

40V Input , 250mA , Low Current Consumption , CMOS LDO

Description

The AF75XXH is a CMOS-based low supply current voltage regulator featuring 250mA output current and 40V input voltage. This device consists of an output short-circuit protection circuit, an over current protection circuit, and a thermal shutdown circuit in addition to the basic regulator circuits.

The series are very suitable for the battery-powered equipment such as RF applications and other systems requiring a quiet voltage source.

Applications

- Portable consumer equipment
- Wireless handsets, Smart Phones
- Bluetooth, Digital cameras and Digital audio
- PDAs and other handheld products

Device Information

AF 75 XX H – M/P/N R/G

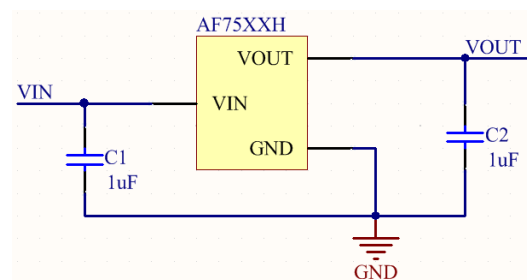
① ② ③ ④ ⑤ ⑥

①	Standard
②	Product Series
③	Output Voltage e.g. 33 = 3.3V
④	High Voltage
⑤	M: SOT-23-3 Package
	P: SOT-89-3 Package
	N: SOT-23 Package
⑥	R: RoHS / Pb Free
	G: Halogen Free

Features

- Input Voltage Range: 2.5V~40V
- Output Voltage Range: 3V~5V
- Output Current: 250mA
- Quiescent Current: 2uA
- Dropout Voltage : 500mV@100mA
- Fixed Voltage Accuracy: $\pm 2\%$ (Typ.)
- PSRR: 70dB at 1kHz
- Low Output Noise
- Excellent Line and Load Transient Response
- Short-Circuit Protection, Built-in Current Limiter

Typical Application



Pin Configuration

Symbol	Package Pin	
	SOT23 SOT23-3	SOT89-3
GND	1	1
OUT	2	3
VIN	3	2

✚ Absolute Maximum Ratings⁽¹⁾

(Unless otherwise specified, all voltage are with respect to GND, TA=25°C)

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	-0.3~50	V
Output Voltage		V_{OUT}	-0.3~13	V
Power Dissipation	SOT23	P_D	0.25	W
	SOT23-3		0.3	W
	SOT89-3		0.5	W
Operating Junction Temperature Range		T_J	-40~125	°C
Storage Temperature		T_{STG}	-40~125	°C
Lead Temperature(Soldering, 10 sec)		T_L	260	°C

(1). Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under recommended operating conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

✚ Electronics Characteristics

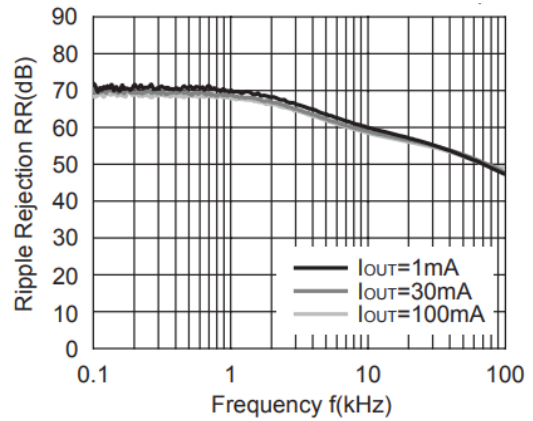
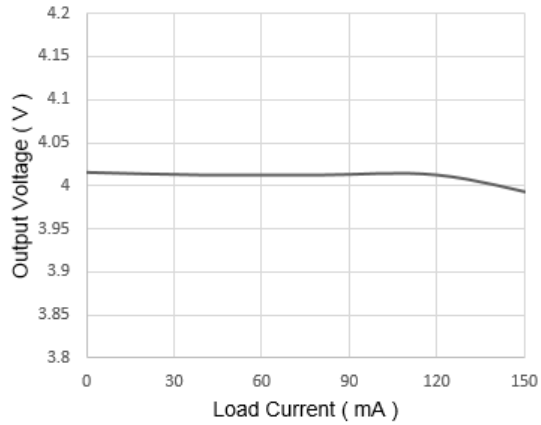
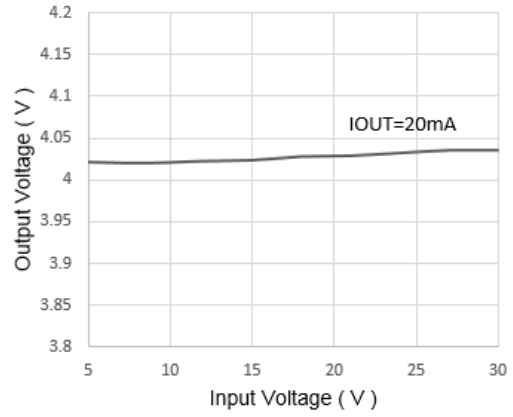
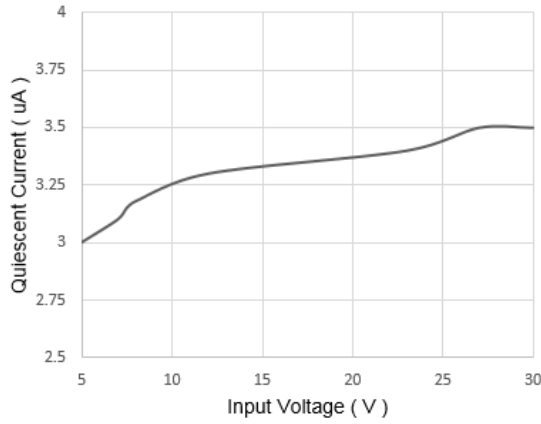
 (Unless otherwise specified, $V_{IN}=V_{OUT}+1V$, $C_{IN}=C_{OUT}=1\mu F$, TA=25°C)

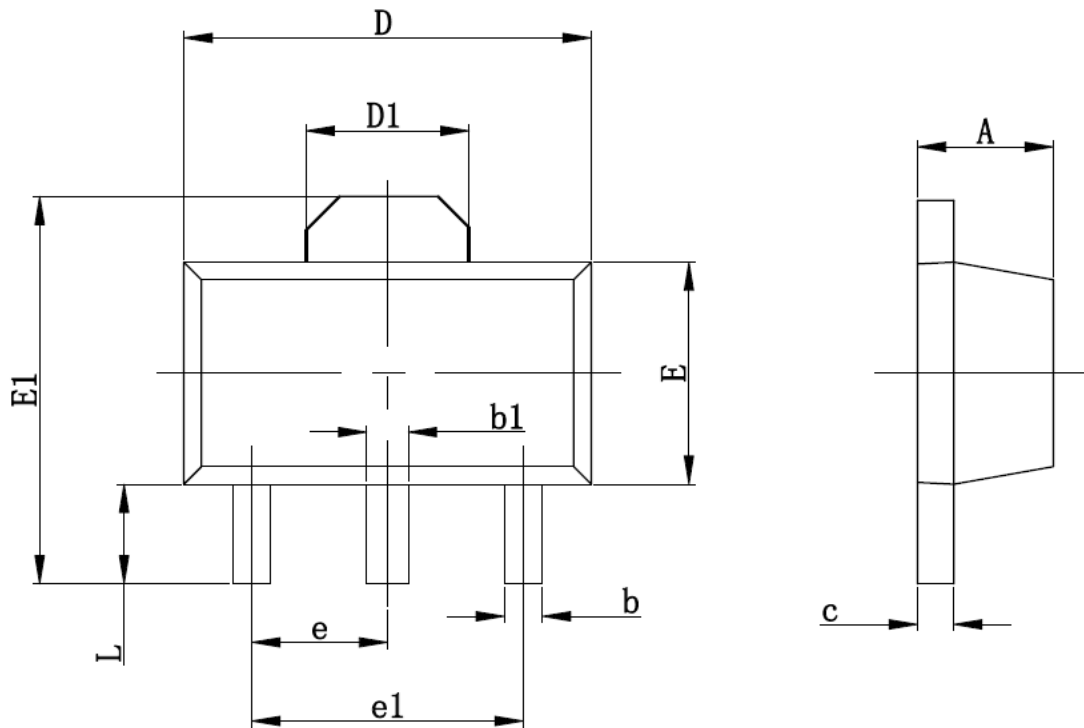
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		2.5		40	V
Output Voltage	V_{OUT}		0.98 V_{OUT}	V_{OUT}	1.02 V_{OUT}	V
Dropout Voltage	V_{DIF}	$I_{OUT}=100mA$		400		mV
Quiescent Current	I_Q	$I_{OUT}=0$		2	5	uA
Line Regulation	ΔV_{LINE}	$I_{OUT}=10mA$ $V_{OUT}+1V \leq V_{IN} \leq 36V$		0.01	0.3	%/V
Load Regulation	ΔV_{LOAD}	$V_{IN}=V_{OUT}+1V$ $1mA \leq I_{OUT} \leq 100mA$		10		mV
Temperature Coefficient	TC	$I_{OUT}=10mA$ $-40^\circ C < T_A < 85^\circ C$		50		ppm
Current Limit	I_{LIM}	$V_{OUT}=0.5 \times V_{OUT}$ $V_{IN}=5V$		350		mA
Short Current	I_{SHORT}	$V_{OUT}=V_{SS}$		25		mA
Power Supply Rejection Ratio	PSRR	$I_{OUT}=50mA$	1kHz	70		dB
			10kHz	60		
Output Noise Voltage	V_{ON}	BW=10Hz to 100kHz		27 V_{OUT}		μV_{RMS}



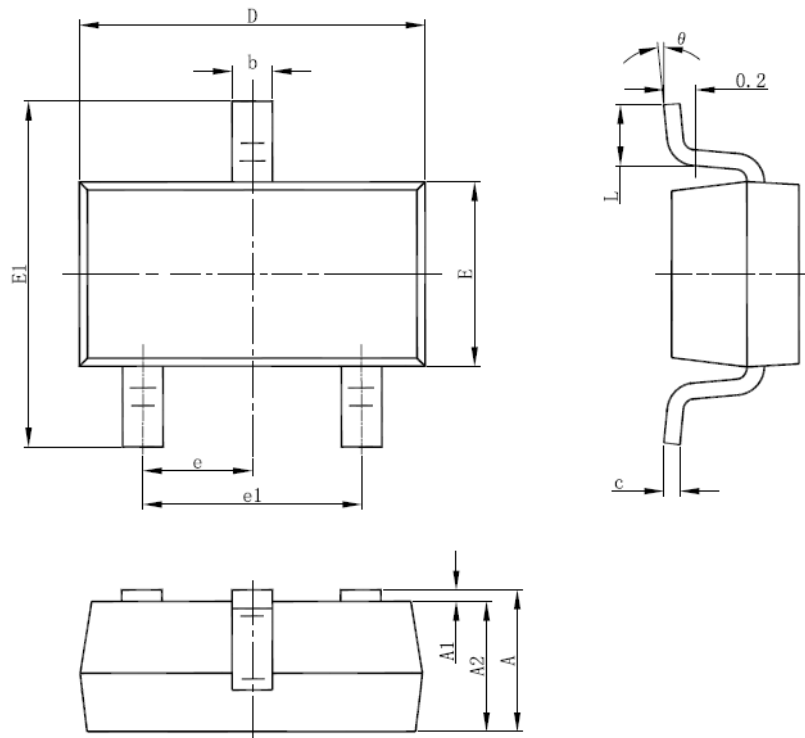
Typical Characteristics

(Unless otherwise specified, $V_{IN}=V_{OUT}+1V$, $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^\circ C$)

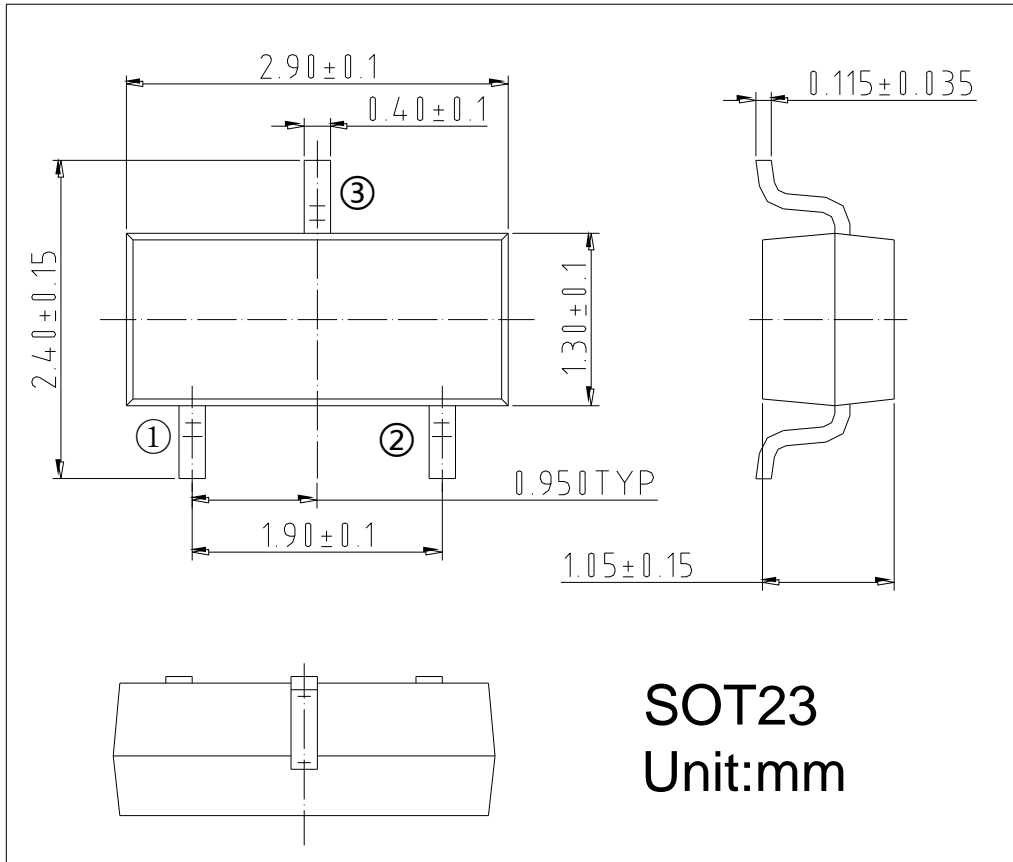


Package Information

SOT89-3

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.100	0.035	0.047


SOT23-3

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°





Order Information

Voltage	SOT89-3	Marking	SOT23-3	Marking	SOT23	Marking
3	√	7530				
3.3	√	7533P	√	7533		
3.6						
4.0	√	7540-H#			√	7540N
5.0	√	7550-H#	√	7550		

Package	Packing	Shipping
SOT23	Tape and Reel	3K/Reel
SOT23-3		3K/Reel
SOT89-3		1K/Reel

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