Output Specifications

Parameter		Min	Typ	Max	Notes
Output Voltage Set Point		-2%Vo,set	-	2%Vo,set	Vin= 12 V, Iout=full load
Load Regulation		-	±0.2%Vo,set	±0.5%Vo,set	
Line Regulation		-	±0.2%Vo,set	±0.5%Vo,set	
Temperature Regulation		-	0.3%Vo,set	-	
Output Current		0 A	-	3 A	
Output DC Current Limit		3.6 A	5 A	7 A	
Output Ripple and Noise (pk-pk)		-	60 mV	100 mV	0-20 MHz BW, with a 10 uF tantalum capacitor and 1 uF ceramic capacitor at the output.
Output Ripple and Noise (rms)		-	20 mV	40 mV	
Short Circuit Surge Transient		-	-	2 A^2s	Vo≤20 mV, Hiccup Mode
Turn on Time		-	3 mS	5 mS	
Overshoot at Turn on		-	-	1%	
Output Capacitance		0 uF	-	1000 uF	
Transient Response					
50% ~ 100% Max Load	Vo =All	-	120 mV	200 mV	di/dt=0.25 A/uS; Vin=12 V; with a 10 uF tantalum capacitor and a 1 uF ceramic capacitor at the output.
Settling Time		-	20 uS	50 uS	
100% ~ 50% Max Load		-	120 mV	200 mV	
Settling Time		-	20 uS	50 uS	

Note: All specifications are typical at normal input, full load at Ta= 25°C unless otherwise stated.

General Specifications

Parameter	Min	Typ	Max	Notes
Efficiency				Vin=12 V
Vo=5.0 V	91%	93%	-	
Vo=3.3 V	89%	91%	-	
Vo=2.5 V	87%	89%	-	
Vo=1.8 V	84%	86%	-	
Vo=1.5 V	83%	85%	-	
Vo=1.2 V	80%	82%	-	
Vo-0.9 V	73%	75%	-	
Switching Frequency	-	500 kHz	-	
Output Voltage Trim Range (Wide Trim)	0.591 V	-	5.1 V	
MTBF	7,579,849 hours			Calculated Per Bell Core SR-332 (Io = 80% load; Vin=12 V; Vo=5 V; 0 LFM; Ta = 25 °C)
Dimensions				
Inches (L × W × H)	0.65 x 0.41 x 0.32			
Millimeters (L × W × H)	16.51 x 10.41 x 8.13			
Weight	-	2 g	-	

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

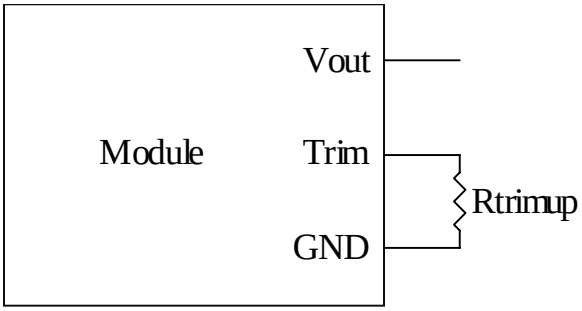
Control Specifications

Parameter	Min	Typ	Max	Notes
Remote On/Off				
Signal Low (Unit Off)	-0.3 V	-	0.4 V	Remote On/Off Pin is open, the unit is off.
Signal High (Unit On)	2.0 V	-	5.5 V	

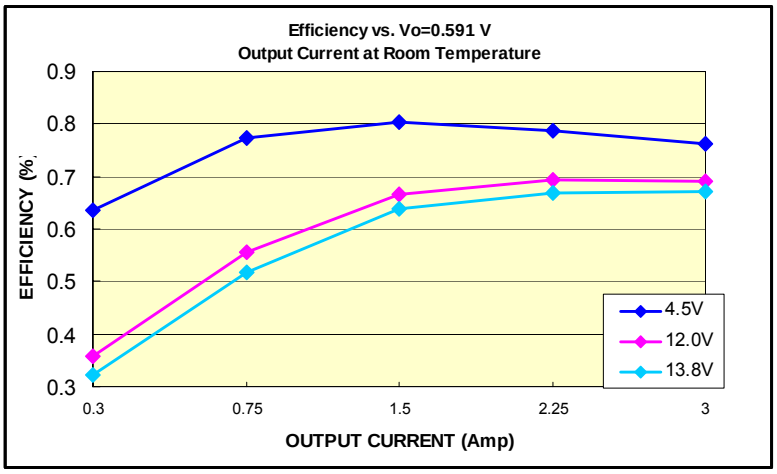
Output Trim Equations

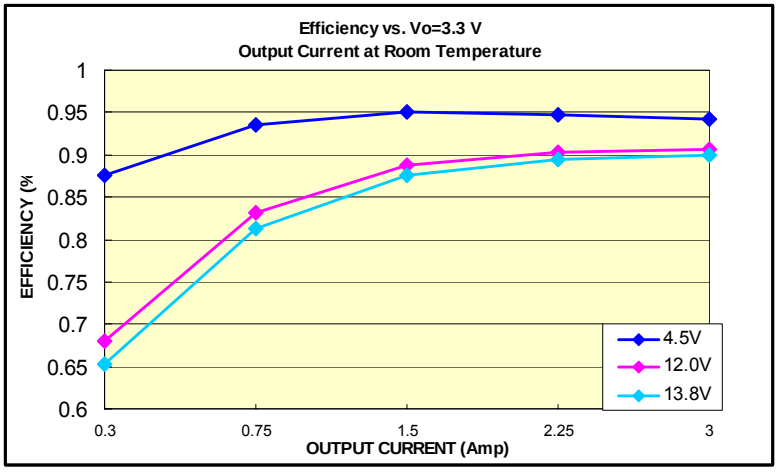
Equation for calculating the trim resistor given the desired output voltage (Vo) is shown below. The Rtrim resistor should be connected between the trim pin and GND pin.

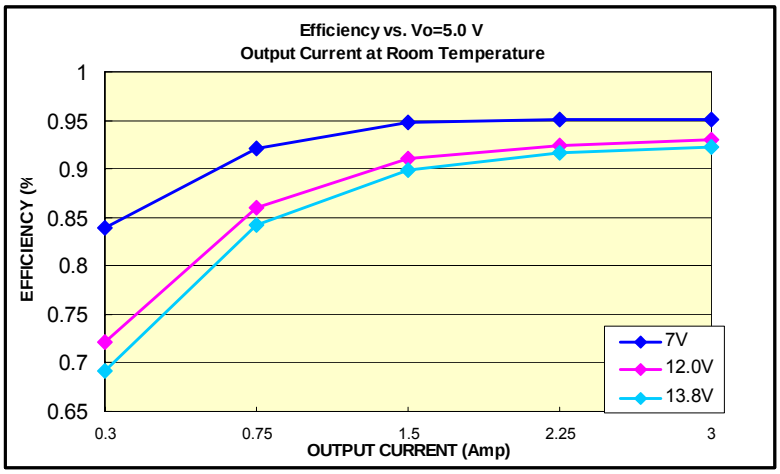
$$Rtrim = \frac{1.182}{Vo - 0.591} k\Omega$$



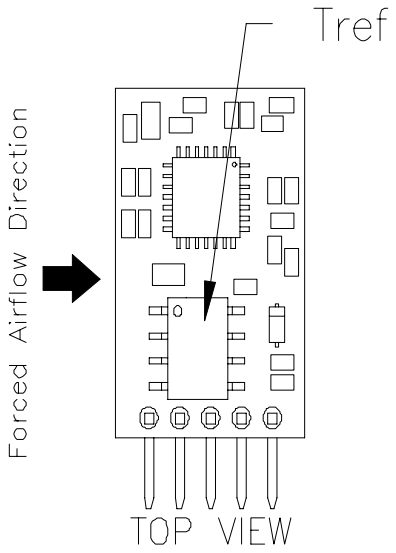
Efficiency Data



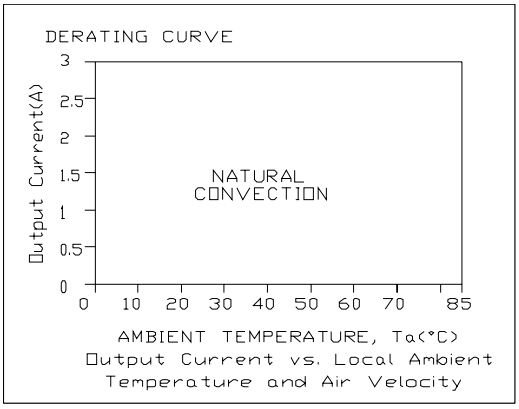




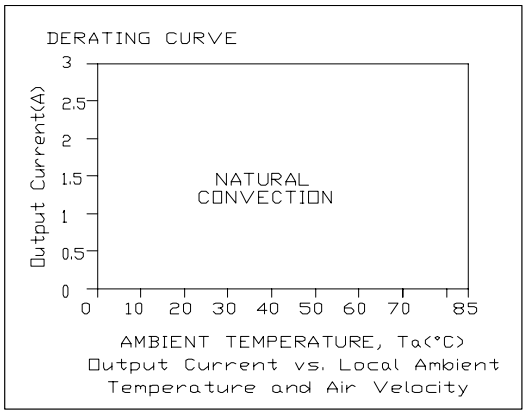
Thermal Derating Curves



The thermal reference point Tref is shown above. For reliable operation this temperature should not exceed 115°C. The output power of the module should not exceed the rated power for the module.

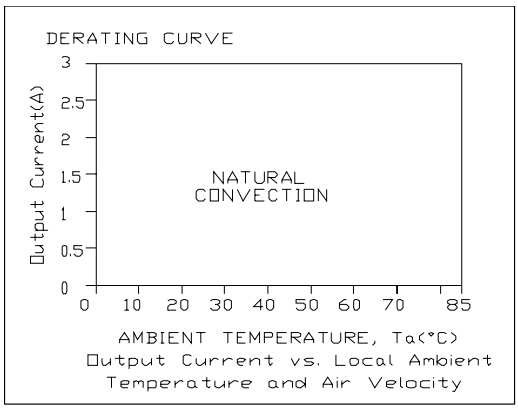


Vin=12 V, Vout=5 V

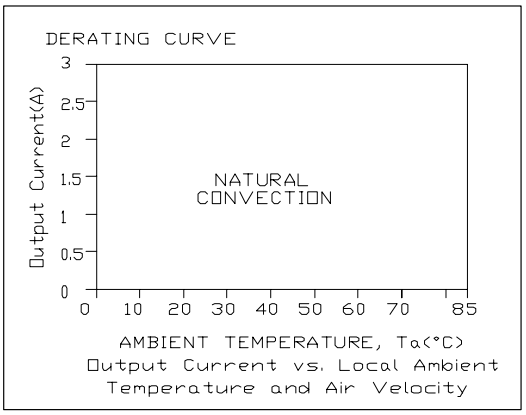


Vin=12 V, Vout=3.3 V

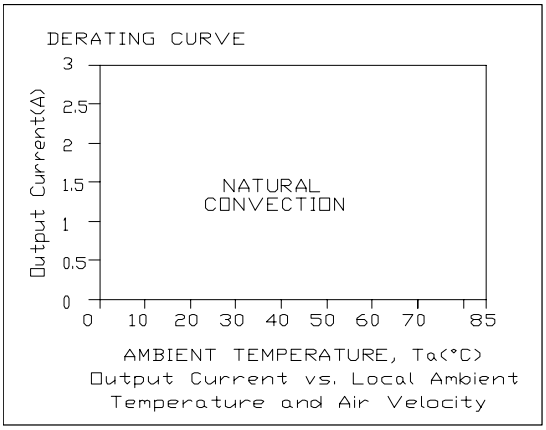
Thermal Derating Curves (continued)



Vin=12 V, Vout=2.5 V

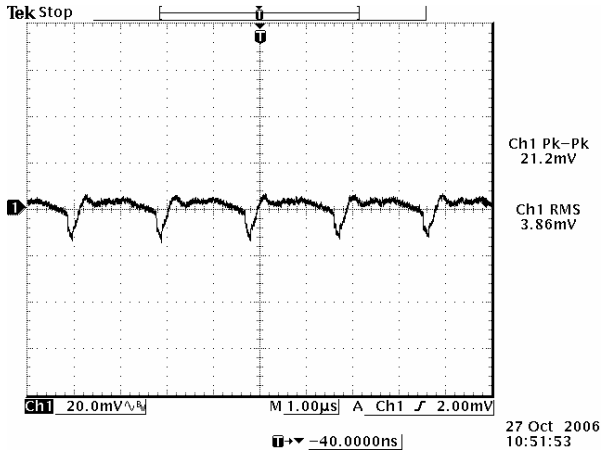


Vin=12 V, Vout=1.2 V

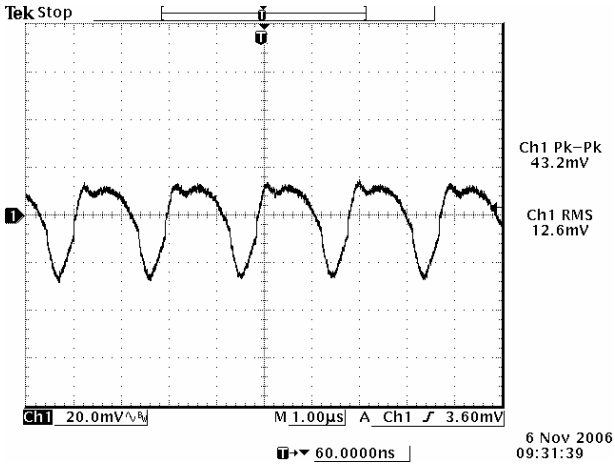


Vin=12 V, Vout=0.59 V

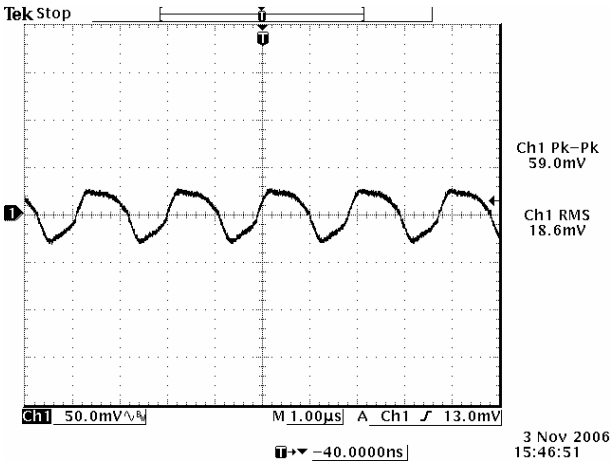
Ripple and Noise Waveform



12 V input, 0.591 V output



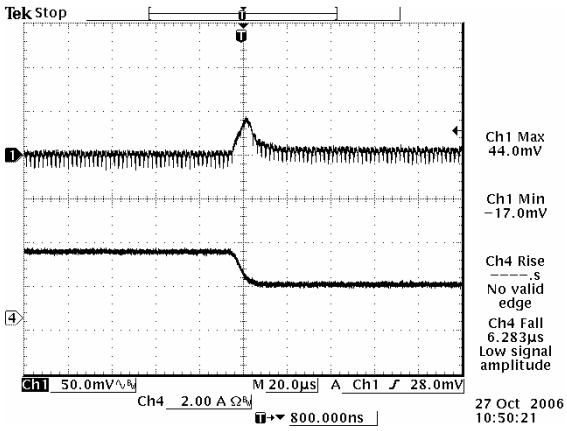
12 V input, 3.3 V output



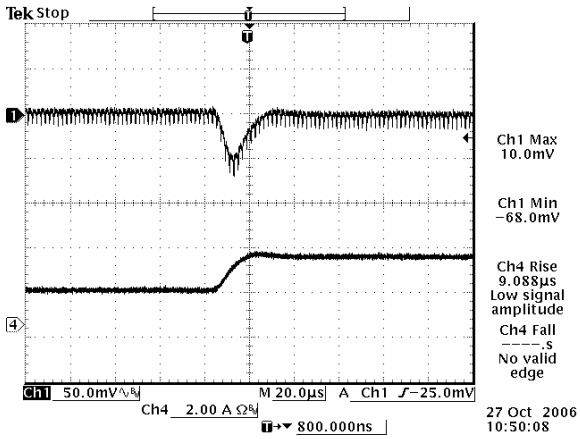
12 V input, 5.0 V output

Note: Ripple and noise at full load, 0-20MHz BW, with a 10 uF tantalum cap and a 1 uF ceramic cap at the output, Ta=25 deg C.

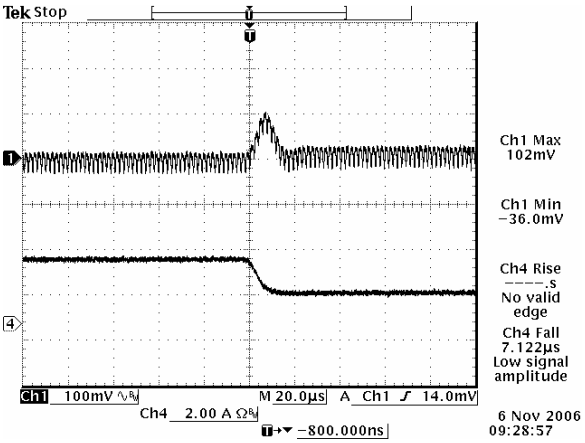
Transient Response Waveforms



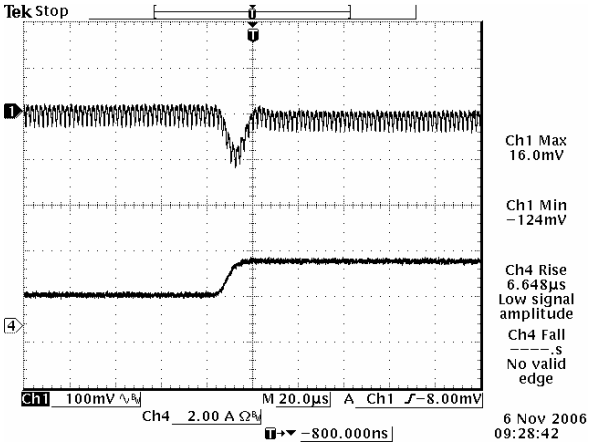
100% to 50% load step at 12 V input, 0.591 V output



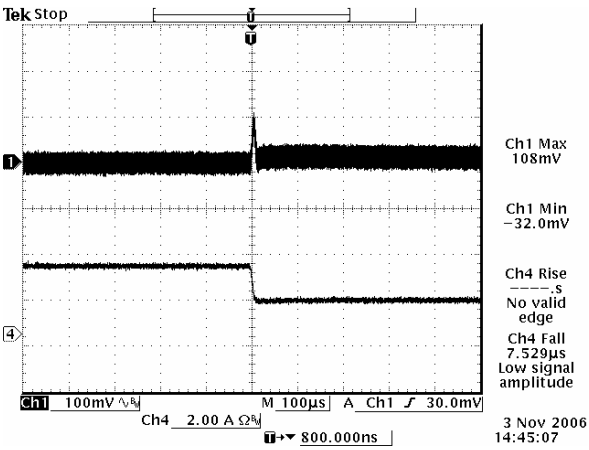
50% to 100% load step at 12 V input, 0.591 V output



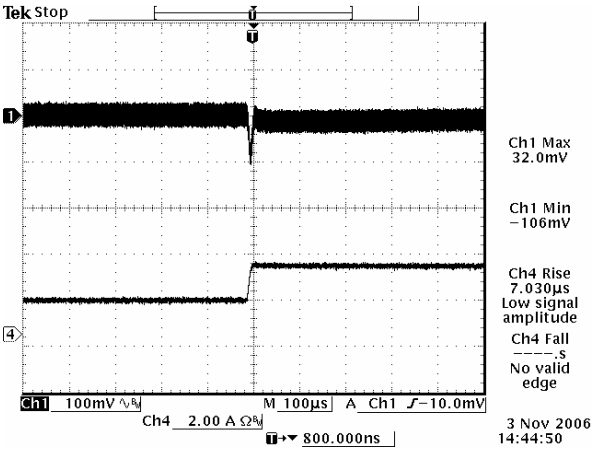
100% to 50% load step at 12 V input, 3.3 V output



50% to 100% load step at 12 V input, 3.3 V output



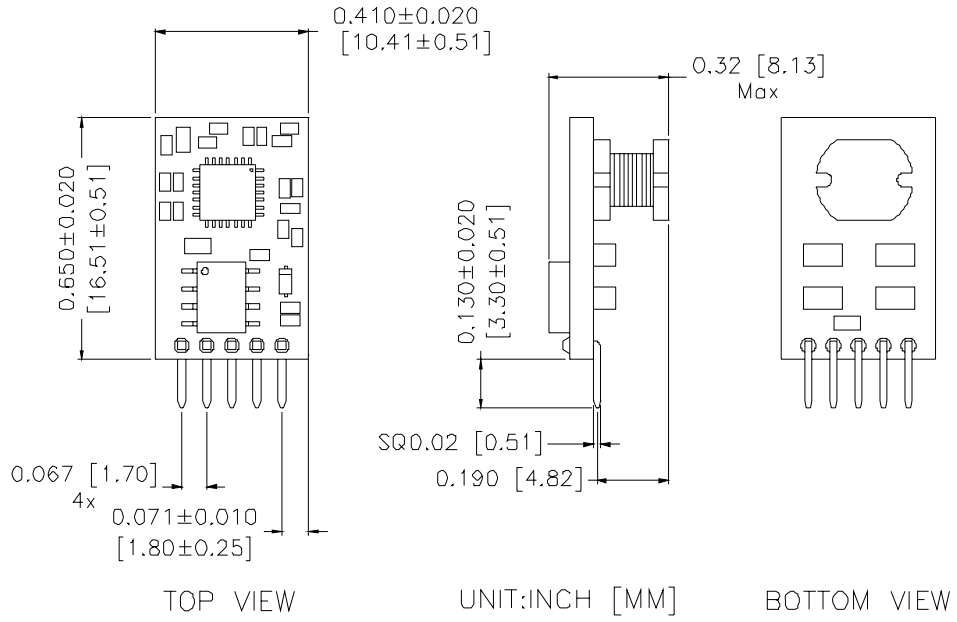
100% to 50% load step at 12 V input, 5.0 V output



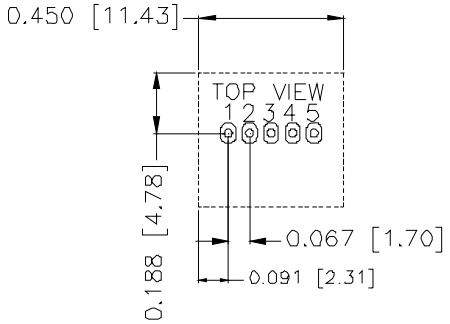
50% to 100% load step at 12 V input, 5.0 V output

Note: Transient response at di/dt=0.25 A/uS, with a 1uF ceramic cap and a 10 uF tantalum cap at the output, and Ta=25 deg C.

Mechanical Outline



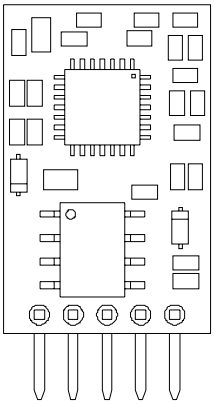
RECOMMENDED PAD LAYOUT



PAD: LENGTH 0.067 [ø1.7] BOTH SIDE
WIDTH 0.047 [ø1.2] BOTH SIDE
HOLE: ø0.032 [ø0.8] BOTH SIDE

Pin Connections

Pin	Function
1	ENABLE
2	Vin
3	GND
4	Vout
5	Trim



Revision History

Date	Revision	Changes Detail	Approval
2010-4-22	G	1. Change operating temp range from 0~70°C to -40~85°C 2. Add the data of full load input current	XF JIANG

RoHS Compliance

Complies with the European Directive 2002/95/EC, calling for the elimination of lead and other hazardous substances from electronic products.

CORPORATE

Bel Fuse Inc.
206 Van Vorst Street
Jersey City, NJ 07302
Tel 201-432-0463
Fax 201-432-9542
www.belfuse.com

FAR EAST

Bel Fuse Ltd.
8F/ 8 Luk Hop Street
San Po Kong
Kowloon, Hong Kong
Tel 852-2328-5515
Fax 852-2352-3706
www.belfuse.com

EUROPE

Bel Fuse Europe Ltd.
Preston Technology Management Centre
Marsh Lane, Suite G7, Preston
Lancashire, PR1 8UD, U.K.
Tel 44-1772-556601
Fax 44-1772-888366
www.belfuse.com