GENERAL DESCRIPTION

The CL9193 is a low-dropout voltage regulator designed for portable and wireless applications that require high PSRR, low quiescent current and excellent line and load transient response.

The CL9193 is designed to work with small 1uF input and output ceramic capacitors.

The CL9193 consumes less than 0.1uA in shutdown mode. The CL9193 is available in 5 pin SOT23-5L packages. The output standards of 1.2V, 1.3V, 1.5V, 1.8V, 2.0V, 2.5V, 2.7V, 2.8V, 3.0V, and 3.3V are available.
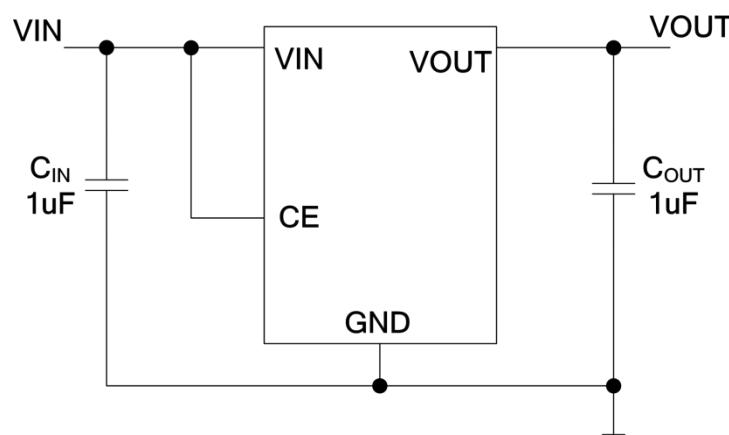
FEATURES

◆ Input Range   : 2.0V ~ 6.0V
◆ Maximum Output Current   : 300mA
◆ High PSRR   : 70dB @ 1KHz
◆ Low Quiescent Current   : 40uA (Typ.)
◆ Shutdown Mode Current   : < 0.1uA
◆ Dropout Voltage   : 150mV @ 100mA
◆ Operation Ambient Temperature : -40 ~ +85°C
◆ Protection   : Current Limit & Short Protect

APPLICATIONS
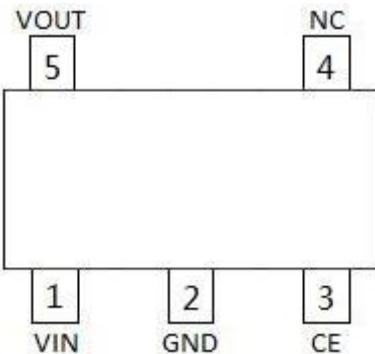
◆ CDMA/GSM mobile phone
◆ PDAs/MP3
◆ WLAN and bluetooth appliances
◆ Cordless telephones
◆ Battery powered portable devices

SOT23-5L Package Available

TYPICAL APPLICATIONS

PIN CONFIGURATION

SOT23-5L
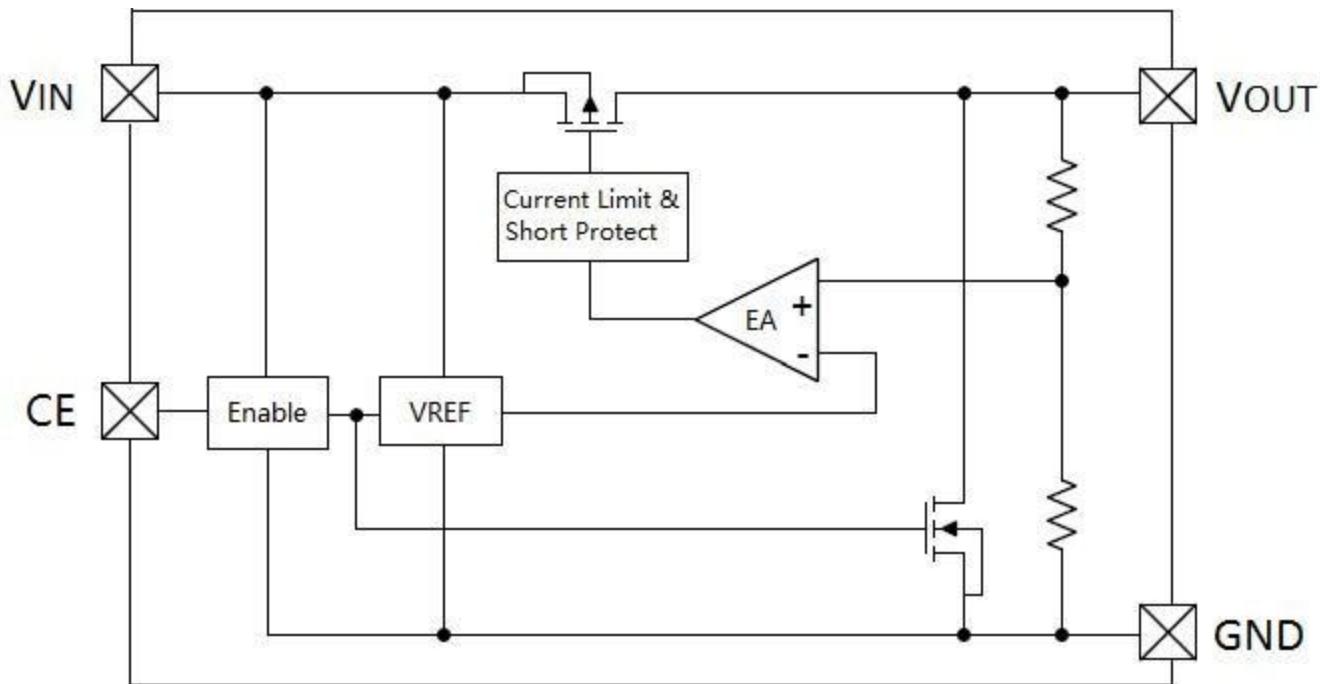
PIN FUNCTIONS

SOT23-5	PIN NAME	FUNCTIONS
1	VIN	Power Input
2	GND	Ground
3	CE	Chip Enable
4	NC	No Connection
5	VOUT	Output

ESD & Latch-up Level

HBM ESD	4000V
MM ESD	400 V
Latch-up	400mA

BLOCK DIAGRAM

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNITS
INPUT VOLTAGE	VIN	6	V
OUTPUT CURRENT	IOUT	500	mA
OUTPUT VOLTAGE	VOUT	GND-0.3 ~ VIN +0.3	V
POWER DISSIPATION (SOT23-5L)	Pd	400	mW
OPERATING TEMP.	Topr	-25 ~ +85	°C
STORAGE TEMP.	Tstg	-40 ~ +125	°C
LEAD TEMP.	Tsolder	260°C, 10s	

ELECTRICAL CHARACTERISTICS
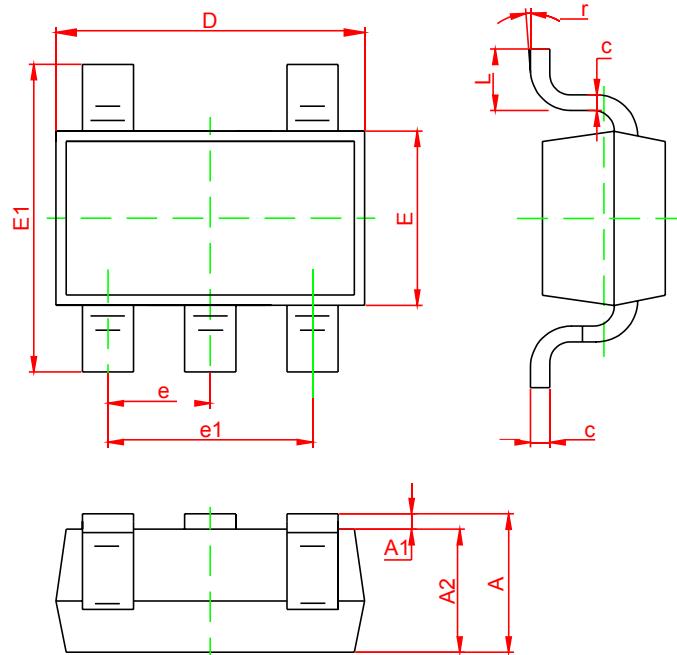
(V$_{IN}$ = V$_{OUT}$ +1V,C$_{IN}$=C$_{OUT}$=1uF,Ta=25°C, unless otherwise stated)

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNITS
Input Voltage	V$_{IN}$					6.0	V
Output Voltage	V$_{OUT}$	I$_{OUT}$=40mA, V$_{OUT}$<1.5V		X 0.97	V$_{OUT}$(T)^{Note1}	X 1.03	V
		I$_{OUT}$=40mA, V$_{OUT}$≥1.5V		X 0.98	V$_{OUT}$(T)^{Note1}	X 1.02	V
Max. Output Current	I$_{OUT}$(max)	V$_{IN}$=V$_{OUT}$+1V		300			mA
Load Regulation	ΔV$_{OUT}$	V$_{IN}$=V$_{OUT}$+1V 1mA≤I$_{OUT}$≤100mA	V$_{OUT}$=1.2V		20		mV
			V$_{OUT}$=2.5V		25		
			V$_{OUT}$=3.3V		30		
Dropout Voltage	Vdif	I$_{OUT}$ =100mA	V$_{OUT}$=1.2V		600		mV
			V$_{OUT}$=2.5V		200		mV
			V$_{OUT}$=3.3V		150		
Supply Current	IQ	V$_{IN}$= V$_{OUT}$ +1V			40		uA
Standby Current	I$_{STDBY}$	VCE＝0V			<0.1		uA
Line Regulation	$\dfrac{ΔV_{OUT}}{ΔV_{IN} * V_{OUT}}$	I$_{OUT}$ =40mA V$_{OUT}$+1V≤V$_{IN}$≤ 7V			0.05		%/V
CE "H" Threshold	VCEH	V$_{IN}$=5V		1.4			
CE "L" Threshold	VCEL	V$_{IN}$=5V				0.4	
Ripple Rejection Rate	PSRR	V$_{IN}$= [V$_{OUT}$ +1]V +1Vp-pAC I$_{OUT}$ =40mA,f=1kHz			70		dB

NOTE:

1. V$_{OUT}$(T)=Specified Output Voltage

PACKAGE INFORMATION：SOT-23-5L

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
r	0º	8º	0º	8º

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