Low Consumption Current High PSRR
300mA CMOS Voltage Regulator

AF6215

■ INTRODUCTION

The AF6215 series are a group of positive voltage regulators manufactured by CMOS technologies with high ripple rejection, low power consumption and low dropout voltage, which can prolong battery life in portable electronics. The AF6215 series work with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications. The AF6215 series consume less than 0.1uA in shutdown mode and have fast turn-on time less than 50us.The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

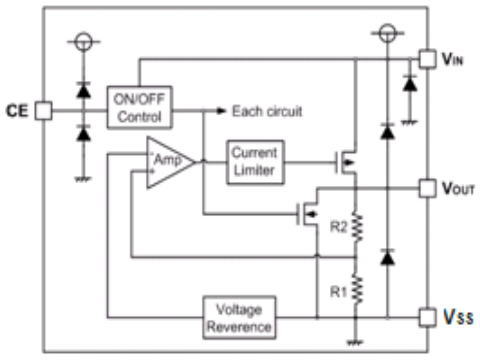
■ FEATURES

- Low Dropout Voltage：150mV@150mA
- Low Quiescent Current：5μA
- High Ripple Rejection：65dB@1kHz
- Excellent Line and Load Transient Response
- Operating Voltage：2.0V～7.0V
- Output Voltage：1.2 ~ 5.0V
- High Accuracy：±2%（Typ.）
- Built-in Current Limiter, Short-Circuit Protection
- TTL- Logic-Controlled Shutdown Input

■ APPLICATIONS

- Cellular and Smart Phones
- Laptop, Palmtops and PDA
- Digital Still and Video Cameras
- MP3, MP4 Player
- Radio control systems
- Battery-Powered Equipment

■ BLOCK DIAGRAM



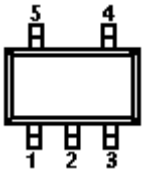
■ ORDER INFORMATION

AF6215_①_②

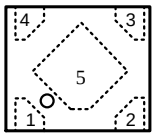
DESIGNATOR	SYMBOL	DESCRIPTION
①	**Integer**	**Output Voltage e.g.1.8V=18**
②	D	Package:DFN1X1-4
	C	Package:SOT-23-5

■ PIN CONFIGURATION

SOT-23-5



DFN1×1-4



SOT-23-5

PIN NUMBER	SYMBOL	FUNCTION
1	V_{IN}	Power Input Pin
2	V_{SS}	Ground
3	CE	Chip Enable Pin
4	NC	No Connection
5	V_{OUT}	Output Pin

DFN1×1-4

PIN NUMBER	SYMBOL	FUNCTION
1	V_{OUT}	Output Pin
2	V_{SS}	Ground
3	CE	Chip Enable Pin
4	V_{IN}	Power Input Pin
5	NC	Can Connect GND or Float

■ ABSOLUTE MAXIMUM RATINGS

(Unless otherwise specified, Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	V_{SS} -0.3~V_{SS}+8	V
Output Current		I_{OUT}	600	mA
Output Voltage		V_{OUT}	V_{SS} -0.3~V_{IN}+0.3	V
Power Dissipation	SOT23-5	Pd	400	mW
	DFN1X1-4	Pd	400	mW
Operating Temperature		T_{opr}	-40~+85	℃
Storage Temperature		T_{stg}	-40~+125	℃
Soldering Temperature & Time		T_{solder}	260℃, 10s	

■ ELECTRICAL CHARACTERISTICS

AF6215 Series **(V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=1μF, Ta=25℃,unless otherwise specified)**

PARAMETER		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output Voltage		V_{OUT}(E) (Note 2)	I_{OUT}=1mA	V_{OUT} *0.98	V_{OUT}	V_{OUT} *1.02	V
Supply Current		I_{SS}	I_{OUT}=0		5	10	μA
Standby Current		I_{STBY}	CE = V_{SS}			0.1	μA
Output Current		I_{OUT}	—	300			mA
Dropout Voltage (Note 3)		V_{dif}	I_{OUT} =150mA V_{OUT}≥3.0V		150		mV
Load Regulation		ΔV_{OUT}	V_{IN}= V_{OUT} +1V, 1mA≤I_{OUT}≤100mA		10		mV
Line Regulation		$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	I_{OUT} =10mA V_{OUT} +1V≤V_{IN}≤6V		0.01	0.2	%/V
Output Voltage Temperature Characteristics		$\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$	I_{OUT} =10mA -40≤T≤+85		100		ppm
Short Current		I_{Short}	V_{OUT} =V_{SS}		50		mA
Input Voltage		V_{IN}	—	2.0		7.0	V
Power Supply Rejection Rate	1kHz	PSRR	I_{OUT}=50mA		65		dB
	10kHz				50		
CE "High" Voltage		V_{CE}"H"		1.5		V_{IN}	V
CE "Low" Voltage		V_{CE}"L"				0.3	V

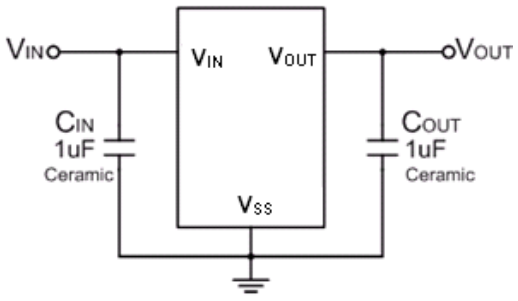
NOTE:

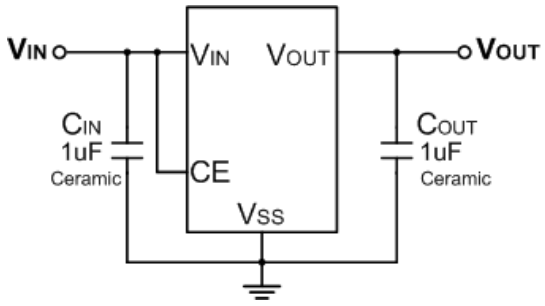
1. V_{OUT}：Specified Output Voltage.
2. V_{OUT} (E) ： Effective Output Voltage (Ie. The Output Voltage When V_{IN} = (V_{OUT} +1.0V) And Maintain A Certain I_{OUT} Value).

NOTE:

3. V_{dif}： The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of V_{OUT} (E).

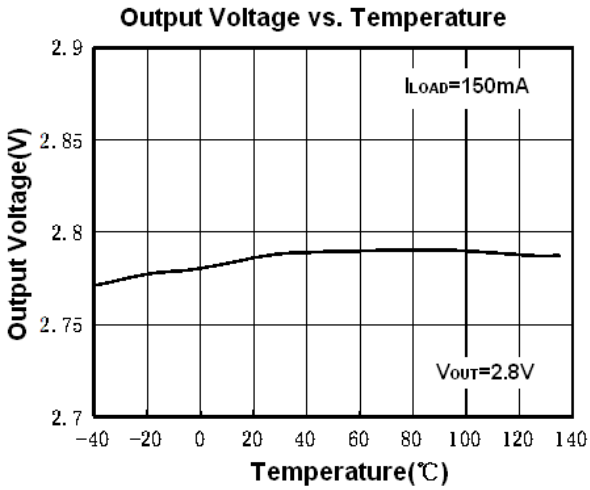
■ TYPICAL APPLICATION

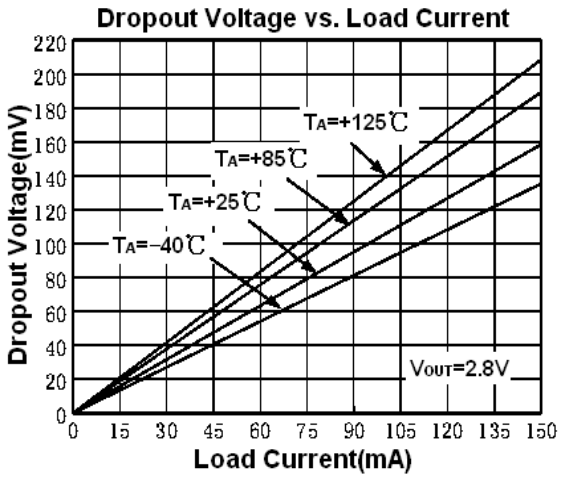


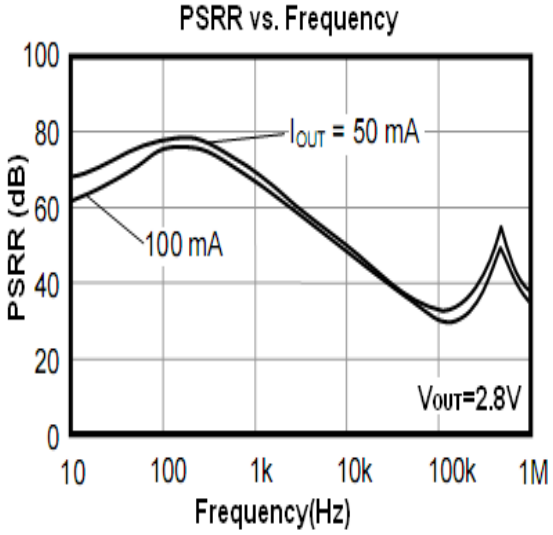


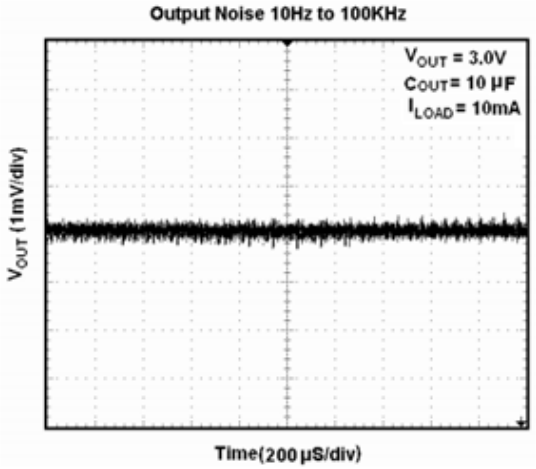
■ TYPICAL PERFORMANCE CHARACTERISTICS

(V_{CE}=V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=1μF，T_A=25℃,unless otherwise specified)





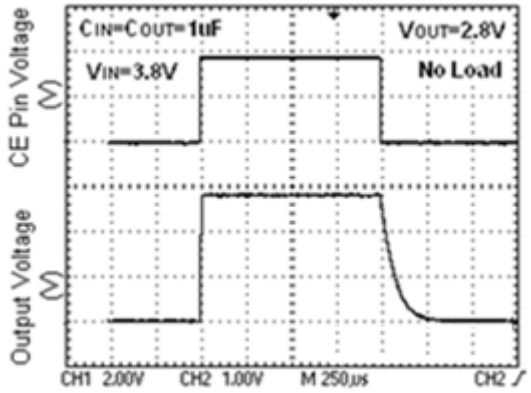




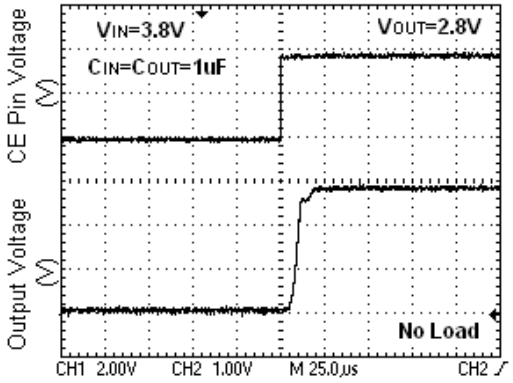
■ TYPICAL PERFORMANCE CHARACTERISTICS

(V_{CE}=V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=1μF，T_A=25℃,unless otherwise specified)

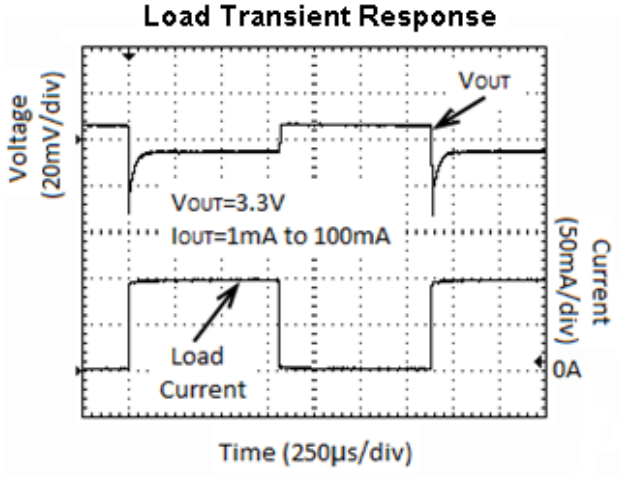
CE Pin Shutdown Response



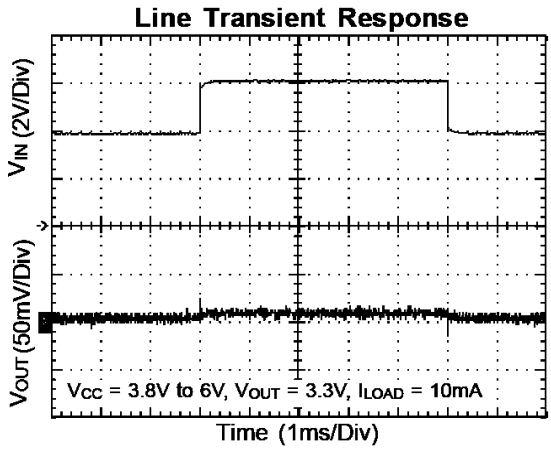
Start Up



Load Transient Response

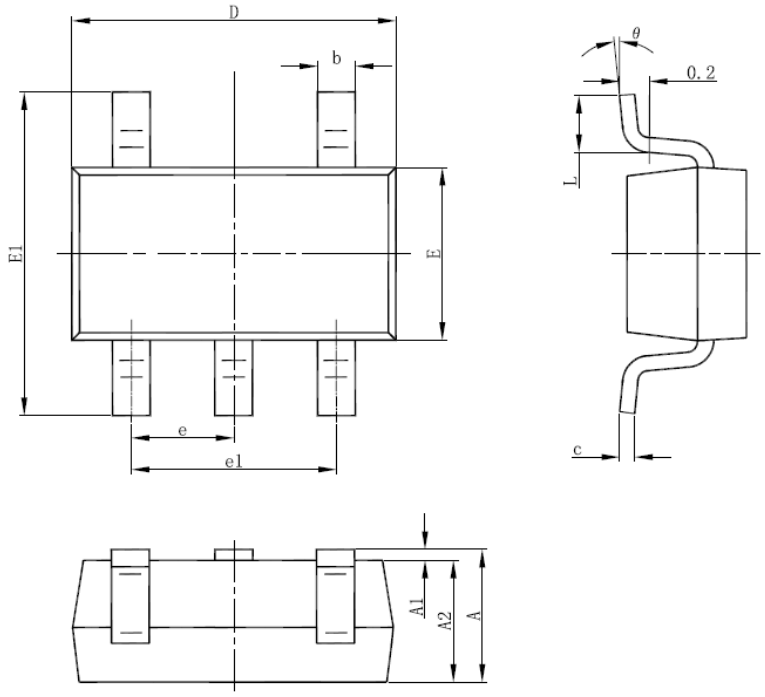


Line Transient Response



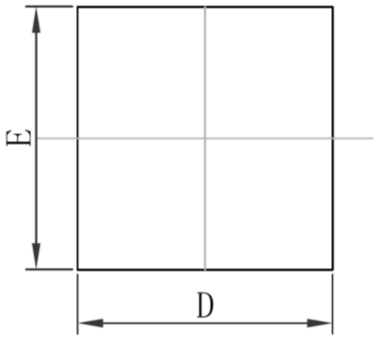
■ PACKAGING INFORMATION

● SOT-23-5 PACKAGE OUTLINE DIMENSIONS

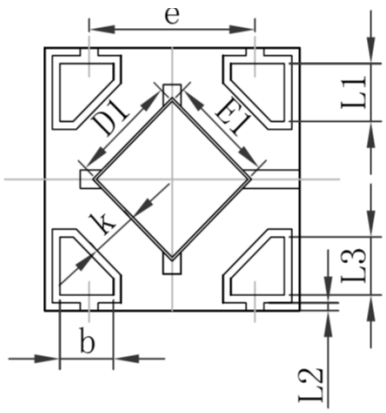


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)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

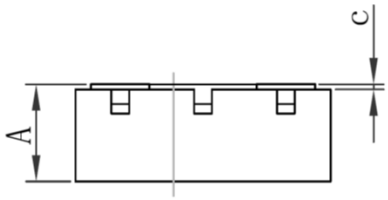
- **DFN1×1-4 PACKAGE OUTLINE DIMENSIONS**



TOP VIEW
[顶视图]



BOTTOM VIEW
[背视图]



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.335	0.405	0.013	0.016
D	0.950	1.050	0.037	0.041
E	0.950	1.050	0.037	0.041
D1	0.370	0.470	0.015	0.019
E1	0.370	0.470	0.015	0.019
k	0.17MIN.		0.007MIN.	
b	0.160	0.260	0.006	0.010
c	0.010	0.090	0.000	0.004
e	0.600	0.700	0.024	0.028
L1	0.185	0.255	0.007	0.010
L2	0.030 REF.		0.001 REF.	
L3	0.185	0.255	0.007	0.010

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