

General Description

The XB2121 series are positive voltage regulator ICs fabricated by CMOS process. Each of these ICs consists of a voltage reference, an error amplifier, a resistor network for setting output voltage, a current limit circuit for current protection and a chip-enable circuit (5-pin products only).

The XB2121 series feature high supply voltage ripple rejection, low dropout voltage, low noise, high output voltage accuracy, and low current consumption which make them ideal for use in various battery-powered devices.

Features

- Low Dropout Voltage at $I_{OUT}=100mA$: 150mV Typical (Except 1.2V, 1.3V and 1.5V Versions)
- Low Standby Current: 0.1 μA Typical
- Low Quiescent Current: 25 μA Typical
- High Ripple Rejection: 70dB Typical ($f=1kHz$)
- Output Current: More Than 200mA (300mA Limit)
- Extremely Low Noise: 30 μV_{rms} (10Hz to 100kHz)
- Excellent Line Regulation: 4mV Typical
- Excellent Load Regulation: 12mV Typical
- High Output Voltage Accuracy: $\pm 2\%$
- Excellent Line Transient Response and Load Transient Response
- Compatible with Low ESR Ceramic Capacitor (as Low as 1 μF)

Applications

- Mobile Phones, Cordless Phones
- Wireless Communication Equipment
- Portable Games
- Cameras, Video Recorders
- Sub-board Power Supplies for Telecom Equipment
- Battery Powered Equipment

Pin Configuration

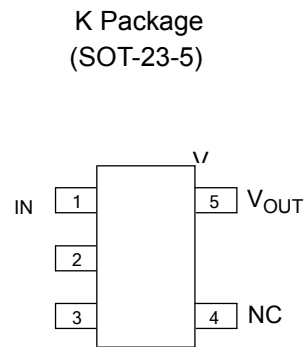


Figure 1. Pin Configuration of XB2121 (Top View)

Pin Description

Pin Number	Pin Name	Function
SOT-23-5		
1	V_{IN}	Input voltage
2	GND	Ground
3	CE	Active high enable input pin. Logic high=enable, logic low=shutdown
4	NC	No connection
5	V_{OUT}	Regulated output voltage

Functional Block Diagram

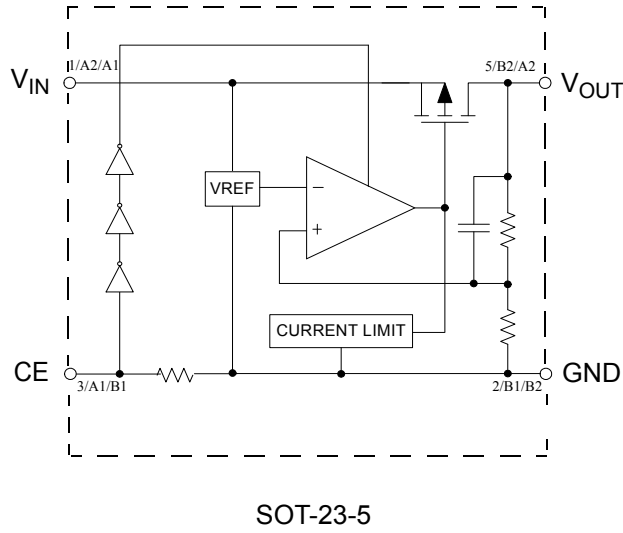


Figure 2. Functional Block Diagram of XB2121

Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	6.5	V
Enable Input Voltage	V_{CE}	-0.3 to $V_{IN}+0.3$	V
Output Current	I_{OUT}	300	mA
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-65 to 150	°C
Lead Temperature (Soldering, 10sec)	T_{LEAD}	260	°C
Thermal Resistance (Junction to Ambient) (Note 2)	θ_{JA}	SOT-23-5 250	°C/W
ESD (Human Body Model)	ESD	2000	V
ESD (Machine Model)	ESD	200	V

Note 1: Stresses greater than 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 Ratings" for extended periods may affect device reliability.

Note 2: Absolute maximum ratings indicate limits beyond which damage to the component may occur. Electrical specifications do not apply when operating the device outside of its operating ratings. The maximum allowable power dissipation is a function of the maximum junction temperature, $T_{J(max)}$, the junction-to-ambient thermal resistance, θ_{JA} , and the ambient temperature, T_A . The maximum allowable power dissipation at any ambient temperature is calculated using: $P_{D(max)} = (T_{J(max)} - T_A) / \theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Input Voltage	V_{IN}	2	6	V
Operating Ambient Temperature Range	T_A	-40	85	°C

Electrical Characteristics (Continued)**XB2121 Electrical Characteristics**(V_{IN}=3.5V, T_J=25°C, C_{IN}=1μF, C_{OUT}=1μF, **Bold** typeface applies over -40°C≤T_J≤85°C, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V _{OUT}	V _{IN} =3.5V 1mA≤I _{OUT} ≤30mA	2.45	2.5	2.55	V
Input Voltage	V _{IN}				6	V
Output Current	I _{OUT}	V _{IN} -V _{OUT} =1V	200			mA
Load Regulation	V _{RLOAD}	V _{IN} =3.5V 1mA≤I _{OUT} ≤80mA		12	40	mV
Line Regulation	V _{RLINE}	3V≤V _{IN} ≤6V I _{OUT} =30mA		4	16	mV
Dropout Voltage	V _{DROP}	I _{OUT} =10mA		20	40	mV
		I _{OUT} =100mA		150	300	
		I _{OUT} =150mA		200	400	
		I _{OUT} =200mA		250	500	
Quiescent Current	I _Q	V _{IN} =3.5V, I _{OUT} =0mA		25	50	μA
Standby Current	I _{STD}	V _{IN} =3.5V V _{CE} in OFF mode		0.1	1	μA
Power Supply Rejection Ratio	PSRR	Ripple 0.5Vp-p, f=1kHz V _{IN} =3.5V		70		dB
Output Voltage Temperature Coefficient	ΔV _{OUT} /ΔT	I _{OUT} =30mA		±250		μV/°C
	(ΔV _{OUT} /V _{OUT})/ΔT			±100		ppm/°C
Short Current Limit	I _{LIMIT}	V _{OUT} =0V		50		mA
RMS Output Noise	V _{NOISE}	T _A =25°C 10Hz ≤f≤100kHz		30		μVrms
CE "High" Voltage		CE input voltage "High"	1.5			V
CE "Low" Voltage		CE input voltage "Low"			0.25	V
CE Pull-down Resistance	R _{PD}		2.5	5	10	MΩ
Thermal Resistance (Junction to Case)	θ _{JC}					°C/W
		SOT-23-5		74		

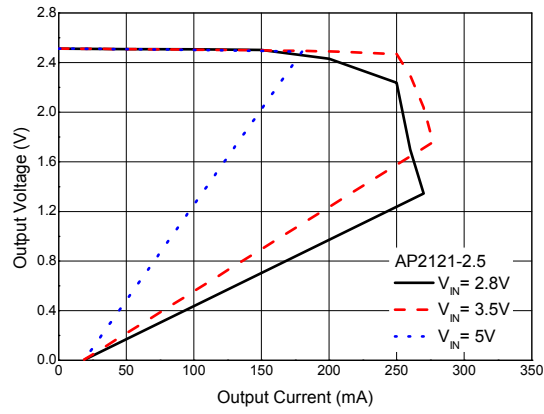
Typical Performance Characteristics

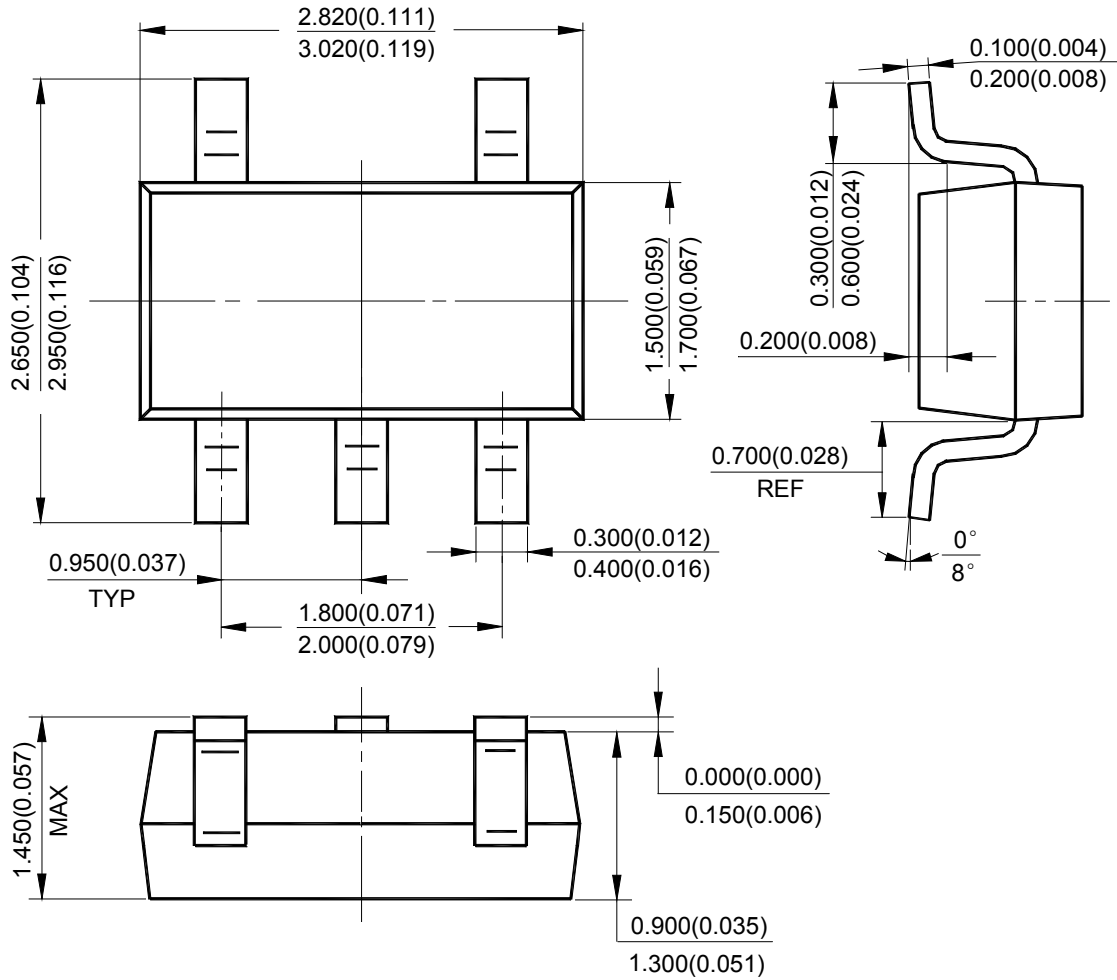
Figure 3. Output Voltage vs. Output Current

Note: Filter capacitors are required at the XB2121 input and output. 1 μF capacitor is required at the input. The minimum output capacitance required for stability should be more than 1 μF with ESR from 0.01 Ω to 100 Ω . Ceramic capacitors are recommended.

Mechanical Dimensions (Continued)

SOT-23-5

Unit: mm(inch)



以上信息仅供参考. 如需帮助联系客服人员。谢谢 XINLUDA