WL2701E

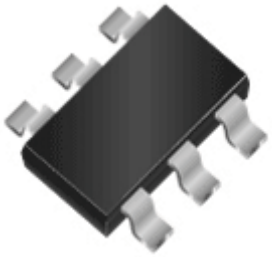
300mA, Low noise, High PSRR, Dual Output LDO

Descriptions

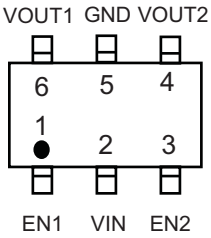
The WL2701E series are dual output low dropout linear regulators and optimized to provide a high performance solution for battery power system to deliver low quiescent current. The WL2701E series are designed for portable RF and wireless applications to deliver ultra low output noise and high PSRR. The devices offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

The WL2701E series are designed to make use of low cost ceramic capacitors which ensure the stability of the output current, and enhance the efficiency in order to prolong the battery life of those portable devices.

The WL2701E regulators are available in standard SOT-23-6L packages and who are Pb-free and Halogen free products.



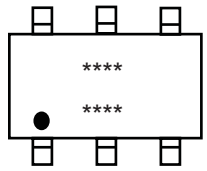
SOT-23-6L



Pin Configuration (Top View)

Features

- Input voltage : 2.5V ~ 6V
- Output voltage : 1.2V ~ 3.3V
- Maximum output current : 300mA (Limited by P_D)
- PSRR : 70dB @ 1KHz
- Output noise : 100uV
- Quiescent current : 120μA
- Shut-down current : < 0.1μA
- Dropout voltage : 120mV @ 200mA
- Recommend capacitor : 1uF
- Over current/over temperature protection



For detail marking information, please see page 7.

Marking

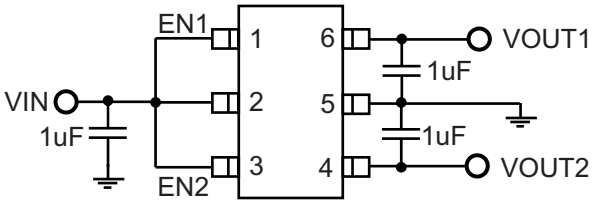
Applications

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

Order Information

For detail order information, please see page 7.

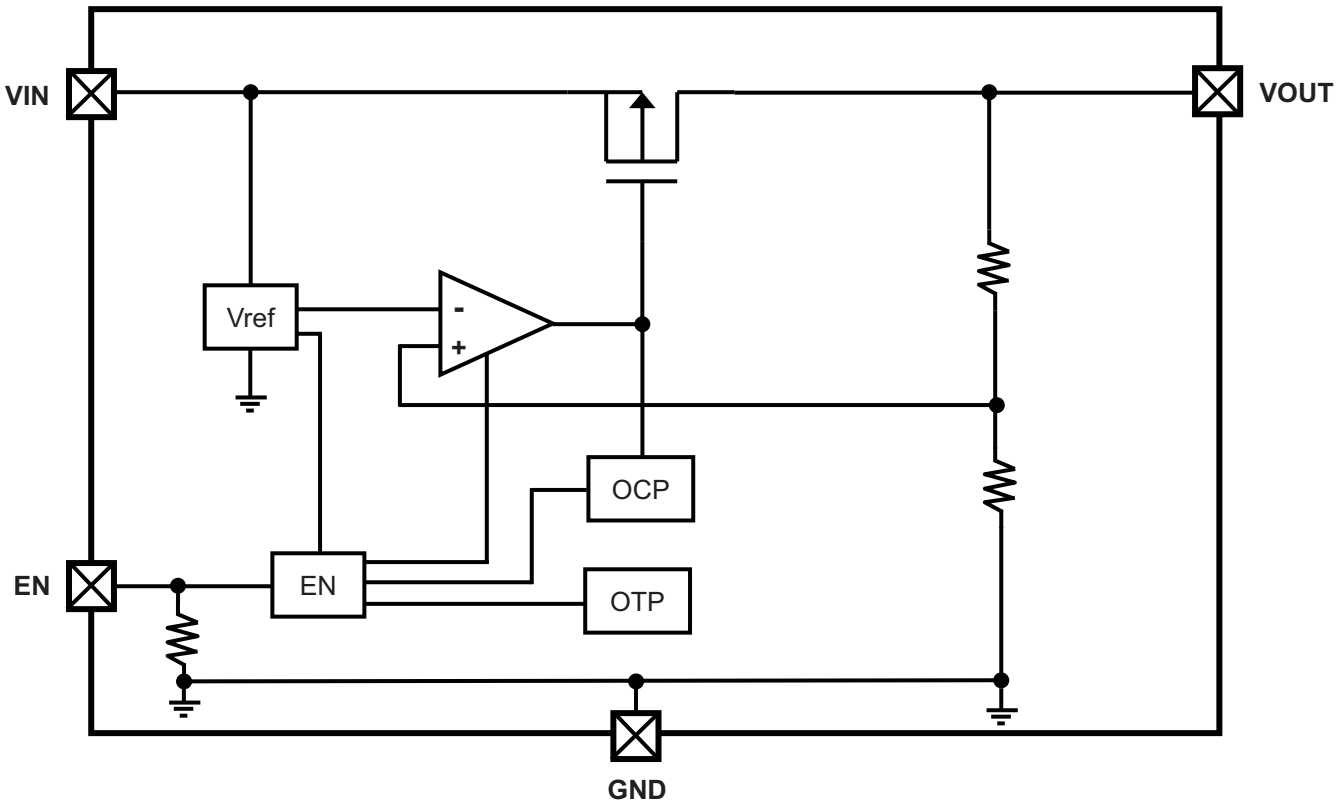
Typical Application



Pin Description

PIN	Symbol	Description
1	EN1	LDO1 Enable (Active High)
2	VIN	Power Supply
3	EN2	LDO2 Enable (Active high)
4	VOUT2	LDO2 Output
5	GND	Ground
6	VOUT1	LDO1 Output

Single Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	500	mW
Input Voltage Range	V_{IN}	0 ~ 6	V
Enable Voltage Range	V_{EN}	0 ~ V_{IN}	V
Output Voltage Range	V_{OUT}	0 ~ V_{IN}	V
Lead Temperature	T_L	260	°C
Storage Temperature	T_{STG}	-65 ~ 150	°C
Junction Temperature	T_J	150	°C

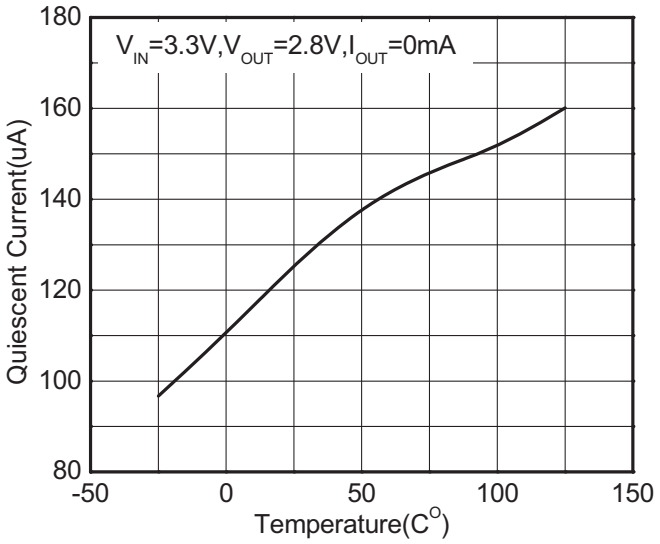
Operating Range

Parameter	Symbol	Value	Unit
Thermal Resistance	$R_{\theta JA}$	250	°C/W
Operating Temperature	T_{OPR}	-40 ~ 85	°C

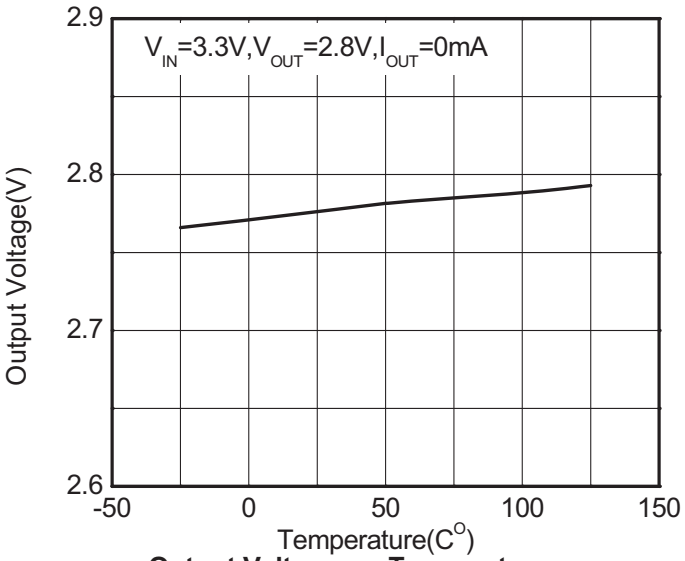
Electronics Characteristics (V_{IN} = V_{EN}=V_{OUT}+0.5V or 2.5V, C_{IN}=1uF, T_A=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output Voltage	Vout	I_{OUT}=1mA	Ref to Page 7			V
Output Accuracy	△Vout	I_{OUT}=1mA		2		%
Current Limit	I_{LIM}		400	500		mA
Dropout Voltage	V_{DROP}	V_{OUT}=2.8V, I_{OUT}=200mA		120	200	mV
		V_{OUT}=2.8V, I_{OUT}=300mA		190	300	
Line Regulation	$\triangle V_{Line}$	3.3≤V_{IN}≤6V, I_{OUT}=1mA		0.03	0.15	%/V
Load Regulation	$\triangle V_{Load}$	I_{OUT}= 1~ 300mA			0.8	%
Quiescent Current	I_Q	V_{EN}>1.2V, I_{OUT}=0mA		120	150	μA
Shut-down Current	I_{SHDN}	V_{IN}=3.3V, V_{EN}=0V		0.1	1.0	μA
Power Supply Rejection Rate	PSRR	F=100Hz ,I_{OUT}=10 mA,0.5Vpp		70		dB
		F=10KHz, I_{OUT}=10mA,0.5Vpp		67		
EN logic high voltage	V_{ENH}	Start up	1.2			V
EN logic low voltage	V_{ENL}	Shutdown			0.4	V
EN Input Current	I_{EN}	V_{EN}= 0 to 6V			0.8	μA
Output Noise Voltage	e_{NO}	10Hz to 100KHz, I_{OUT}=200mA, C_{OUT}=1μF		100		μV_{RMS}
Thermal Shutdown Temperature	T_{SD}			165		°C
Thermal Shutdown Hysteresis	ΔT_{SD}			30		°C

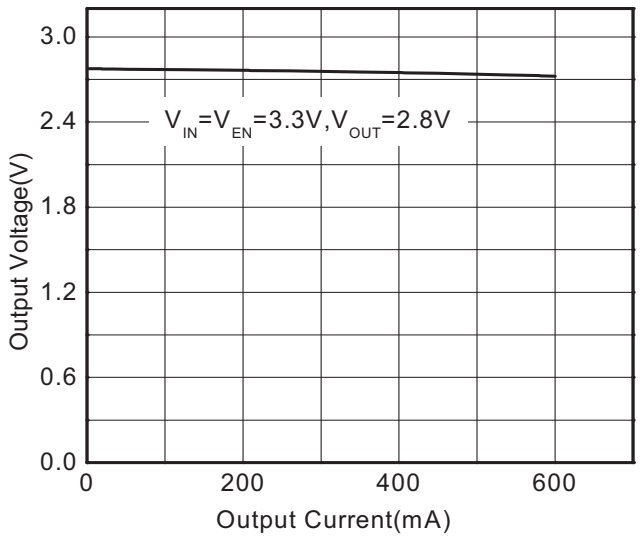
Typical Performance Graph



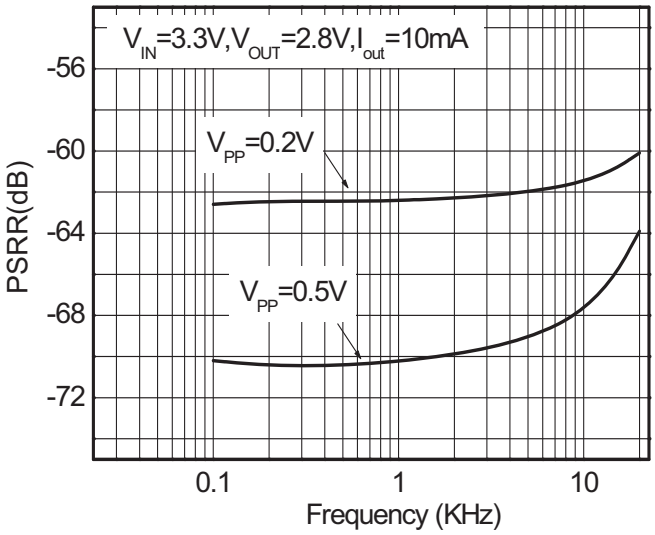
Quiescent Current vs. Temperature



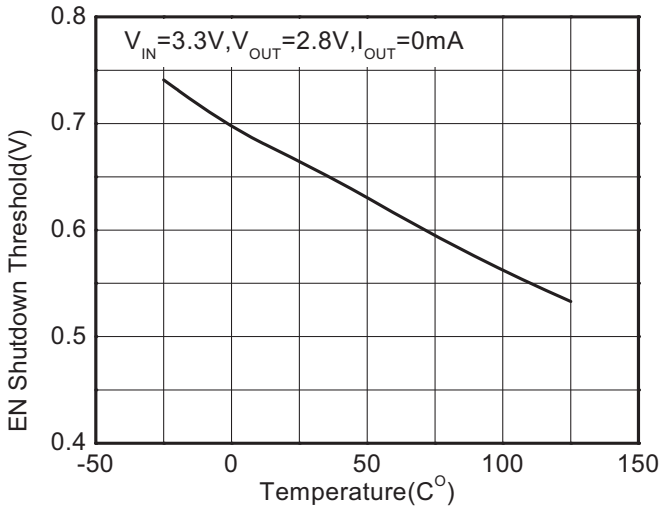
Output Voltage vs. Temperature



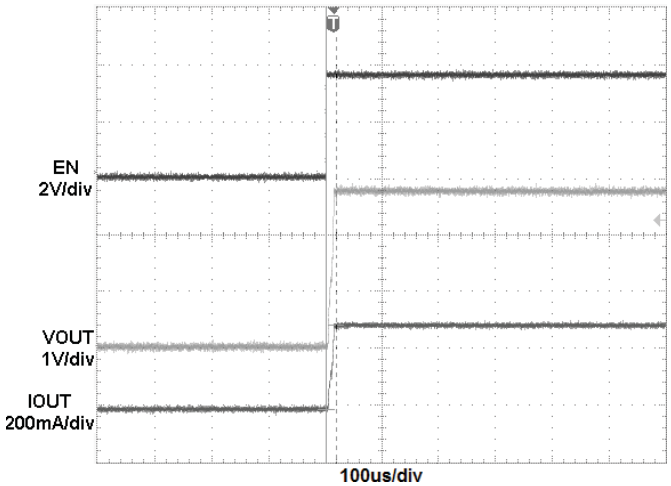
Output Voltage vs. Output Current



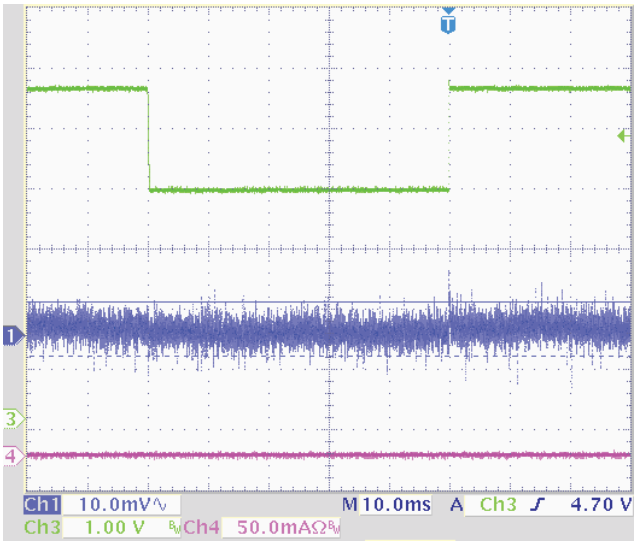
PSRR vs. Frequency



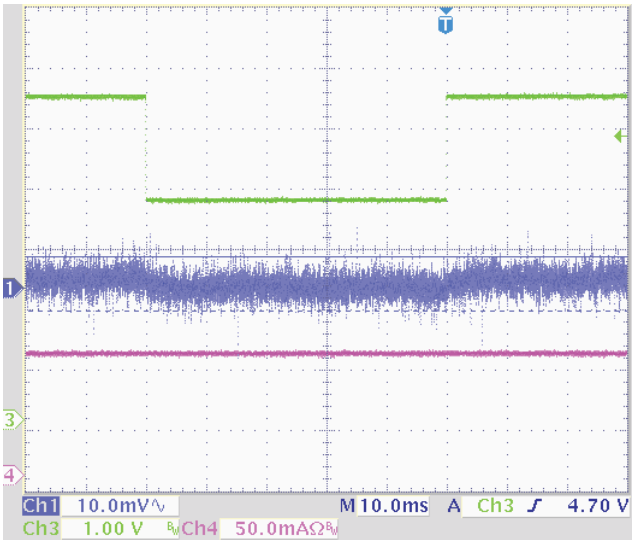
EN Shutdown Threshold vs. Temperature



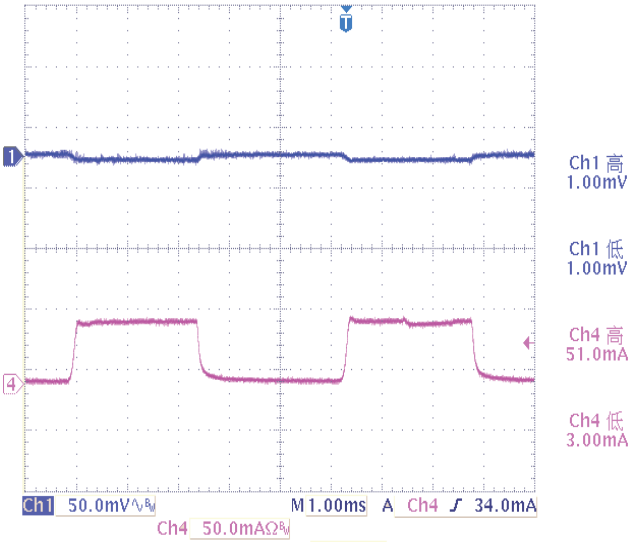
Start Up



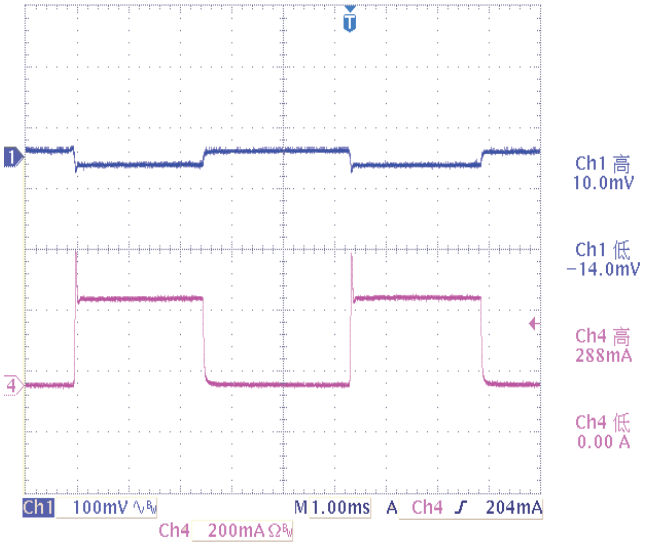
Line Regulation



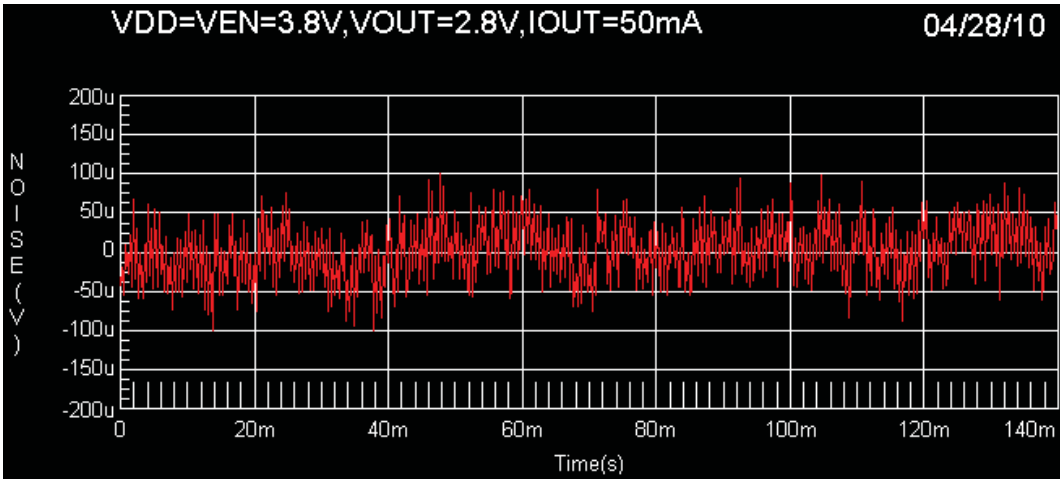
Line Regulation



Load Regulation



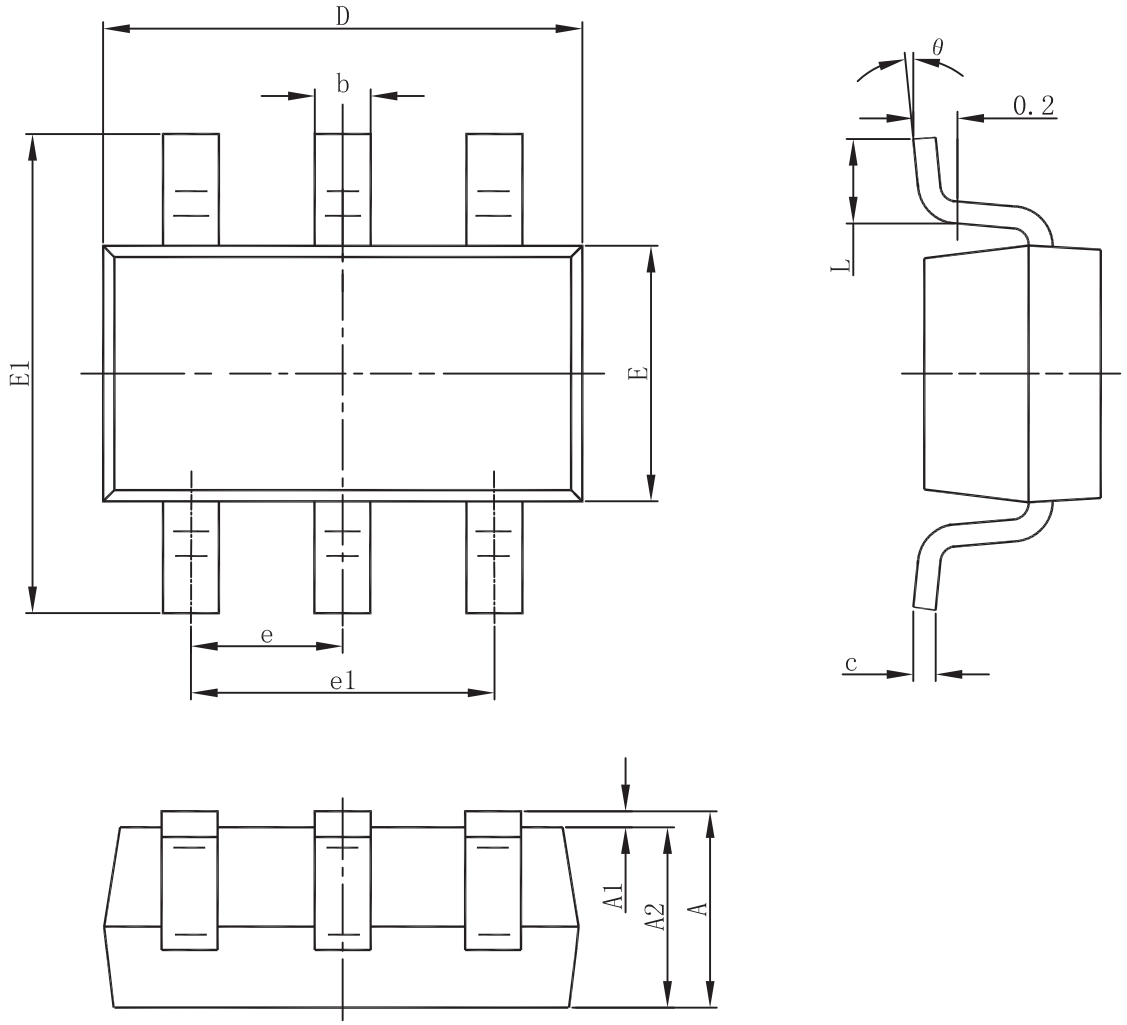
Load Regulation



Output Noise (VDD by Battery)

Package outline dimensions

SOT-23-6L



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950 Typ.	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°

Order Information

Ordering No.	Output Voltage(V)		Package	Operating Temperature	Marking	Shipping
	VOUT1	VOUT2				
WL2701E01G-6/TR	1.8	2.8	SOT-23-6L	-40~+85°C	WL01 YYWW	Tape and Reel, 3000
WL2701E02G -6/TR	2.8	2.8	SOT-23-6L	-40~+85°C	WL02 YYWW	Tape and Reel, 3000
WL2701E03G-6/TR	3.0	3.0	SOT-23-6L	-40~+85°C	WL03 YYWW	Tape and Reel, 3000
WL2701E04G-6/TR	3.3	1.8	SOT-23-6L	-40~+85°C	WL04 YYWW	Tape and Reel, 3000
WL2701E05G-6/TR	1.5	2.8	SOT-23-6L	-40~+85°C	WL05 YYWW	Tape and Reel, 3000
WL2701E06G-6/TR	2.8	3.0	SOT-23-6L	-40~+85°C	WL06 YYWW	Tape and Reel, 3000
WL2701E07G-6/TR	1.2	2.8	SOT-23-6L	-40~+85°C	WL07 YYWW	Tape and Reel, 3000
WL2701E08G-6/TR	2.5	1.2	SOT-23-6L	-40~+85°C	WL08 YYWW	Tape and Reel, 3000
WL2701E09G-6/TR	1.8	3.15	SOT-23-6L	-40~+85°C	WL09 YYWW	Tape and Reel, 3000

Remark:

1. **Marking:**
   - **WL**** = Device Code
   - **YY** = Year
   - **WW** = Week