



General Description Diagram

The An8815 family of linear regulators feature low quiescent current (45µA typ.) with low dropout voltage, making them ideal for battery applications.

Output voltages are set at the factory and trimmed to 1.5% accuracy.

These rugged devices have both Thermal Shutdown, and Current Fold-back to prevent device failure under the "Worst" of operating conditions.

The An8815 is stable with an output capacitance of 4.7 µF or greater.

Features

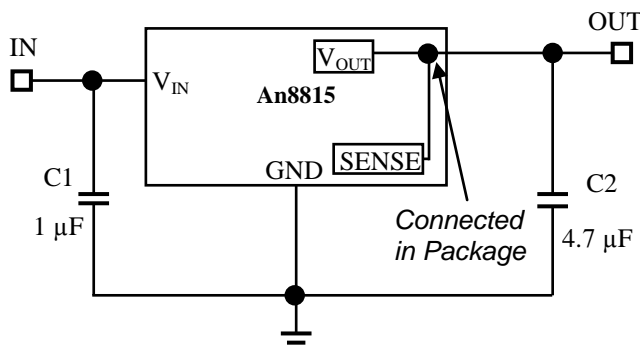
- Very Low Dropout Voltage
- Guaranteed 1.5A Output
- Accurate to within 1.5%
- 45µA Quiescent Current Typically
- Over-Temperature Shutdown
- Current Limiting
- Short Circuit Current Fold-back
- Low Temperature Coefficient

Applications

- Instrumentation
- Portable Electronics
- Wireless Devices
- PC Peripherals
- Battery Powered Widgets

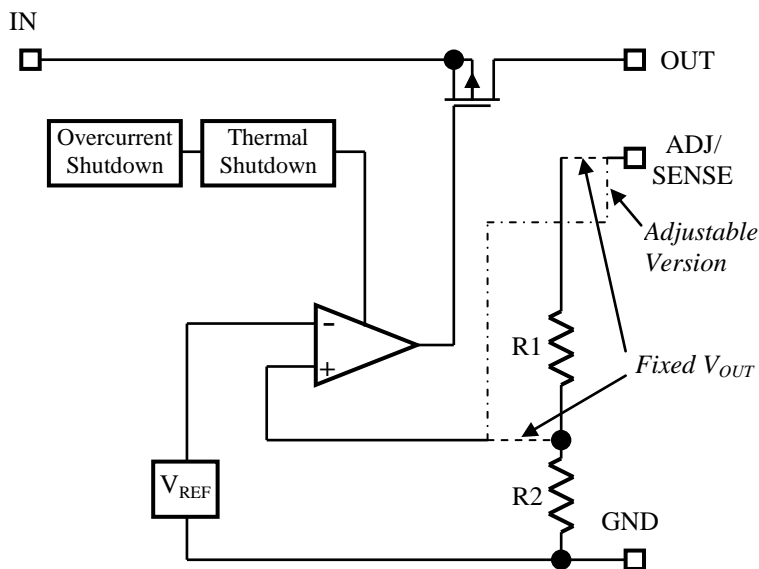
Typical Application

3-pin DPAK (TO-252 , SOT-223, TO-263, TO-220)



Fixed V_{OUT} Regulator

Functional Block



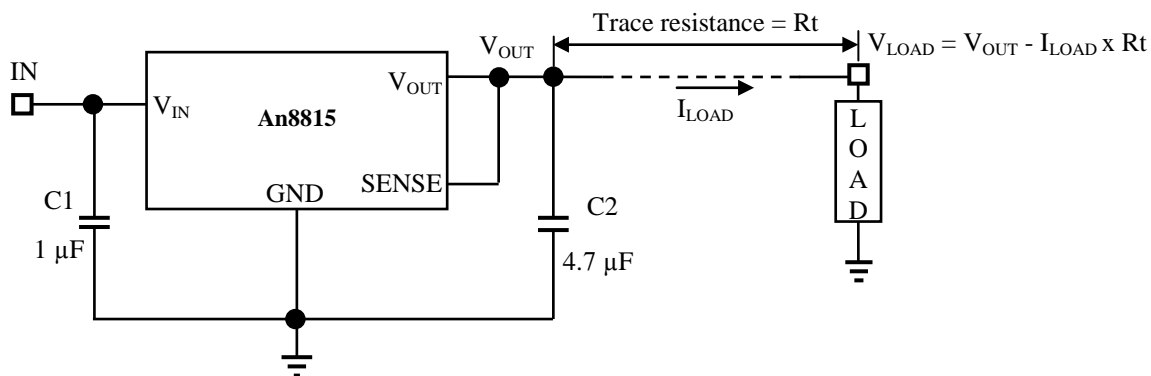
Ordering Information An8815 xxx

V _{OUT}	xxx
V _{OUT(min)} = 1.3 V	130
V _{OUT} = 1.35 V	135
: : (with step 0.05 V)	:
V _{OUT} = 5.4 V	540
V _{OUT(max)} = 5.45 V	545
V _{OUT} = V _{REF} × (1 + R1/R2)	ADJ

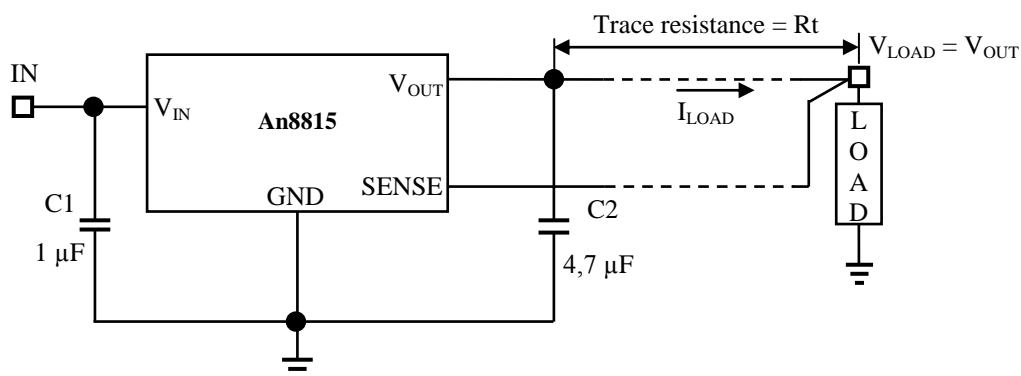


■ Typical Application (continued)

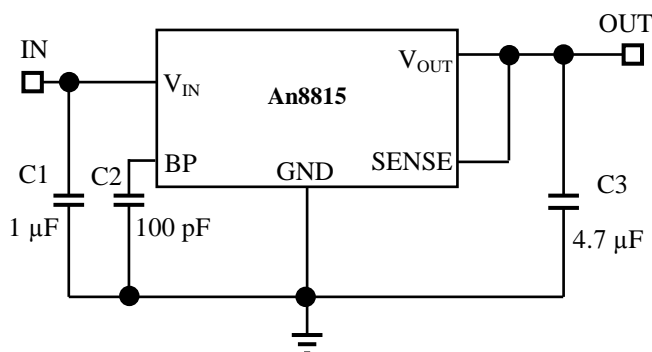
5-Pin DPAK (SOT223-5, TO220-5, TO263-5)



Fixed V_{OUT} Regulator

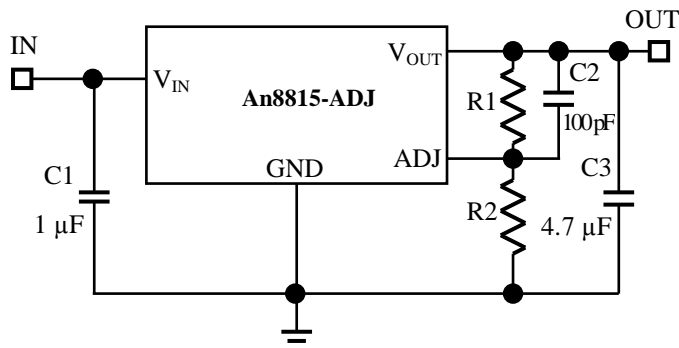


Fixed V_{OUT} Regulator (improving remote load regulation)





Fixed V_{OUT} Regulator (In applications requiring a low noise, regulated supply)



$$V_{OUT} = V_{REF} \times (1 + R1/R2)$$

$$R1 = R2 \times \left(\frac{V_{out(nom)}}{1.215} - 1 \right)$$

$$10k\Omega \leq R2 \leq 1 M\Omega$$



Adjustable Regulator

■ Absolute Maximum Ratings

Parameter	Maximum	Unit
Input Voltage	8	V
Maximum Operating Junction Temperature	-40 to 125	°C
Storage Temperature Range	-65 to 150	°C
Maximum Junction Temperature	150	°C
Maximum Lead Temperature (10 Sec)	300	°C

Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device

■ Electrical Specifications

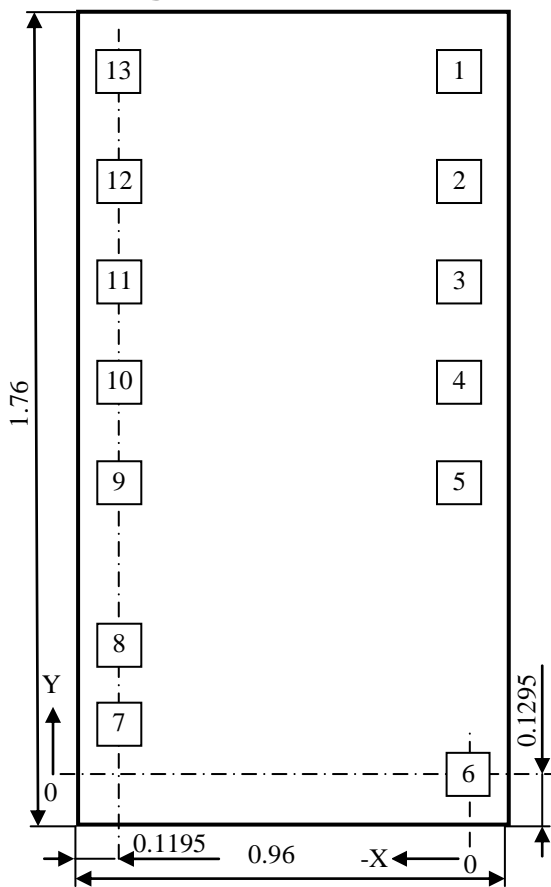
$V_{IN} = V_{OUT(NOM)} + 2V$, $T_A = 25^{\circ}C$ unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units	
Input Voltage	V_{IN}		Note 1		7	V	
Output Voltage Accuracy	V_{OUT}	$I_{OUT}=1mA$	-1.5		1.5	%	
Dropout Voltage	$V_{DROPOUT}$	$I_{OUT}=1.5A$ $V_{OUT}=V_{OUT(NOM)} - 2.0\%$	$1.3V < V_{OUT(NOM)} \leq 2.0V$	See chart	1300	mV	
			$2.0V < V_{OUT(NOM)} \leq 2.8V$		800		
			$2.8V < V_{OUT(NOM)}$		600		
Output Current	I_{OUT}	$V_{OUT} > 1.2V$	1500			mA	
Current Limit	I_{LIM}	$V_{OUT} > 1.2V$	1500	2000		mA	
Short Circuit Current	I_{SC}	$V_{IN} = V_{OUT(NOM)} + 1V$, $V_{OUT} < 0.4V$		750		mA	
Quiescent Current	I_Q	$I_{OUT}=0 mA$		45	70	μA	
Ground Pin Current	I_{GND}	$I_{OUT}=1mA$ to 1500mA		-45		μA	
Line Regulation	REG_{LINE}	$I_{OUT}=1mA$ $V_{IN}=V_{OUT}+1 V$ to $V_{OUT}+2 V$	$V_{OUT} < 2.0V$	-0.15	0.15	%	
			$4.0V > V_{OUT} \geq 2.0V$	-0.1	0.02	0.1	%
			$4.0V \leq V_{OUT}$	-0.4		0.4	%
Load Regulation	REG_{LOAD}	$I_{OUT}=1mA$ to 1500mA	-1	0.2	1	%	
ADJ Reference Voltage	V_{REF}	Adjustable version only	1.203	1.215	1.227	V	
Over Temperature Shutdown	OTS			150		°C	
Over Temperature Hysteresis	OTH			30		°C	
V_O Temperature Coefficient	TC			30		ppm/°C	
Power Supply Rejection	PSRR	$I_{OUT}=100mA$ $C_{OUT}=4.7\mu F$	$f=100Hz$	70		dB	
			$f=1kHz$	50			
			$f=10kHz$	20			
Output Voltage Noise	eN	$f=10Hz$ to 100kHz $I_{OUT}=10mA$	$C_{OUT}=4.7\mu F$	30		μV_{rms}	

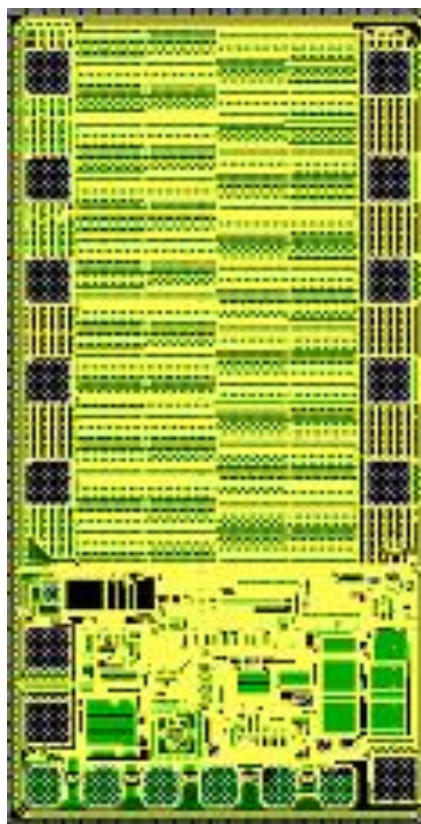
Note1: $V_{IN(min)} = (V_{OUT} + V_{DROPOUT}) \geq 2.5 V$



■ Pad Diagram



■ Photo



1. Chip size: X=0.88 mm, Y=1.68 mm (without scribe line width).
2. Scribe line width: X=80 μm, Y=80 μm
3. Pad size: 90μm x 90 μm
4. Substrate to GND.
5. Wafer thickness: 460 μm

■ Pad Location

Pad	Pad name	Function	X (μm)	Y (μm)
1	V _{IN}	Input Supply	-12.5	1464
2			-12.5	1244
3			-12.5	1034
4			-12.5	824
5			-12.5	614
6	GND	Ground	0	0
7	BP	Bypass (1.215 V)	-721	118
8	ADJ	Adjust for Adjustable type	-721	272
	SENSE	Sense for Fixed output type		
9	V _{OUT}	Output Voltage	-721	614
10			-721	824
11			-721	1034
12			-721	1244
13			-721	1464