

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

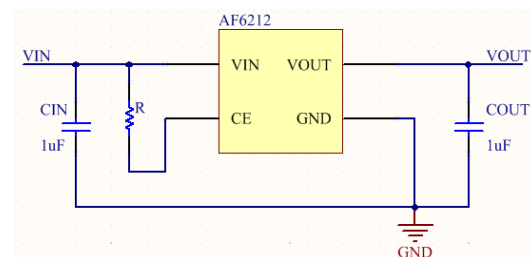
① ② ③ ④

| | |
|---|----------------------------------|
| 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: $\pm 2\%$ (Typ.)
- PSRR: 75dB at 1kHz
- Excellent Line and Load Transient Response
- Short-Circuit Protection
- Built-in Current Limiter
- Low Output Noise

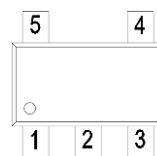
Typical Application



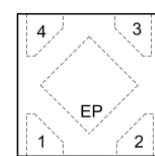
Pin Configuration

| 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



SOT23-5L



DFN1010-4L



AF6212 Series

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} | -0.3~7 | 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 | |

(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.

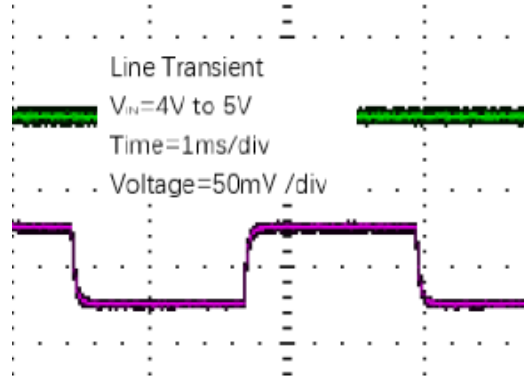
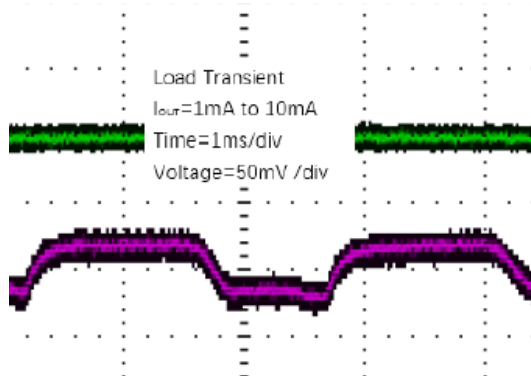
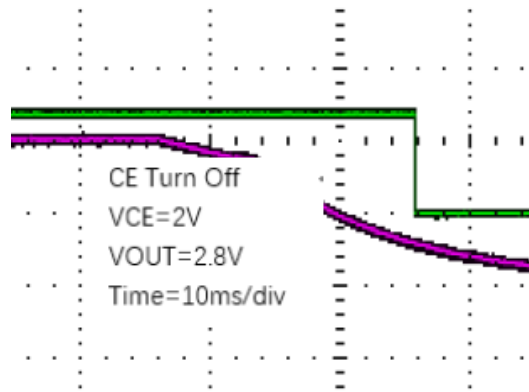
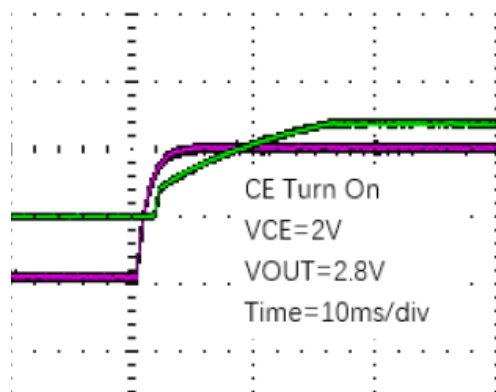
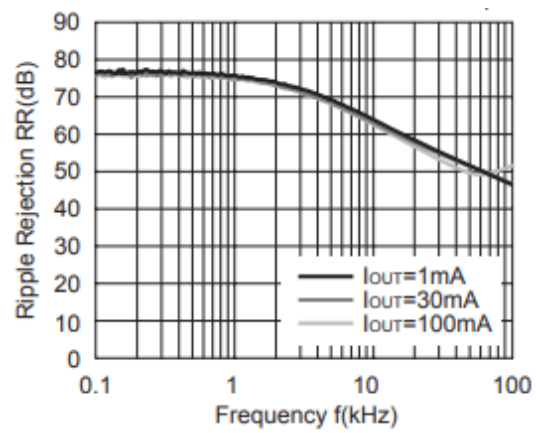
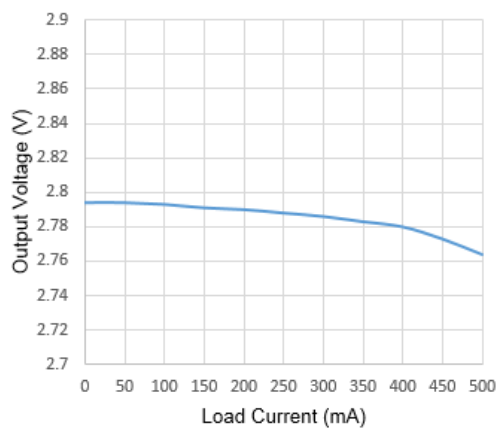
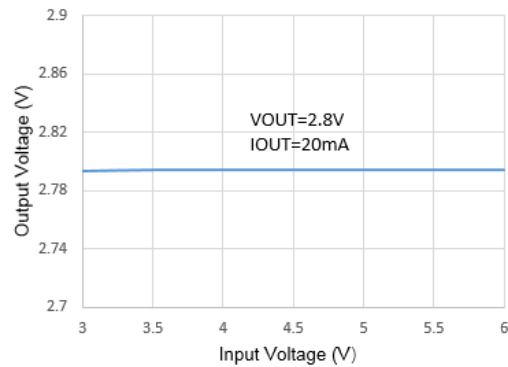
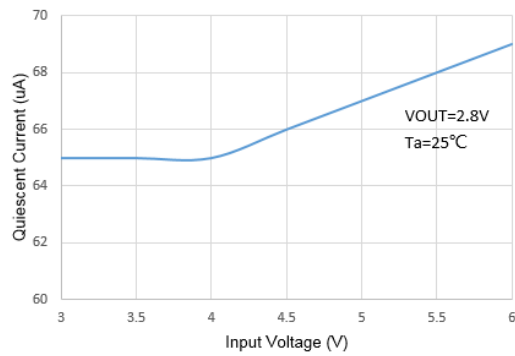
Electronics Characteristics

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

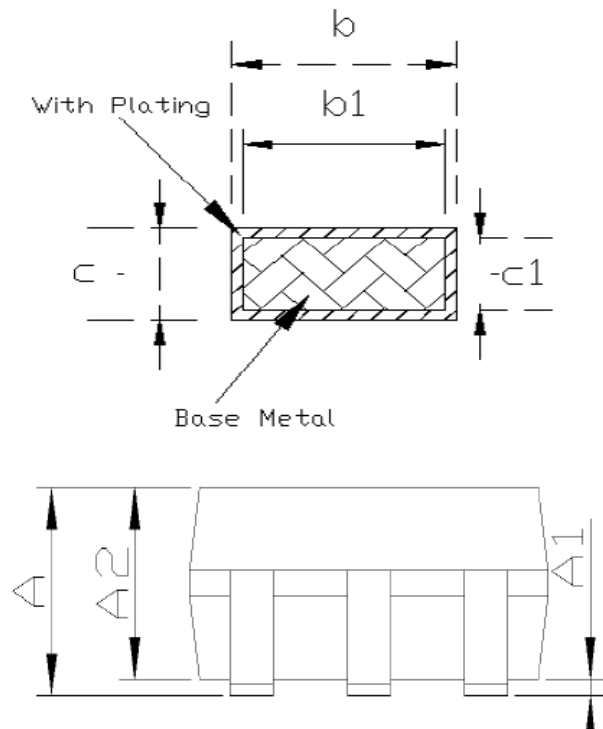
| PARAMETER | SYMBOL | CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------------------|---------------------|--|--------------------------|------------------|--------------------------|-------------------|
| Input Voltage | V _{IN} | | 2 | | 6 | V |
| Output Voltage | V _{OUT} | | 0.98 V _{OUT} | V _{OUT} | 1.02 V _{OUT} | V |
| Dropout Voltage | V _{DIF} | I _{OUT} =150mA V _{OUT} ≥2.8V | | 150 | | mV |
| Quiescent Current | I _Q | I _{OUT} =0 | | 50 | 100 | uA |
| Shutdown current | I _{CEL} | V _{CE} =V _{SS} | | | 0.1 | uA |
| Line Regulation | ΔV _{LINE} | I _{OUT} =10mA V _{OUT} +1V≤V _{IN} ≤6V | | 0.01 | 0.2 | %/V |
| Load Regulation | ΔV _{LOAD} | V _{IN} =V _{OUT} +1V 1mA≤I _{OUT} ≤100mA | | 10 | | mV |
| Temperature Coefficient | TC | I _{OUT} =10mA -40°C<T _A <125°C | | 100 | | ppm |
| Short Current | I _{SHORT} | V _{OUT} =V _{SS} | | 100 | | mA |
| Power Supply Rejection Ratio | PSRR | I _{OUT} =50 mA | 1kHz | 75 | | dB |
| | | | 10kHz | 70 | | |
| CE "High" | V _{CE} "H" | | 1.5 | | V _{IN} | V |
| CE "Low" | V _{CE} "L" | | | | 0.3 | V |
| Output Noise | | 10Hz~100kHz | | 40 | | uV _{RMS} |

Typical Characteristics

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

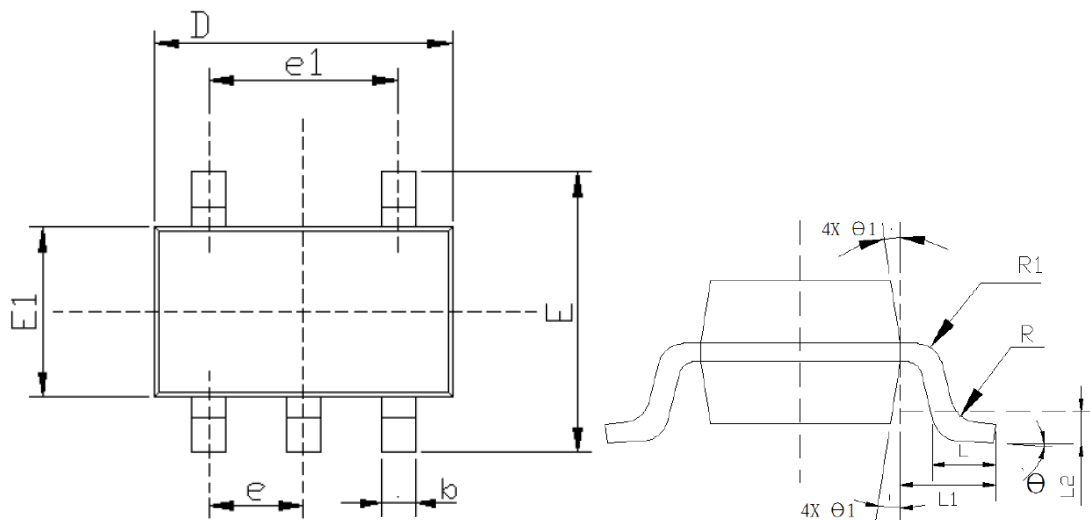


Package Information

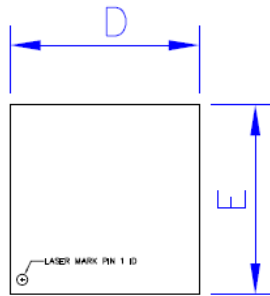


| Common Dimensions | | | |
|-------------------------------|----------|---------|---------|
| (Units of Measure=Millimeter) | | | |
| SYMBOL | MINIMUM | NOMINAL | MAXIMUM |
| A | - | - | 1.35 |
| A1 | 0 | - | 0.15 |
| A2 | 1.00 | 1.10 | 1.20 |
| b | 0.35 | - | 0.45 |
| b1 | 0.32 | - | 0.38 |
| c | 0.14 | - | 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° |
| θ_1 | 5° | 10° | 15° |

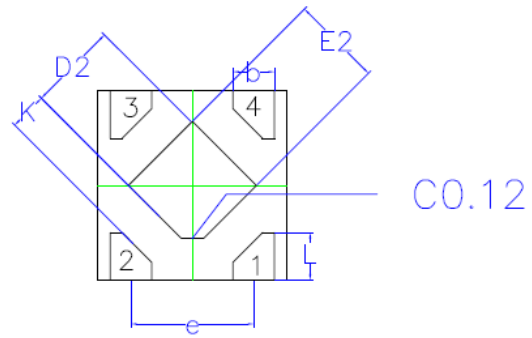
SOT23-5L



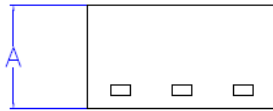
DFN1010-4L



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 | — | — |



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: | |

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