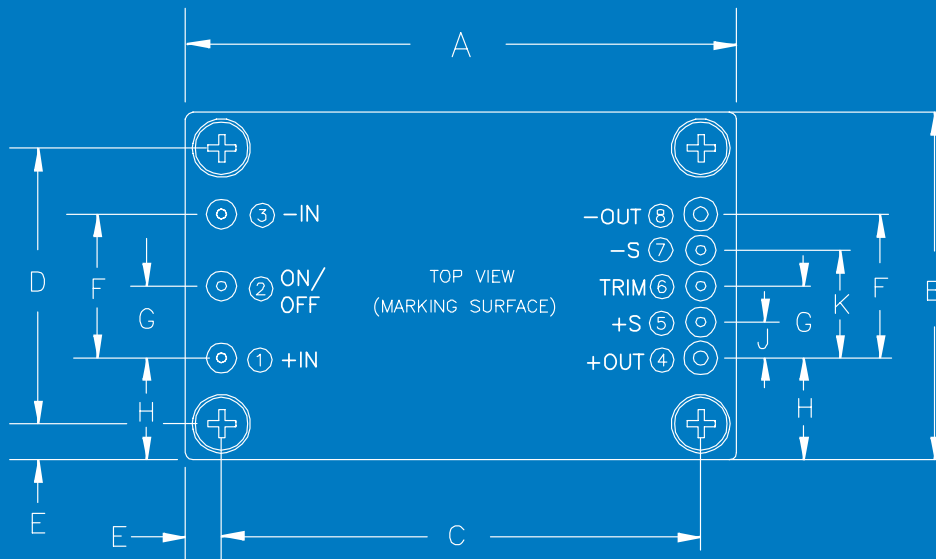
Compliances

- MIL-STD-704D input transient protection
- MIL-STD-1275 using SM1275 input filter
- MIL-STD-461F using QBF150 input filter
- MIL-STD-810 environmental

Output voltages

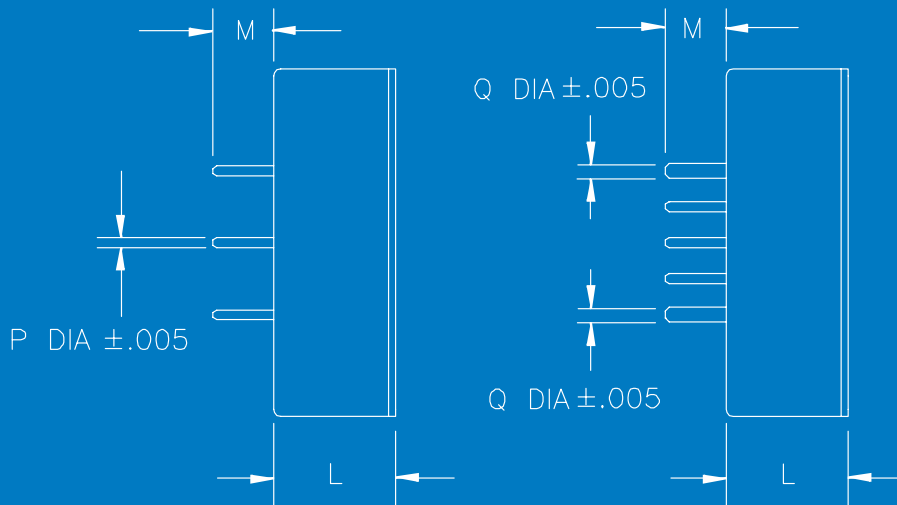
- 3.3V @ 36A
- 5V @ 30A
- 12V @ 12.5A
- 15V @ 10A
- +/- 10% output voltage trim range
- Output voltage remote sense
- Contact Eaton to discuss application-specific output voltage requirements

QB150 Dimensions



INPUT PINS

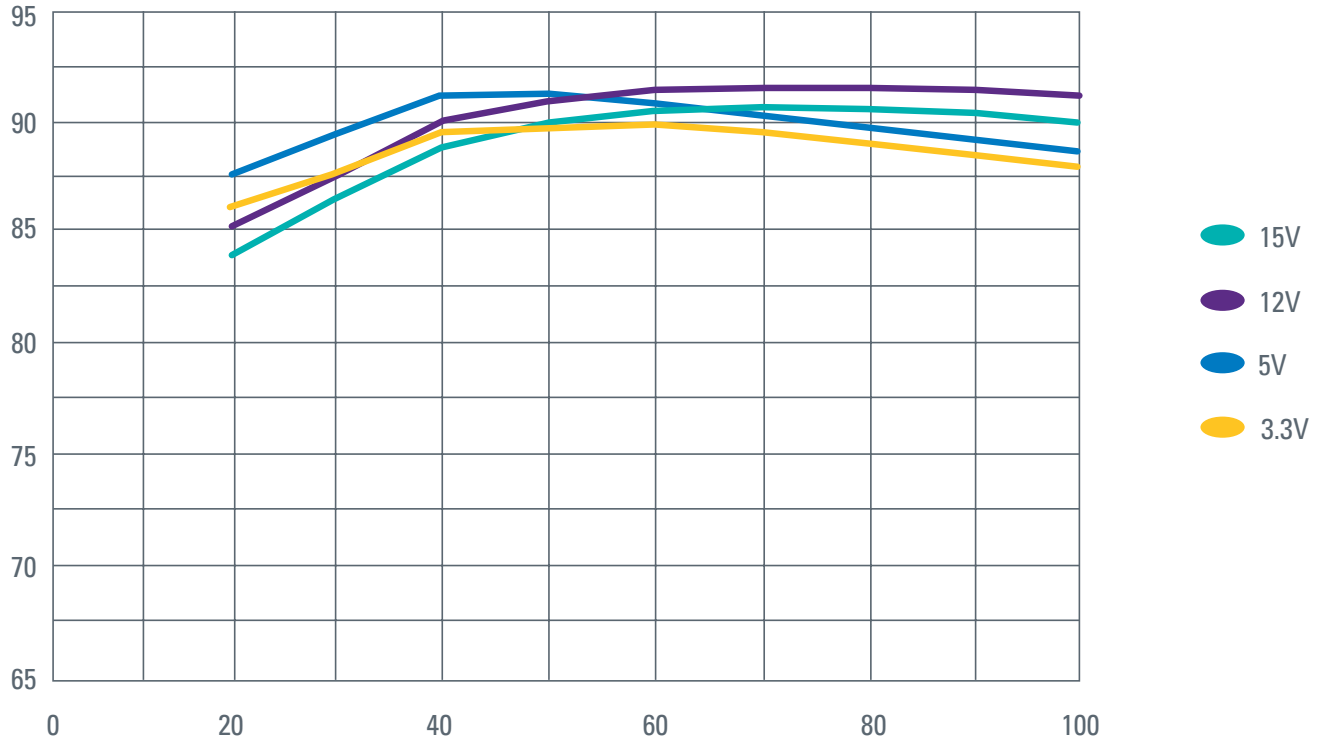
OUTPUT PINS



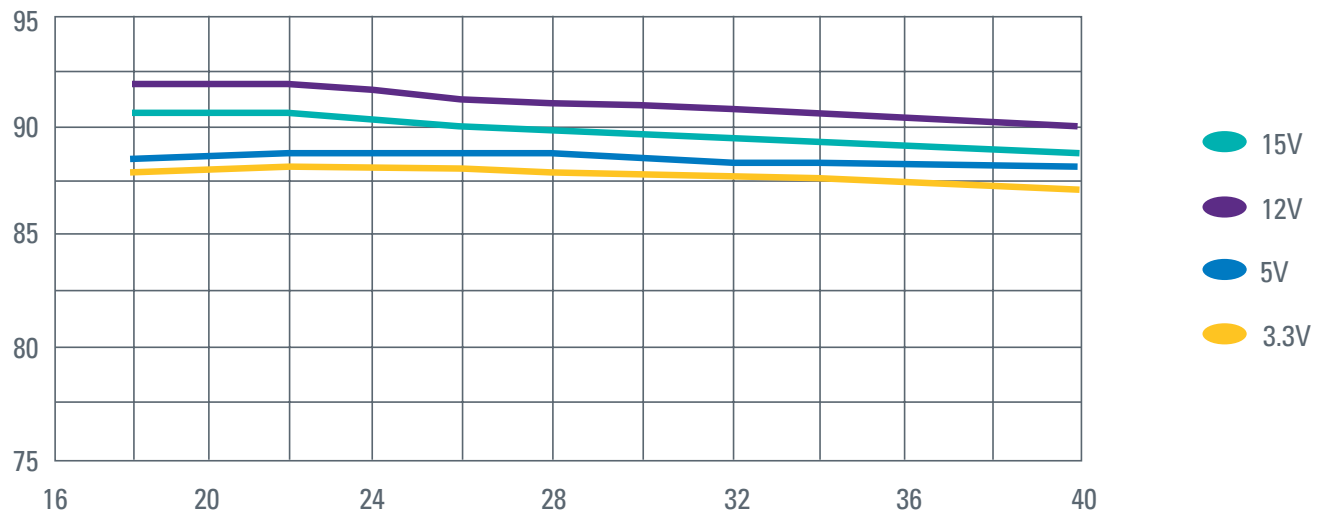
	A	B	C	D	E	F	G	H	J	K	L	M	P	Q
in	2.30	1.45	2.00	1.15	0.15	0.60	0.30	0.425	0.15	0.45	0.52	0.24	0.04	0.06
mm	58.42	36.83	50.80	29.21	3.81	15.24	7.62	10.80	3.81	11.43	13.20	6.10	1.02	1.52

QB150 Performance data

Efficiency vs. Output Power

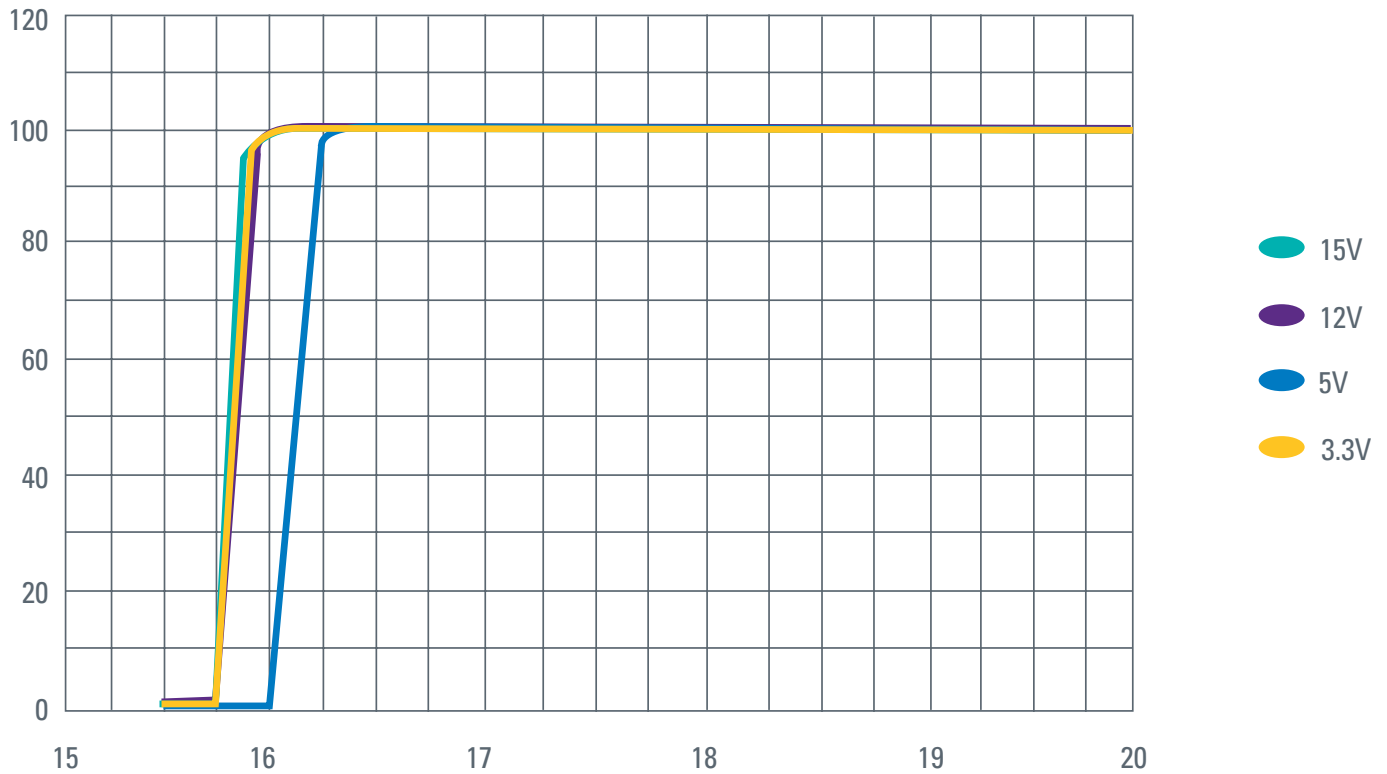


Efficiency vs. Input Voltage



QB150 Performance data continued

Input Voltage vs. Output Power



QB150 Mechanical characteristics

	TYP	UNITS
Weight	2.3	oz
Size	2.3 x 1.45 x 0.52 58.4 x 36.8 x 13.2	in mm
Volume	1.73 94	in ³ cm ³
Mounting (STD)	Threaded #4.40	
Construction	5 sided metal can nickel plated cover aluminum baseplate	

QB150 Input characteristics

	MIN	TYP	MAX	UNITS
Input Voltage	18	28	40	VDC
Brown Out (75%) Full Load	16.5			VDC
No Load Power Dissipation		0.6		W
Inrush Current <30 μ S Duration		60		A
Reflected Ripple Current		0.71		A rms
Logic Disable Current (Sink)			1	mA
Logic Disable Power In			0.1	W
Efficiency Up To		91		%
Input Transient per MIL-STD-704D (operating 100ms)			50	VDC
EMI	Use companion filter			
Set Point Accuracy			1	% Vout
Load Regulation			0.2	% Vout
Line Regulation			\pm 0.2	% Vout
Ripple P-P (20MHz)		1	3	% Vout
Trim Range	90		110	% Vout
Remote Sense			0.25	% Vout
Overvoltage Protection		125	135	% Vout
Transient Response 50-75% Load (0.2A/ μ S)			5/150	% Vout / μ S Setting time to within 1% Vout
Temperature Drift		0.01	0.03	% Vout / $^{\circ}$ C
Long Term Drift		0.02	0.05	% Vout / 1KHrs
Current Limit	105		135	% Iout
Turn-on Time (Power Input)		25		mS FL 28V
Logic Turn-on Time		25		mS FL 28V
Switching Frequency		400		KHz
Turn-on Overshoot			0.1	% Vout

QB150 Temperature characteristics

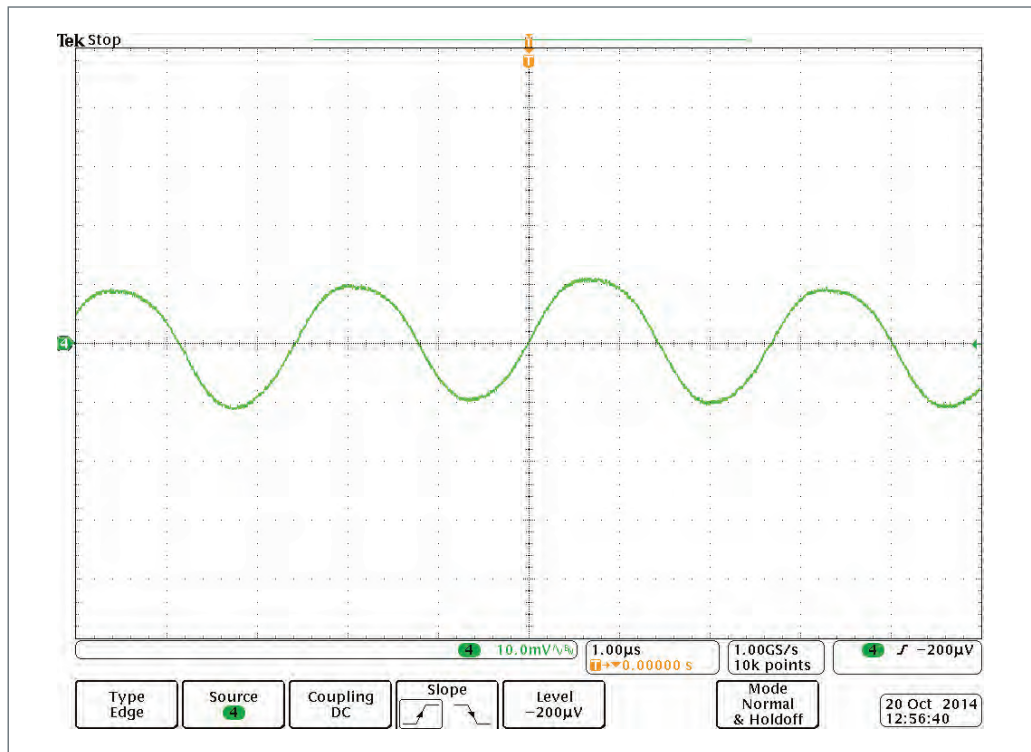
	MIN	TYP	MAX	UNITS
Operating (Baseplate)	-55		+100	$^{\circ}$ C
Storage (Ambient)	-55		+125	$^{\circ}$ C
Over Temperature Shutdown		+105	+110	$^{\circ}$ C / Auto Recovery
Thermal Resistance (Case to Ambient)		13.0		$^{\circ}$ C/W
Input to Output	1000			VDC
Output to Baseplate	500			VDC
Input to Baseplate	1000			VDC
Insulation Resistance (Measured at 50 VDC)	50			Mohm
Input to Output Capacitance		9.2		nF

All specifications are typical @ 25 $^{\circ}$ C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.

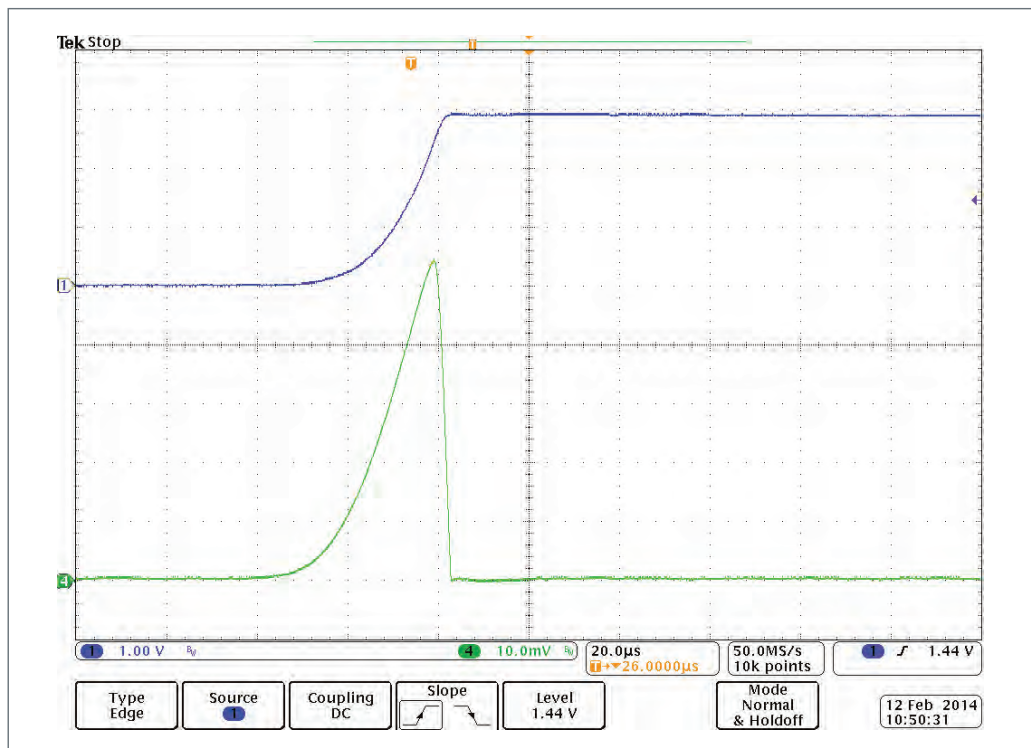
QB150 Product characteristics

Frame #	Frame Title	Y Side Limits	X Side Limits	Wave Forms Condition (inside the frame)
I	Input Voltage vs. Output Power	Output Power (%)	Input Voltage VDC	15V, 12V, 5V, 3.3V
II	Efficiency vs. Output Power	Efficiency (%)	Output Power (%)	15V, 12V, 5V, 3.3V
III	Efficiency vs. Input Voltage	Efficiency (%)	Input Voltage VDC	15V, 12V, 5V, 3.3V
IV	Output Voltage Ripple	50mV/div	Time: 4 μ S/div Bandwidth: 20MHz	Vin = 28 VDC I out = 12.5A V out = 12V
V	Load Transient Response	(CH3) 500mv/div (CH4) 5A/div	Vin = 28VDC V out = 12V I out = 50% - 75% - 50%	Time: 400 μ S/div
VI	Input Transient Response	(CH1) 10V/div (CH2) 200mv/div	Time: 1mS/div	V out = 12V I out = 12.5A V out = 12V
VII	Input Inrush Current	(CH1) 10V/div (CH4) 5A/div	Time: 20 μ S/div	Vin = 28V I out = 12.5A Vin = 18V - 40V - 18V
VIII	Input Current Ripple	0.5A/div	Time: 1 μ S/div	Vin = 28V V out = 12V I out = 12.5A
IX	On/Off Turn On	(CH3) 1V/div (CH1) 5V/div	Time: 10mS/div	Vin = 28V V out = 12V VI out = 12.5A
X	On/Off Turn Off	(CH3) 2V/div (CH1) 2V/div	Time: 200 μ S/div	Vin = 28V V out = 12V I out - 12.5A
XI	Turn On	(CH3) 10V/div (CH1) 5V/div	Time: 10mS/div	Vin = 28V V out = 12V I out = 12.5A
XII	Turn Off	(CH3) 10V/div (CH1) 5V/div	Time: 100 μ S	Vin = 28V V out = 12V I out = 12.5A

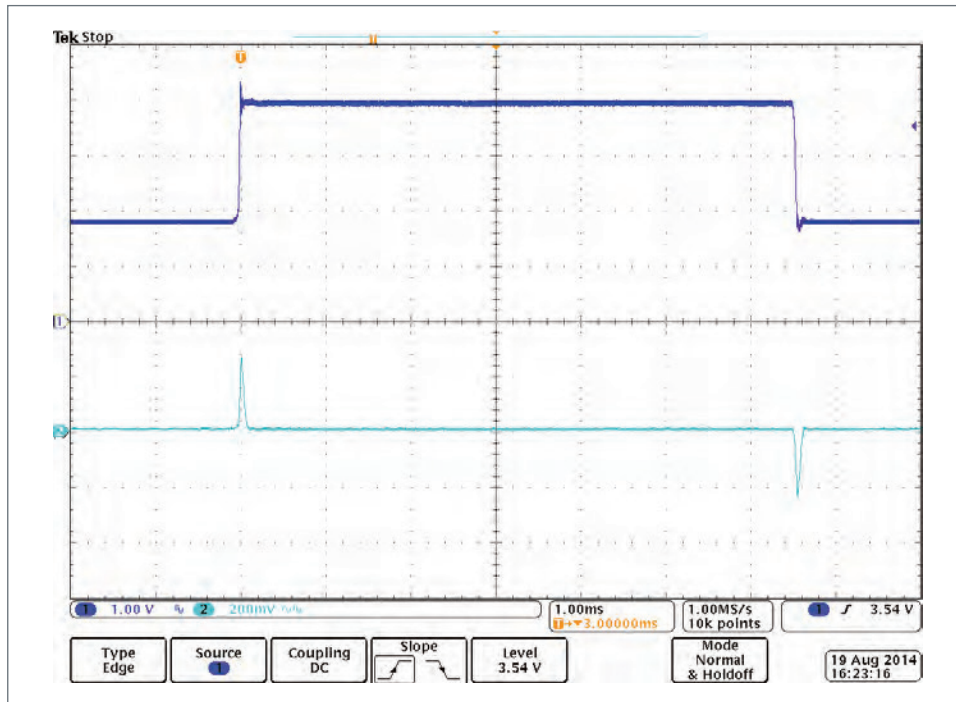
QB150 Input current ripple



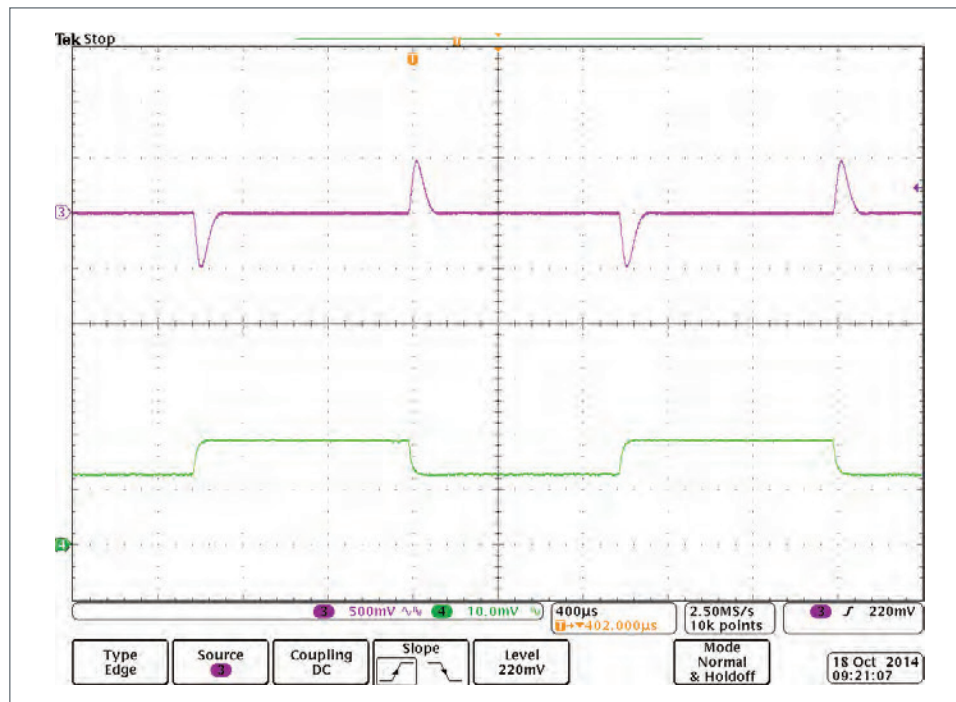
QB150 Input inrush current



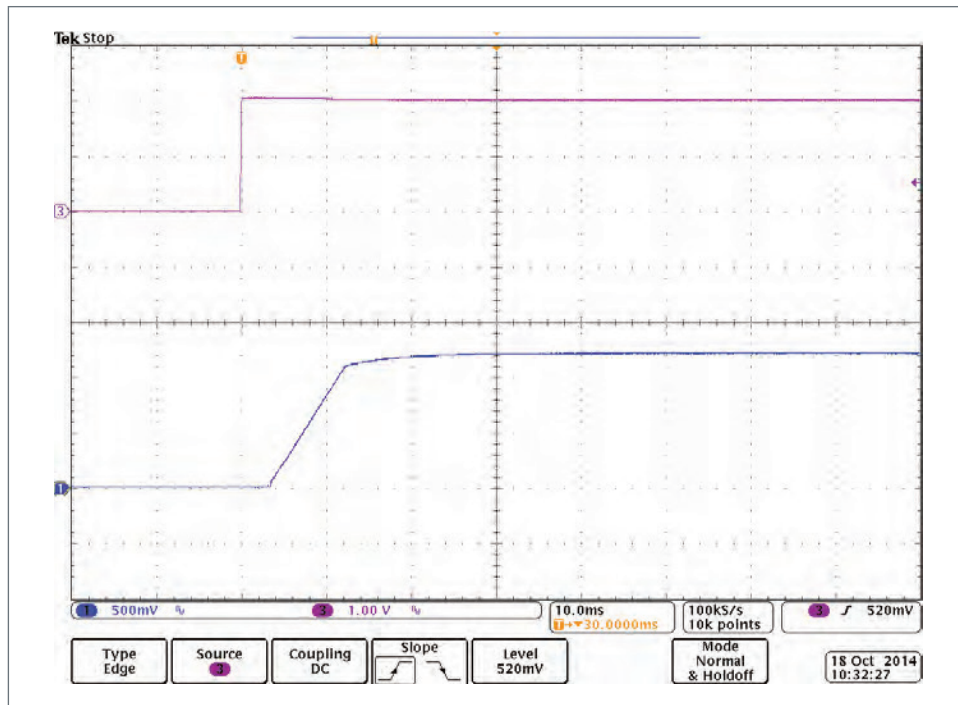
QB150 Input transient response



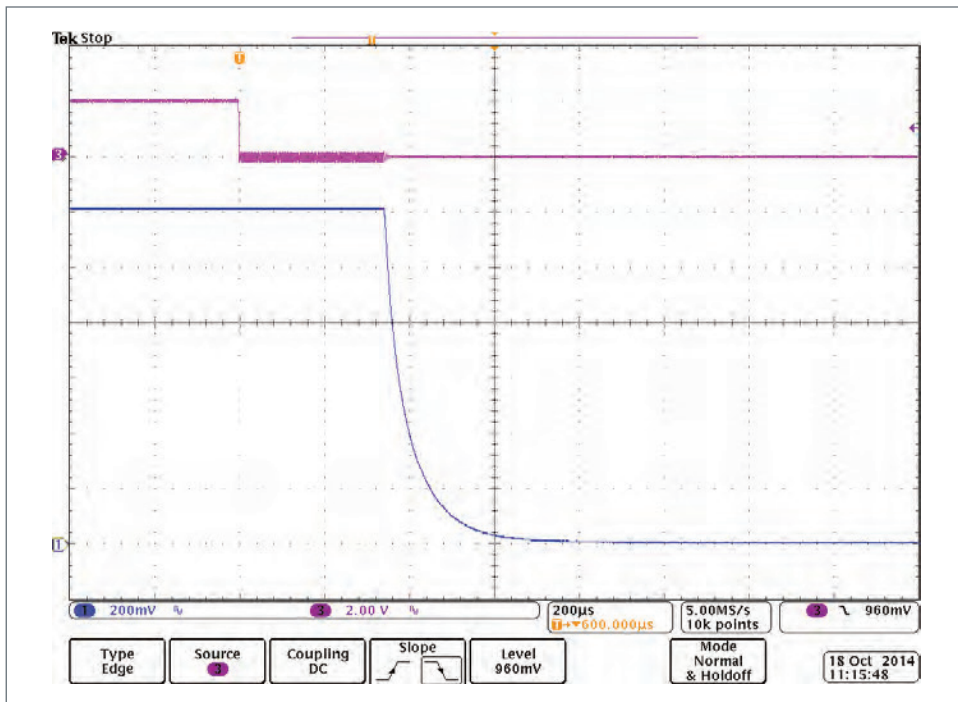
QB150 Load transient response



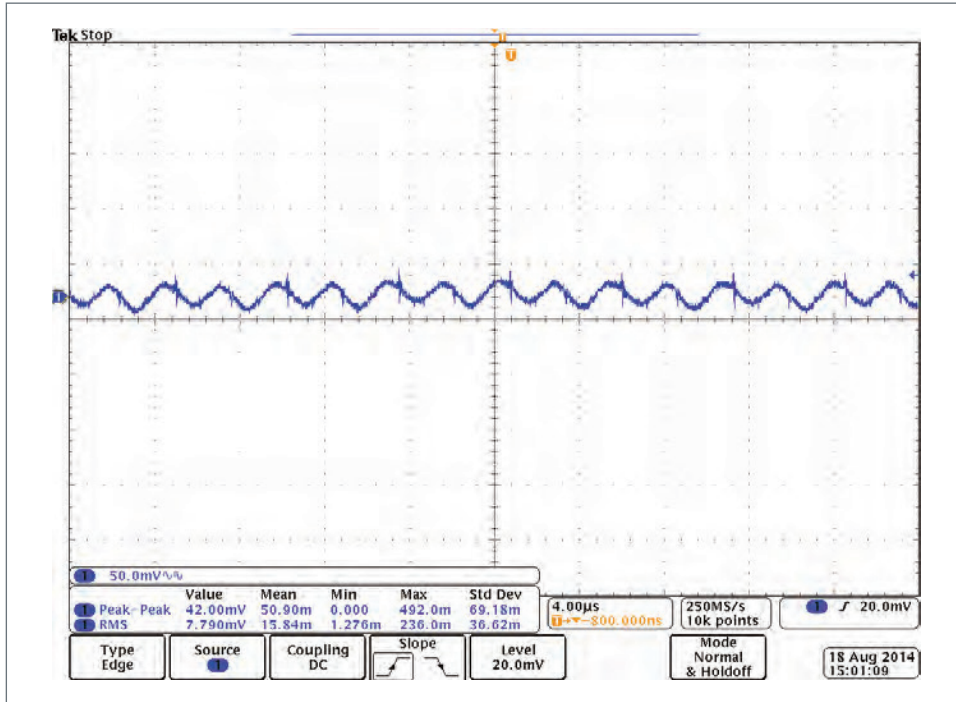
QB150 On/Off - turn on 1



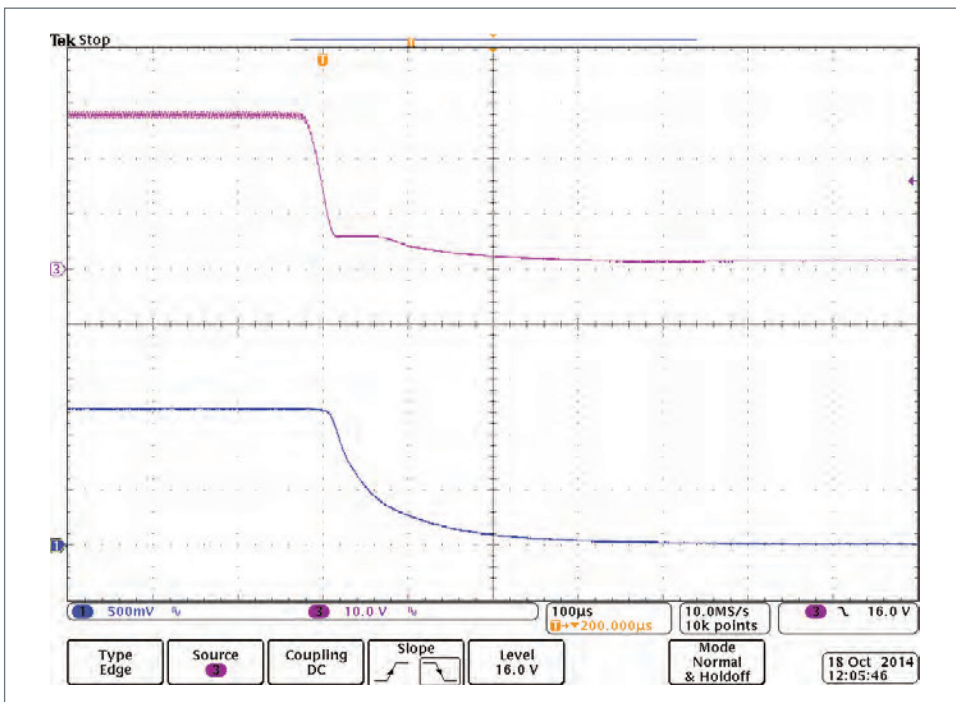
QB150 On/Off - turn on 2



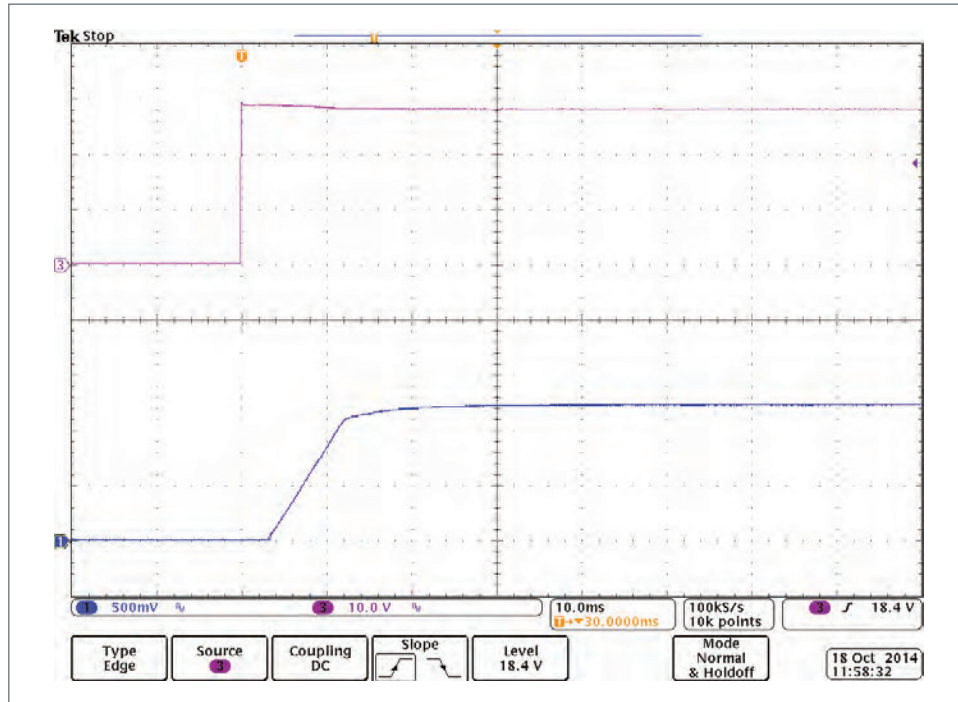
QB150 Output voltage ripple



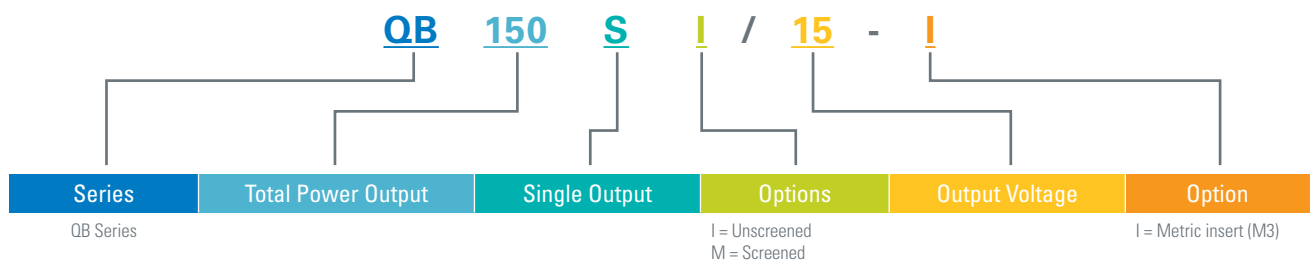
QB150 Turn off



QB150 Turn on



QB150 Ordering information



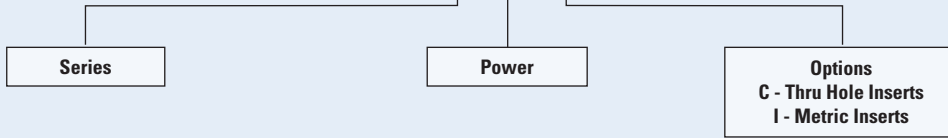
Model #	Nominal Output (VDC)	Output Current (Amps)
QB150SI/15	15	10
QB150SI/12	12	12.5
QB150SI/5	5	30
QB150SI/3.3	3.3	36

Standard unit has pins out the top with 4-40 THD inserts, written as QB150SI/15

QBF150 EMI filter part number configuration

How to order

QBF 150 - C



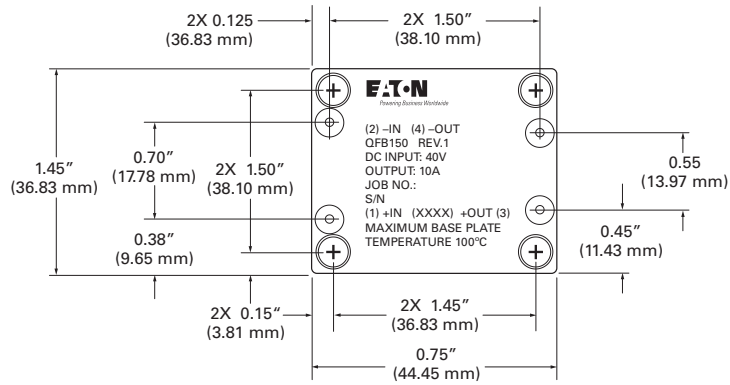
Features

- Does not require external components for operation
- MIL-STD-461F compliance CE101-4 and CE102-1
- For use with the QB150 Series
- Thermally non-dissipative device
- Environment: MIL-STD-810E, MIL-STD-901C.

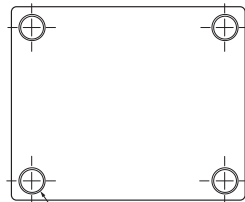
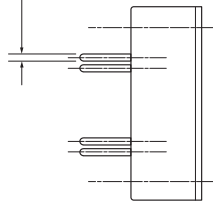
Specifications - 28Vdc Input

Designator Type	Min	Max	Units
Input Voltage		50	Vdc
Rated Output Current		10	A
Isolation: Input/Output to Case	500		Vdc
Operating Temperature	-55	+100	C
Storage Temperature	-55	+125	C
Insulation Resistance (@50Vdc)	50		Mohn
Weight		1.9	oz
		55	gram
Size		1.75" x 1.45" x 0.52"	inch
		4.50" x 36.8" x 13.2"	mm

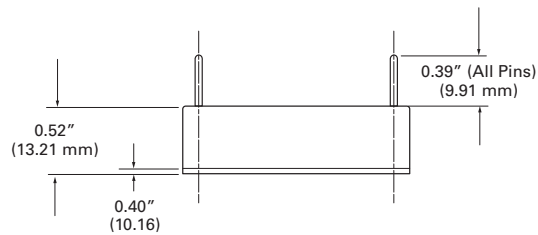
QBF150 Mechanical Dimensions



0.04" ± 0.01" Dia.
 (1.02 mm) ± (0.25 mm)
 4 Places



4X 4-40 UNC-2B
 0.20 Deep Min.
 (5.08 mm)



For additional information

- Visit www.eaton.com/interconnect
- Call 805.484.0543
- Email cicustomer.service@eaton.com

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Publication No. BR800002EN
February 2016

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