LC1205

300mA Low Consumption High PSRR Linear Regulator

GENERAL DESCRIPTION

LC1205 series are a group of positive voltage output, high precise, and high PSRR and low power consumption voltage regulator. Voltages are selectable in 100mV steps within a range of 0.9V to 3.5V. It also can be customized on command.

LC1205 series have 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%.

LC1205 series are available in SOT-23-3 package, which is lead (Pb)- free.

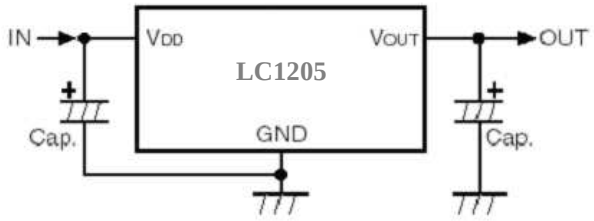
FEATURES

- Low Quiescent Current: 8uA at 5V
- High PSRR: 60dB range to 10KHz
- Low Output Noise: 44uVRMS
- Low Dropout: 270mV at 150mA load
- Low Temperature Coefficient: ±100ppm/°C
- Excellent Line Regulation: 0.05%/V
- Highly Accurate: ±2%

APPLICATIONS

- Reference Voltage Source
- Battery Powered Equipment
- Hand-Hold Equipment
- Wireless LAN
- GPS Receivers

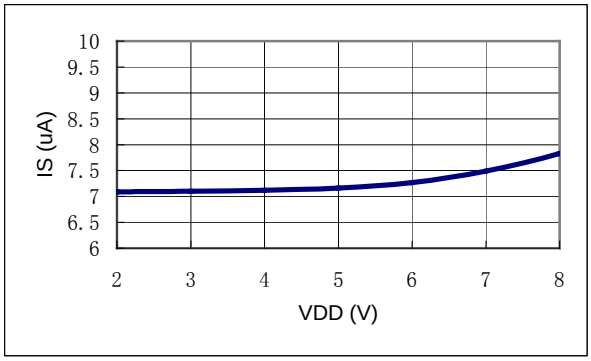
TYPICAL APPLICATION



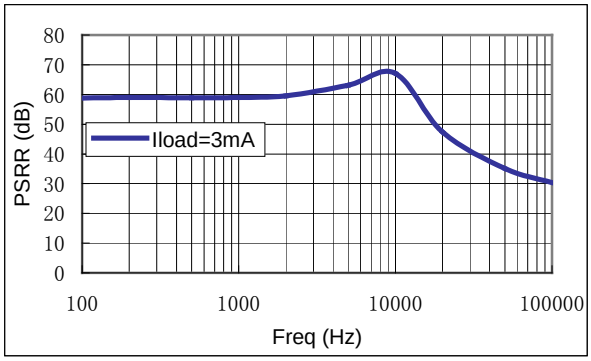
Note 1: Input capacitor (C_{IN}=1uF) is recommended in all applications.
Note 2: Output capacitor (C_{OUT}=1uF/6.8uF) is recommended in all applications to assure the stability of circuit. 1uF Tantalum capacitor or 6.8uF ceramic capacitor is recommended.

ELECTRICAL CHARACTERISTICS

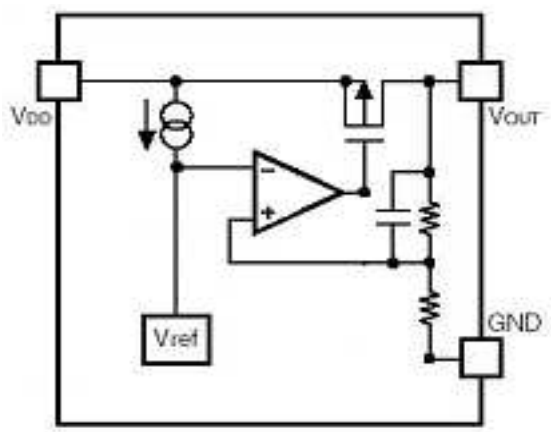
Supply Current vs. Input Voltage



Ripple Rejection vs. Frequency



BLOCK DIAGRAM

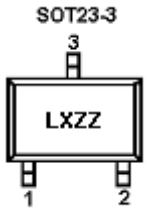


ORDERING INFORMATION

LC1205 [1][2][3][4]

Code	Description
[1]	Temperature & Rohs: C: -40~85°C, Pb Free Rohs Std.
[2]	Package type: B3: SOT-23-3
[3]	Packing type: TR: Tape&Reel (Standard)
[4]	Output voltage: e.g. 15=1.5V 28=2.8V 35=3.5V

MARKING DESCRIPTION

Product Classification		LC1205CB6TR□□
Marking (NOTE 3)		
LXZZ	L: Product Code	
	X: Output Voltage	
	ZZ: Date Code	
1	GND	Ground
2	VOUT	Output Voltage
3	VDD	Supply Voltage Input

Output Voltage Code

Vout	Code	Vout	Code	Vout	Code
0.9V	A	2.0V	$\overline{0}$	2.9V	$\overline{9}$
1.0V	B	2.1V	$\overline{1}$	3.0V	$\underline{0}$
1.2V	2	2.2V	$\overline{2}$	3.1V	$\underline{1}$
1.3V	3	2.3V	$\overline{3}$	3.2V	$\underline{2}$
1.5V	5	2.4V	$\overline{4}$	3.3V	$\underline{3}$
1.6V	6	2.5V	$\overline{5}$	3.4V	$\underline{4}$
1.7V	7	2.6V	$\overline{6}$	3.5V	$\underline{5}$
1.8V	8	2.7V	$\overline{7}$		
1.9V	9	2.8V	$\overline{8}$		

NOTE 3:
L: Product Code;
X: Output Voltage;
Z: The Year of manufacturing,"7" stands for year 2007,"8" stands for year 2008;
Z: The week of manufacturing. "A" stands for week 1,"Z" stands for week 26," $\overline{A}$ *" stands for week 27,"* $\overline{Z}$ *" stands for week 52.*

ABSOLUTE MAXIMUM RATING

Parameter	Value
Max Input Voltage	8V
Operating Junction Temperature (T_J)	125°C
Ambient Temperature (T_A)	-40°C~85°C
Power Dissipation (SOT-23-3)	250mW
Storage Temperature (T_S)	-40°C~150°C
Lead Temperature & Time	260°C, 10 Sec

Note 4: Exceed these limits to damage to the device.
Note 5: Exposure to absolute maximum rating conditions may affect device reliability.
Note 6: The maximum power rating of each package is a constant, so along with the change of I_{LOAD}, the V_{DD}-V_{OUT} should be controlled to a certain range to ensure the normal operation.

RECOMMENDED WORK CONDITIONS

Parameter	Value
Input Voltage Range	Max. 6V
Ambient Temperature	-40°C~85°C

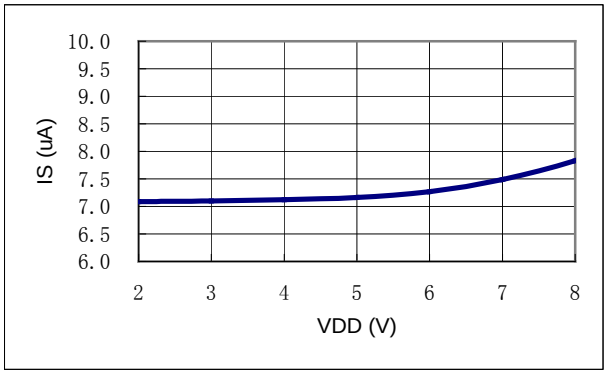
ELECTRICAL CHARACTERISTICS

Test Conditions: C_{IN}=1uF,C_{OUT}=1uF,T_A=25°C, unless otherwise specified.

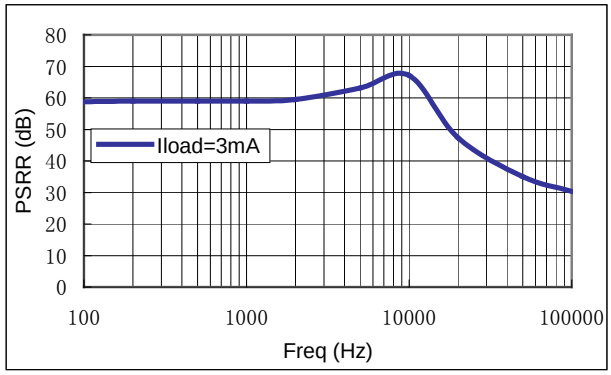
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{DD}	Input Voltage				6	V
V_{OUT}	Output Voltage	V_{DD}=Set V_{OUT}+1V 1mA≤I_{OUT}≤10mA	V_{OUT} X0.98	V_{OUT} X 1	V_{OUT} X1.02	V
I_{OUT} (Max.) *Note 6*	Maximum Output Current	V_{DD}-V_{OUT}=1V	300			mA
V_{DROP}	Dropout Voltage	I_{OUT}=150mA		270		mV
$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Line Regulation	I_{OUT}=10mA 4V≤V_{DD}≤6V		0.05	0.2	%/V
$\Delta Vout$	Load Regulation	V_{DD}=Set V_{OUT}+1V 1mA≤I_{OUT}≤300mA		60		mV
Is	Supply Current	V_{DD}=Set V_{OUT}+1V V_{OUT} Floating		8	15	uA
$\frac{\Delta Vout}{\Delta T \cdot Vout}$	Output Voltage Temperature Coefficient	I_{OUT}=10mA		±100		ppm/°C
PSRR	Ripple Rejection	f=100Hz, Ripple=0.5Vp-p, V_{DD}=Set V_{OUT}+1V		60		dB
en	Output Noise	BW=10Hz~100KHz		44		uVrms

TYPICAL PERFORMANCE CHARACTERISTICS

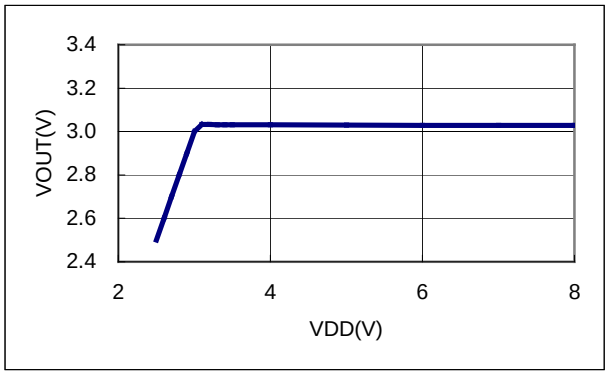
Supply Current vs. Input Voltage



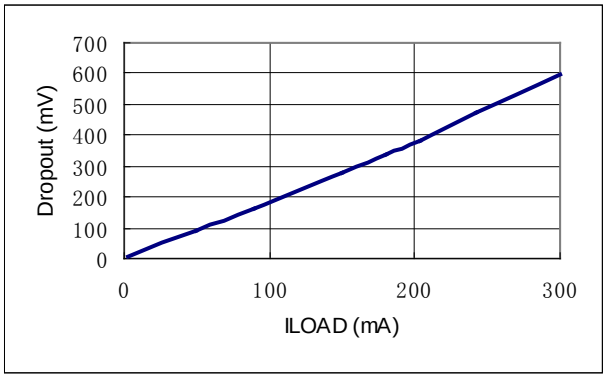
Ripple Rejection vs. Frequency



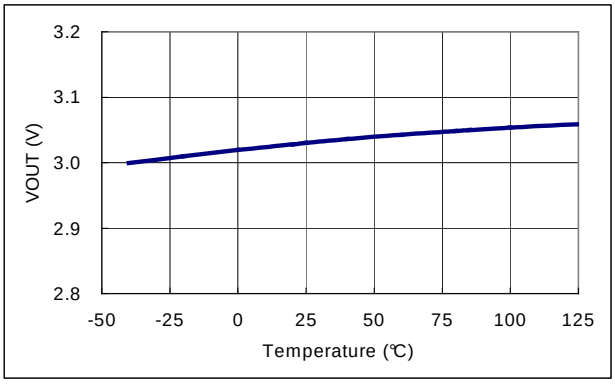
Output Voltage vs. Input Voltage



Dropout Voltage vs. Output Current

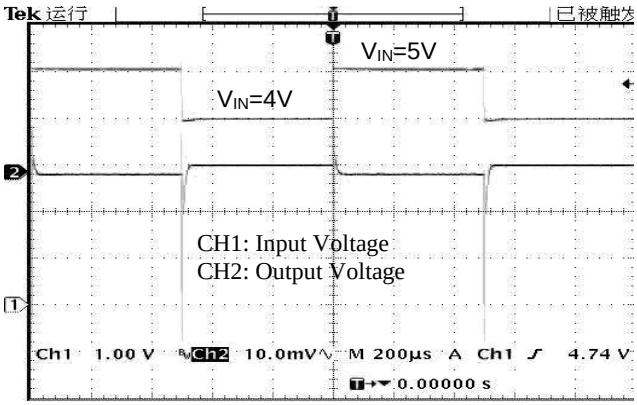


Output Voltage vs. Temperature

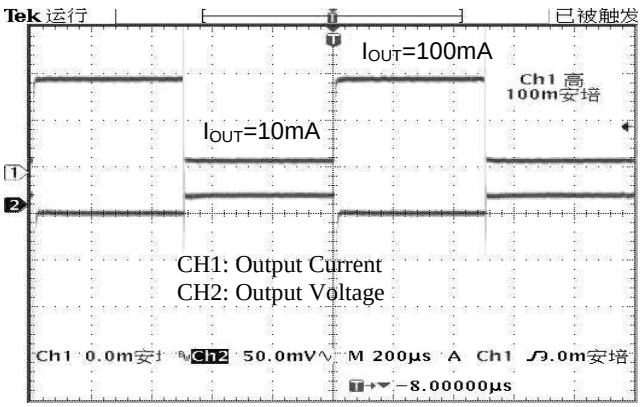


TEST WAVEFORMS

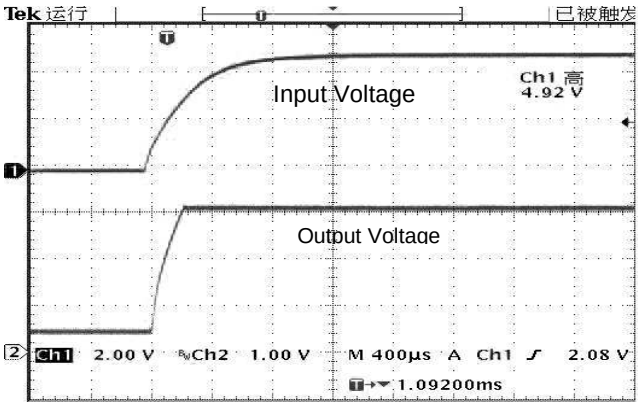
Line Transient Response
C_{IN}=C_{OUT}=1uF, V_{IN}=4↔5V, V_{OUT}=3V



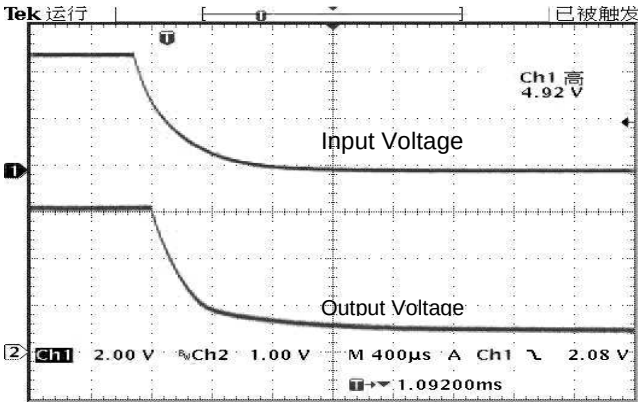
Load Transient Response
C_{IN}=C_{OUT}=1uF, I_{OUT}=10↔100mA, V_{OUT}=3V



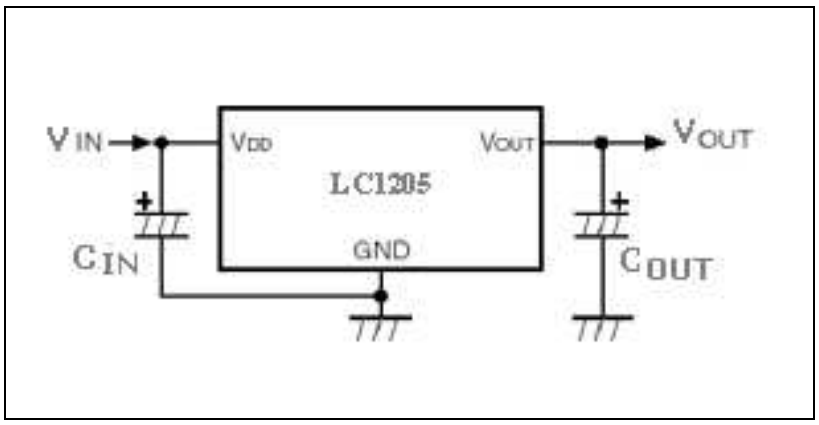
Power On Sequence (VIN: 0→5V)
C_{IN}=C_{OUT}=1uF, I_{OUT}=10↔100mA, V_{OUT}=3V



Power Off Sequence (VIN: 5→0V)
C_{IN}=C_{OUT}=1uF, I_{OUT}=10↔100mA, V_{OUT}=3V



TEST CIRCUIT



PACKAGE LINE

Package	SOT23-3	Devices per reel	3000Pcs	Unit	mm

SOT-23-3