



AME8890

150mA CMOS LDO

General Description

The AME8890 is a fixed 1.2V of positive, linear regulator feature low quiescent current (30 μ A typ.) with low dropout voltage, making them ideal for battery applications. The space-saving SOT-23-5 package is attractive for "Pocket" and "Hand Held" applications.

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

An additional feature is a "Power Good" detector, which pulls low when the output is out of regulation.

The AME8890 is stable with an output capacitor of 2.2 μ F or greater.

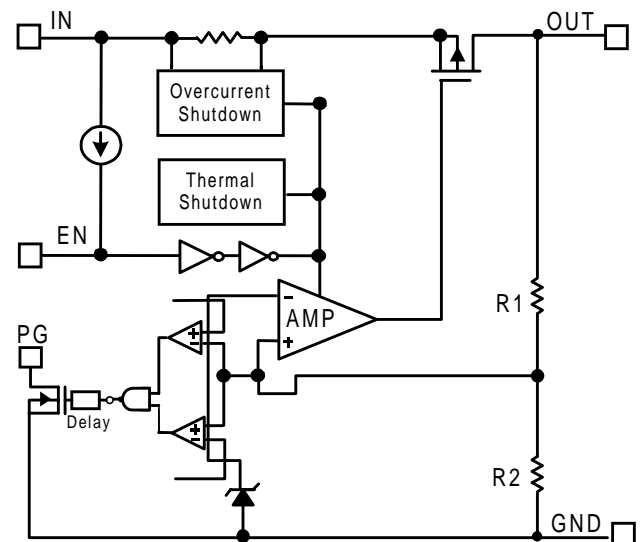
Features

- Very Low Dropout Voltage
- Guaranteed 150mA Output
- Accurate to within 3%
- 30 μ A Quiescent Current
- Over-Temperature Shutdown
- Current Limiting
- Short Circuit Current Fold-back
- Power Good Output Function
- Power-Saving Shutdown Mode
- Space-Saving SOT-25 (SOT-23-5)
- Low Temperature Coefficient

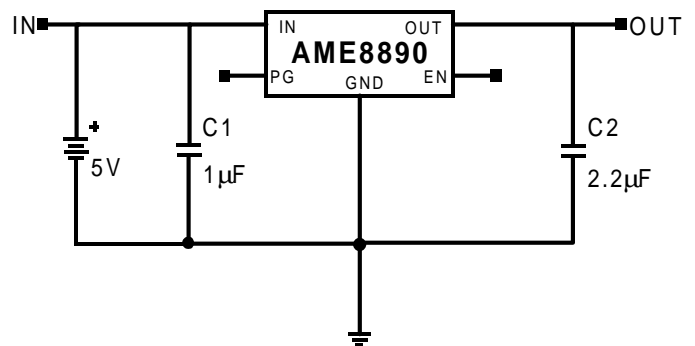
Applications

- Instrumentation
- Portable Electronics
- Wireless Devices
- Cordless Phones
- PC Peripherals
- Battery Powered Widgets
- Electronic Scales

Functional Block Diagram



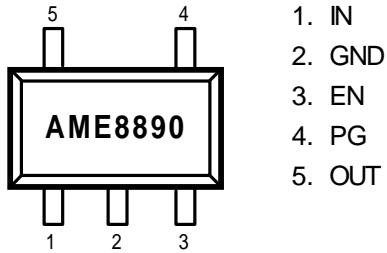
Typical Application





■ Pin Configuration

SOT-25 Top View



■ Ordering Information

Part Number	Marking	Output Voltage	Package	Operating Temp. Range
AME8890TEEV	ATBww	1.2V	SOT-25	-40°C to +85°C

ww: represents the date code

Please consult AME sales office or authorized Rep./Distributor for other package type availability.



■ Absolute Maximum Ratings

Parameter	Maximum	Unit
Input Voltage	7	V
Output Current	$P_D / (V_{IN} - V_O)$	mA
Output Voltage	GND - 0.3 to $V_{IN} + 0.3$	V
ESD Classification	B	

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

■ Recommended Operating Conditions

Parameter	Rating	Unit
Ambient Temperature Range	-40 to +85	°C
Junction Temperature	-40 to +125	°C

■ Thermal Information

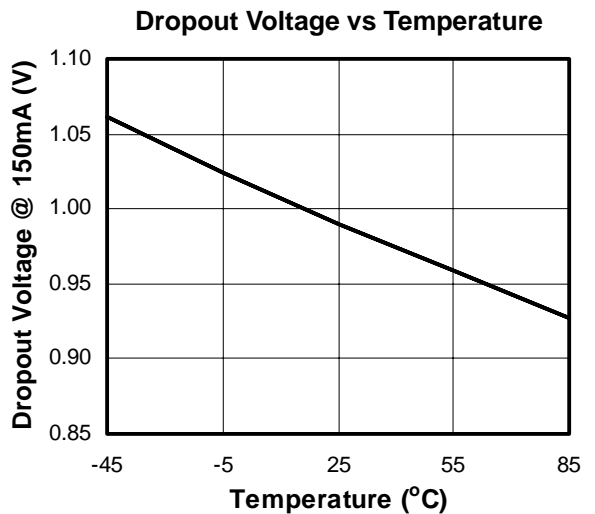
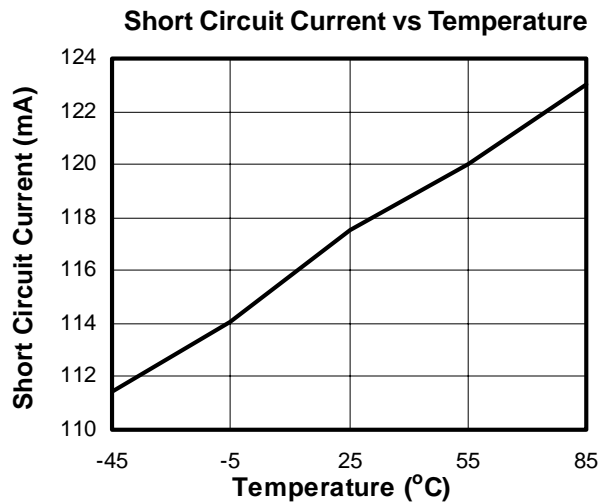
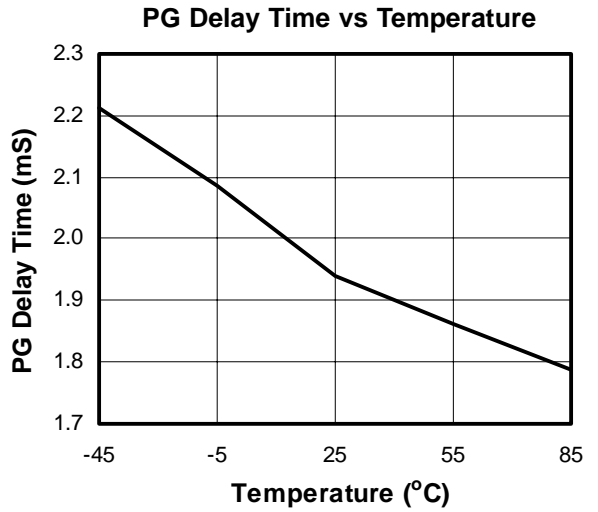
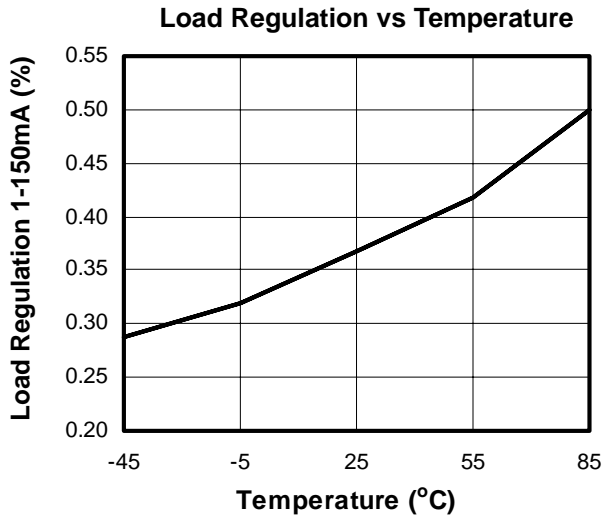
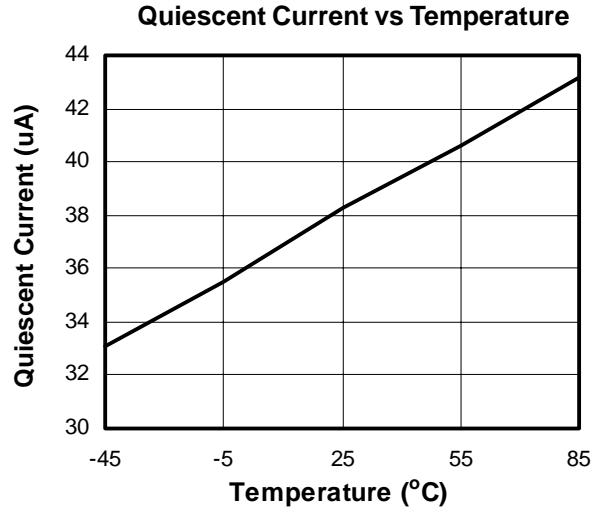
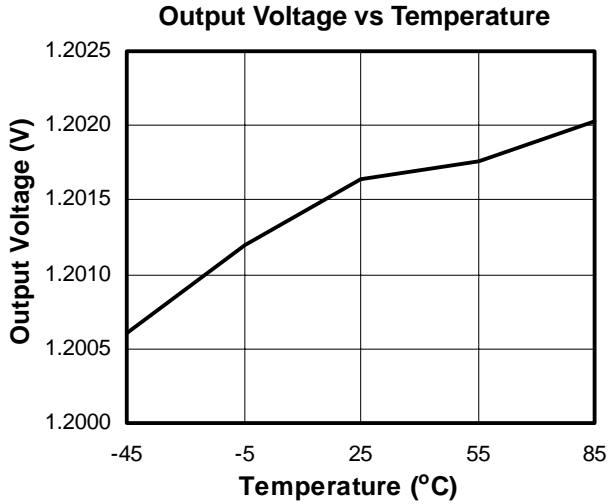
Parameter		Maximum	Unit
Thermal Resistance (θ_{ja})	SOT-25	260	°C / W
Internal Power Dissipation (P_D) ($\Delta T = 100^\circ\text{C}$)	SOT-25	380	mW
Maximum Junction Temperature		150	°C
Maximum Lead Temperature (10 Sec)		300	°C

■ Electrical Specifications

$V_{IN} = 2.7V$, $V_{EN} = V_{IN}$, $I_{OUT} = 100\mu A$, $T_A = 25^\circ C$ unless otherwise noted

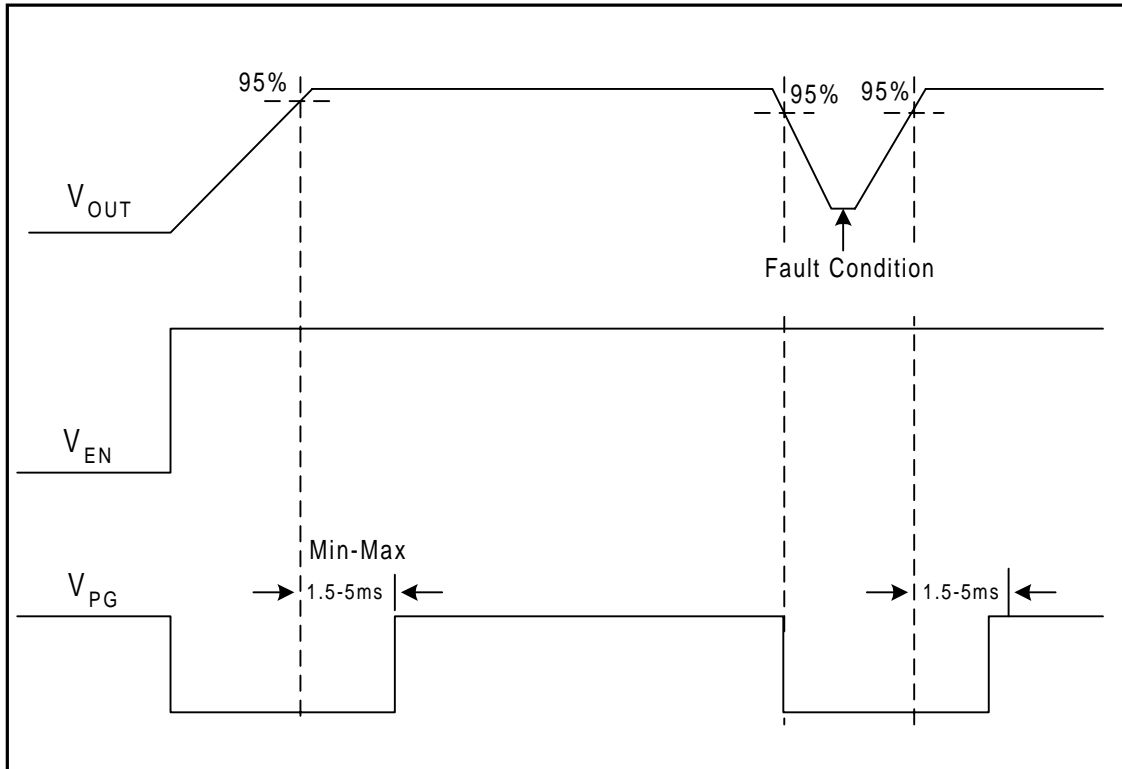
Parameter	Symbol	Test Condition	Min	Typ	Max	Units	
Input Voltage	V_{IN}		2.7		6	V	
Output Voltage Accuracy	V_O	$I_O = 0.1mA$	-3		3	%	
Dropout Voltage	$V_{DROPOUT}$	$I_O = 150mA$ $V_{OUT} = V_O - 2.0%$	$1.0V < V_{O(NOM)} \leq 2.0V$		1300	mV	
			$2.0V < V_{O(NOM)} \leq 2.8V$		N/A		
			$2.8V < V_{O(NOM)}$		N/A		
Current Limit	I_{LIM}	$V_O < 0.1V$	150	350		mA	
Quiescent Current	I_Q	$V_{IN} = 6V$, $I_O = 0mA$, $V_O = V_O(nom)$		30	50	μA	
Ground Pin Current	I_{GND}	$V_{IN} = 6V$, $I_O = 1mA$ to $150mA$		35		μA	
Line Regulation	REG_{LINE}	$I_O = 100\mu A$ $V_{IN} = 2.7V$ to $6V$	$1.0 \leq V_O \leq 2.0V$	-0.3	0.3	%	
Load Regulation	REG_{LOAD}	$I_O = 100\mu A$ to $150mA$		-4	1	4	%
Over Temperature Shutdown	OTS			150		$^\circ C$	
Over Temperature Hysteresis	OTH			30		$^\circ C$	
V_O Temperature Coefficient	TC			30		ppm/ $^\circ C$	
Power Supply Rejection	PSRR	$I_O = 100mA$ $C_O = 2.2\mu F$	$f = 1kHz$		50		
			$f = 10kHz$		20		dB
			$f = 100kHz$		15		
Output Voltage Noise	eN	$f = 10Hz$ to $100kHz$ $I_O = 10mA$			30	μV_{rms}	
EN Input Threshold	V_{EH}		1.6		V_{in}	V	
	V_{EL}		0		0.4	V	
EN Input Bias Current	I_{EH}	$V_{EN} = V_{IN}$		0.1		μA	
	I_{EL}	$V_{EN} = 0V$		0.1		μA	
Shutdown Supply Current	I_{SD}	$V_{IN} = 5V$, $V_O = 0V$, $V_{EN} = 0V$		0.5	1	μA	
Shutdown Output Voltage	$V_{O,SD}$	Output Loading $\leq 1200\ ohm$, $V = 0V$	0		0.4	V	
Output Under Voltage	V_{UV}	PG ON @ % of V_{OUT}			95	% $V_{O(NOM)}$	
PG Leakage Current	I_{LC}	$V_{PG} = 6V$, PG is off		0.1		μA	
PG Voltage Low	V_{OL}	$I_{SINK} = 0.1mA$			0.1	V	
V_{PG} Delay	T_{PGD}	See Timing Diagram on page 6	1.5		5	ms	

Note1: $V_{IN(min)} = V_{OUT} + V_{DROPOUT}$





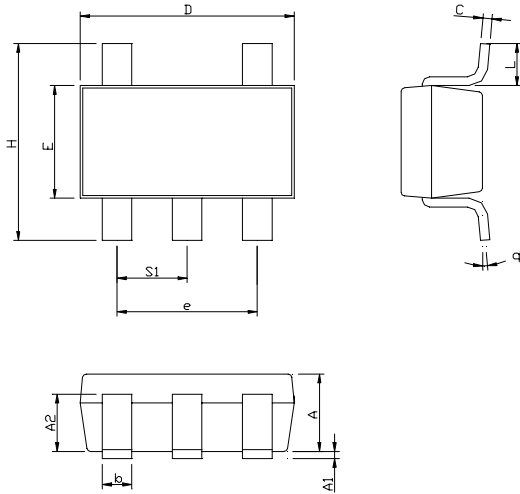
■ Timing Diagram





■ Package Dimension

SOT-25



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.45	0.0394	0.0571
A₁	0.00	0.15	0.0000	0.0591
A₂	0.70	1.25	0.0276	0.0492
b	0.35	0.55	0.0138	0.0217
C	0.08	0.25	0.0031	0.0098
D	2.70	3.10	0.1063	0.1220
E	1.40	1.80	0.0551	0.0709
e	1.90 BSC		0.07480 BSC	
H	2.60	3.00	0.1024	0.1181
L	0.30	-	0.0118	-
θ_1	0°	10°	0°	10°
S₁	0.85	1.05	0.0335	0.0413



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