

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 3uA at 6V
- Output voltage accuracy: tolerance $\pm 2\%$

Applications

- Battery-powered equipment
- Reference voltage sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games

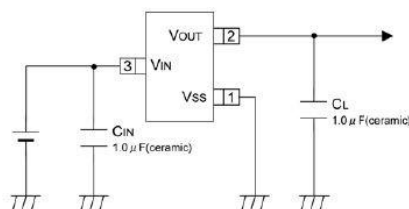
General Description

HX6306 series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage.

The HX6306 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is

compatible with low ESR ceramic capacitors. The current limiter's foldback circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.2V to 5.0V. HX6306 series are available in SOT-23, SOT23-3 and SOT-89 packages.

Typical Application



Order Information

HX6306P ①②③④

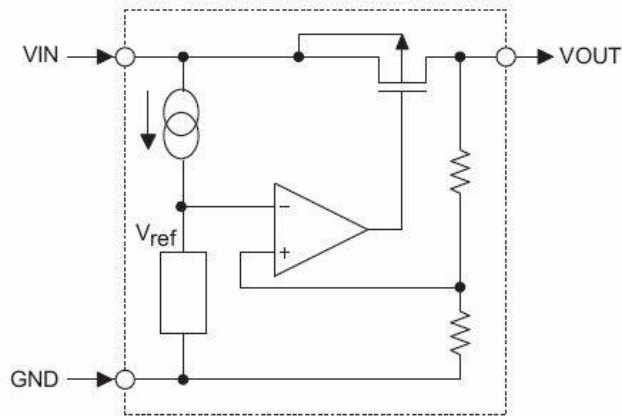
Designator	Symbol	Description
①②	Integer	Output Voltage(2.1~5.0V)
③	M	Package:SOT23
	N	Package:SOT23-3
	P	Package:SOT89A
	P1	Package:SOT89B
④	R	RoHS / Pb Free
	G	Halogen Free

Note: "①②" stands for output voltages. Other voltages can be specially customized

HX6306

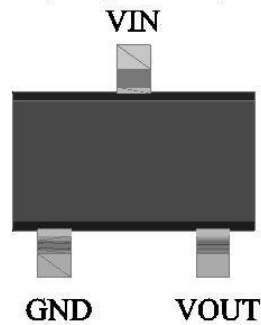
300mA Low Power LDO

Block Diagram

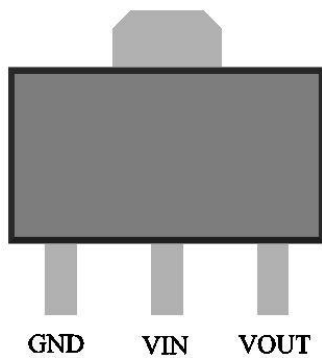


Pin Assignment

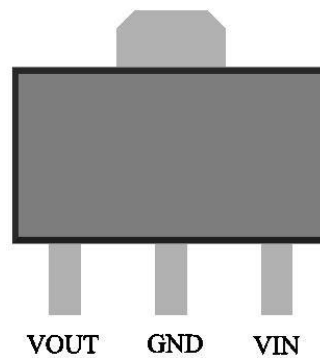
SOT23-3 and SOT23 (Top view)



SOT89 A (Top view)



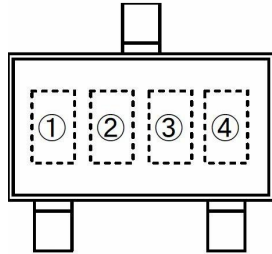
SOT89 B (Top view)



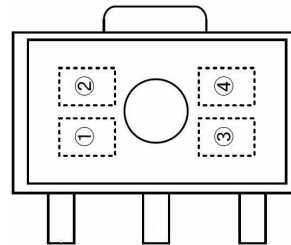
HX6306

300mA Low Power LDO

Marking Rule



SOT-23
(TOP VIEW)



SOT-89
(TOP VIEW)

① represents product number

MARK	PRODUCT SERIES
6	HX6306****

② represents 3 pins regulator

MARK		PRODUCT SERIES
VOLTAGE=0.1~3.0V	VOLTAGE=3.1V~6.0V	
5	6	HX6306

③ represents output voltage

MARK	VOLTAGE(V)			MARK	VOLTAGE(V)		
0	-	3.1	-	F	1.6	4.6	-
1	-	3.2	-	H	1.7	4.7	-
2	-	3.3	-	K	1.8	4.8	-
3	-	3.4	-	L	1.9	4.9	-
4	-	3.5	-	M	2.0	5.0	-
5	-	3.6	-	N	2.1	-	-
6	-	3.7	-	P	2.2	-	-
7	-	3.8	-	R	2.3	-	-
8	-	3.9	-	S	2.4	-	-
9	-	4.0	-	T	2.5	-	-
A	-	4.1	-	U	2.6	-	-
B	1.2	4.2	-	V	2.7	-	-
C	1.3	4.3	-	X	2.8	-	-
D	1.4	4.4	-	Y	2.9	-	-
E	1.5	4.5	-	Z	3.0	-	-

④ X

HX6306

300mA Low Power LDO

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Units	
Input Voltage	V_{IN}	10	V	
Output Current	I_{OUT}	300*	mA	
Output Voltage	V_{OUT}	$V_{SS}-0.3\sim V_{IN}+0.3$	V	
Power Dissipation	SOT-23	P_d	0.20	W
	SOT-89		0.50	W
	USP-6B		0.10	W
	TO-92		0.30	W
Operating Temperature Range	T_{opr}	-40~+85	°C	
Storage Temperature Range	T_{stg}	-55~+125	°C	

$$*I_{OUT}=P_d/(V_{IN}-V_{OUT})$$

Electrical Characteristics

HX6306 for any output voltage

($T_a=25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_{out}	$V_{in}=V_{out}+1V$ $1.0mA\leq I_{out}\leq 30mA$	$V_{out}\times 0.98$	--	$V_{out}\times 1.02$	V
Output Current*1	I_{out}	$V_{in}-V_{out}=1V$	--	300	--	mA
Low dropout*2	V_{drop}	Refer to the next table				
Line Regulation	$\Delta V_{out1}/(V_{in}-V_{out})$	$1.6V\leq V_{in}\leq 8V$ $I_{out}=40mA$	--	0.05	0.2	%/V
Load Regulation	$\Delta V_{out}/\Delta I_{out}$	$V_{in}=V_{out}+1V$ $1.0mA\leq I_{out}\leq 80mA$	--	12	30	mV
Output voltage Temperature Coefficiency	$\Delta V_{out}/(T_a-V_{out})$	$I_{out}=30mA$ $0^\circ\text{C}\leq T_a\leq 70^\circ\text{C}$	--	± 100	--	Ppm/°C
Supply Current	I_{ss}	--	--	3	5	μA
Input Voltage	V_{in}	--	--	8	10	V
PSRR	PSRR	$F=1KHz$ $V_{in}=V_{out}+1V$	--	50	--	dB
Output Noise	EN	$BW=10Hz\sim 100KHz$	--	30	--	μV_{rms}

HX6306

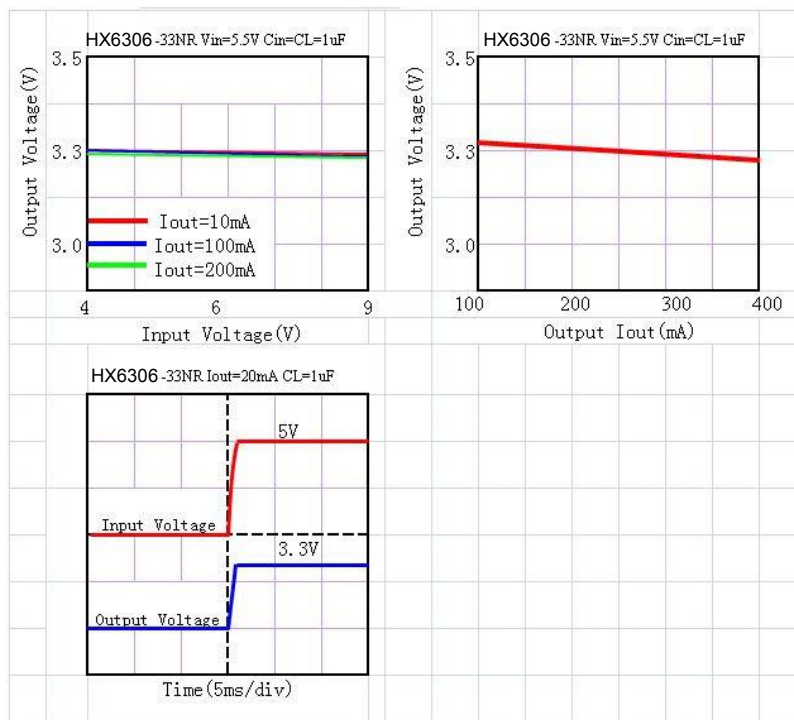
300mA Low Power LDO

Electrical Characteristics by Output Voltage:

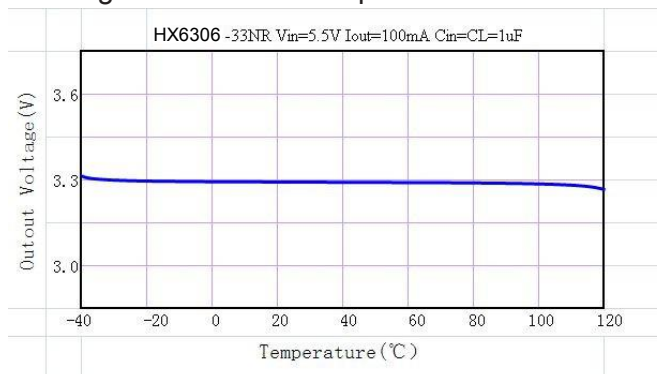
Output Voltage Vout(V)	Dropout Voltage Vdif (V)		
	Conditions	Typ.	Max.
Vout≤1.5V	Iout=100 mA	0.35	0.57
1.8 ≤ Vout ≤ 2		0.28	0.42
2.8 ≤ Vout ≤ 5.0		0.19	0.35

Typical Performance Characteristics

(1) Output Voltage vs Input voltage and Output Voltage vs. Output Current and Input Transient Response



(2) Output Voltage vs. Ambient Temperature

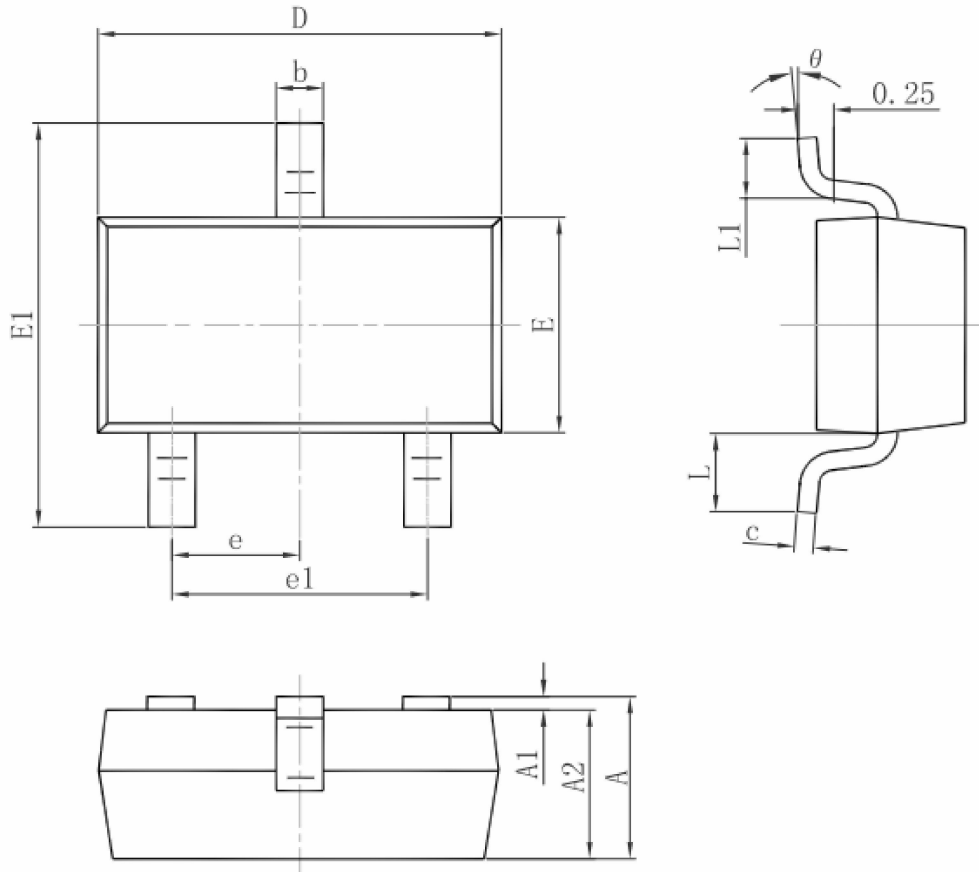


HX6306

300mA Low Power LDO

Package Information

3-pin SOT23 Outline Dimensions

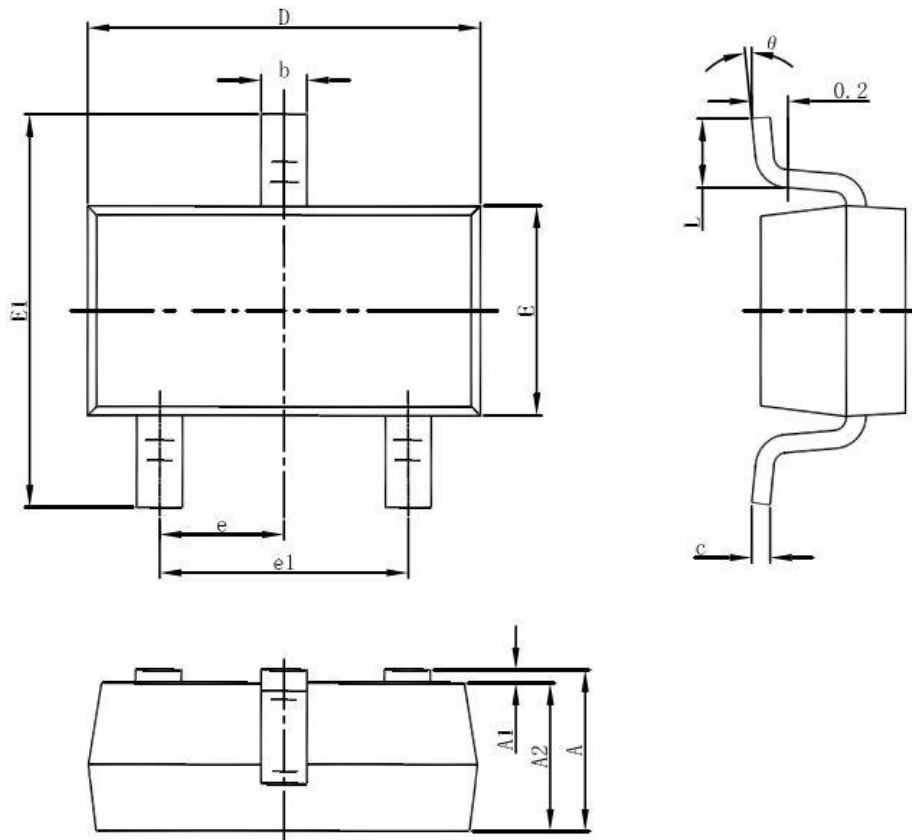


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

HX6306

300mA Low Power LDO

3-pin SOT23-3 Outline Dimensions

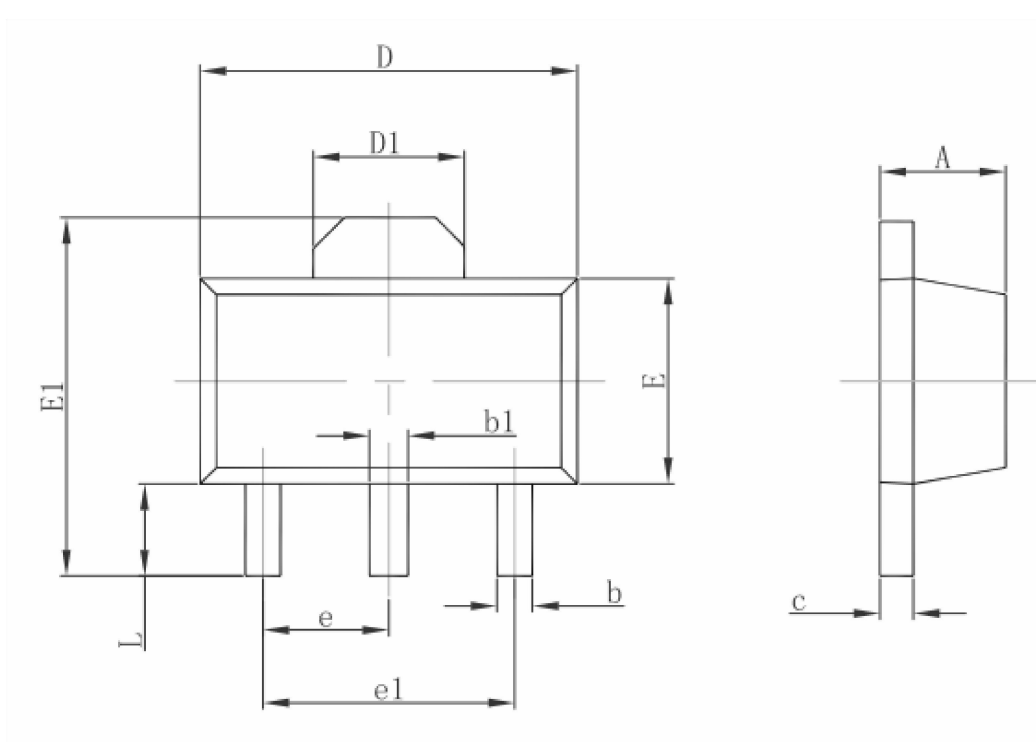


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)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

HX6306

300mA Low Power LDO

3-pin SOT89 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [LDO Voltage Regulators](#) category:

Click to view products by [hengjiaxing](#) manufacturer:

Other Similar products are found below :

[AP7363-SP-13](#) [L79M05TL-E](#) [AP7362-HA-7](#) [PT7M8202B12TA5EX](#) [TCR3DF185,LM\(CT](#) [TCR3DF45,LM\(CT](#) [TLE4473G V52](#) [059985X](#)
[NCP4687DH15T1G](#) [701326R](#) [NCV8170AXV250T2G](#) [AP7315-25W5-7](#) [AP2111H-1.2TRG1](#) [ZLDO1117QK50TC](#) [AZ1117ID-ADJTRG1](#)
[TCR3DG12,LF](#) [MIC5514-3.3YMT-T5](#) [SCD7912BTG](#) [NCP154MX180270TAG](#) [SCD33269T-5.0G](#) [NCV8170BXV330T2G](#)
[NCV8170BMX330TCG](#) [NCV8170AMX120TCG](#) [NCP706ABMX300TAG](#) [NCP153MX330180TCG](#) [NCP114BMX075TCG](#) [MC33269T-3.5G](#)
[TCR3DG33,LF](#) [TCR4DG35,LF](#) [TAR5S15U\(TE85L,F\)](#) [TAR5S18U\(TE85L,F\)](#) [TCR3UG19A,LF](#) [TCR4DG105,LF](#) [MPQ2013AGG-5-P](#)
[NCV8170AMX360TCG](#) [TLE4268GSXUMA2](#) [NCP715SQ15T2G](#) [MIC5317-3.0YD5-T5](#) [NCV563SQ18T1G](#) [NCP715MX30TBG](#)
[NCV8702MX25TCG](#) [NCV8170BXV120T2G](#) [MIC5317-1.2YD5-T5](#) [NCV8170AMX150TCG](#) [NCV8170BMX150TCG](#) [AP2213D-3.3TRG1](#)
[NCV8170BMX120TCG](#) [NCV8170BMX310TCG](#) [NCV8170BMX360TCG](#) [MIC5514-1.2YMT-T5](#)