



6V Input , 500mA , Good Transient Response Low Voltage , CMOS LDO

Description

The AF6212 series are CMOS-based LDO regulators featuring 500mA output current. Internally, the IC consists of a voltage reference unit, an error amplifier and a current limit circuit. AF6212 also features an excellent line transient response, super high ripple rejection and low noise.

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

Applications

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

Device Information

AF 6212 – XX C/D

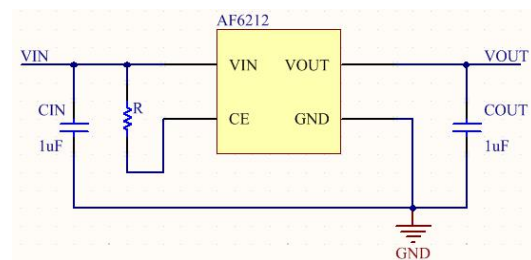
- ① ② ③ ④

①	Standard
②	Product Name
③	Output Voltage e.g. 25 = 2.5V
④	C: SOT23-5L Package
	D: DFN1X1-4 Package

Features

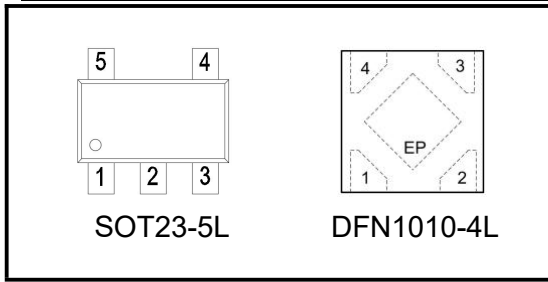
- Input Voltage Range: 2V~6V
- Output Voltage Range: 1V~3.3V
- Output Current: 500mA
- Quiescent Current: 50uA
- Dropout Voltage: 150mV@150mA
- Voltage Accuracy: ±2%(Typ.)
- PSRR: 75dB at 1kHz
- Excellent Line and Load Transient Response
- Short-Circuit Protection
- Built-in Current Limiter
- Low Output Noise

Typical Application



Pin Configuration

Symbol	Package Pin	
	SOT23-5L	DFN1010-4L
VIN	1	4
GND	2	2
CE	3	3
NC	4	
OUT	5	1
EP can connect GND or Float		



Absolute Maximum Ratings ⁽¹⁾

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

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	-0.3~7	V
Output Voltage		V_{OUT}	-0.3~ V_{IN}	V
Output Current		I_{OUT}	600	mA
Power Dissipation	SOT23-5	P_D	0.4	W
	DFN1X1-4			
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
Package Thermal Resistance	SOT23-5	θ_{JA}	250	°C/ W
	DFN1X1-4			

(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

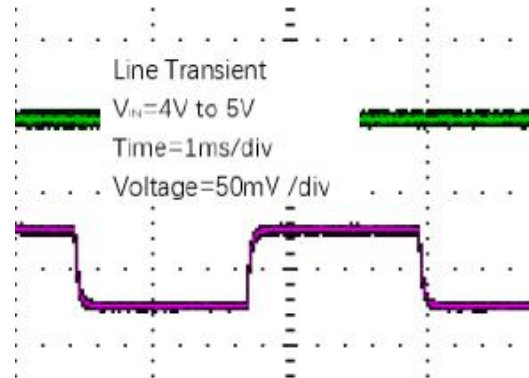
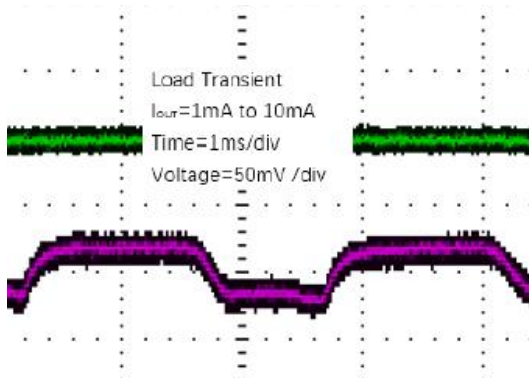
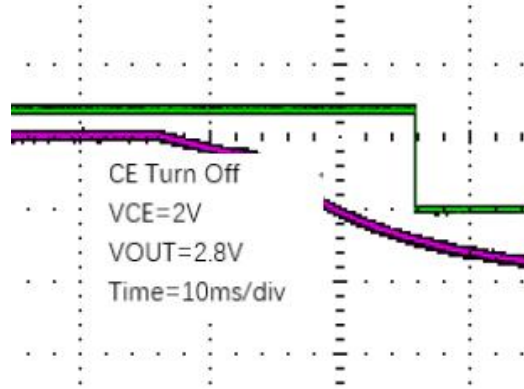
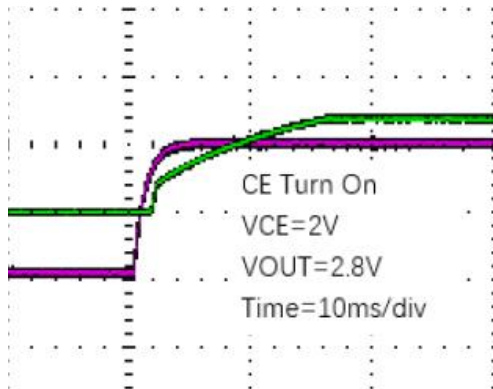
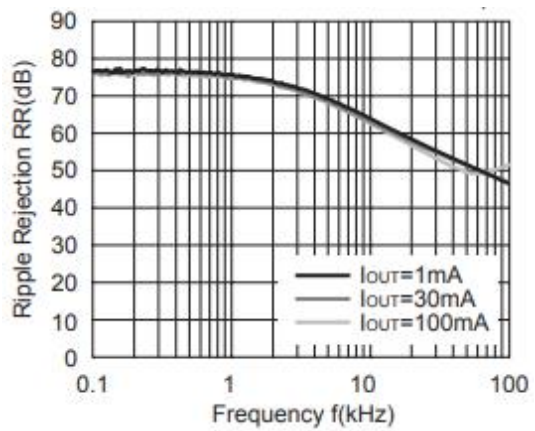
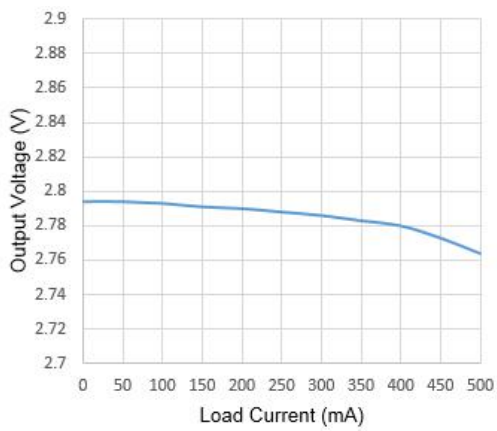
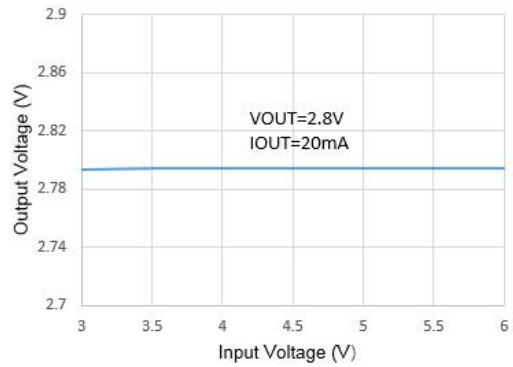
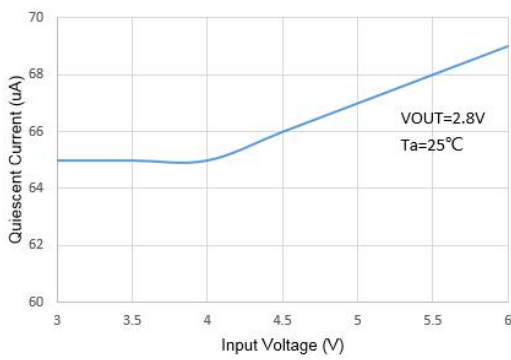
(Unless otherwise specified, $V_{IN}=V_{OUT}+1V$, $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		2		6	V
Output Voltage	V_{OUT}		0.98 V_{OUT}	V_{OUT}	1.02 V_{OUT}	V
Dropout Voltage	V_{DIF}	$I_{OUT}=150mA$ $V_{OUT}\geq 2.8V$		150		mV
Quiescent Current	I_Q	$I_{OUT}=0$		50	100	μA
Shutdown current	I_{CEL}	$V_{CE}=V_{SS}$			0.1	μA
Line Regulation	ΔV_{LINE}	$I_{OUT}=10mA$ $V_{OUT}+1V\leq V_{IN}\leq 6V$		0.01	0.2	%/V
Load Regulation	ΔV_{LOAD}	$V_{IN}=V_{OUT}+1V$ $1mA\leq I_{OUT}\leq 100mA$		10		mV
Temperature Coefficient	TC	$I_{OUT}=10mA$ $-40^\circ C < T_A < 125^\circ C$		100		ppm
Short Current	I_{SHORT}	$V_{OUT}=V_{SS}$		100		mA
Power Supply Rejection Ratio	PSRR	$I_{OUT}=50mA$	1kHz	75		dB
			10kHz	70		
CE "High"	VCE"H"		1.5		V_{IN}	V
CE "Low"	VCE"L"				0.3	V
Output Noise		10Hz~100kHz		40		μV_{RMS}



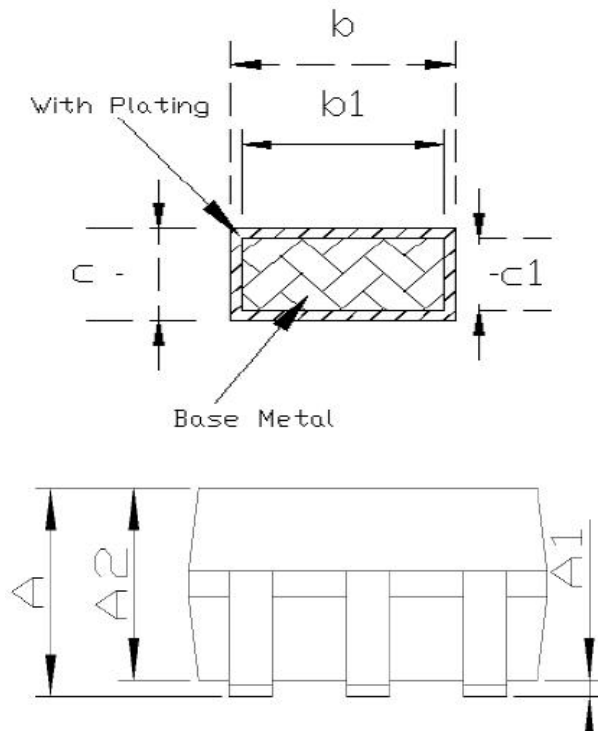
Typical Characteristics

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



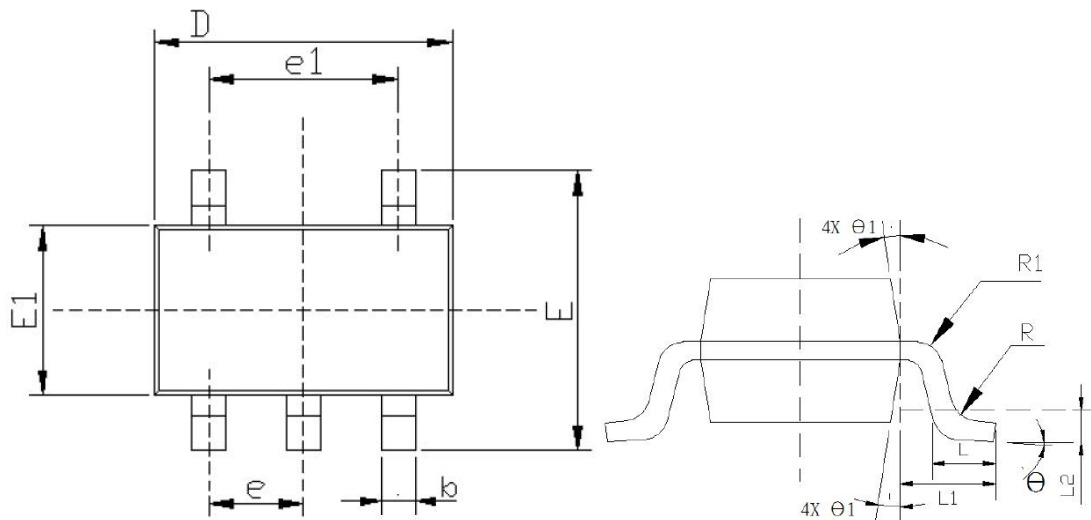


Package Information



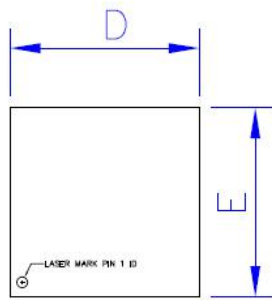
Common Dimensions (Units of Measure=Millimeter)			
SYMBOL	MINIMUM	NOMINAL	MAXIMUM
A	-	-	1.35
A1	0	-	0.15
A2	1.00	1.10	1.20
b	0.35	-	0.45
b1	0.32	-	0.38
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.6 REF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

SOT23-5L

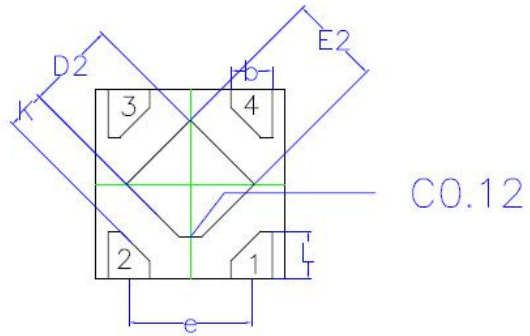




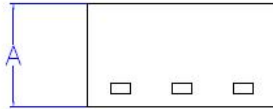
DFN1010-4L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

COMMON DIMENSION (MM)			
PKG	DFN1010		
REF.	MIN.	NOM.	MAX
A	0.34	0.37	0.40
b	0.17	0.22	0.27
D	0.95	1.00	1.05
E	0.95	1.00	1.05
D2	0.43	0.48	0.53
E2	0.43	0.48	0.53
L	0.20	0.25	0.30
e	0.60	0.65	0.70
K	0.15	—	—



AF6212 Series

Order Information

Voltage	DFN1010-4L	Marking	Shipping	SOT23-5L	Marking	Shipping
1.0			Tape and Reel, 10K	√	LVAX	Tape and Reel, 3K
1.05				√	LVCX	
1.1	√	1V1				
1.2	√	1V2.		√	LVBX	
1.3	√	1V3.				
1.5	√	1V5.		√	LVEX	
1.8	√	1V8		√	LVKX:	
2.5	√	2V5.		√	LVFX.	
2.8	√	2V8		√	LVXX	
3.0	√	3V0.		√	LVZX	
3.3	√	3V3.		√	LV2X:	



 **Revision History**

Document ID	Change Description	Version	Release date
AF6212	New revision	V1.0	2015-11-11
AF6212	Add Marking	V2.0	2018-12-17
AF6212	Update Curve and Layout	V3.7	2019-10-21
AF6212	Add Package Thermal Resistance Value	V3.8	2021-04-26

DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.