

## ■ General Description

The AME8890 is a fixed 1.2V of positive, linear regulator feature low quiescent current (30 $\mu$ 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 $\mu$ F or greater.

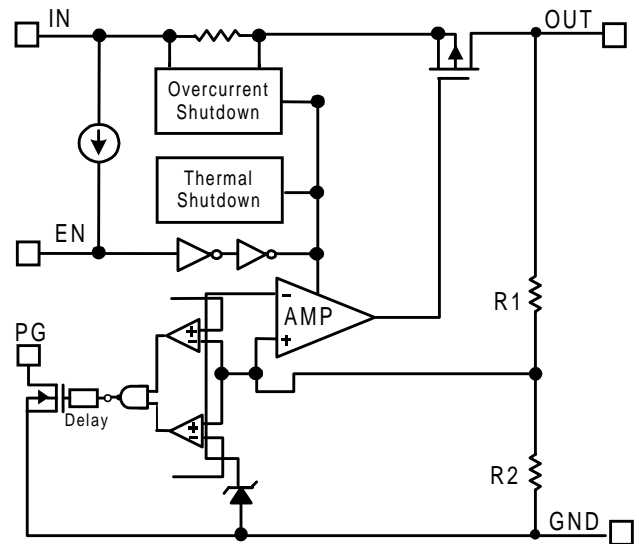
## ■ Features

- Very Low Dropout Voltage
- Guaranteed 150mA Output
- Accurate to within 3%
- 30 $\mu$ 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

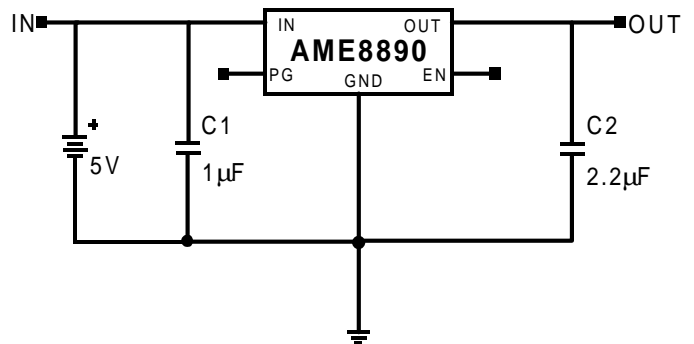
## ■ Applications

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

## ■ Functional Block Diagram



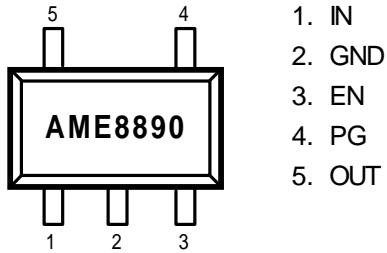
## ■ Typical Application





### ■ 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

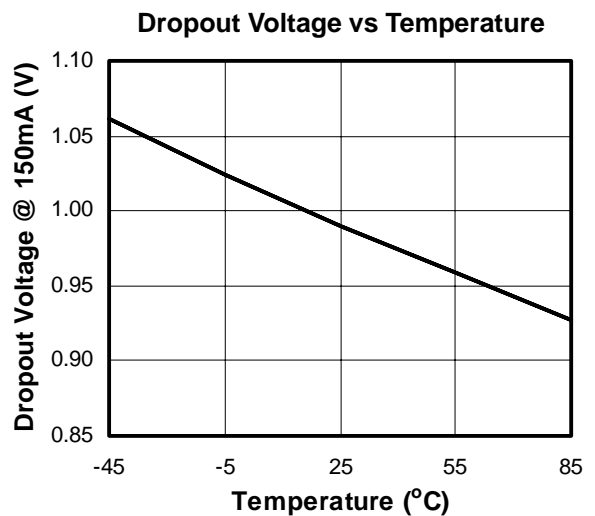
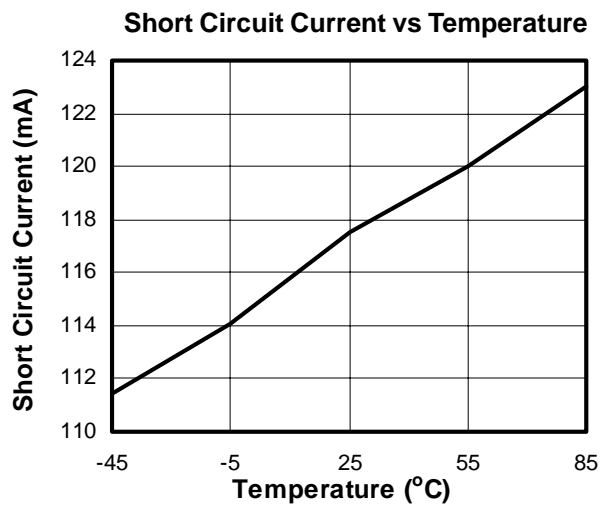
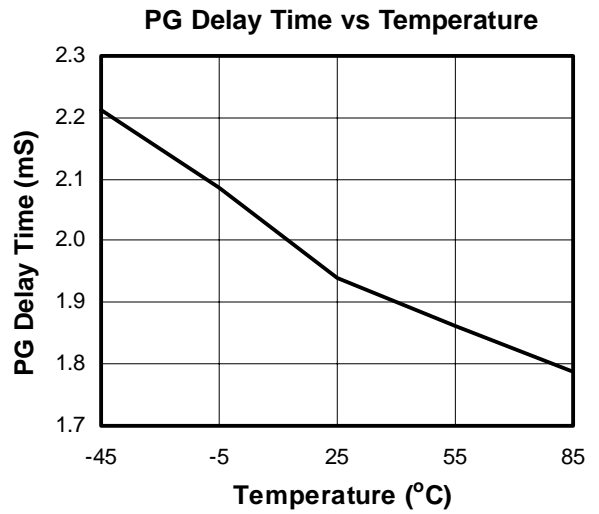
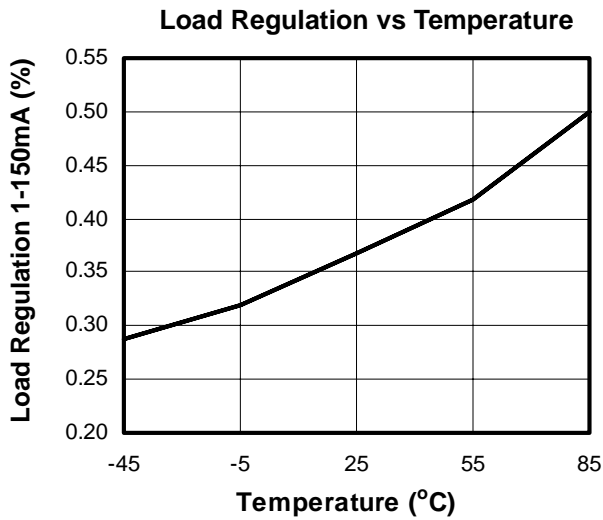
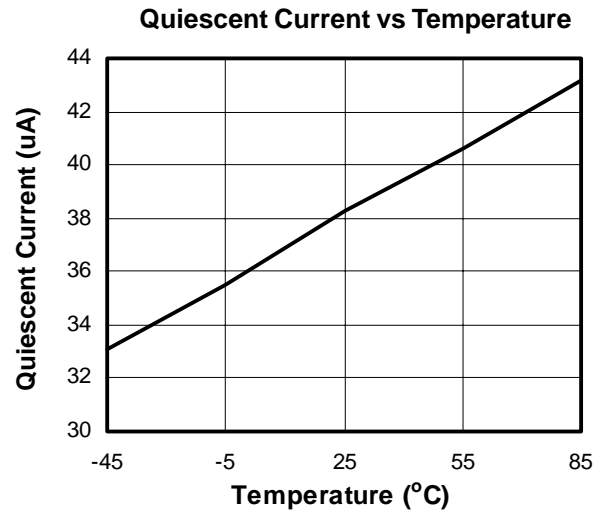
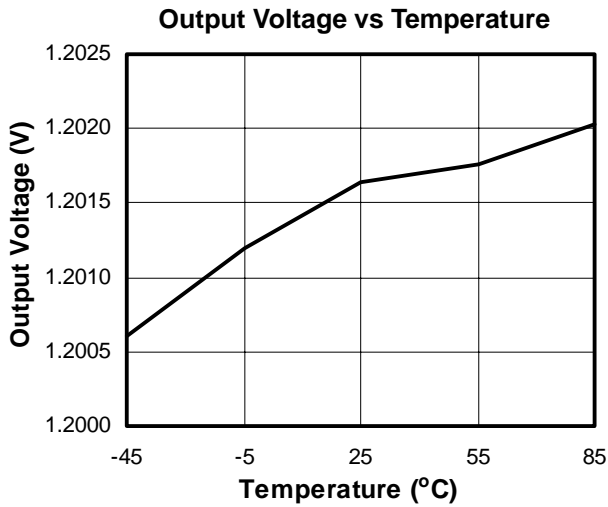
Parameter		Maximum	Unit
Thermal Resistance ( $\theta_{ja}$ )	SOT-25	260	°C / W
Internal Power Dissipation ( $P_D$ ) ( $\Delta T = 100^\circ\text{C}$ )	SOT-25	380	mW
Maximum Junction Temperature		150	°C
Maximum Lead Temperature ( 10 Sec)		300	°C

## ■ Electrical Specifications

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

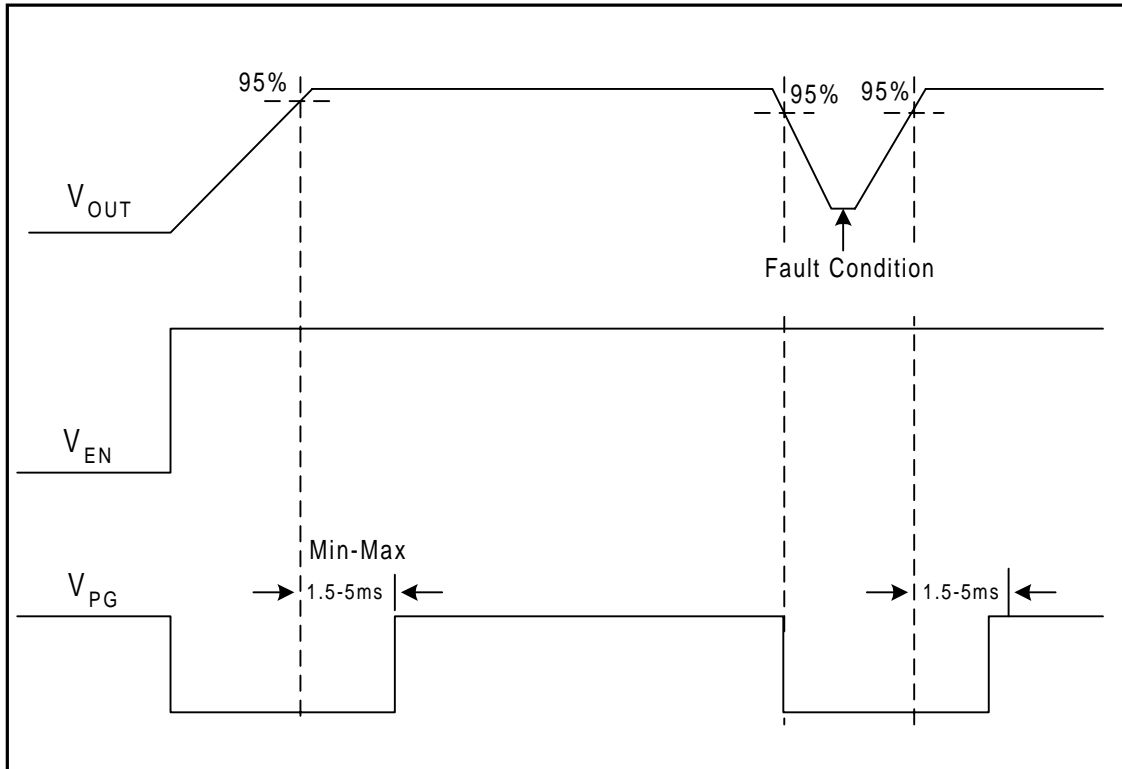
Parameter	Symbol	Test Condition	Min	Typ	Max	Units	
Input Voltage	$V_{IN}$		2.7		6	V	
Output Voltage Accuracy	$V_O$	$I_O = 0.1mA$	-3		3	%	
Dropout Voltage	$V_{DROPOUT}$	$I_O = 150mA$ $V_{OUT} = V_O - 2.0%$	$1.0V < V_{O(NOM)} \leq 2.0V$		1300	mV	
			$2.0V < V_{O(NOM)} \leq 2.8V$		N/A		
			$2.8V < V_{O(NOM)}$		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	$\mu A$	
Ground Pin Current	$I_{GND}$	$V_{IN} = 6V$ , $I_O = 1mA$ to $150mA$		35		$\mu A$	
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		
			$f = 100kHz$		15		
Output Voltage Noise	eN	$f = 10Hz$ to $100kHz$ $I_O = 10mA$			30	$\mu V_{rms}$	
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		$\mu A$	
	$I_{EL}$	$V_{EN} = 0V$		0.1		$\mu A$	
Shutdown Supply Current	$I_{SD}$	$V_{IN} = 5V$ , $V_O = 0V$ , $V_{EN} = 0V$		0.5	1	$\mu A$	
Shutdown Output Voltage	$V_{O,SD}$	Output Loading $\leq 1200\ ohm$ , $V_{EN} = 0V$	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		$\mu A$	
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:  $V_{IN(min)} = V_{OUT} + V_{DROPOUT}$





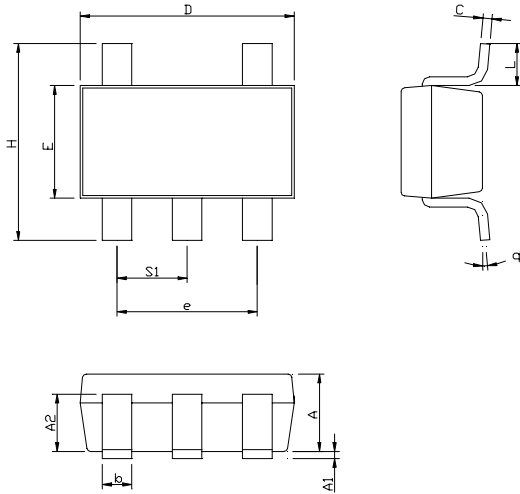
■ Timing Diagram





■ Package Dimension

SOT-25



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
<b>A</b>	1.00	1.45	0.0394	0.0571
<b>A<sub>1</sub></b>	0.00	0.15	0.0000	0.0591
<b>A<sub>2</sub></b>	0.70	1.25	0.0276	0.0492
<b>b</b>	0.35	0.55	0.0138	0.0217
<b>C</b>	0.08	0.25	0.0031	0.0098
<b>D</b>	2.70	3.10	0.1063	0.1220
<b>E</b>	1.40	1.80	0.0551	0.0709
<b>e</b>	1.90 BSC		0.07480 BSC	
<b>H</b>	2.60	3.00	0.1024	0.1181
<b>L</b>	0.30	-	0.0118	-
<b>θ<sub>1</sub></b>	0°	10°	0°	10°
<b>S<sub>1</sub></b>	0.85	1.05	0.0335	0.0413



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