WL2808E

Low noise, High PSRR, High speed, CMOS LDO

Http://www.sh-willsemi.com

Descriptions

The WL2808E series is a high accuracy, low noise, high speed, low dropout CMOS Linear regulator with high ripple rejection. The devices offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

The current limiter's fold-back circuit also operates as a short circuit protection and an output current limiter at the output pin.

The WL2808E regulators are available in standard SOT-23-5L packages. Standard products are Pb-free and Halogen-free.

SOT-23-5L

VOUT   NC

| 5 | | 4 |
| 1 | 2 | 3 |

VIN GND EN
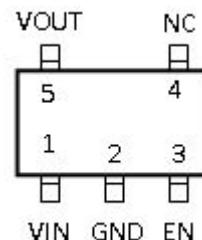
Features

- Input voltage   : 2.5V~5.5V
- Output range   : 1.2V~3.3V
- Output current   : 200mA (@V_{OUT}<2V)(Typ.)
-                                300mA (@V_{OUT}>2V)(Typ.)
- PSRR   : 75dB @ 217Hz
- Dropout voltage   : 170mV @ I_{OUT}=200mA
- Quiescent current : 30µA Typ.
- Shut-down current : < 1µA
- Recommend capacitor : 1uF

Pin Configuration (Top View)

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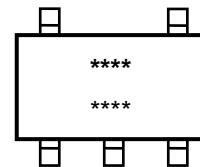
For detail marking information, please see page 8.

Marking

Applications

- MP3/MP4 Players
- Cellphones, radiophone, digital cameras
- Bluetooth, wireless handsets
- Others portable electronics device

Order Information

For detail order information, please see page 8.

Typical Application

VIN ○——————
1uF

| 1 | 5 | VOUT
| 2 | |
| 3 | 4 |

1uF

ON

OFF
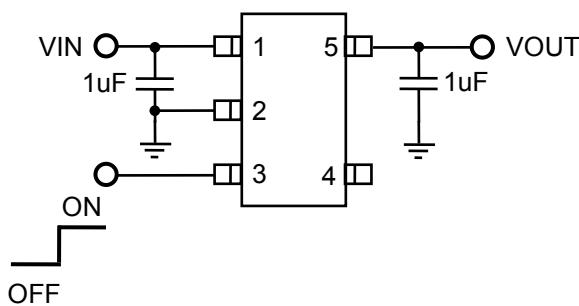
Pin Description

PIN	Symbol	Description
1	VIN	Input
2	GND	Ground
3	EN	Enable (Active high)
4	NC	Not connected
5	VOUT	Output

Block Diagram

VIN

Current
Limit

V_{REF}

Enable
Control

EN

GND
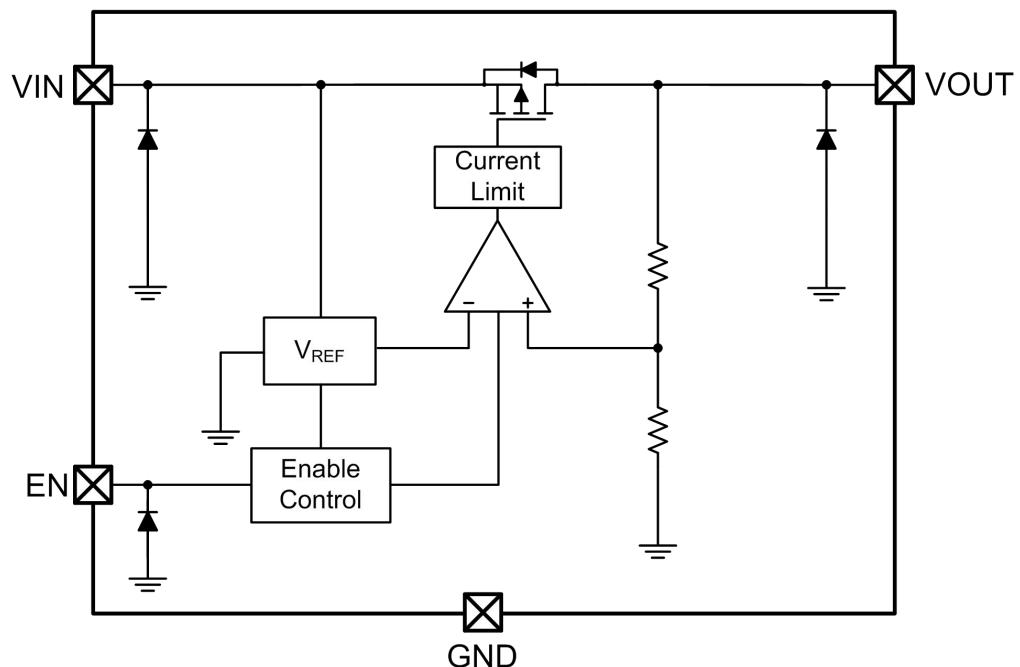
VOUT

Absolute Maximum Ratings

Parameter	Value	Unit
Power Dissipation	Internal limited	mW
V_{IN} Range	-0.3～6.5	V
V_{EN} Range	-0.3～V_{IN}	V
V_{OUT} Range	-0.3～V_{IN}	V
Lead Temperature Range	260	ºC
Storage Temperature Range	-55 ~ 150	ºC
Operating Junction Temperature Range	150	ºC

Recommend Operating Ratings

Parameter	Value	Unit
Operating Supply voltage	2.5～5.5	V
Operating Temperature Range	-40～85	ºC
Thermal Resistance, $R_{\theta JA}$	250	ºC/W

## Electronics Characteristics (Ta=25ºC, V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=1uF, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	V_{OUT} <2V, V_{IN}=2.7V, I_{OUT}=1mA	0.97 V_{OUT}	V_{OUT}	1.03 V_{OUT}	V
		V_{OUT}≧2V, I $_{OUT}$=1mA	0.98 V_{OUT}	V_{OUT}	1.02 V_{OUT}	
Current Limit	I_{LIM}	V_{EN}=V_{IN}	Ref. to Output Voltage vs. Output Current Chart			mA
Dropout Voltage	V_{DROP}	V_{OUT}=2.8V, I_{OUT}=200mA		170	200	mV
		V_{OUT}=2.8V, I_{OUT}=300mA		250	300	
Line Regulation	△V_{LINE}	V_{IN}=2.7~5.5V, I_{OUT}=1mA		0.01	0.15	%/V
Load Regulation	△V_{Load}	V_{OUT}=2.8V , I_{OUT}=1~300mA		20	30	mV
Quiescent Current	I_Q	V_{OUT}=2.8V, I_{OUT}=0		30	50	µA
Short Current	I_{SHORT}	V_{EN}=V_{IN}, V_{OUT} Short to GND with 1Ω		90		mA
Shut-down Current	I_{SHDN}	V_{EN}=0V			1.0	µA
Power Supply Rejection Rate	PSRR	V_{IN}=(V_{OUT}+1V)$_{DC}$+0.5V_{P-P} F=217Hz ,Iout=10mA		75		dB
		V_{IN}=(V_{OUT}+1V)$_{DC}$+0.5V_{P-P} F=10KHz, Iout=10mA		65		
EN logic high voltage	V_{ENH}	V_{IN}=5.5V, I $_{OUT}$=1mA	1.2			V
EN logic low voltage	V_{ENL}	V_{IN}=5.5V, V_{OUT}=0V			0.4	V
EN Input Current	I_{EN}	V_{EN}= 0 to 5.5V			1.0	µA
Output Noise Voltage	e_{NO}	10Hz to 100KHz, C_{OUT}=1µF		100		µV$_{RMS}$

Typical characteristics (Ta=25ºC, V$_{IN}$=3.8V, V$_{OUT}$ = 2.8V C$_{IN}$=C$_{OUT}$=1uF, unless otherwise noted)
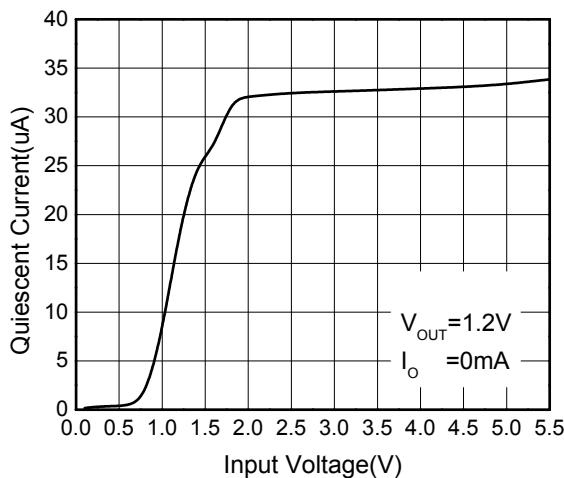

**Quiescent current vs. Supply voltage**
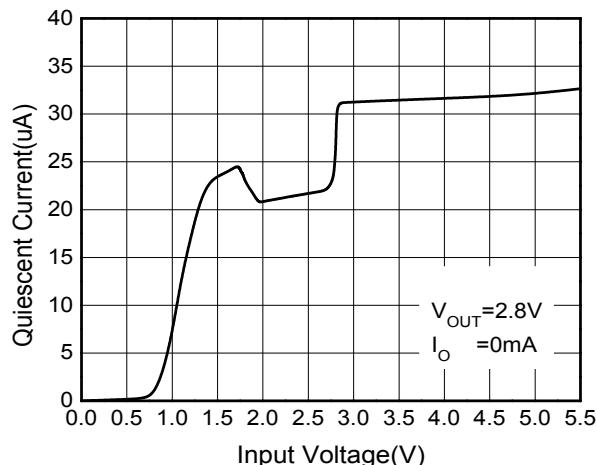
Quiescent current vs. Supply voltage
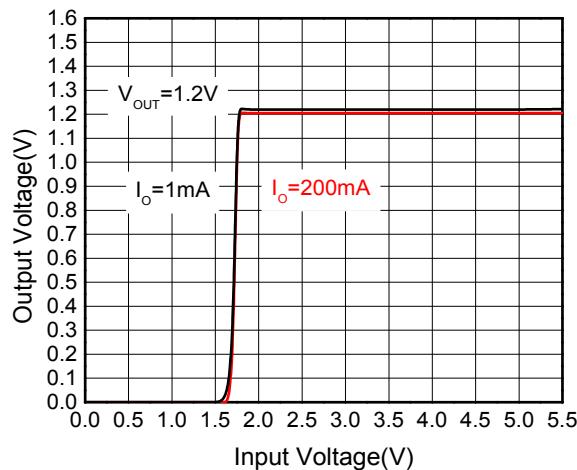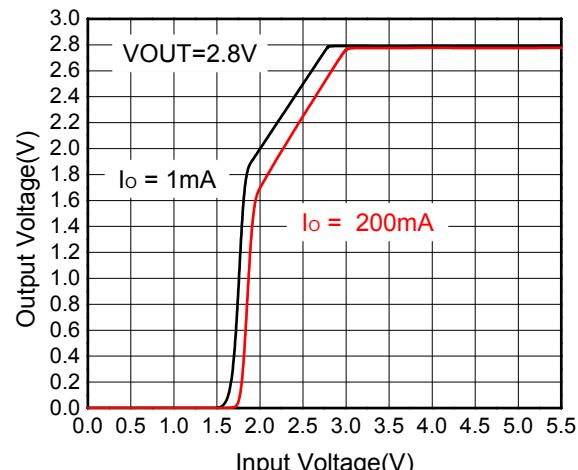
Output voltage vs. Supply voltage


Output voltage vs. Supply voltage
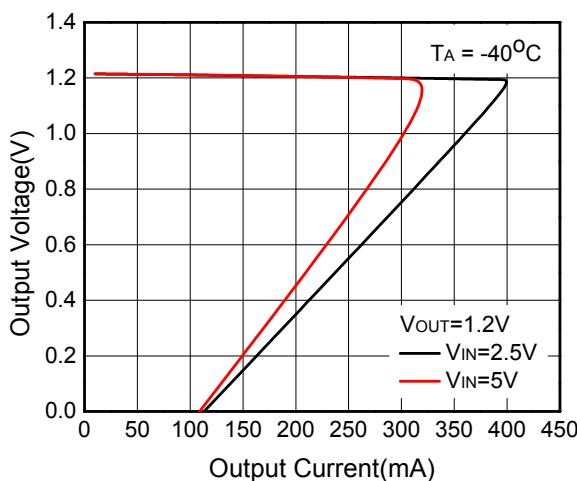
Output voltage vs. Output current
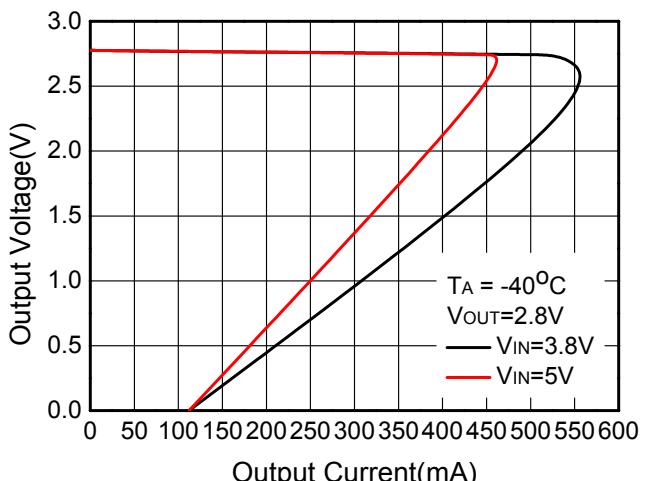
Output voltage vs. Output current
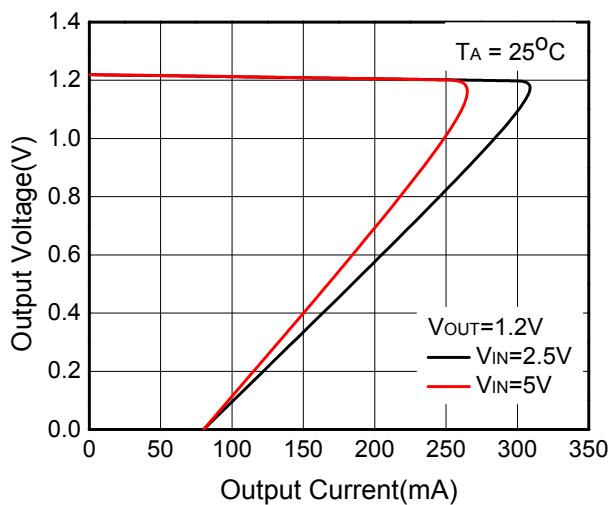
Output Voltage vs. Output Current
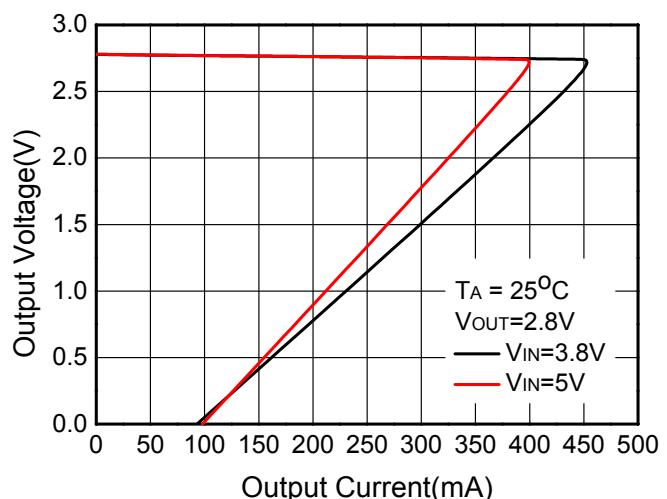
Output Voltage vs. Output Current
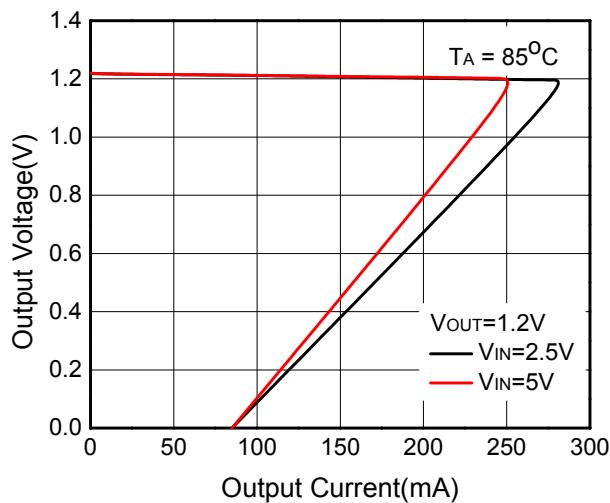

Output Voltage vs. Output Current
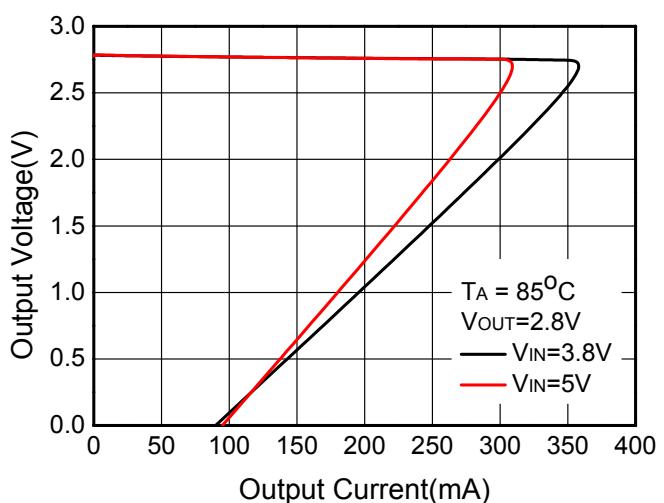
Output Voltage vs. Output Current
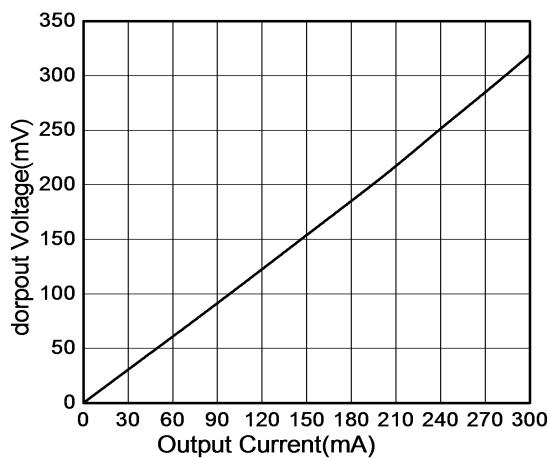
Dorpout Voltage vs. Output Current
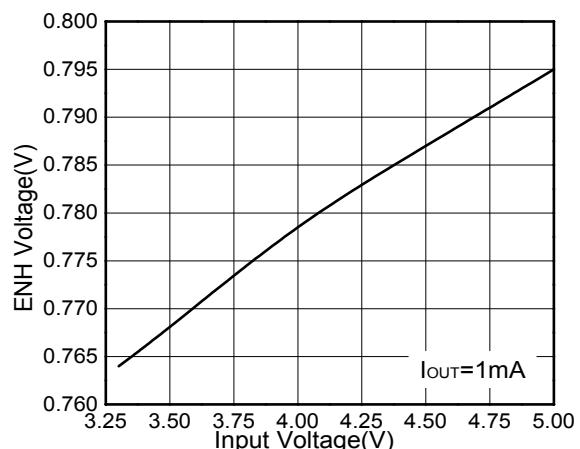
ENH Voltage vs. Supply Voltage
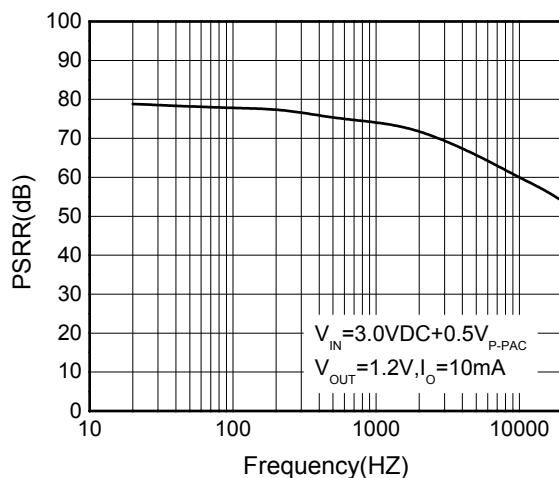
PSRR
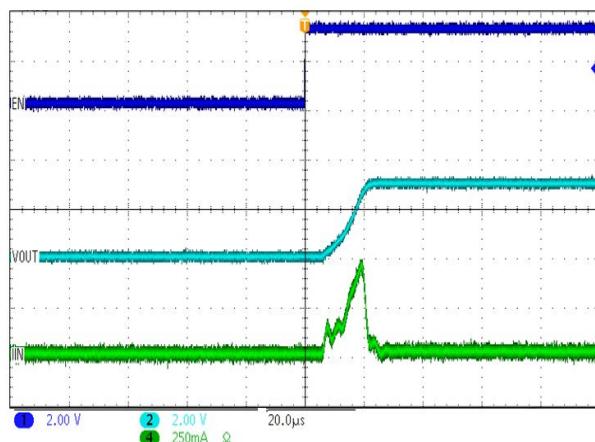
Start Up
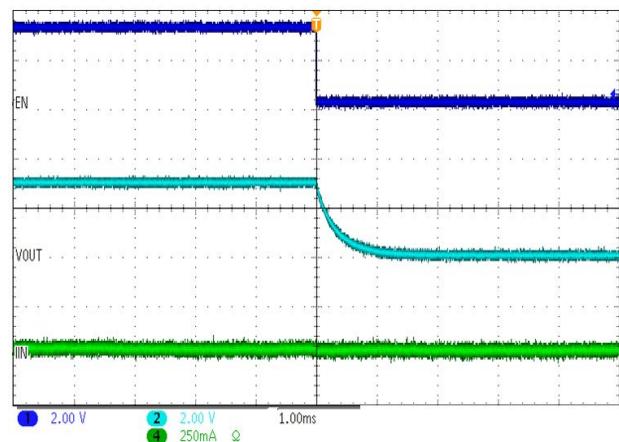
Shutdown
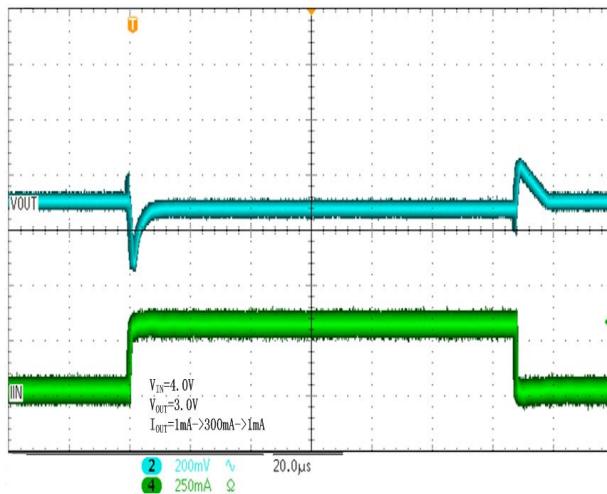
Load Step
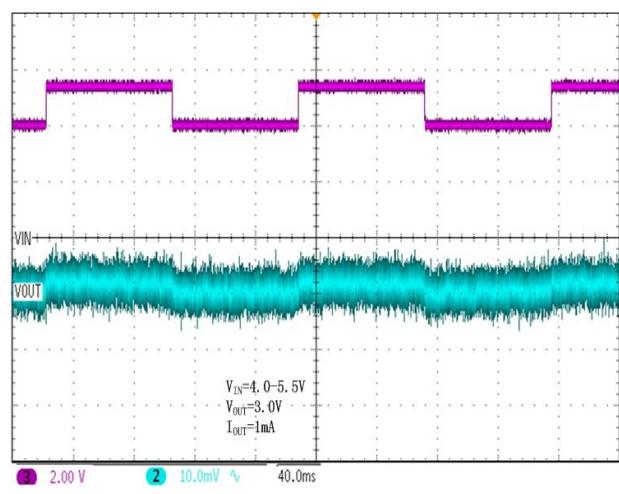
Line Step

Packaging Information

SOT-23-5L
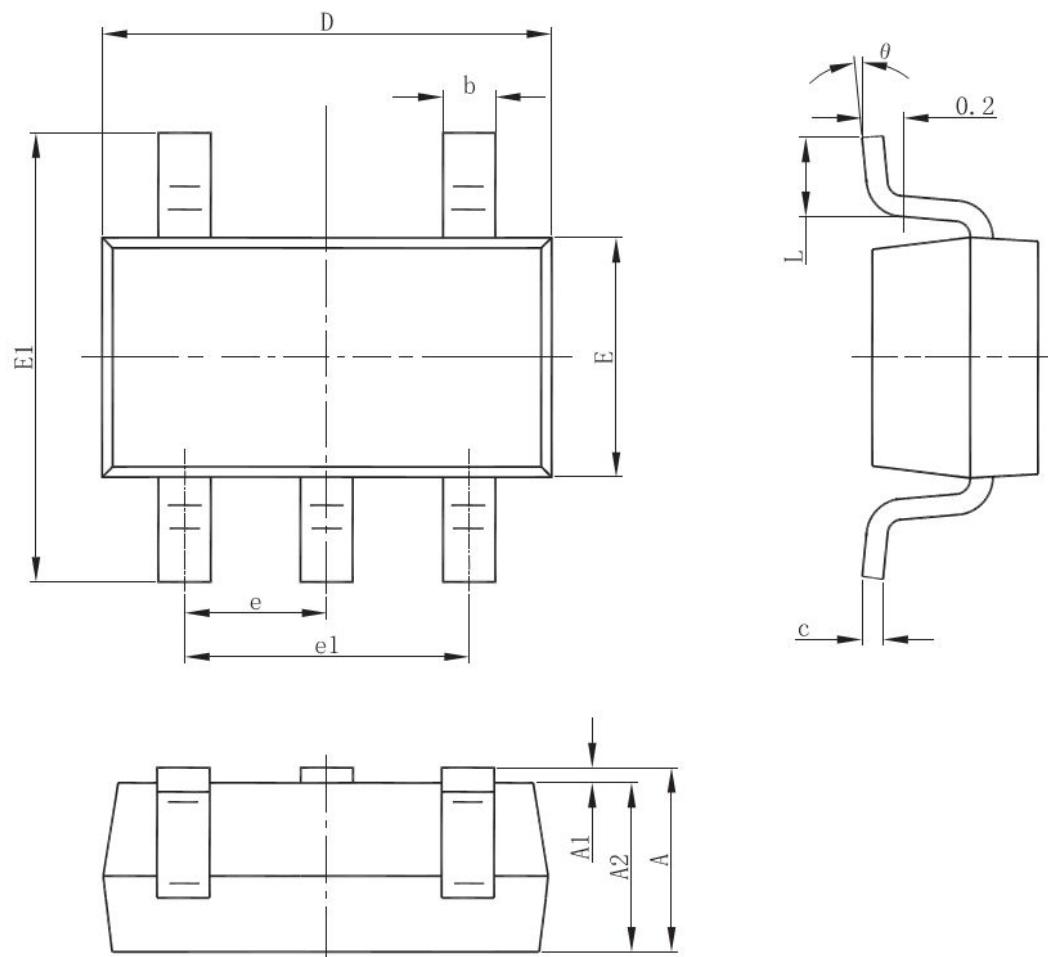
Symbol	Dimensions In Millimeters		
	Min.	**Typ.**	**Max.**
A	1.050	-	1.250
A1	0.000	-	0.100
A2	1.050	-	1.150
b	0.300	0.4	0.500
c	0.100	-	0.200
D	2.820	2.9	3.020
E	1.500	1.6	1.700
E1	2.650	2.8	2.950
e	0.950 (Basic)		
e1	1.800	1.9	2.000
L	0.300	0.45	0.600
θ	0º	-	8º

ORDER INFORMATION

Ordering No.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2808E12-5/TR	1.2	SOT-23-5L	-40~+85°C	WL12 EYWW	Tape and Reel, 3000
WL2808E15-5/TR	1.5	SOT-23-5L	-40~+85°C	WLBF EYWW	Tape and Reel, 3000
WL2808E18-5/TR	1.8	SOT-23-5L	-40~+85°C	WLBJ EYWW	Tape and Reel, 3000
WL2808E25-5/TR	2.5	SOT-23-5L	-40~+85°C	WLCF EYWW	Tape and Reel, 3000
WL2808E28-5/TR	2.8	SOT-23-5L	-40~+85°C	WL28 EYWW	Tape and Reel, 3000
WL2808E30-5/TR	3.0	SOT-23-5L	-40~+85°C	WLDA EYWW	Tape and Reel, 3000
WL2808E33-5/TR	3.3	SOT-23-5L	-40~+85°C	WLDD EYWW	Tape and Reel, 3000

Marking:

WL** = Device Code

Y = Year

WW = Week