DESCRIPTION

A6306 series is a group of positive voltage output, low power consumption, low dropout voltage regulator. A6306 can provide output value in the range of 1.0V~4.4V every 0.1V step. It also can be customized on command.

A6306 includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

A6306 has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

The A6306 is available in DFN4(1x1) packages.

ORDERING INFORMATION

Package Type	Part Number	
DFN4	J4	A6306J4R-XX
		A6306J4VR-XX
Note	R: Tape & Reel XX: Output Voltage V: Halogen free Package	
AiT provides all RoHS products Suffix "V" means Halogen free Package		

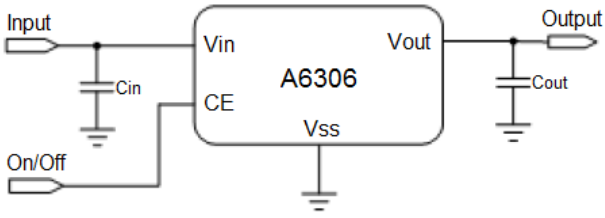
FEATURES

- Low Power Consumption: 25uA (Typ.)
- Low output noise (47uV$_{RMS}$)
- Standby Mode: 0.1uA
- Low dropout Voltage: 360mV@300mA (Typ.)
- High Ripple Rejection:74dB@100Hz (Typ.)
- Low Temperature Coefficient: ±100ppm/℃
- Excellent Line regulation: 0.05%/V
- Build-in chip enable circuit
- Output Voltage Range: 1.0V~4.4V (customized on command every 0.1V step)
- Highly Accurate: ±2%
- Output Current Limit
- Available in DFN4 Packages

APPLICATION

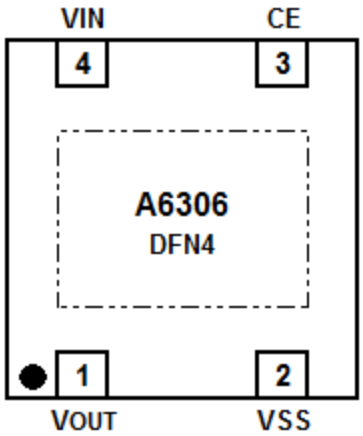
- Power source for cellular phones and various kind of PCS$_S$
- Battery Powered equipment
- Power Management of MP3, PDA, DSC, Mouse, PS2 Games
- Reference Voltage Source
- Regulation after Switching Power

TYPICAL APPLICATION



NOTE: Input capacitor (C_{IN}=1uF) and Output capacitor (C_{OUT}=1uF) are recommended in all application circuit.

PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	V_{OUT}	Output Voltage
2	V_{SS}	Ground Pin
3	CE	Chip Enable
4	V_{IN}	Supply Voltage Input

ABSOLUTE MAXIMUM RATINGS

Max Input Voltage	8V
T_J, Operating Junction Temperature	125℃
Output Current	300mA
T_A, Ambient Temperature	-40℃ - 85℃
Power Dissipation	600mW
T_S, Storage Temperature	-40℃ -150℃
Lead Temperature & Time	260℃,10S

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE: Heat Sink Area of PCB for DFN4 is recommended at least 2.5mmx4mm.

Exceed these limits to damage to the device.

Exposure to absolute maximum rating conditions may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

Parameter	Min	Max	Units
Input Voltage Range	2	6	V
Ambient Temperature	-40	85	℃

ELECTRICAL CHARACTERISTICS

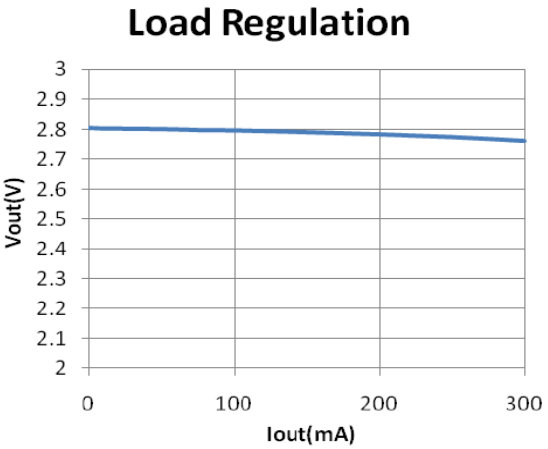
C_{IN}=1uF,C_{OUT}=1uF,T_A=25℃, unless otherwise specified.

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Voltage		V_{IN}		2		6	V
Output Voltage	V_{OUT}>1.5V	V_{OUT}	V_{IN}=Set V_{OUT}+1V 1mA≤I_{OUT}≤30mA	V_{OUT} x0.98	V_{OUT}	V_{OUT} X1.02	V
	V_{OUT}<=1.5V			V_{OUT} -0.03		V_{OUT} +0.03	
Maximum Output Current		$I_{OUT\ (MAX)}$	V_{IN}-V_{OUT}=1V	300			mA
Dropout Voltage,V_{OUT}≥2.8V		V_{DROP}NOTE1	I_{OUT}=100mA		115	200	mA
			I_{OUT}=300mA		360	420	mA
Line Regulation		$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	I_{OUT}=40mA 2.8V≤V_{IN}≤6V		0.05	0.2	%/V
Load Regulation		$\Delta V_{OUT}/\Delta I_{OUT}$	V_{IN}=Set V_{OUT}+1V 1mA≤I_{OUT}≤300mA		60	100	mV
Supply Current		I_{SS}	V_{IN}=Set V_{OUT}+1V		25	50	uA
Supply Current (Standby)		$I_{STANDBY}$	V_{IN}=Set V_{OUT}+1V V_{CE}=V_{SS}		0.1	1.0	uA
Output Voltage Temperature Coefficiency		$\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$	I_{OUT}=30mA		±100		ppm/℃
Ripple Rejection		PSRR	F=100Hz, Ripple=0.5V_{P-P} V_{IN}=Set V_{OUT}+1V		74		dB
Current Limit		I_{LIM}			500		mA
CE Input Voltage “H”		V_{CEH}		1.5		V_{IN}	V
CE Input Voltage “L”		V_{CEL}		0		0.25	V
Output Noise		en	BW=10Hz~100kHz		47		uV_{RMS}

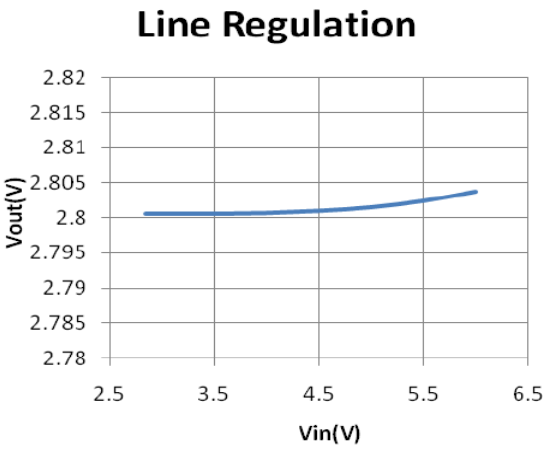
NOTE: V_{DROP}=V_{IN}1-(V_{OUT}2*0.98) V_{OUT}2 is the output voltage when V_{IN}=V_{OUT}1+1.0V and I_{OUT}=300mA. V_{IN}1 is the input voltage at which the output voltage becomes 98% of V_{OUT}1 after gradually decreasing the input voltage.

TYPICAL PERFORMANCE CHARACTERISTICS

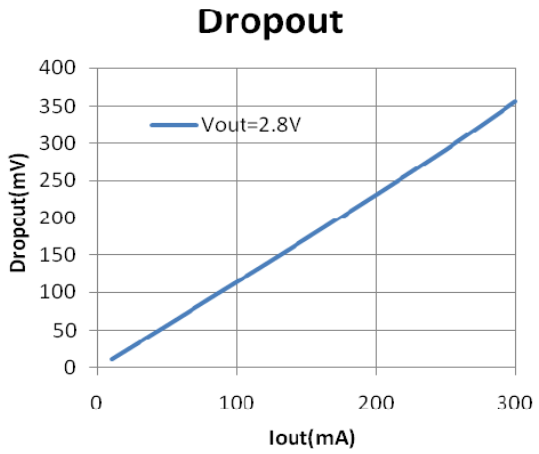
1. Output Voltage vs. Output Current



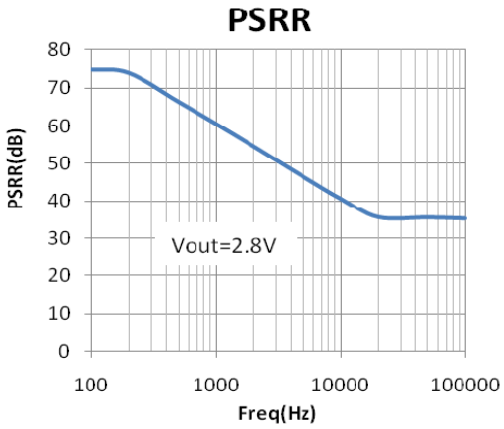
2. Output Voltage vs. Input Voltage



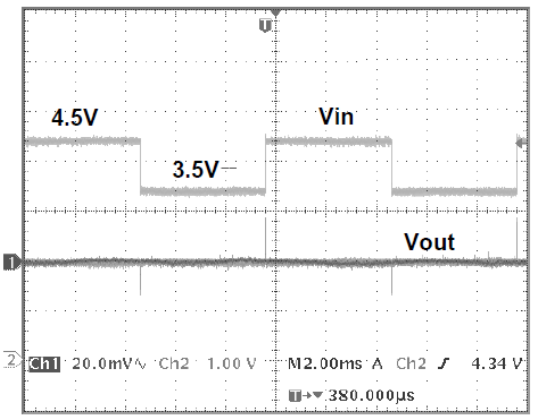
3. Dropout Voltage vs. Output Current

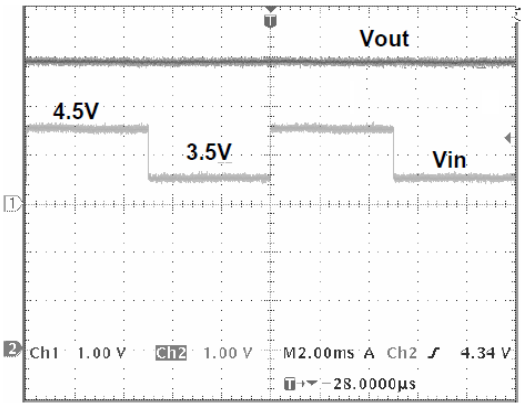


4. Ripple rejection vs. Frequency

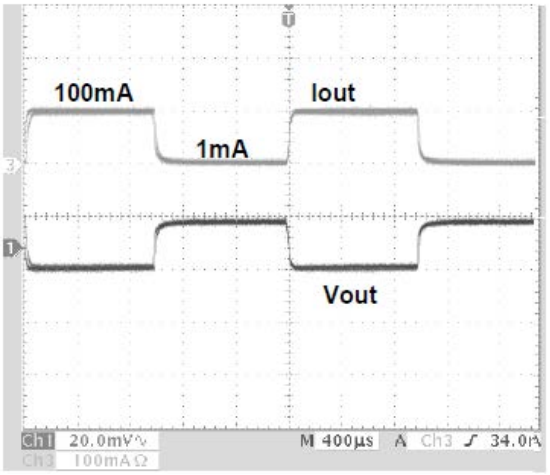


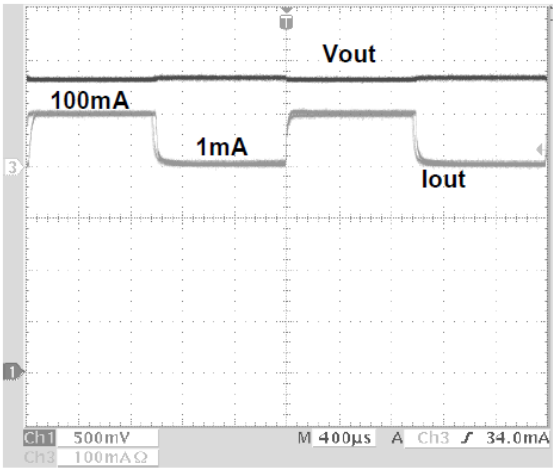
5. Line transient response ,C_{IN}=C_{OUT}=1uF,I_{OUT}=10mA,V_{OUT}=2.8V



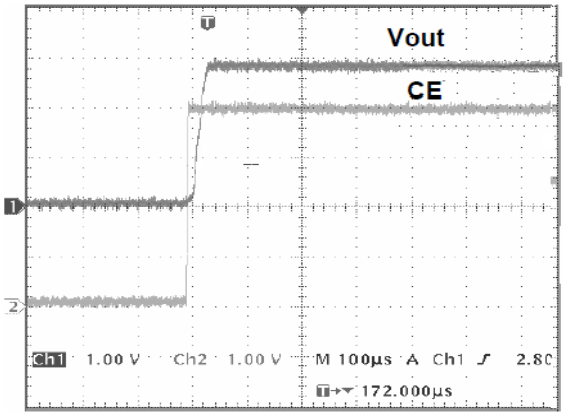


6. Load transient response, C_{IN}=C_{OUT}=1uF,V_{IN}=4.0V,V_{OUT}=2.8V

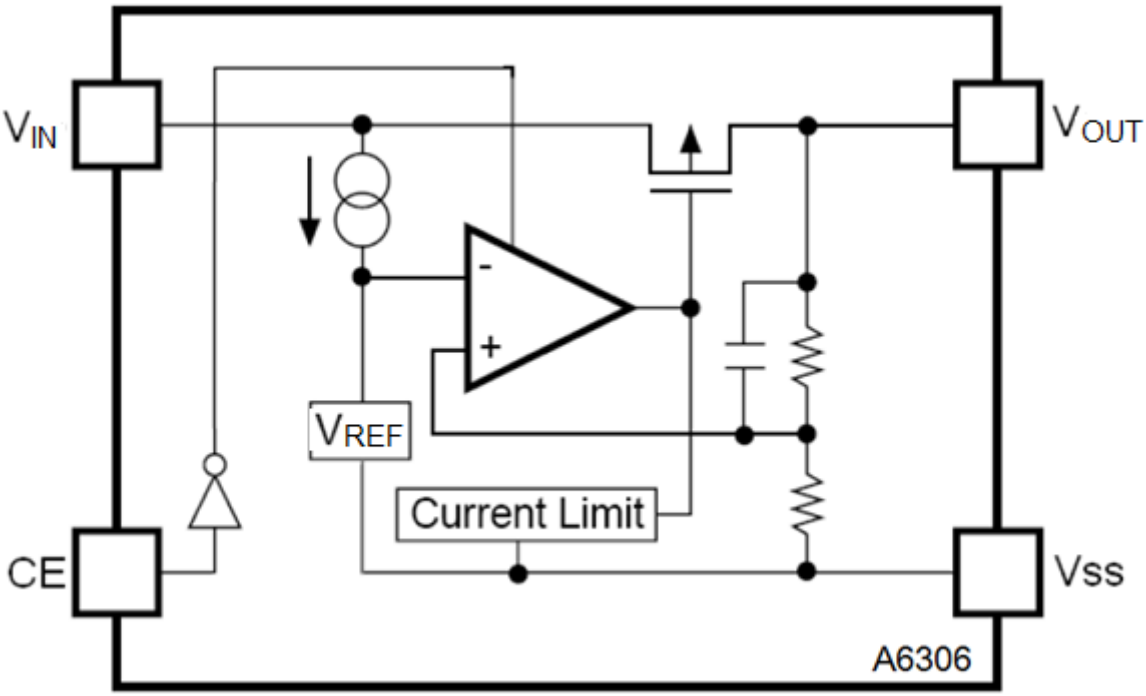




7.Start up from CE



BLOCK DIAGRAM



DETAILED INFORMATION

A6306 series is a group of positive voltage output, low noise, low power consumption, low dropout voltage regulator.

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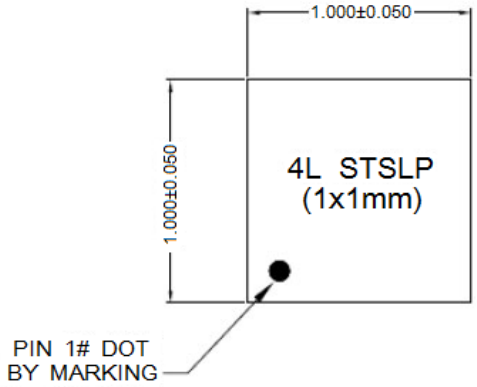
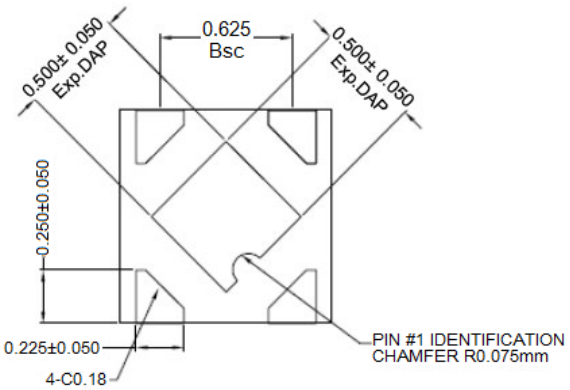
PACKAGE INFORMATION

Dimension in DFN4(1x1) (Unit: mm)



TOP WIEW

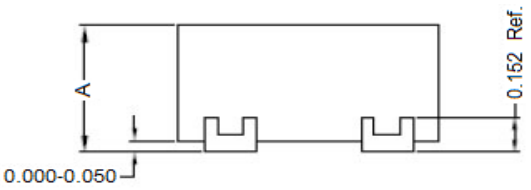


BOTTOM VIEW

NOTE:

1) 'A' DIMENSION AS BELOW TABLE

		STSLP
A	MAX.	0.600
	NOM.	0.550
	MIN.	0.500



SIDE VIEW

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