

LR6219 Series

Low Dropout Voltage
300mA CMOS LDO Regulator

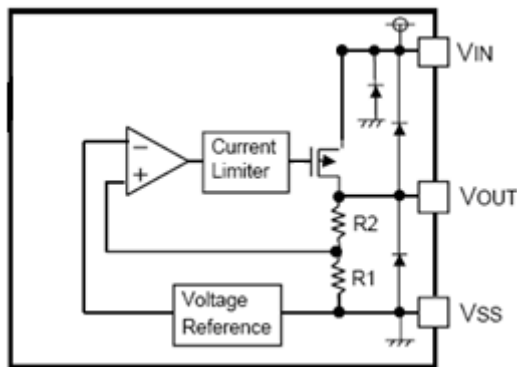
■ INTRODUCTION

The **LR6219 Series** are a group of positive voltage regulators manufactured by CMOS technologies with high ripple rejection, extremely low power consumption and low dropout voltage, which provide large output currents even when the difference of the input-output voltage is small. Each of the LR6219 series consists of a high-precision voltage reference, an error correction circuit, and a current limited output driver. Thus the series are very suitable for the battery-powered equipments, such as Portable/Palm computers, Portable consumer equipments, industry equipments and so on, which want to prolong the using life of the battery.

■ APPLICATION

- Battery powered systems
- Portable instrumentations
- Reference Voltage Sources
- Radio control systems
- Portable/Palm computers
- Portable consumer equipments

■ BLOCK DIAGRAM



■ FEATURE

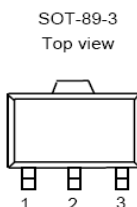
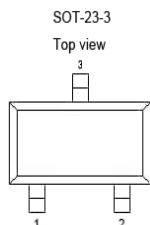
- Maximum Output Current: 300mA (Typ.)
- Output Voltage Range: 0.9V~5.0V,
(selectable in 0.1V steps)
- High Accuracy: $\pm 2\%$ (Typ.)
- Dropout Voltage:
150mV@100mA (3.0V Typ.)
- Excellent Line Regulation: 0.1%/V
- Built-in Current Limiter
- Built-in Short Circuit Protection
- Static safety, 2KV@HBM
- TC: 100ppm/°C
- Low ESR Capacitor: Ceramic Compatible

■ ORDER INFORMATION

LR6218①②③④

Designator	Symbol	Description
①	P	Standard
②③	Integer	Output Voltage(0.9~5.0V) e.g.: 3.0V=②.3, ③.0
④	M	Package: SOT23
	P	Package: SOT89
	T	Package: TO92

PIN CONFIGURATION



LR6219 (Pin output sequence can be ordered by customer)

PIN NUMBER						PIN NAME	FUNCTION
SOT23-3			SOT89-3		TO92		
M	MC	MY	P	PT	T		
1	3	3	1	2	1	V _{SS}	Ground
2	2	1	3	1	3	V _{OUT}	Output
3	1	2	2	3	2	V _{IN}	Power input

ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	Rating	UNIT
Input Voltage		V _{IN}	8	V
Output Current		I _{OUT}	600	mA
Output Voltage		V _{OUT}	V _{SS} -0.3~V _{out} +0.3	V
Power Dissipation	SOT23	P _d	250	mW
	SOT89	P _d	500	mW
	TO92	P _d	500	mW
Operating Temperature		T _{Opr}	-40~+85	°C
Storage Temperature		T _{stg}	-55~+125	°C
Soldering Temperature & Time		T _{solder}	260°C, 10s	

ELECTRICAL CHARACTERISTICS

LR6219 Series

(C_{IN} = C_{OUT} = 1μF, Ta=25°C)

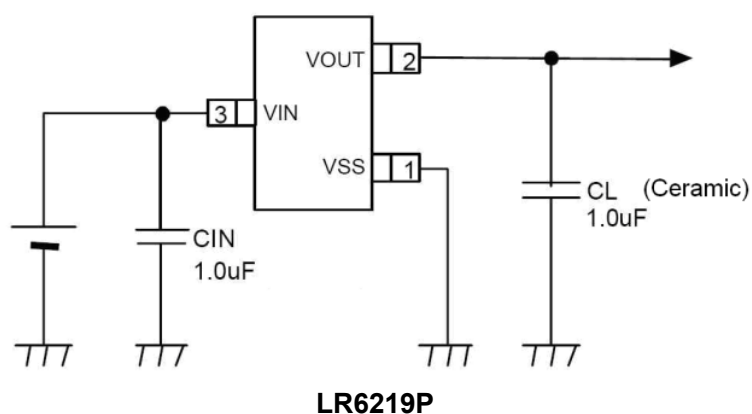
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output Voltage	V _{OUT(E)} (Note 2)	I _{OUT} =40mA V _{IN} = V _{OUT} +1V	V _{OUT} *0.98	V _{OUT}	V _{OUT} *1.02	V
Supply Current	I _{SS}	V _{CE} =V _{IN} =V _{out} +1V		5		μA
Output Current	I _{out}	—	300			mA
Dropout Voltage (Note 3)	V _{dif1}	I _{OUT} = 40mA		60		mV
	V _{dif2}	I _{OUT} = 100mA		150		mV

Load Regulation	ΔV_{OUT}	$V_{IN} = V_{OUT} + 1V$, $1mA \leq I_{OUT} \leq 100mA$		10		mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} * V_{OUT}}$	$I_{OUT} = 40mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6V$		0.1		%/V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T * V_{OUT}}$	$I_{OUT} = 40mA$ $-40 \leq T \leq +85$		100		ppm
Power Supply Ripple Rejection	PSRR	$I_{OUT} = 10mA$ $f = 1kHz$	40			dB
Short Current	I_{Short}	$V_{OUT} = V_{SS}$		50		mA
Current Limit	I_{Lim}	$V_{IN} = V_{OUT} + 1V$			600	mA
Input Voltage	V_{IN}	—	2		6	V

NOTE:

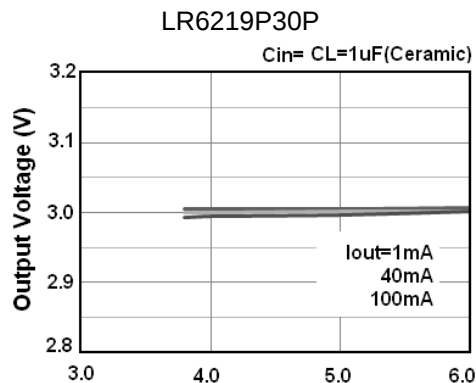
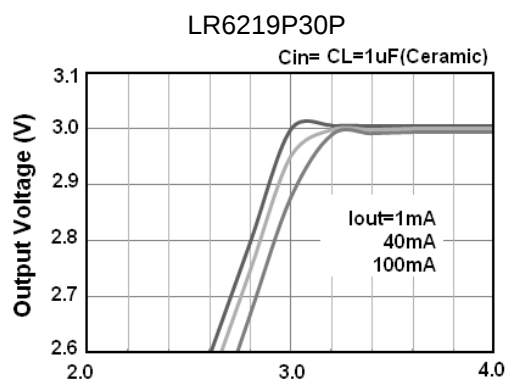
1. V_{OUT} : Specified Output Voltage.
2. $V_{OUT} (E)$: Effective Output Voltage (I.e. The Output Voltage When $V_{IN} = (V_{OUT} + 1.0V)$ And Maintain A Certain I_{OUT} Value).
3. V_{diff} : The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of $V_{OUT} (E)$.

■ TYPICAL APPLICATION CIRCUIT

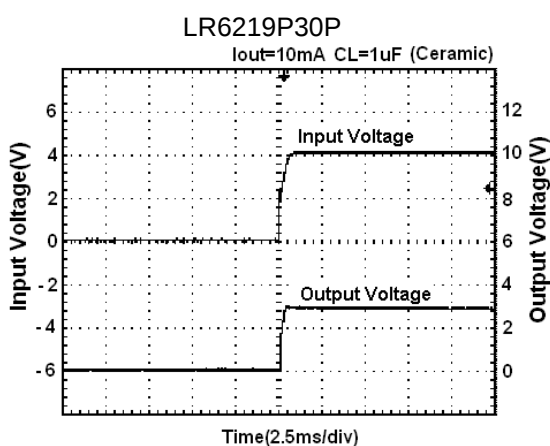
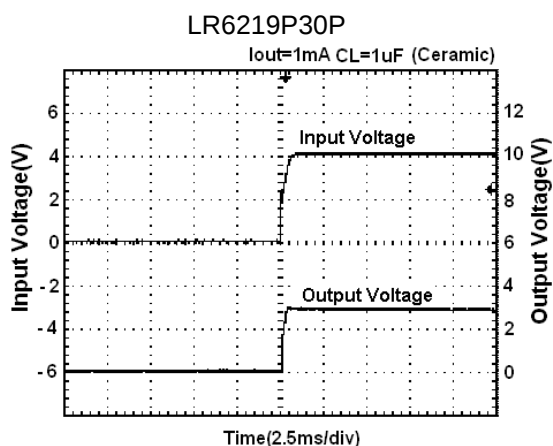


■ Typical Performance Characteristics

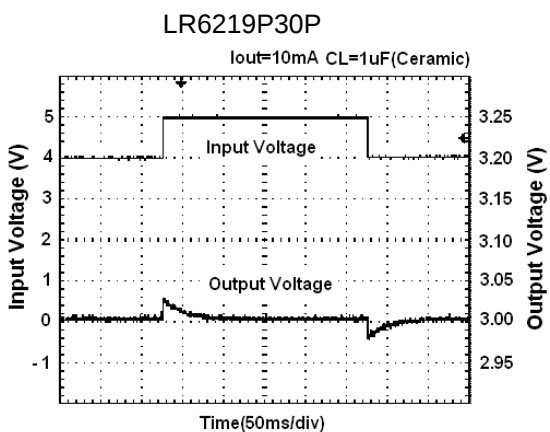
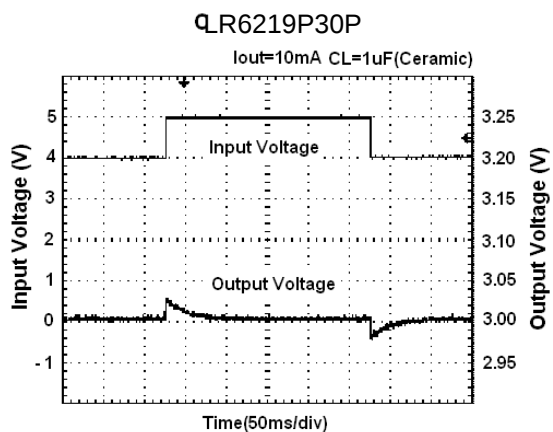
(1) Output Voltage vs Input Voltage



(2) Input Transient Response 1



(3) Input Transient Response 2

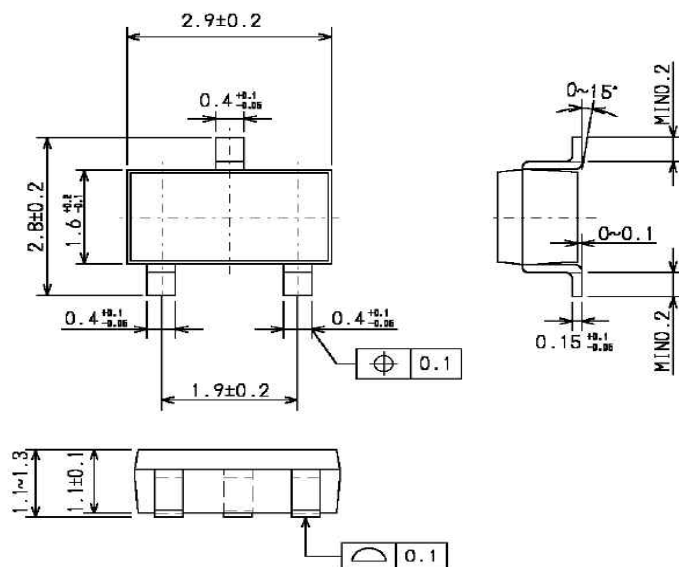


LR6219P30P

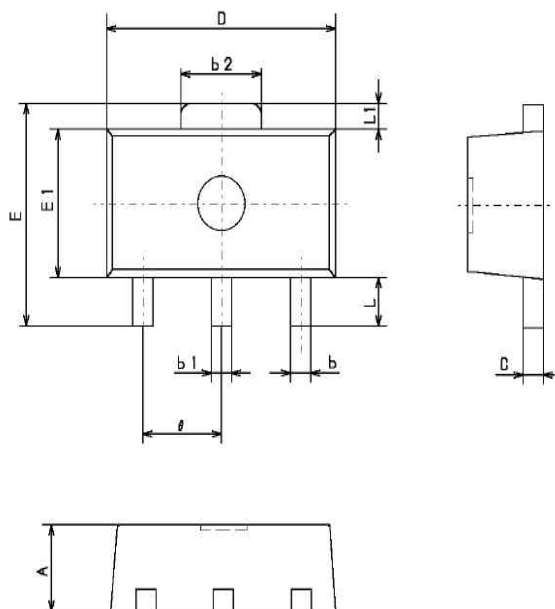
Cin=CL=1uF(Ceramic)

Temperature (°C)	Output Voltage (V)
-40	2.995
-20	2.998
0	3.002
20	3.003
40	3.005
60	3.008
80	3.012
90	3.015

- **SOT-23**



• SOT-89



Symbols	Dimensions in millimeters		
	Min	Nom	Max
A	1.40	1.50	1.60
b	0.36	0.42	0.48
b1	0.41	0.47	0.53
b2	1.40	1.60	1.75
C	0.38	0.40	0.43
D	4.40	4.50	4.60
E	—	—	4.25
E1	2.40	2.50	2.60
θ	1.40	1.50	1.60
L	1.80	—	—
L1	—	0.40	—

• TO92

