

18V Input , 300mA , Low Current Consumption , CMOS LDO

Description

The AF76XXM series of low-dropout linear regulators are low quiescent current LDOs with excellent liner and ultra-fast load transient performance. The AF76XXM series is capable of delivering 300mA of output current and allow an input voltage as high as 18V.

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

Applications

- Communication tools
- Battery powered equipment
- Portable AV systems
- Cameras, Video systems
- Reference voltage sources

Device Information

AF 76 XX M C/M/P R

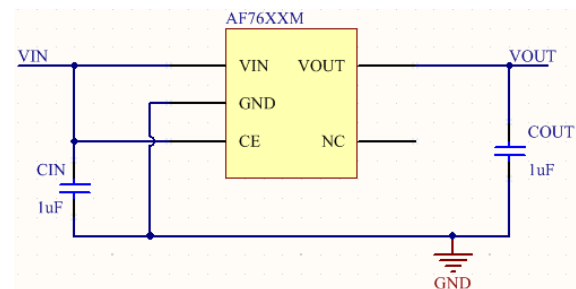
① ② ③ ④ ⑤ ⑥

①	Standard
②	Product Series
③	Output Voltage e.g. 36 = 3.6V
④	Medium voltage
⑤	C: SOT23-5L Package
	M: SOT23-3L Package
	P: SOT89-3L Package
⑥	RoHS2.0

Features

- Input Voltage Range: 2.5V~18V
- Output Voltage Range: 1.2V~5V
- Output Current: 300mA
- Quiescent Current: 2uA
- Dropout Voltage: 140mV@100mA
- Fixed Voltage Accuracy: $\pm 2\%$ (Typ.)
- PSRR: 65dB at 1kHz
- Excellent Line and Load Transient Response
- Short-Circuit Protection
- Built-in Current Limiter
- Over-Temperature Protection

Typical Application



Pin Configuration

Symbol	Package Pin		
	SOT23-5L	SOT23-3L	SOT89-3L
VIN	1	3	2
GND	2	1	1
CE	3		
NC	4		
OUT	5	2	3

✚ Absolute Maximum Ratings⁽¹⁾

 (Unless otherwise specified, all voltages are with respect to GND, $T_A=25^{\circ}\text{C}$)

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	-0.3~24	V
CE Pin Voltage		V_{CE}	-0.3~24	V
Output Voltage		V_{OUT}	-0.3~10	V
Output Current		I_{OUT}	600	mA
Power Dissipation	SOT23-3	P_D	0.4	W
	SOT23-5		0.5	
	SOT89-3		0.6	
Operating Junction Temperature Range		T_J	-40~125	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-40~125	$^{\circ}\text{C}$
Lead Temperature(Soldering, 10 sec)		T_L	260	$^{\circ}\text{C}$
ESD rating ⁽²⁾	Human Body Model -(HBM)		8	kV
	Machine Model-(MM)		400	V

(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.

(2). ESD testing is performed according to the respective JESD22 JEDEC standard. The human body model is a 100 pF capacitor discharged through a 1.5k Ω resistor into each pin. The machine model is a 200pF capacitor discharged directly into each pin.

✚ Recommended Operating Condition⁽¹⁾

Parameters	Min.	Typ.	Max.	Units
Input Voltage Range	2.5		18	V
Output Current			300	mA
Operating Junction Temperature Range	-40		125	$^{\circ}\text{C}$

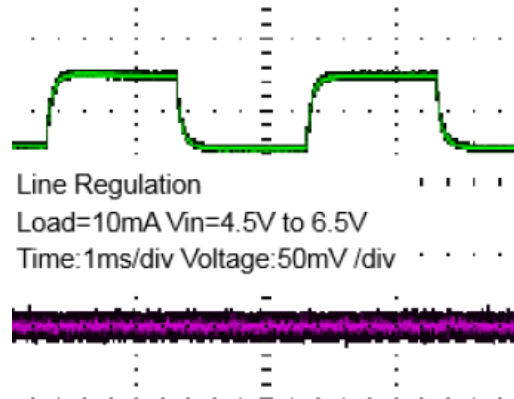
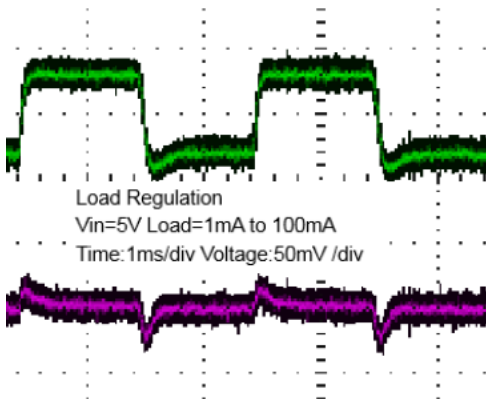
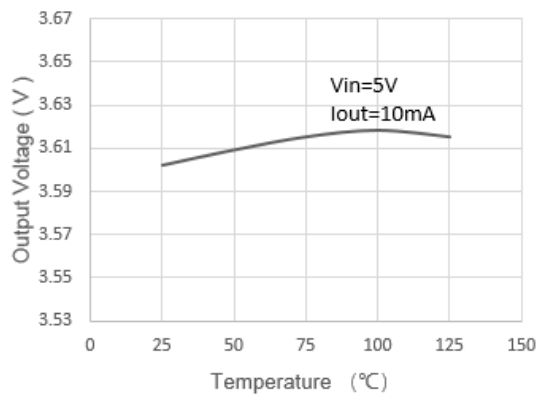
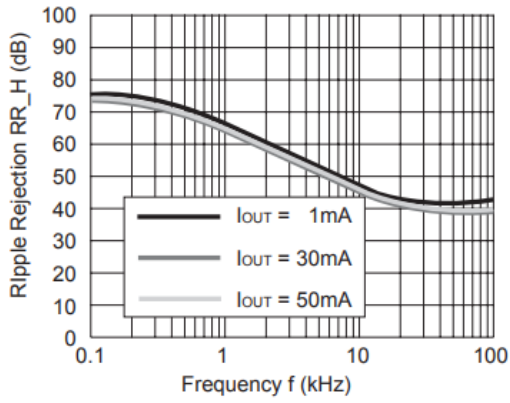
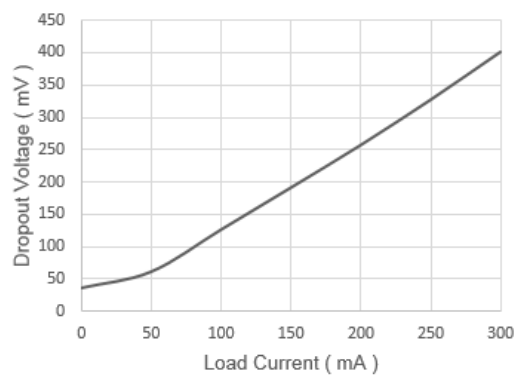
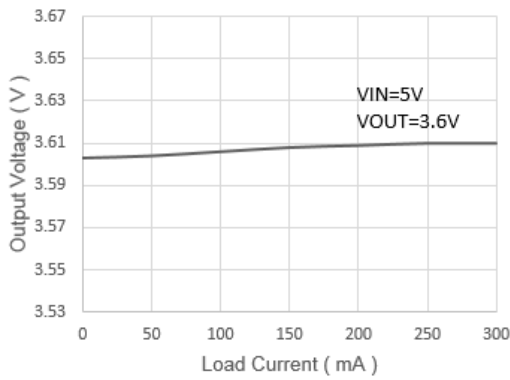
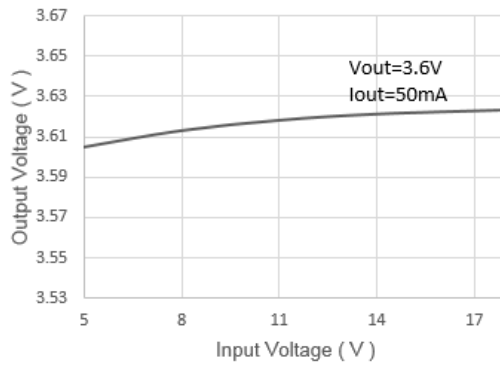
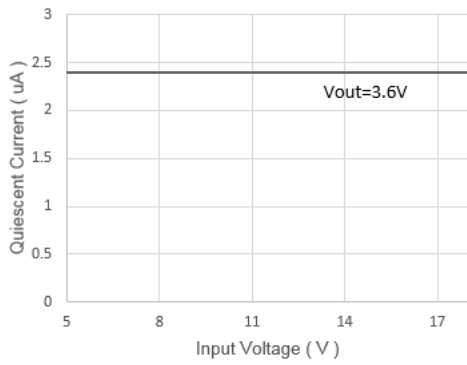
✚ Electronics Characteristics

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

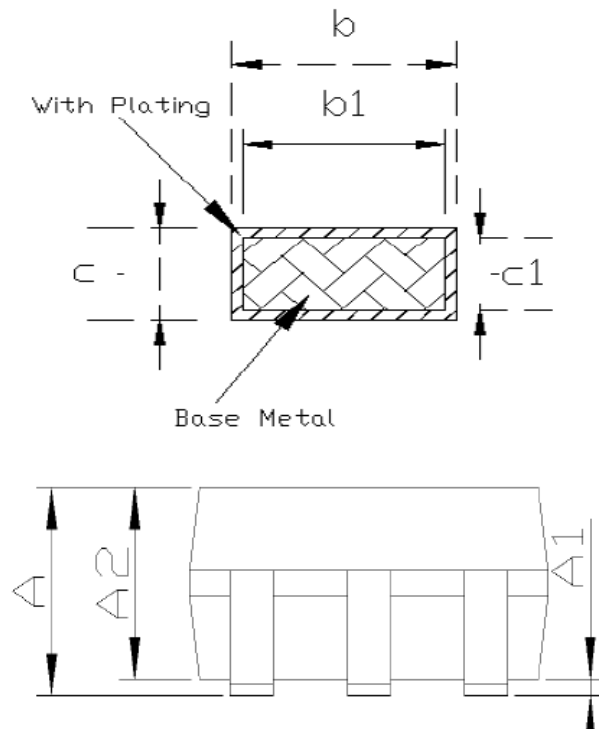
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		2.5		18	V
Output Voltage	V_{OUT}		0.98 V_{OUT}	V_{OUT}	1.02 V_{OUT}	V
Dropout Voltage	V_{DIF}	$I_{OUT} = 100mA$		140		mV
Quiescent Current	I_Q	$I_{OUT}=0$		2	5	μA
Shutdown current	I_{CEL}	$V_{CE}=V_{SS}$			0.2	μA
Line Regulation	ΔV_{LINE}	$I_{OUT} = 10mA$ $V_{OUT}+1V \leq V_{IN} \leq 18V$		0.01	0.3	%/V
Load Regulation	ΔV_{LOAD}	$V_{IN}=V_{OUT}+1V$ $1mA \leq I_{OUT} \leq 100mA$		10		mV
Temperature Coefficient	T_C	$I_{OUT}=10mA$ $-40^\circ C < T_A < 125^\circ C$		50		ppm
Current Limit	I_{LIM}	$V_{OUT}=0.5 \times V_{OUT}$ $V_{IN} = 5V$		500		mA
Short Current	I_{SHORT}	$V_{OUT} = V_{SS}$		35		mA
Accuracy		$I_{OUT} = 10mA$	-2		2	%
Output Noise Voltage	V_{ON}	BW=10Hz to 100kHz		27 x V_{OUT}		μV_{RMS}
Power Supply Rejection Ratio	PSRR	$I_{OUT}=50$ mA	100Hz		75	dB
			1kHz		65	
			10kHz		45	
			100 kHz		40	
Thermal Shutdown Temperature	T_{SD}			150		$^\circ C$
CE "High" Voltage	V_{CEH}		1.5			V
CE "Low" Voltage	V_{CEL}				0.3	V

Typical Characteristics

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

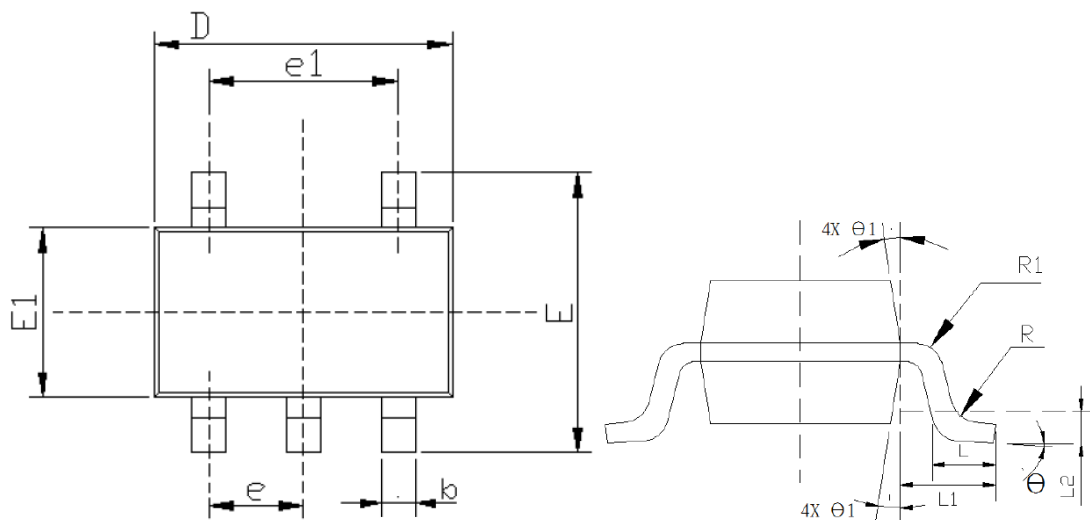


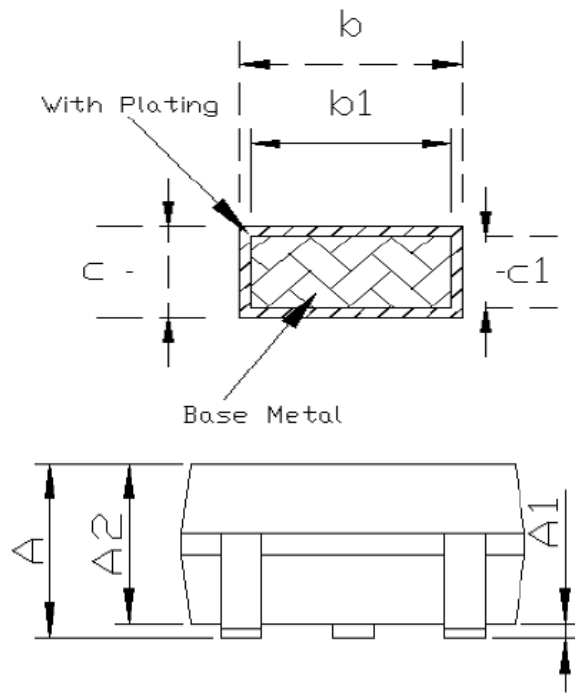
Package Information



Common Dimensions (Units of Measure=Millimeter)			
SYMBOL	MINIMUM	NOMINAL	MAXIMUM
A	-	-	1.35
A1	0	-	0.15
A2	1.00	1.10	1.20
b	0.35	-	0.45
b1	0.32	-	0.38
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.6 REF		
L2	0.25 REF		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ 1	5°	10°	15°

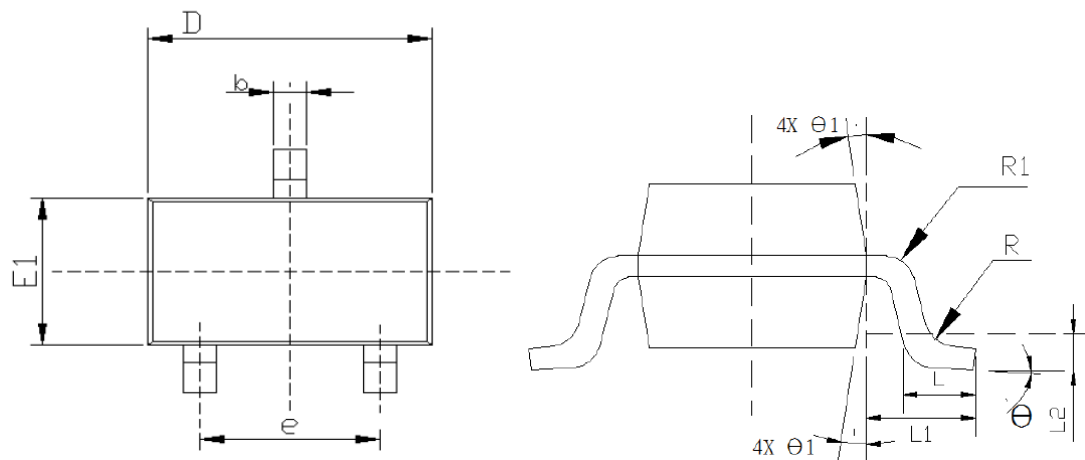
SOT23-5L

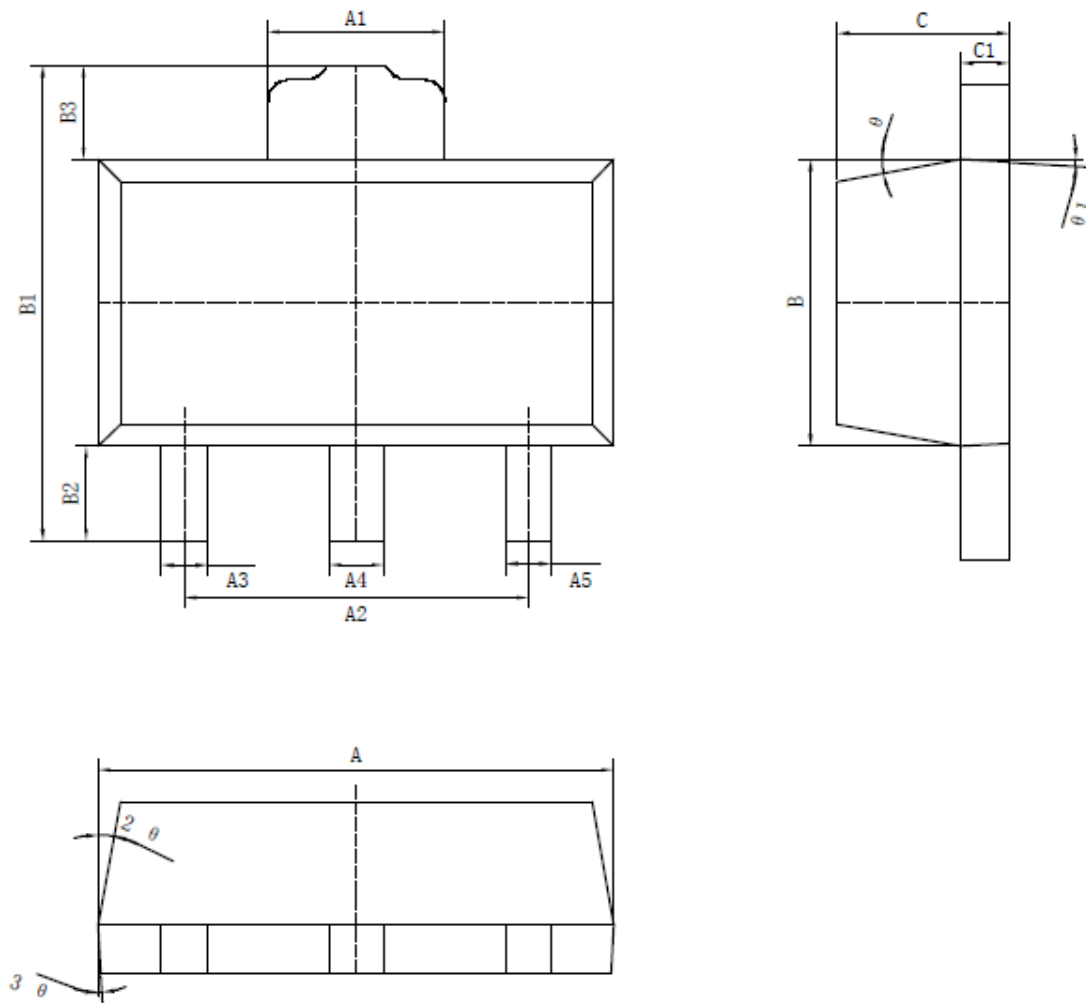




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A	-	-	1.35
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c	0.14	-	0.20
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D	2.82	2.92	3.02
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L	0.35	0.45	0.60
L1	0.6 REF		
L2	0.25 REF		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ_1	5°	10°	15°

SOT23-3L





SOT89-3L

标注	尺寸	最小(mm)	最大(mm)	标注	尺寸	最小(mm)	最大(mm)
A		4.40	4.60	B3		0.82	0.83
A1		1.65	1.75	C		1.40	1.60
A2		2.95	3.05	C1		0.35	0.45
A3		0.35	0.45	θ		6° TYP4	
A4		0.43	0.53	$\theta 1$		3° TYP4	
A5		0.35	0.45	$\theta 2$		6° TYP4	
B		2.40	2.60	$\theta 3$		3° TYP4	
B1		4.05	4.25				
B2		0.82	0.83				



Order Information

Voltage	SOT23-5	Marking	Shipping	SOT23-3	Marking	Shipping
1.2			Tape and Reel, 3K			Tape and Reel, 3K
1.5						
3.0	√	7630		√	7630	
3.3	√	7633		√	7633	
3.6	√	7636				
5.0	√	7650		√	7650	

Voltage	SOT89-3L	Marking	Shipping		Marking	Shipping
1.2			Tape and Reel, 1K			
1.5						
3.0						
3.3	√	7633				
3.6						
5.0	√	7650				

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