

WL2861K

**High Input Voltage, Low Quiescent Current
LDO**

[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

Descriptions

The WL2861K series is a high accuracy, high input voltage low quiescent current, high speed, and low dropout Liner regulator with high ripple rejection. The device is manufactured with Bi-CMOS process.

The WL2861K offers over-current limit and over temperature protection to ensure the device working in well conditions.

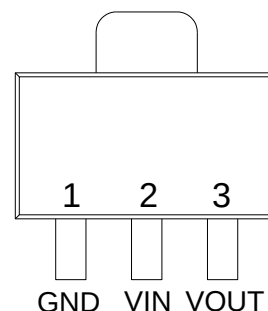
The WL2861K regulators are available in standard SOT-89-3L packages. Standard products are Pb-free and Halogen-free.

Features

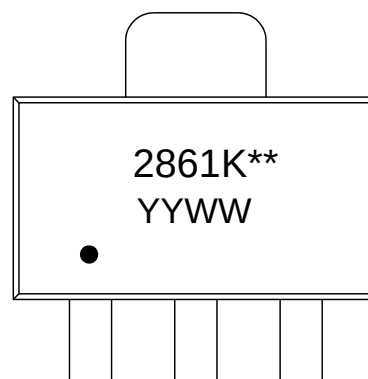
- Supply Voltage : 4.75V~40V
- Output Range : 1.8V~5.7V
- Output Accuracy : <+/-2%
- Output Current : 100mA (for detail please see page5.)
- PSRR : 60dB @ 100Hz
- Dropout Voltage : 800mV @ $I_{OUT}=100mA$
- Quiescent Current : $10\mu A @ V_{IN}=7V(Typ.)$
- Recommend Capacitor : 10uF



SOT-89



Pin Configuration (Top View)



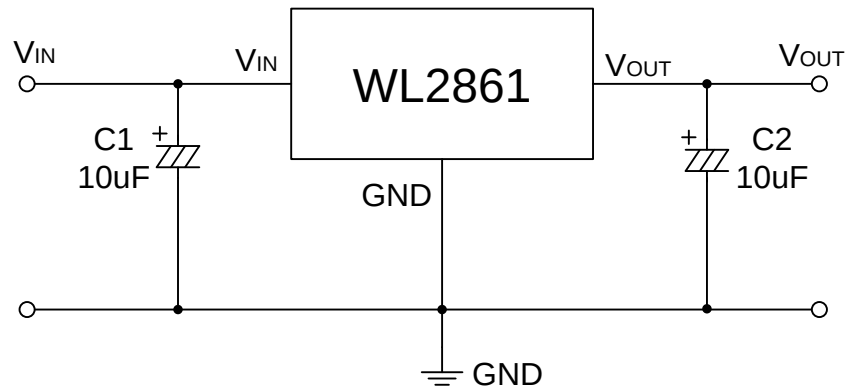
For detail marking information, please see page 9.

Marking

Order Information

For detail order information, please see page 9.

Typical Application

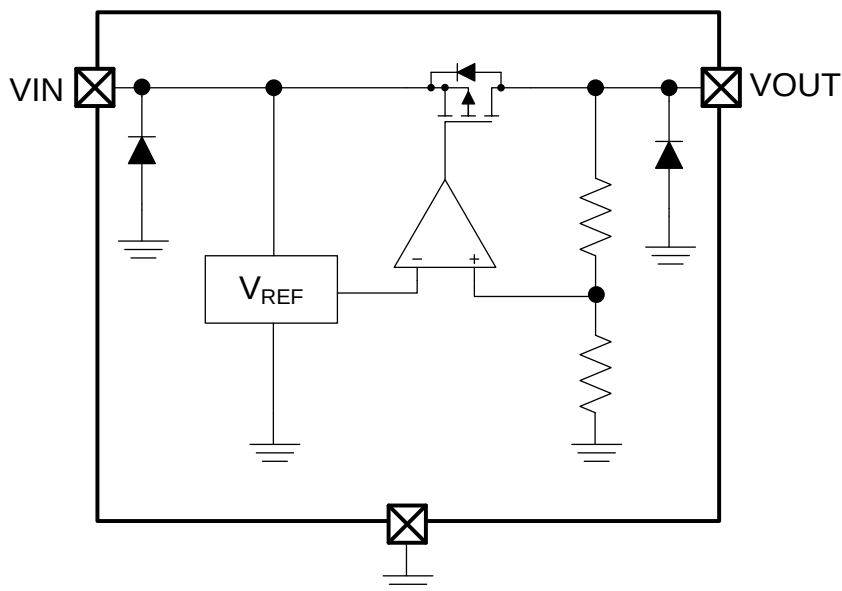


(Locate C_{in} and C_{out} as close to the V_{in} pin and V_{out} pin as possible.)

Pin Description

PIN	Symbol	Description
1	GND	Ground
2	V_{IN}	Voltage Input
3	V_{OUT}	Voltage Output

Block Diagram



Absolute Maximum Ratings

Parameter	Value	Unit
Power Dissipation	Internal limited	mW
V _{IN} Range	-0.3~45	V
V _{OUT} Range	-0.3~6.5	V
Lead Temperature Range	260	°C
Storage Temperature Range	-55 ~ 150	°C
Operating Junction Temperature Range	150	°C
ESD MM	400	V
ESD HBM	4K	V

Recommend Operating Ratings

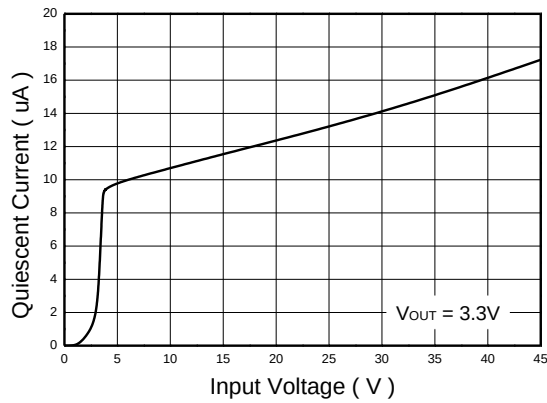
Parameter	Value	Unit
Operating Supply voltage	4.75~40	V
Operating Temperature Range	-40~85	°C
Thermal Resistance (On PCB) , R _{θJA}	77	°C/W
Power Dissipation	1000	mW

Electronics Characteristics (Ta=25°C, V_{IN}=12V, C_{IN}=C_{OUT}=10uF, unless otherwise noted)

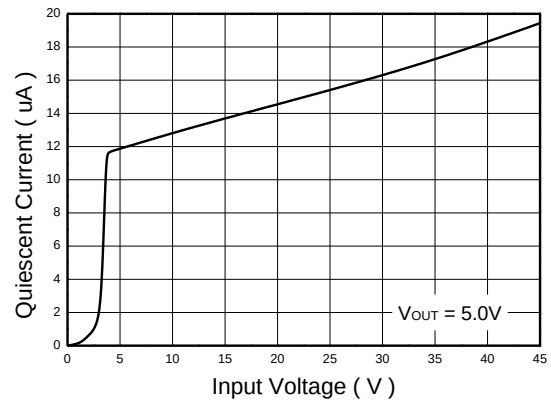
Symbol	Parameter	Test Condition	WL2861K SPEC			Unit
			Min.	Typ.	Max.	
V _{IN}	Input Range	I _{OUT} =10mA	4.75		40	V
V _{OUT}	Output Range	I _{OUT} =10mA	V _{OUT} *0.98	V _{OUT}	V _{OUT} *1.02	V
ΔV _{OUT}	Output Voltage	I _{OUT} =10mA	4.9	5.0	5.1	V
			3.234	3.3	3.366	V
I _{OUT_PK}	Maximum Output Current	V _{IN} = V _{OUT} +2V	150			mA
I _Q	Quiescent Current	V _{IN} =7V, No load		10	15	μA
		V _{IN} =24V, No load		11	16	
		V _{IN} =40V, No load		13	20	
V _{DROP}	Dropout Voltage	I _{OUT} =1mA		8	12	mV
		I _{OUT} =100mA		800	1200	
Δ V _{Line}	Line Regulation	V _{IN} =7--24V, V _{OUT} =5V I _{OUT} =1mA		0.02		%V
		V _{IN} =7--45V, V _{OUT} =5V I _{OUT} =1mA		0.1		
Δ V _{Load}	Load Regulation	I _{OUT} =1--100mA		0.6		%
e _{NO}	Output Noise	I _{OUT} =10mA		250		μV
PSRR	Ripple Rejection	V _{IN} =10V f=100Hz		60		dB
		V _{PP} =0.5V f=1KHz		45		
		I _{OUT} =1mA f=10KHz		35		
T _{SD}	Thermal Protection	I _{OUT} =1mA		165		°C
ΔVo/ΔT	Temperature Coefficient	I _{OUT} =1mA		±0.5		mv/°C

Note: V_{IN}<4.75V, V_{DROP} is not accurate.

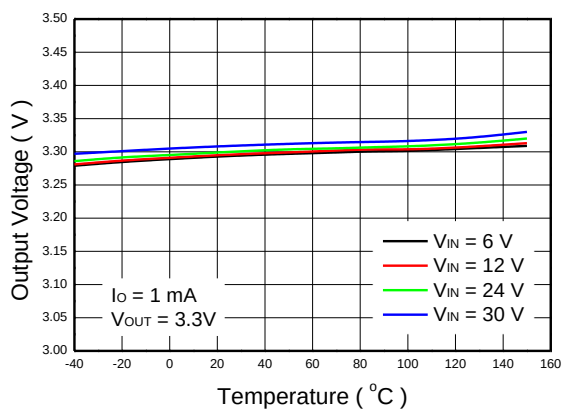
Typical characteristics ($T_a=25^{\circ}\text{C}$, $C_{IN}=C_{OUT}=10\mu\text{F}$, unless otherwise noted)



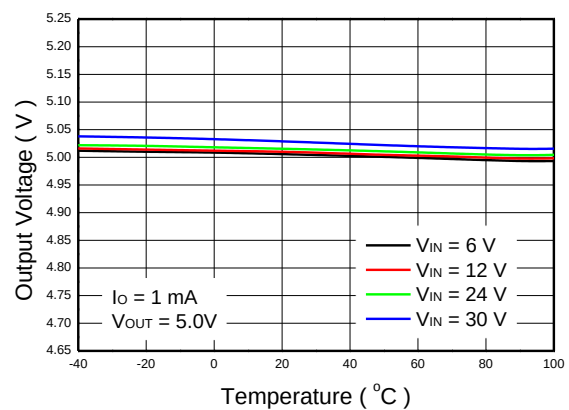
Quiescent Current vs. Input Voltage



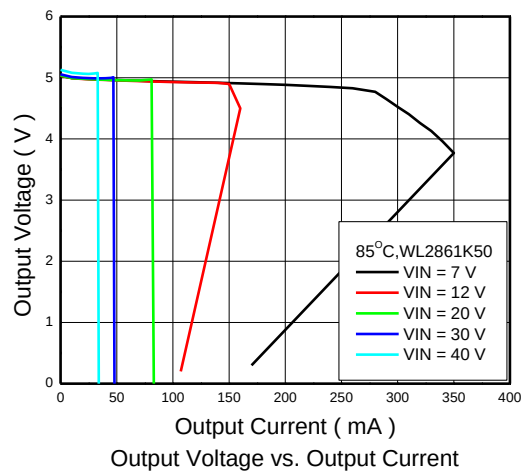
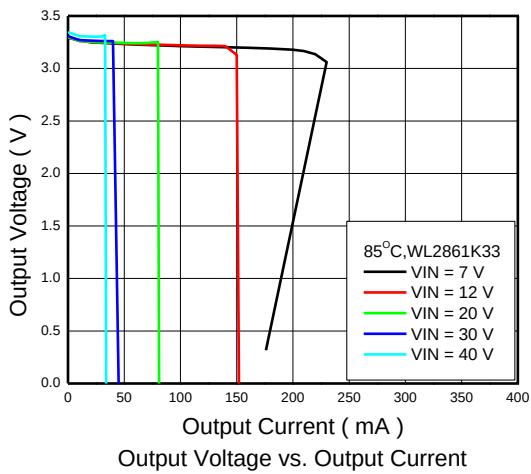
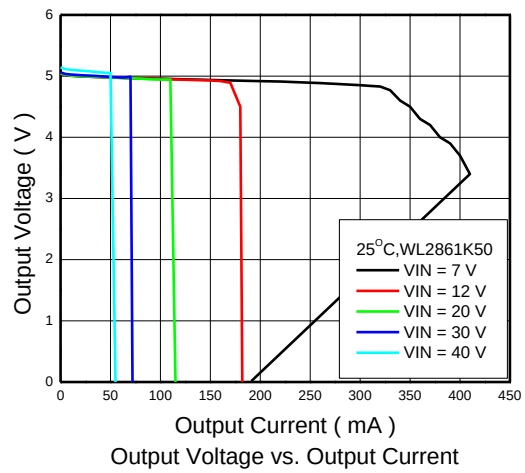
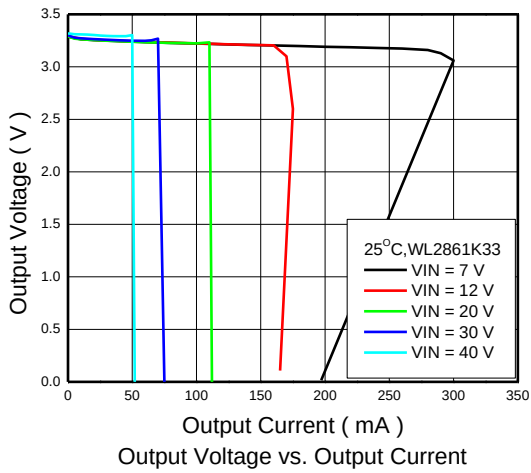
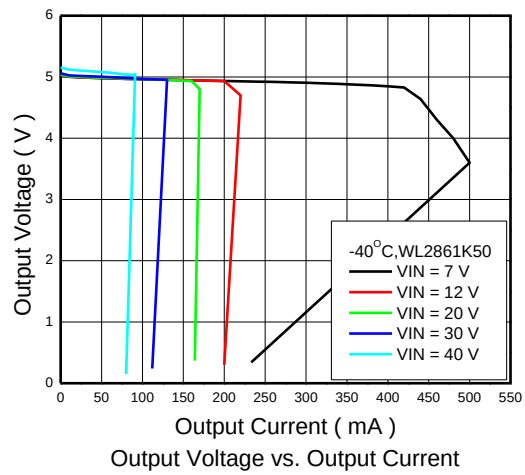
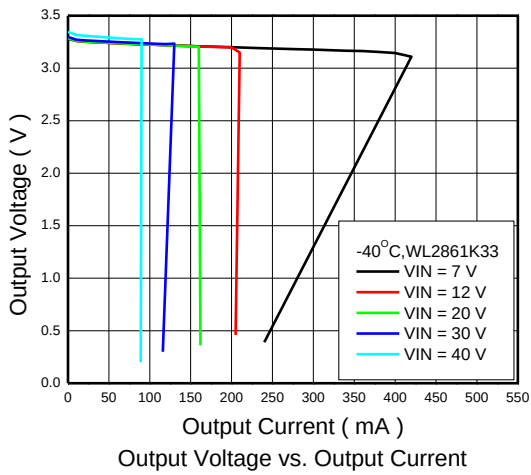
Quiescent Current vs. Input Voltage

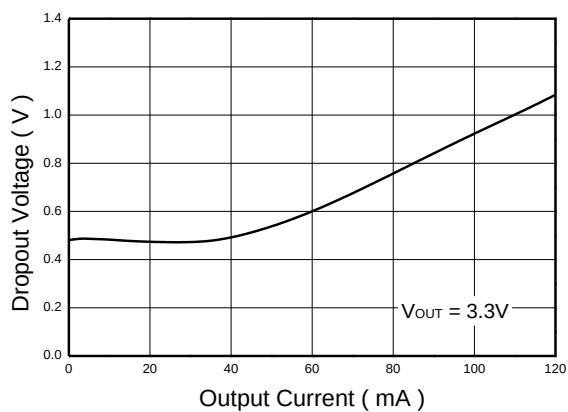
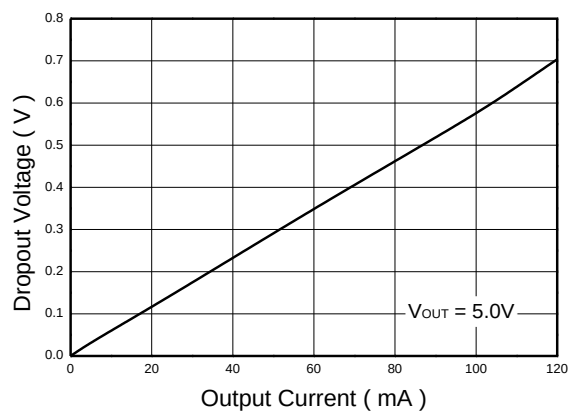
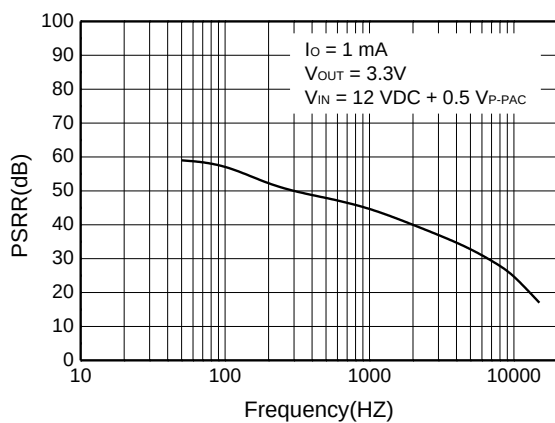
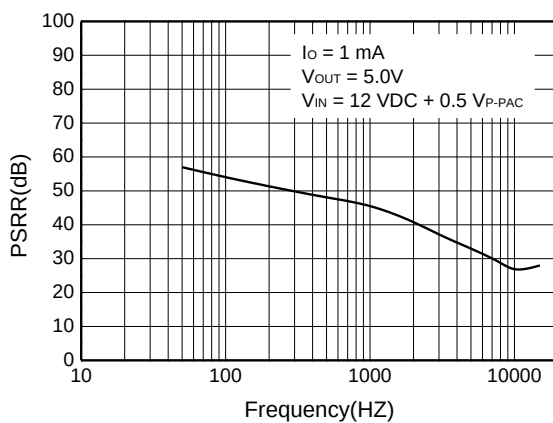
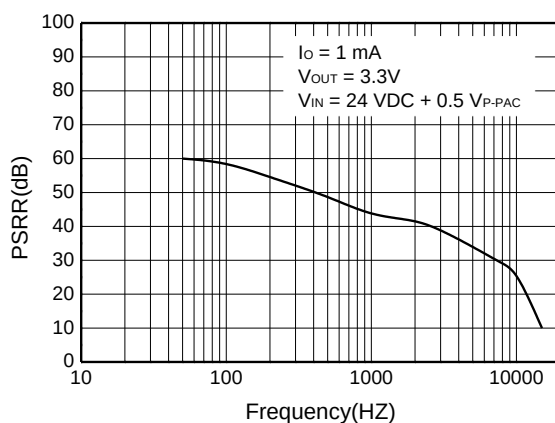
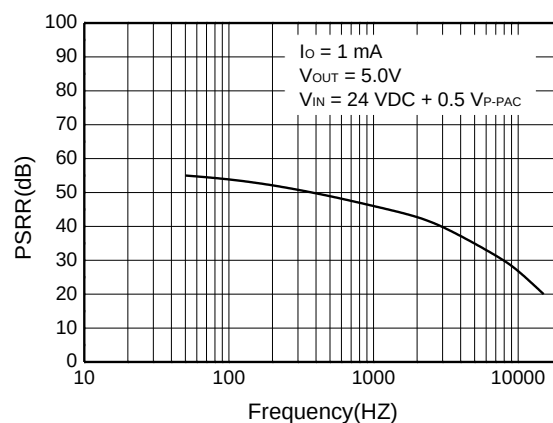


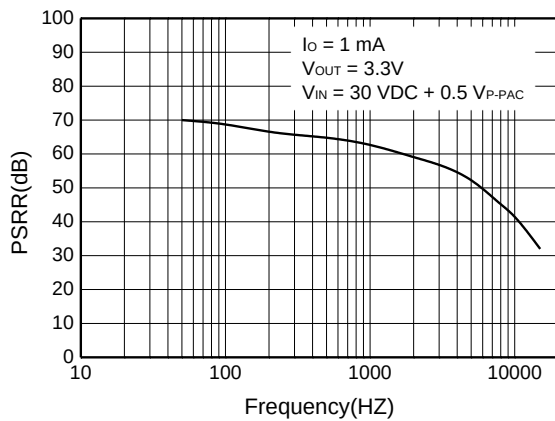
Output Voltage vs. Temperature



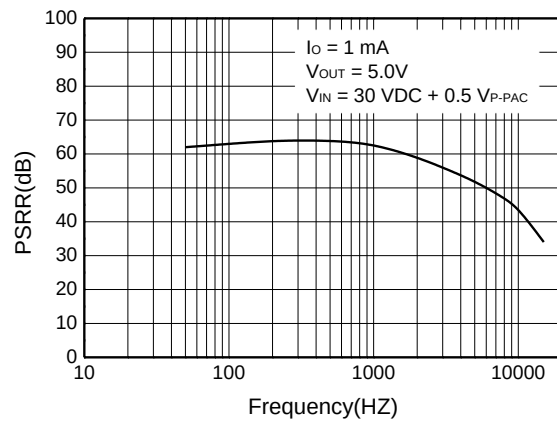
Output Voltage vs. Temperature



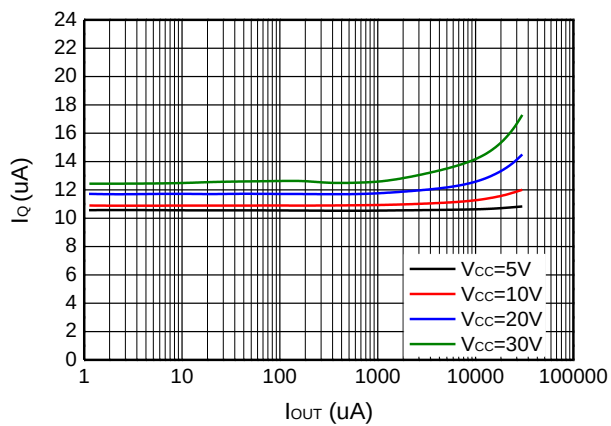

Dropout Voltage vs. Output Current

Dropout Voltage vs. Output Current

PSRR vs. Frequency

PSRR vs. Frequency

PSRR vs. Frequency

PSRR vs. Frequency



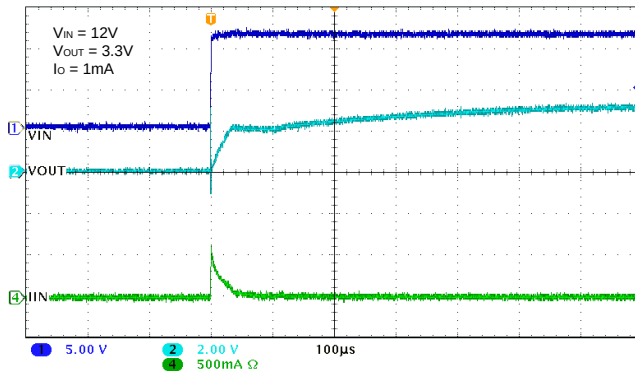
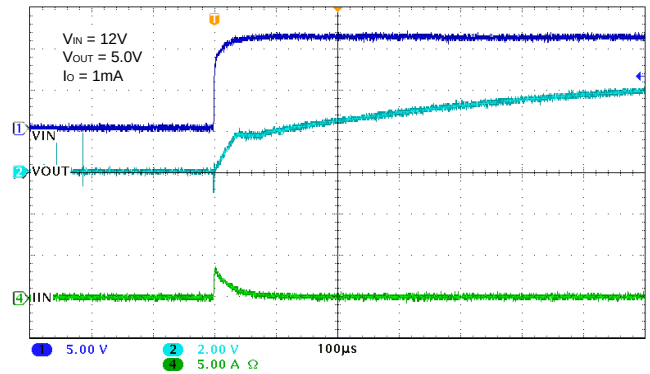
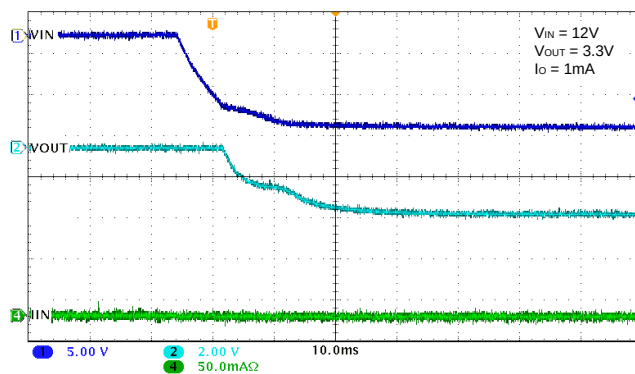
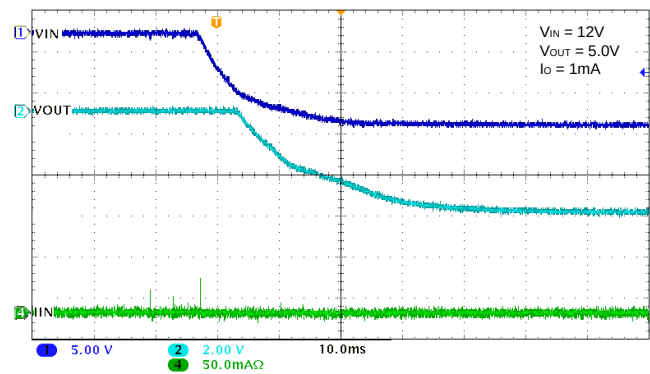
PSRR vs. Frequency



PSRR vs. Frequency



Quiescent Current vs. Output Current


Startup from Power ON

Startup from Power ON

Shutdown from Power OFF

Shutdown from Power OFF

ORDER INFORMATION

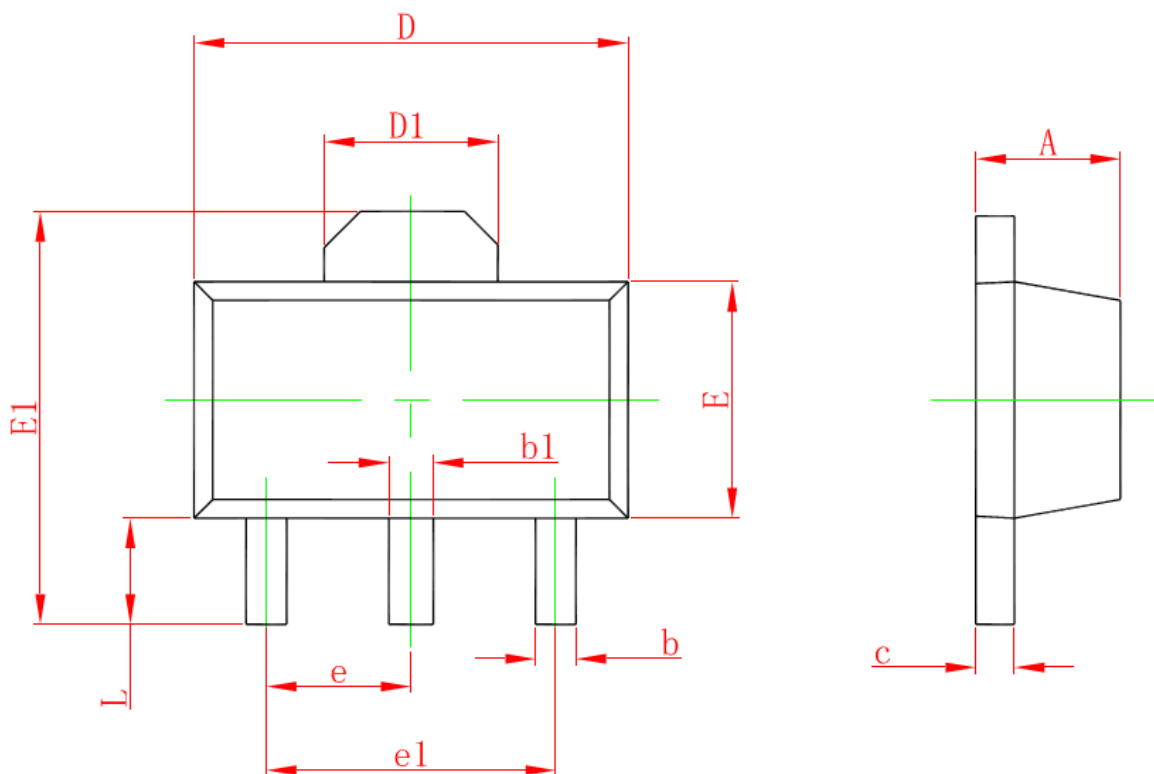
Ordering No.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2861K33-3/TR	3.3	SOT-89	-40~+85°C	2861K33 YYWW	Tape and Reel, 1000
WL2861K50-3/TR	5.0	SOT-89	-40~+85°C	2861K50 YYWW	Tape and Reel, 1000

Marking:

2861K** = Device Code

YY = Year

WW = Week

Package outline dimensions
SOT-89-3L


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	1.40	1.50	1.60
b	0.38	0.42	0.47
b1	0.46	0.49	0.55
c	0.40	-	0.44
D	4.40	4.50	4.60
D1	1.60	1.70	1.80
E	2.40	2.50	2.60
E1	4.05	-	4.25
e	1.50 Typ.		
e1	3.00 Typ.		
L	0.89	-	1.20