

LR6218 Series

Low Dropout Voltage

300mA CMOS LDO Regulator

■ INTRODUCTION

The **LR6218 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 LR6218 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.

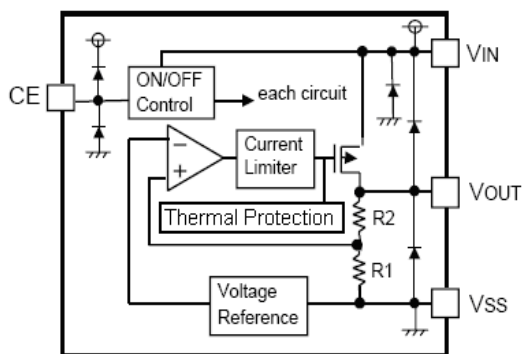
■ FEATURE

- 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

■ APPLICATION

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

■ BLOCK DIAGRAM

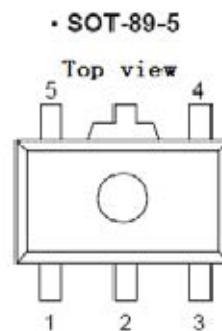
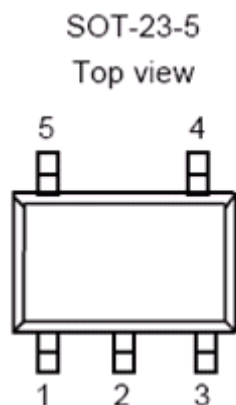


■ ORDER INFORMATION

LR6218①②③④

DESIGNATOR	SYMBOL	DESCRIPTION
①	E	With shutdown function
②③	Integer	Out Voltage(0.9~5.0V) e.g.: 3.0V=②:3,③:0
④	M	Package: SOT23-5
	P	Package: SOT89-5

■ PIN CONFIGURATION



LR6218E (Pin output sequence can be ordered by customer)

SOT23-5

PIN NUMBER	PIN NAME	FUNCTION
1	V_{IN}	Power Input Pin
2	V_{SS}	Ground
3	CE	Chip Enable Pin
4	NC	No Connection
5	V_{OUT}	Output Pin

SOT89-5

PIN NUMBER	PIN NAME	FUNCTION
1	V_{OUT}	Output Pin
2	V_{SS}	Ground
3	NC	No Connection
4	CE	Chip Enable Pin
5	V_{IN}	Power Input Pin

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	Rating	UNIT
Input Voltage		V_{IN}	8	V
Output Current		I_{OUT}	600	mA
Output Voltage		V_{OUT}	$V_{SS}-0.3 \sim V_{out}+0.3$	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

LR6218 Series

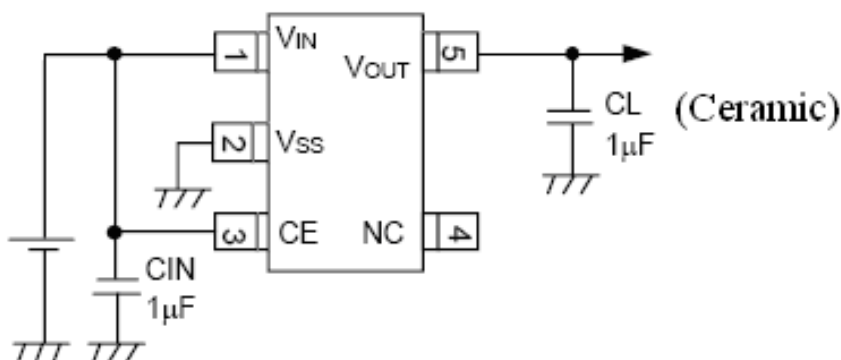
($C_{IN} = C_{OUT} = 1\mu F$, $T_a = 25^\circ C$)

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
Standby Current	$I_{standby}$	$V_{CE} = V_{SS}$			0.1	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	$I_{OUT} = 10mA$ $f = 1kHz$		60		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
CE "High" Voltage	V_{CE} "H"		1.0		V_{IN}	V
CE "Low" Voltage	V_{CE} "L"				0.2	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 $V_{OUT(E)}$.

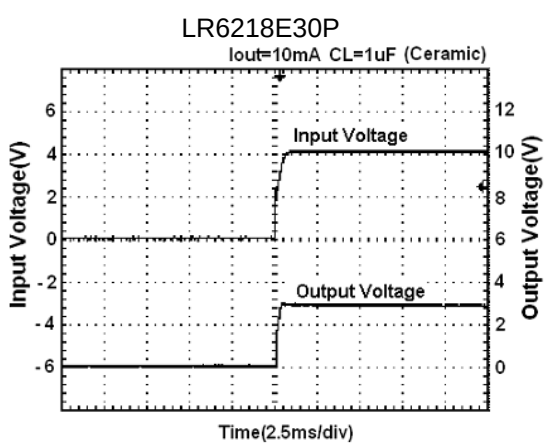
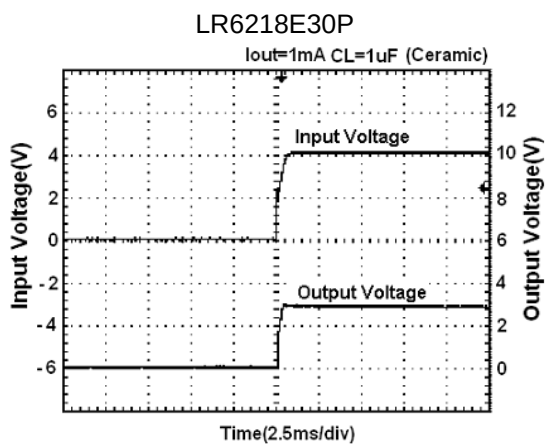
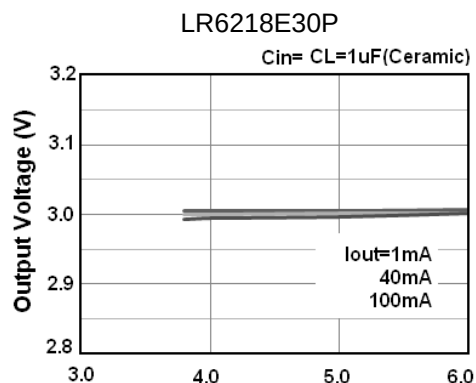
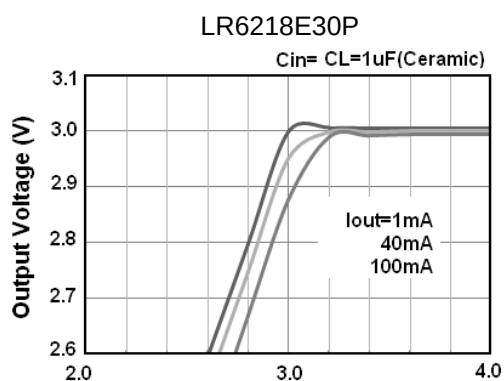
■ TYPICAL APPLICATION CIRCUIT



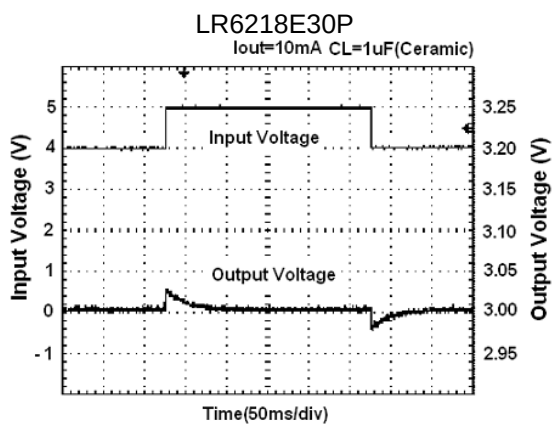
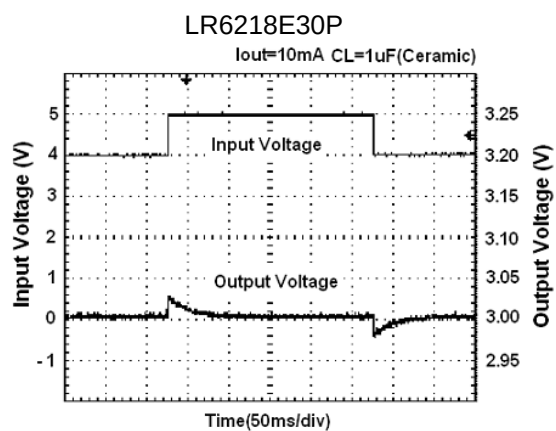
LR6218E (SOT23-5)

■ Typical Performance Characteristics

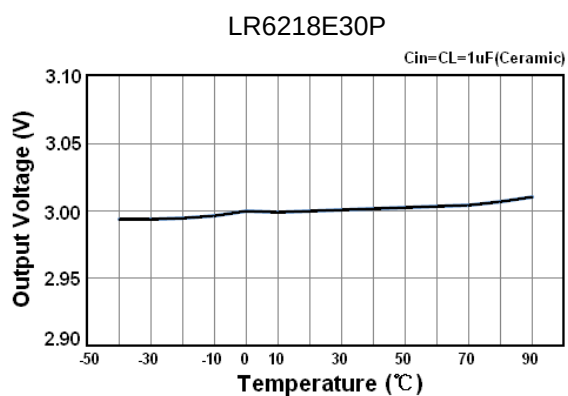
(1) Output Voltage vs Input Voltage



(3) Input Transient Response

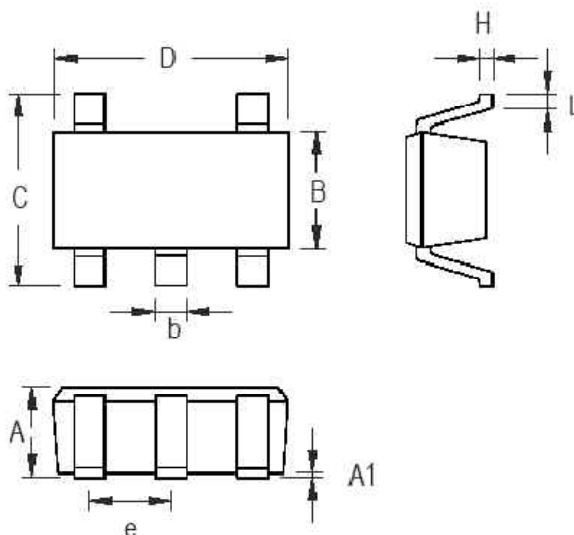


(4) Temperature



■ PACKAGING INFORMATION

• SOT-23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	0.000	0.152	0.000	0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.559	0.014	0.022
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	0.838	1.041	0.033	0.041
H	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024

• SOT-89-5

