

WL2862E

High Input Voltage, Low Quiescent Current LDO

Descriptions

The WL2862E series is a high accuracy, high input voltage low quiescent current, high speed, and low dropout Linear regulator with high ripple rejection.

The WL2862E offers over-current limit and over temperature protection to ensure the device working in well conditions.

The WL2862E regulators are available in standard SOT-23-5L packages. Standard products are Pb-free and Halogen-free.

Features

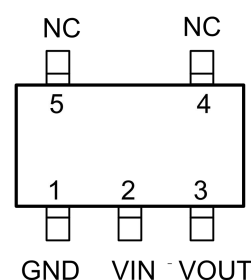
- Supply Voltage : 4.5V~36V
- Output Range : 3V~12V
- Output Accuracy : $\pm 2\%$
- Output Current : 150mA@($V_{IN}-V_{OUT}=2V$)(Typ.)
- PSRR : 65dB @ 0.1KHz
- Dropout Voltage : 1000mV @ $I_{OUT}=150mA$
- Quiescent Current : 4.5 μA @ $V_{IN}=12V$ (Typ.)
- Recommend Capacitor : 10 μF

Applications

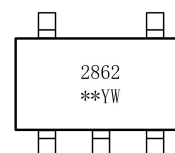
- Battery-Powered Equipment
- Communication Equipment
- Audio/Video Equipment
- Smoke Detector



SOT-23-5L



Pin Configuration (Top View)



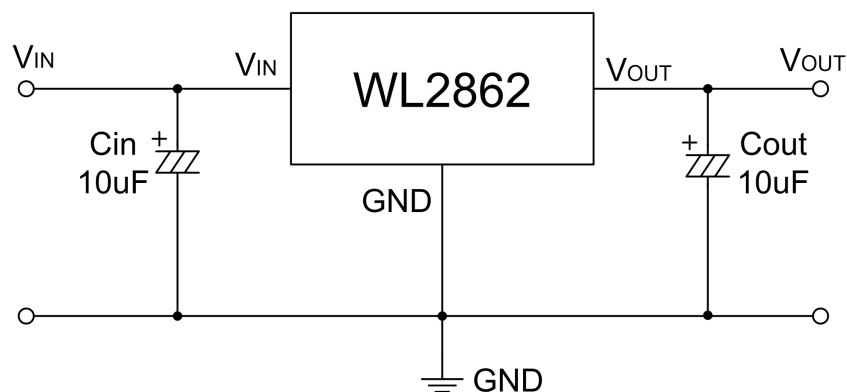
Marking

2862**	= Device Code
Y	= Year
W	= Week

Order Information

For detail order information, please see page 10.

Typical Application

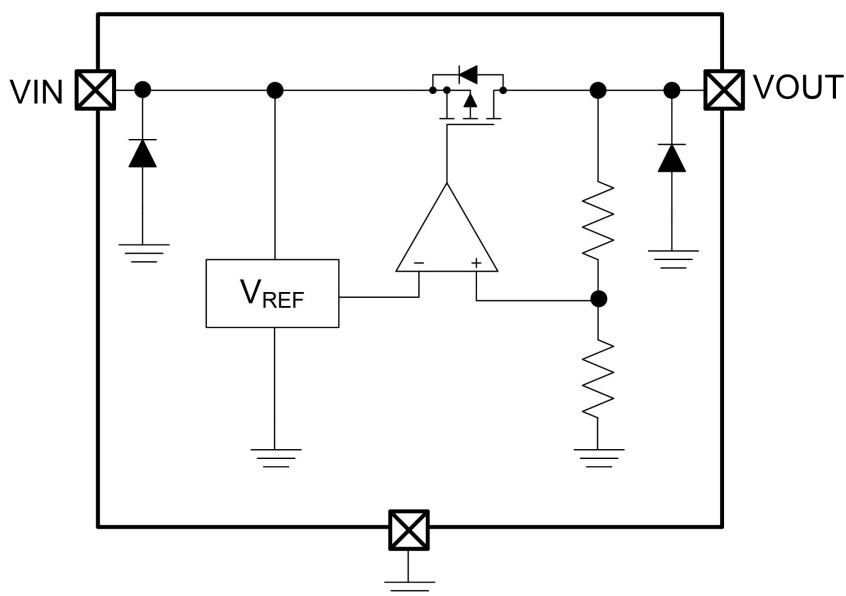


(Locate C_{in} and C_{out} as close to the V_{in} pin and V_{out} pin as possible.)

Pin Description

PIN	Symbol	Description
1	GND	Ground
2	VIN	Voltage Input
3	VOUT	Voltage Output
4	NC	Not Connect
5	NC	Not Connect

Block Diagram



Absolute Maximum Ratings

Parameter	Value	Unit
Power Dissipation	500	mW
V _{IN} Range	-0.3~44	V
V _{OUT} Range	-0.3~15	V
Lead Temperature Range	260	°C
Storage Temperature Range	-55 ~ 150	°C
Operating Junction Temperature Range	150	°C
ESD MM	600	V
ESD HBM	8K	V

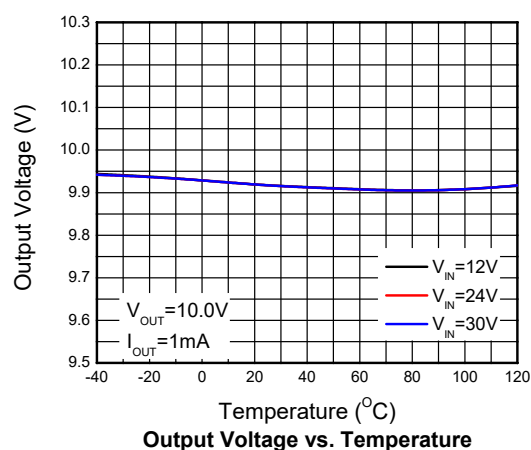
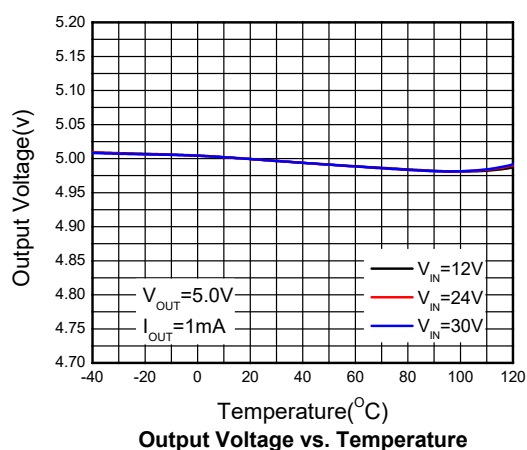
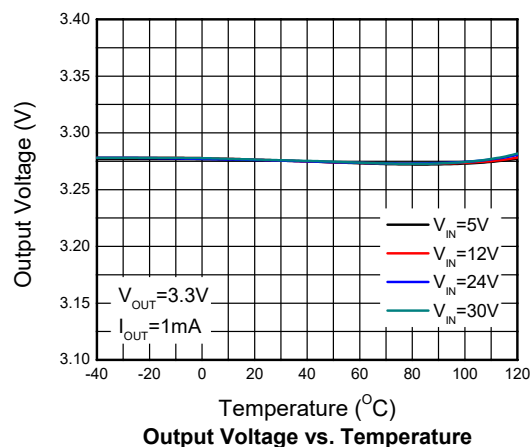
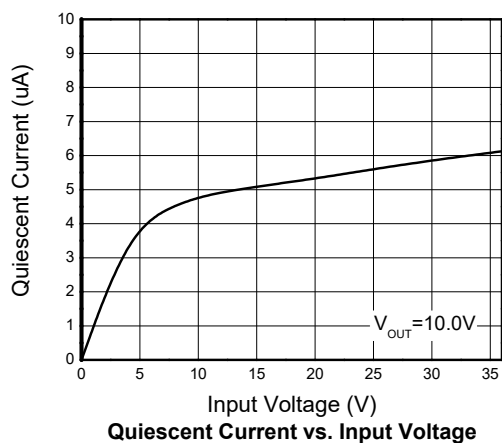
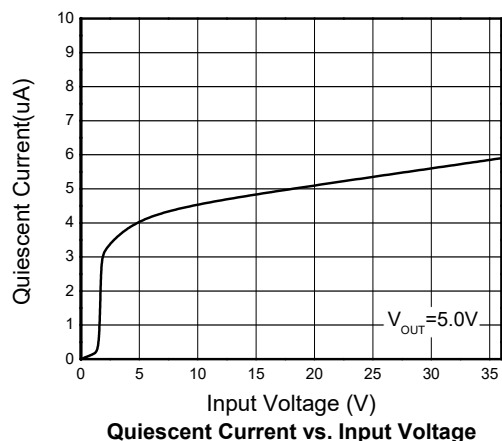
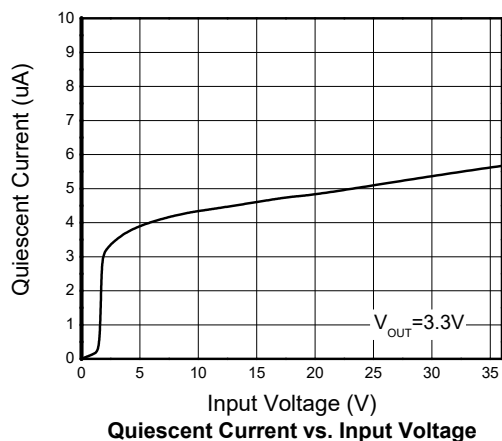
Recommend Operating Ratings

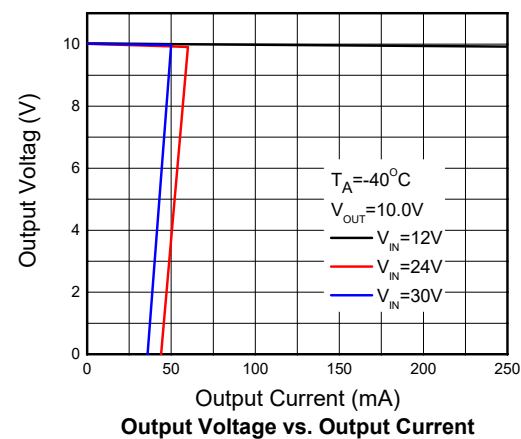
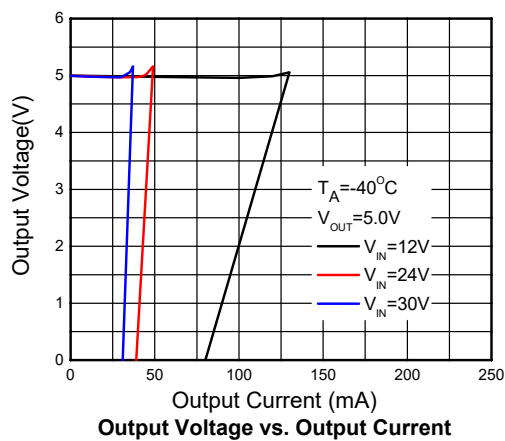
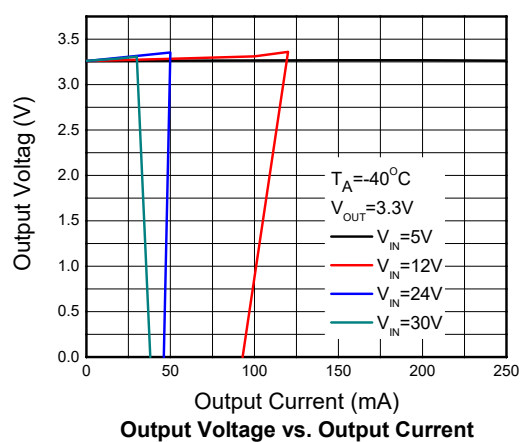
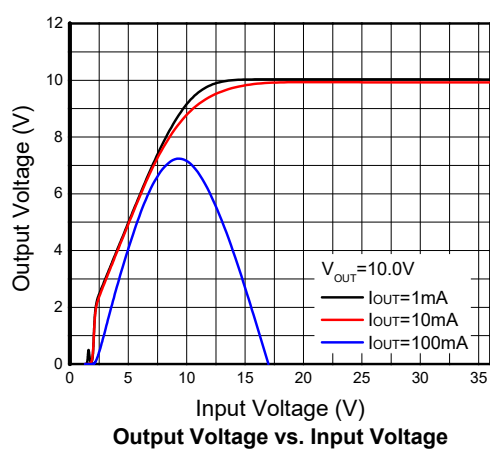
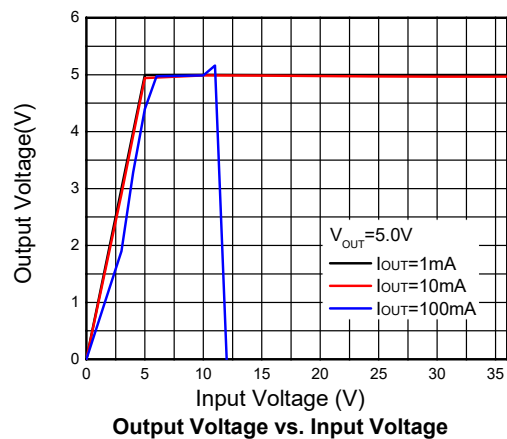
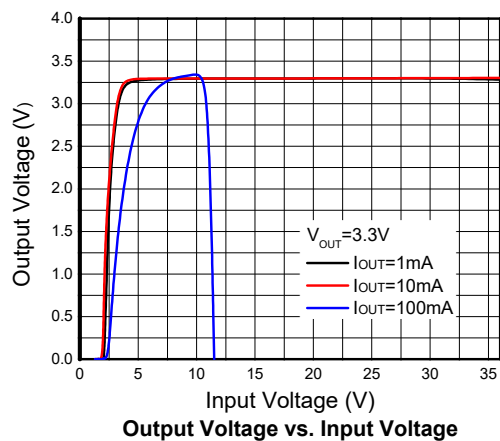
Parameter	Value	Unit
Operating Supply voltage	4.5~36	V
Operating Temperature Range	-40~85	°C
Thermal Resistance (On PCB) , R _{θJA}	250	°C/W

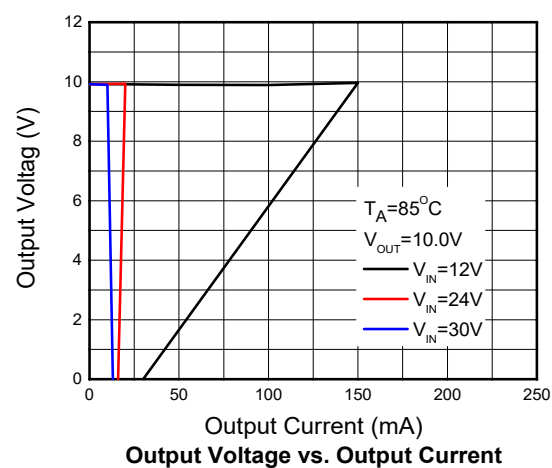
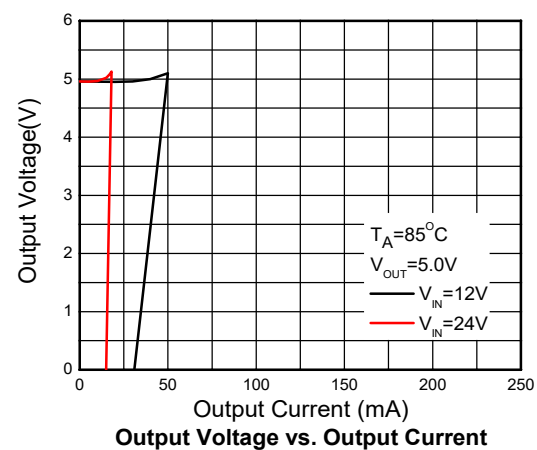
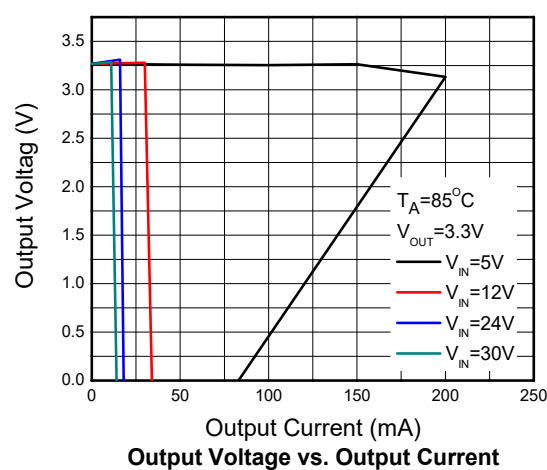
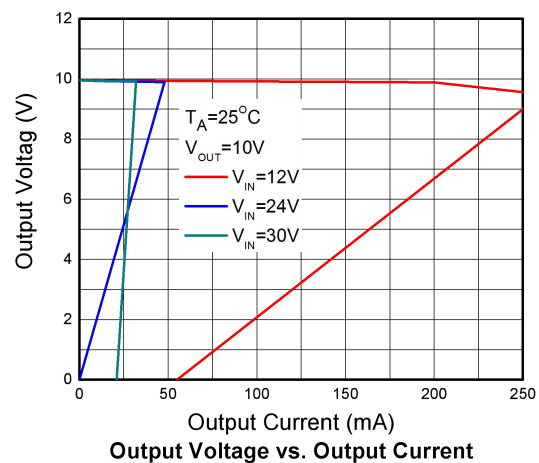
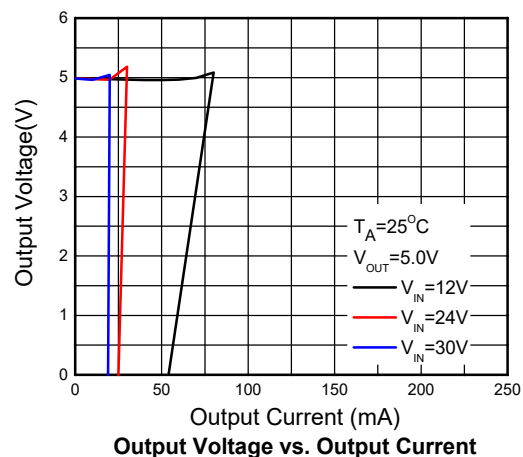
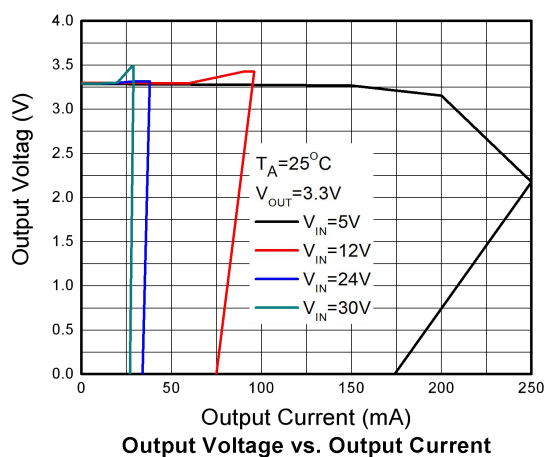
Electronics Characteristics ($T_a=25^{\circ}\text{C}$, $V_{IN}=12\text{V}$, $V_{OUT}=5.0\text{V}$, $C_{IN}=C_{OUT}=10\mu\text{F}$, unless otherwise noted)

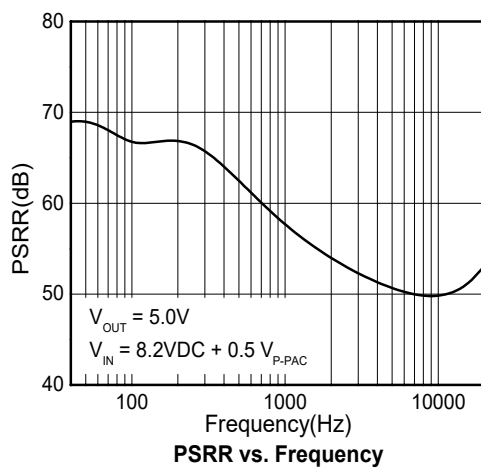
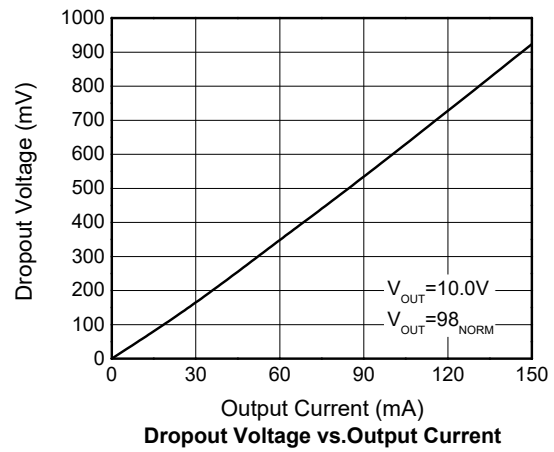
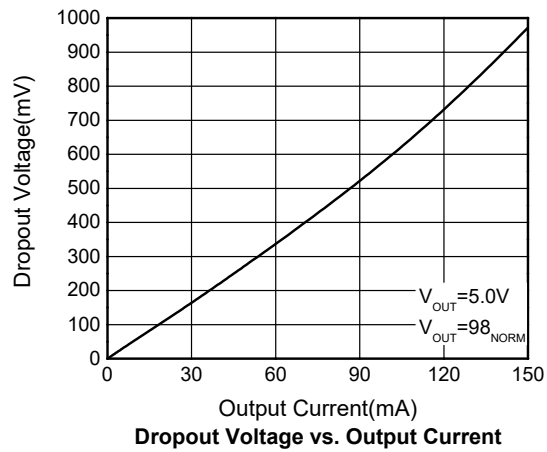
Symbol	Parameter	Test Condition	WL2862E SPEC			Unit
			Min.	Typ.	Max.	
V_{IN}	Input Range	$I_{OUT}=10\text{mA}$	4.5		36	V
V_{OUT}	Output Range	$I_{OUT}=10\text{mA}$	$V_{OUT}*0.98$	V_{OUT}	$V_{OUT}*1.02$	V
ΔV_{OUT}	Output Voltage	$V_{IN}=12\text{V}, I_{OUT}=10\text{mA}$	2.940	3.0	3.060	
			3.234	3.3	3.366	V
			4.9	5.0	5.1	V
		$V_{IN}=18\text{V}, I_{OUT}=10\text{mA}$	9.8	10.0	10.2	V
I_{OUT_PK}	Maximum Output Current	$V_{IN}=V_{OUT}+2\text{V}, R_L=1\Omega$	150			mA
I_{Q1}	Quiescent Current For $V_{OUT}=5\text{V}$	$V_{IN}=12\text{V}$, No load		4.5		μA
I_{Q2}	Quiescent Current For $V_{OUT}=10\text{V}$	$V_{IN}=18\text{V}$, No load		5.5		μA
V_{DROP}	Dropout Voltage	$I_{OUT}=1\text{mA}$		6.5		mV
		$I_{OUT}=150\text{mA}$		1000		
ΔV_{Line}	Line Regulation	$V_{IN}=7\text{--}24\text{V}, V_{OUT}=5\text{V}, I_{OUT}=1\text{mA}$		0.02		% / V
		$V_{IN}=7\text{--}36\text{V}, V_{OUT}=5\text{V}, I_{OUT}=1\text{mA}$		0.1		
ΔV_{Load}	Load Regulation	$V_{IN}=12\text{V}, I_{OUT}=1\text{--}100\text{mA}$		0.6		%
e_{NO}	Output Noise	$I_{OUT}=10\text{mA}$		300		μV
PSRR	Ripple Rejection	$V_{IN}=10.0\text{V}$ $V_{PP}=0.5\text{V}$ $I_{OUT}=1\text{mA}$	$f=100\text{Hz}$	65		dB
			$f=1\text{KHz}$	55		
			$f=10\text{KHz}$	40		
T_{SD}	Thermal Protection	$V_{IN}=12\text{V}, I_{OUT}=1\text{mA}$		150		$^{\circ}\text{C}$
$\Delta V_o/\Delta T$	Temperature Coefficient	$V_{IN}=12\text{V}, I_{OUT}=1\text{mA}$		100		ppm

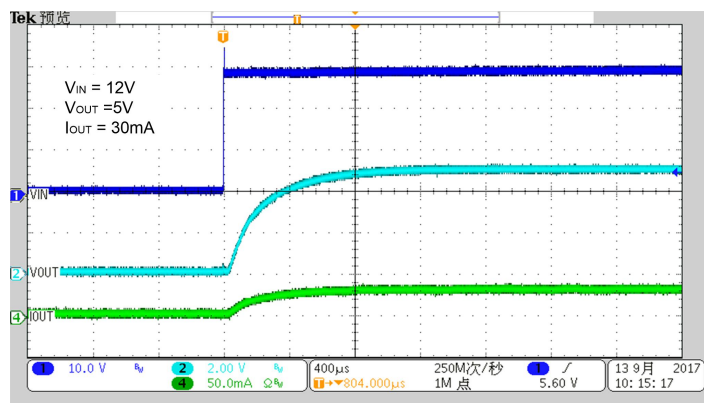
Typical characteristics($T_a=25^{\circ}\text{C}$, $C_{\text{IN}}=C_{\text{OUT}}=10\mu\text{F}$, unless otherwise noted)



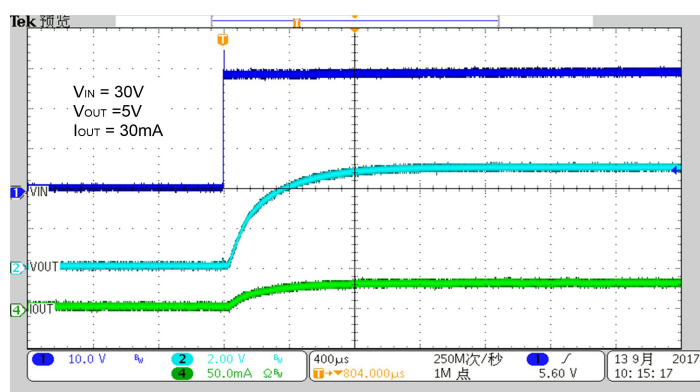




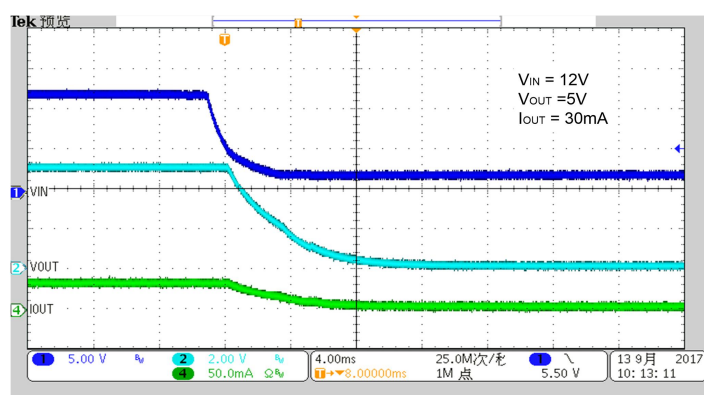




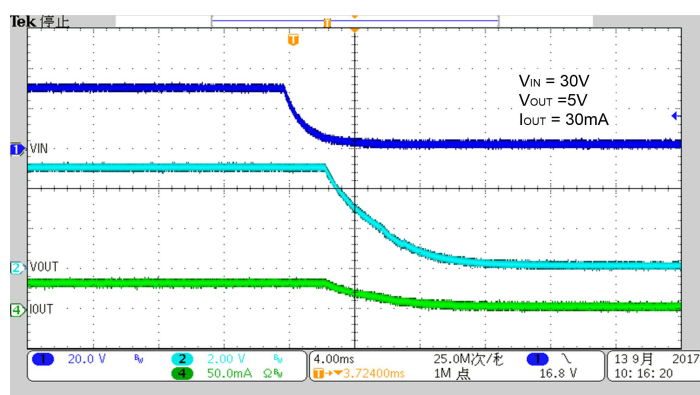
Start up from Power ON



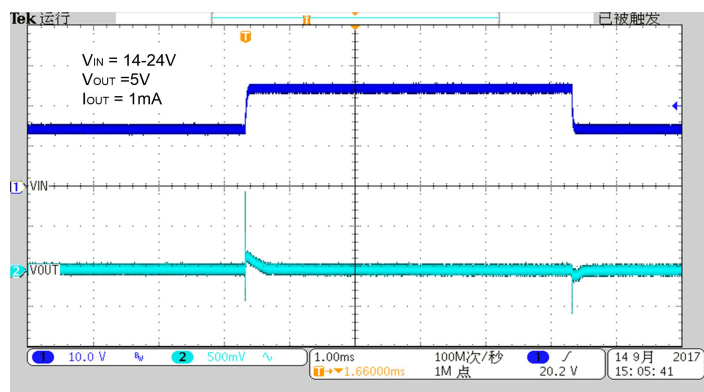
Start up from Power ON



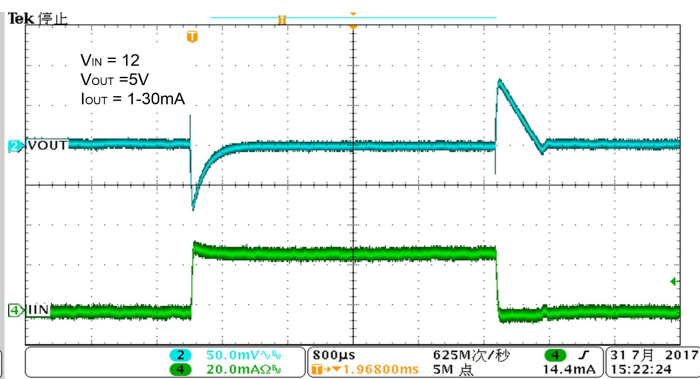
Shutdown from Power OFF



Shutdown from Power OFF



Line Transient Response



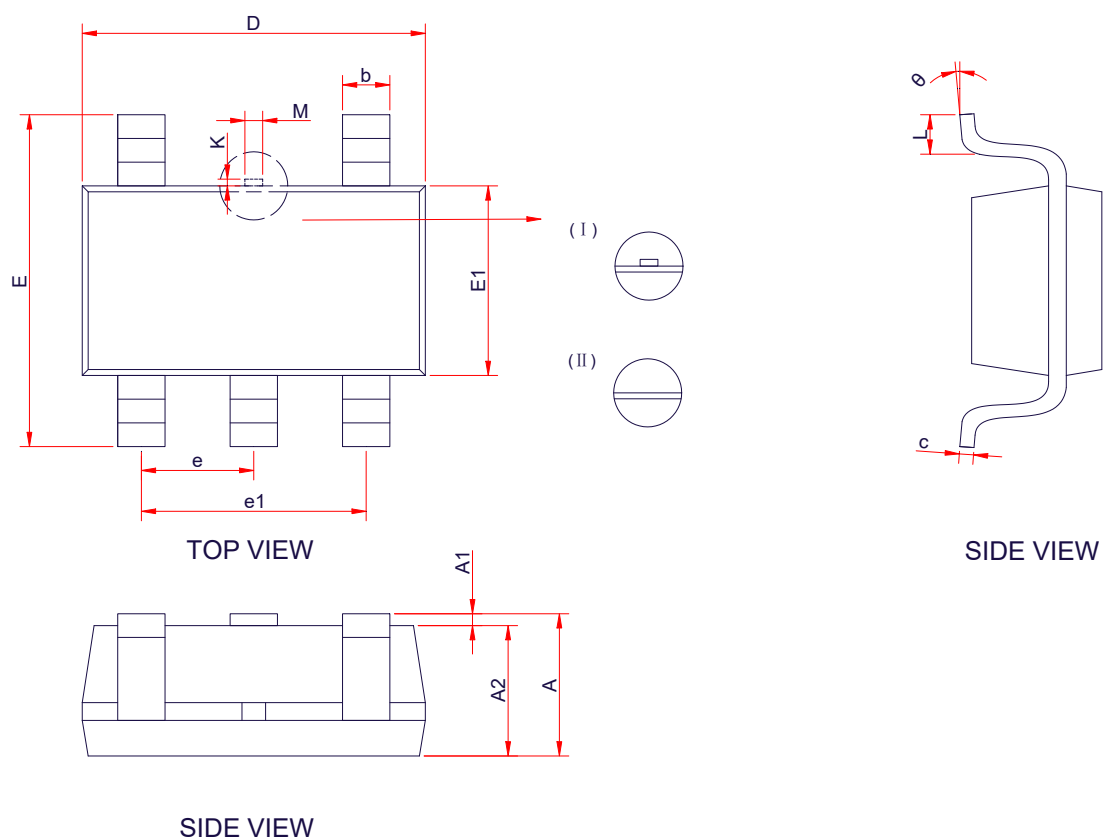
Line Transient Response

ORDER INFORMATION

Ordering No.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2862E30-5/TR	3.0	SOT-23-5L	-40~+85°C	2862 EMYW	Tape and Reel, 3000
WL2862E33-5/TR	3.3	SOT-23-5L	-40~+85°C	2862 ENYW	Tape and Reel, 3000
WL2862E50-5/TR	5.0	SOT-23-5L	-40~+85°C	2862 ETYW	Tape and Reel, 3000
WL2862EA0-5/TR	10.0	SOT-23-5L	-40~+85°C	2862 EZYW	Tape and Reel, 3000

PACKAGE OUTLINE DIMENSIONS

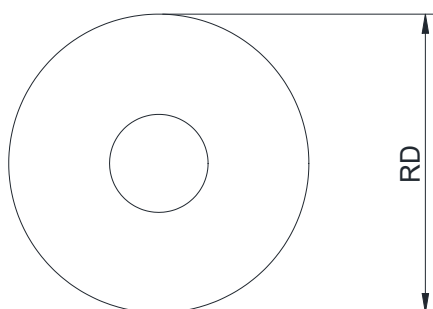
SOT-23-5L



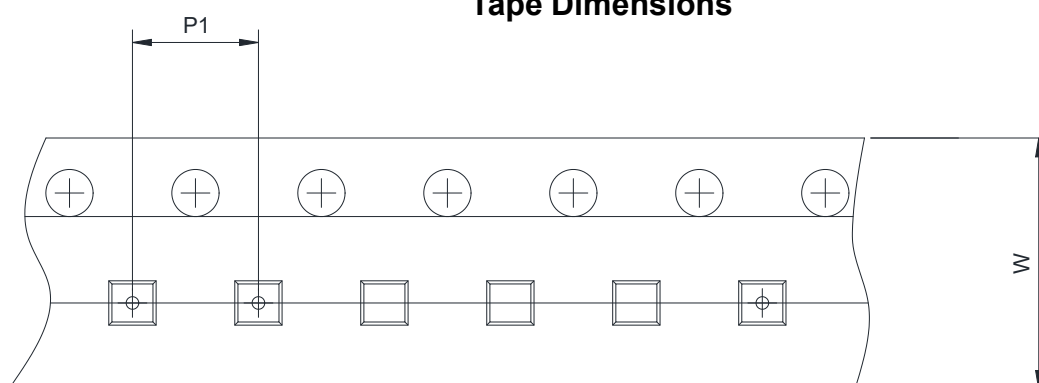
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	-	-	1.45
A1	0.00	-	0.15
A2	0.90	1.10	1.30
b	0.30	0.40	0.50
c	0.10	-	0.21
D	2.72	2.92	3.12
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.45	0.60
M	0.10	0.15	0.25
K	0.00	-	0.25
θ	0°	-	8°

TAPE AND REEL INFORMATION

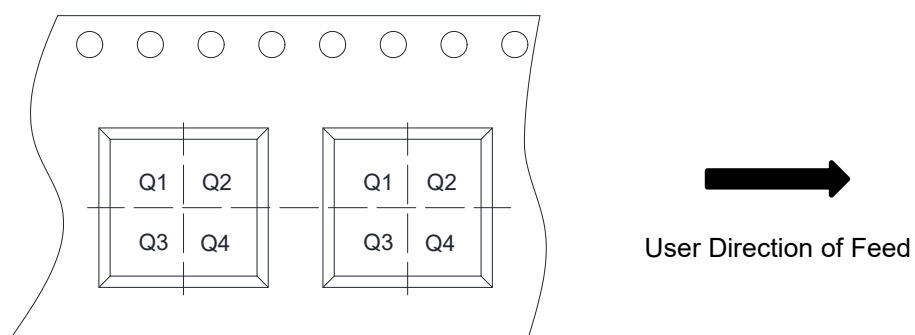
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimension	☒ 7inch	☐ 13inch
W	Overall width of the carrier tape	☒ 8mm	☐ 12mm ☐ 16mm
P1	Pitch between successive cavity centers	☐ 2mm	☒ 4mm ☐ 8mm
Pin1	Pin1 Quadrant	☐ Q1	☐ Q2 ☒ Q3 ☐ Q4