

WL2855K

Low noise, Low Power Consumption, 12V Input, 500mA, CMOS LDO

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

Descriptions

The WL2855K series are high accuracy, low noise, 12V Input, 500mA, 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 WL2855K has the fold-back maximum output current which depends on the output voltage. So the current limit functions both as a short circuit protection and as an output current limiter.

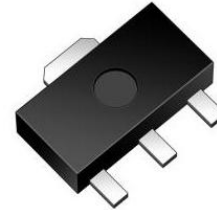
The WL2855K regulators are available in standard SOT-89-3L Package. Standard products are Pb-free and Halogen-free.

Features

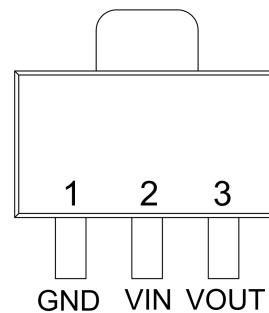
- Input Voltage Range : 2.5V~12V
- Output Voltage Range : 1.2V~5V
- Output Current : 500mA
- Fixed Voltage Accuracy : $\pm 1\%$ ($V_o \geq 2.5V$)
- Quiescent current : 1uA
- Dropout voltage : 840mV@ $V_o=4V$
I_o=500mA
- Recommend capacitor : $\geq 0.1\mu F$
- Short-Circuit Protection

Applications

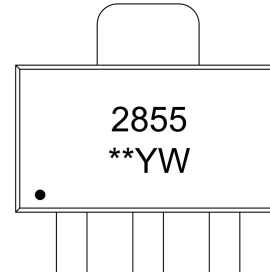
- Mobile Phone
- Cellphones, radiophone, digital cameras
- Bluetooth, wireless handsets
- Others portable electronics device



SOT-89-3L



Pin Configuration (Top View)



2855 : Device code

**** : Voltage code**

Y : Year Code

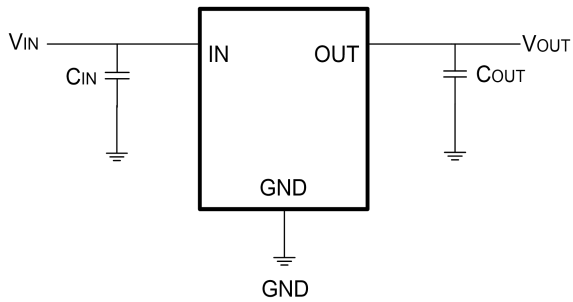
W : Week Code

For detail marking information, please see page 12.

Marking

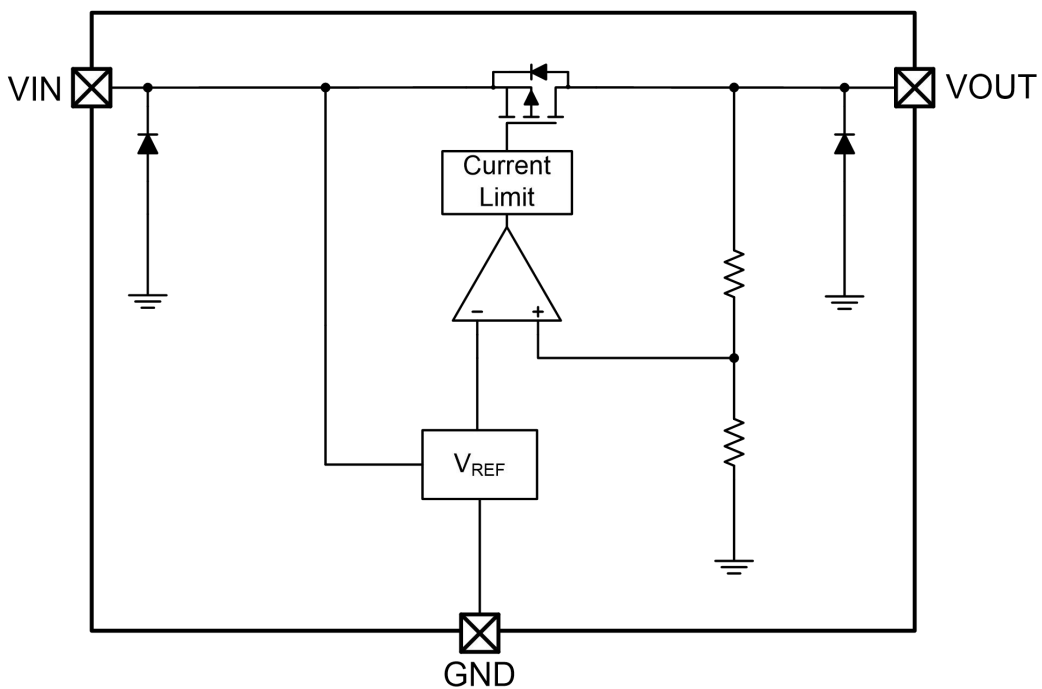
Order Information

For detail order information, please see page 12.

Typical Application

Pin Description
SOT-89-3L

PIN	Symbol	Description
1	GND	Ground
2	VIN	Input
3	VOUT	Output

Recommend capacitor : $\geq 0.1\mu\text{F}$

Block Diagram


Absolute Maximum Ratings

Parameter	Value	Unit	
Power Dissipation, $P_D@T_A=25^\circ\text{C}$	1.5	W	
V_{IN} Range	-0.3~13.5	V	
V_{OUT} Range	-0.3~5.5	V	
I_{OUT}	Internally Limited	mA	
Lead Temperature Range	260	$^\circ\text{C}$	
Storage Temperature Range	-55~150	$^\circ\text{C}$	
Operating Junction Temperature Range	150	$^\circ\text{C}$	
MSL	Level-3		
ESD Ratings	HBM	4000	V
	MM	200	V

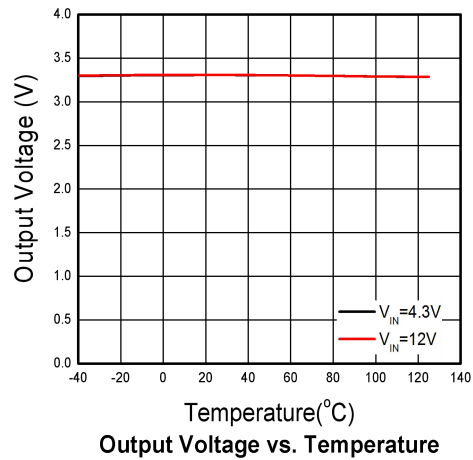
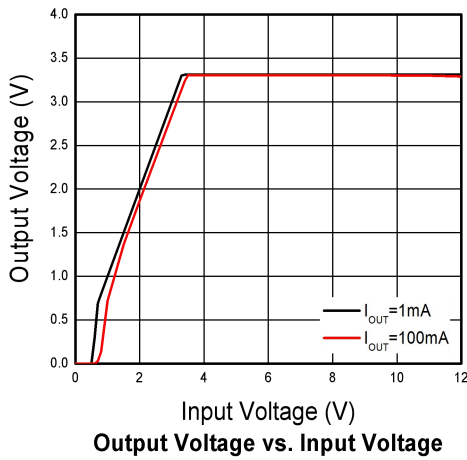
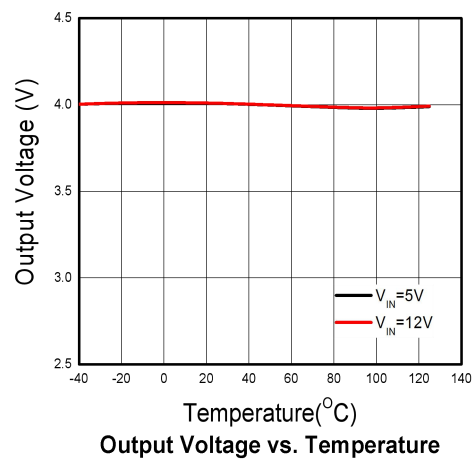
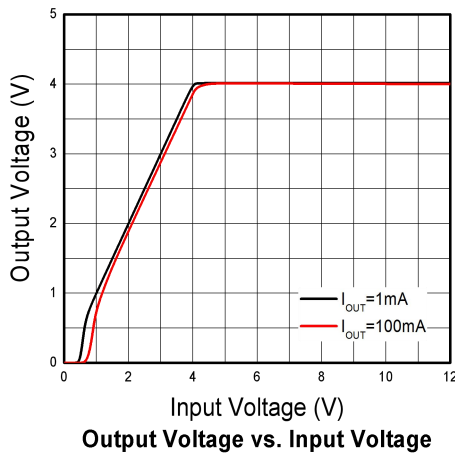
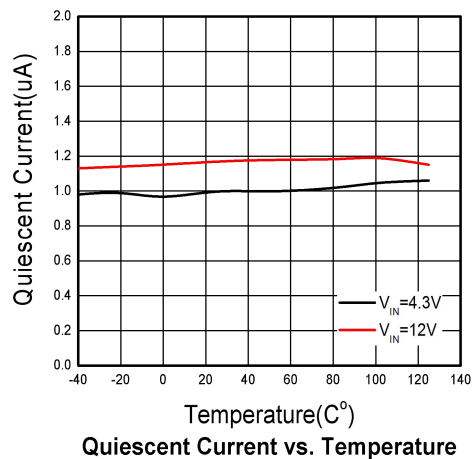
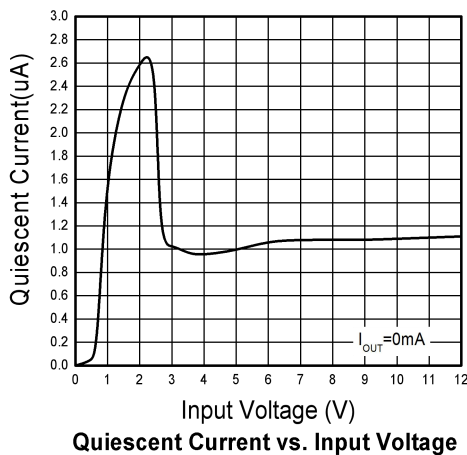
Recommend Operating Ratings

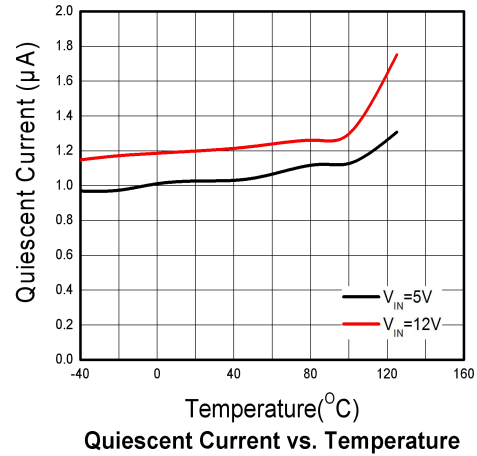
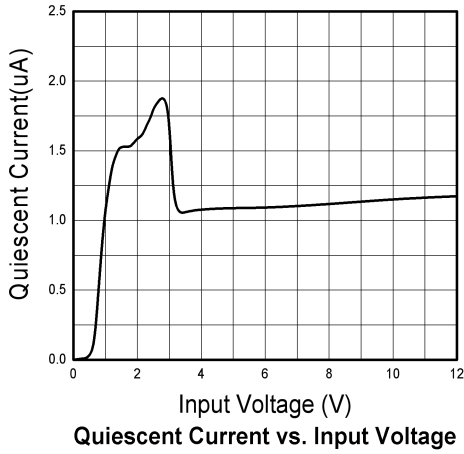
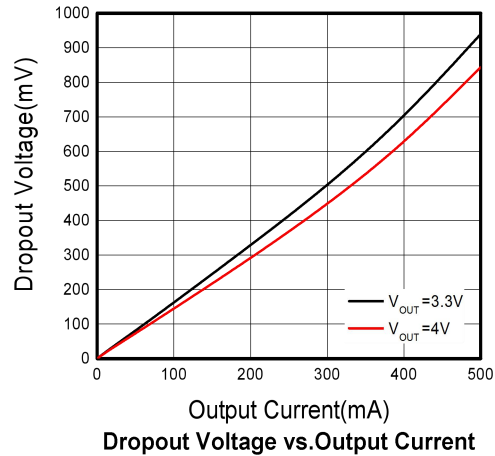
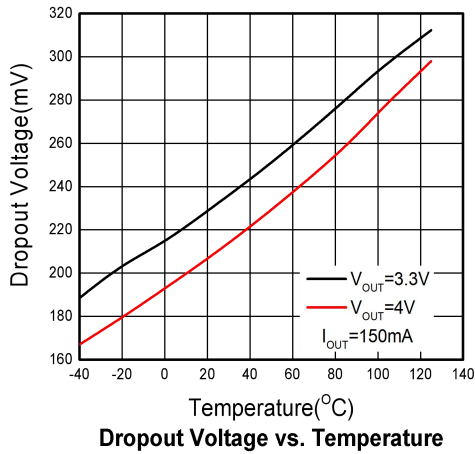
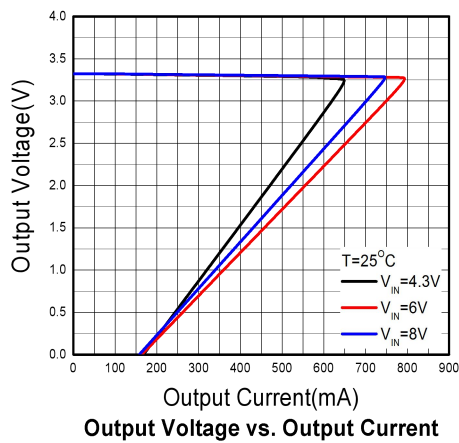
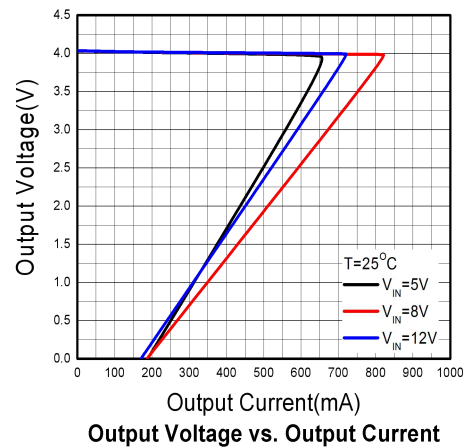
Parameter	Value	Unit
Operating Supply voltage	2.5~12	V
Operating Temperature Range	-40~85	$^\circ\text{C}$
Thermal Resistance, $R_{\theta JA}$ (SOT-89-3L)	77	$^\circ\text{C/W}$

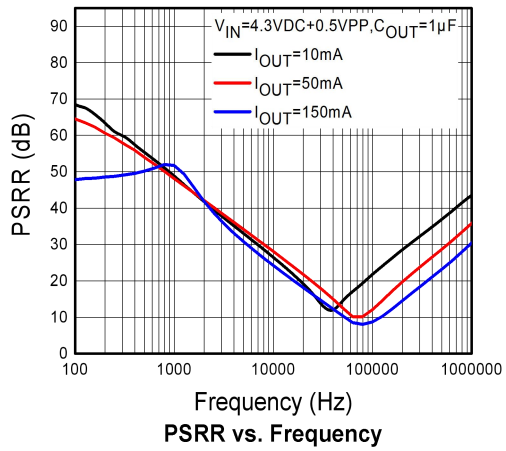
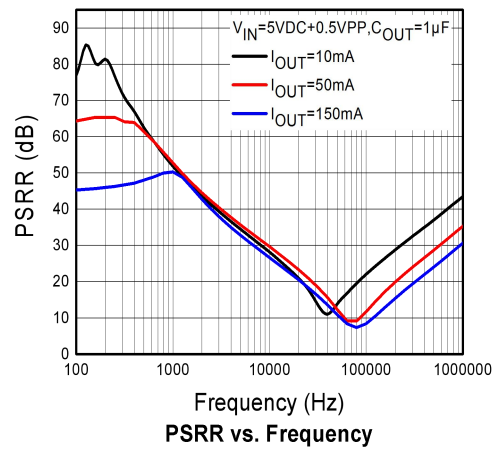
Electronics Characteristics
($T_a=25^{\circ}\text{C}$, $V_{IN}=V_{OUT}+1\text{V}$, $C_{IN}=C_{OUT}=1\mu\text{F}$, $I_{OUT}=1\text{mA}$, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Output Voltage	V_{OUT}	$V_{OUT}\leq 2.5\text{V}$	-25	V_{OUT}	+25	mV	
		$V_{OUT}>2.5\text{V}$	0.99* V_{out}	V_{OUT}	1.01* V_{out}	V	
Input Voltage	V_{IN}		2.5		12	V	
Current Limit	I_{LIM}	$V_{IN}\geq 3.3\text{V}$	500			mA	
Dropout Voltage	V_{DROP}	$V_{OUT}=3.3\text{V}$, $I_{OUT}=500\text{mA}$		940	1200	mV	
		$V_{OUT}=4\text{V}$, $I_{OUT}=500\text{mA}$		840	1100	mV	
Line Regulation	ΔV_{LINE}	$V_{IN}=V_{OUT}+1\sim 12\text{V}$		1	5	mV	
Load Regulation	ΔV_{Load}	$I_{OUT}=1\sim 500\text{mA}$		30	50	mV	
Quiescent Current	I_Q	$V_{IN}=4\text{V}$, $I_{OUT}=0$		1	2.2	μA	
Short Current	I_{SHORT}	V_{OUT} short to GND		180		mA	
Power Supply Rejection Rate	PSRR	$V_o=3.3\text{V}$, $I_o=10\text{mA}$	$f=100\text{Hz}$		70		dB
			$f=1\text{kHz}$		50		dB
			$f=10\text{kHz}$		25		dB
Output Noise Voltage	e_{NO}	$V_o=3.3\text{V}$, $I_o=30\text{mA}$		54		μVRMS	

Typical characteristics ($T_a=25^\circ\text{C}$, $V_{IN}=V_{OUT}+1\text{V}$, $I_{OUT}=1\text{mA}$, $C_{IN}=C_{OUT}=1\ \mu\text{F}$, unless otherwise noted)

 $V_{OUT}=3.3\text{V}$

 $V_{OUT}=4.0\text{V}$

 $V_{OUT}=3.3\text{V}$


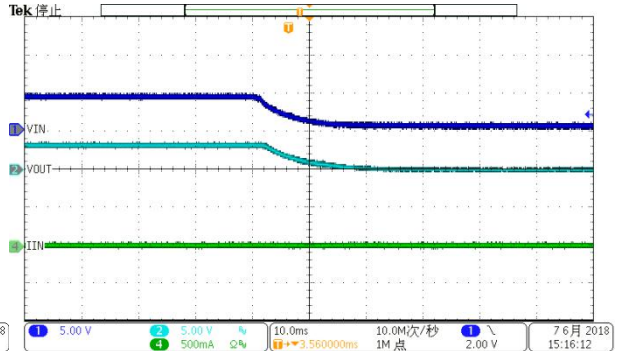
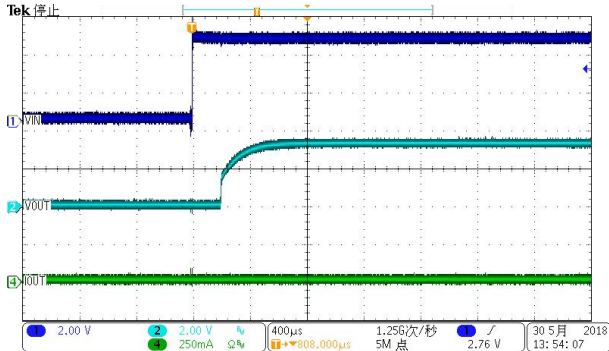
$V_{OUT}=4.0V$

Vdropout

 $V_{OUT}=3.3V$

 $V_{OUT}=4.0V$


$V_{OUT}=3.3V$

 $V_{OUT}=4.0V$


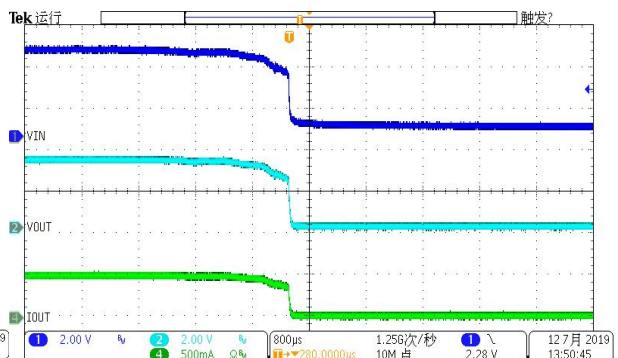
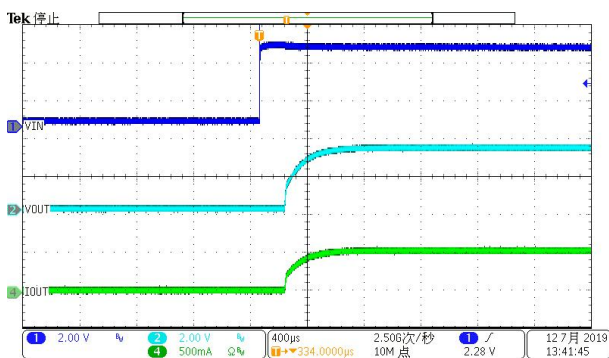
1.Start up & Shut down

$V_{OUT}=3.3V$

$V_{IN}=4.3V, C_{OUT}=1\mu F, I_{OUT}=1mA$

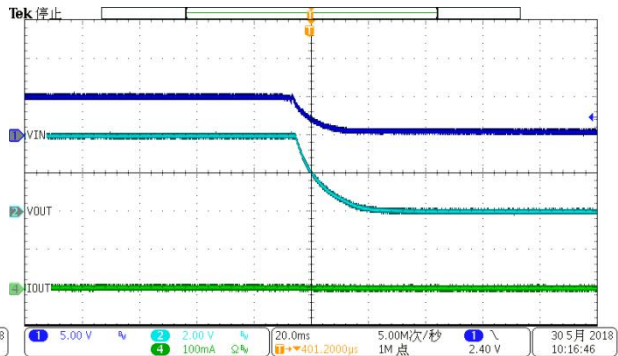
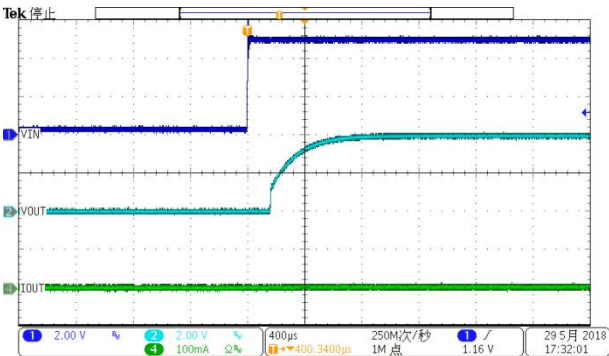


$V_{IN}=4.3V, C_{OUT}=1\mu F, I_{OUT}=500mA$

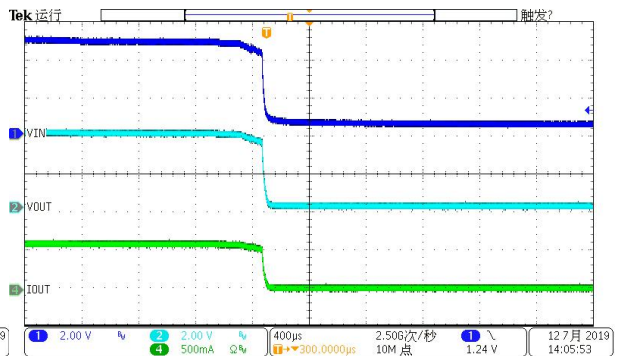
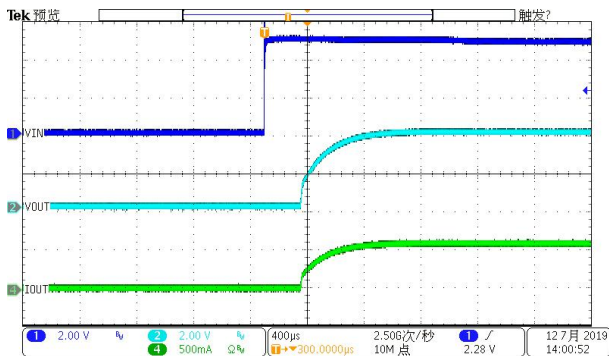


$V_{OUT}=4V$

$V_{IN}=5V, C_{OUT}=1\mu F, I_{OUT}=1mA$

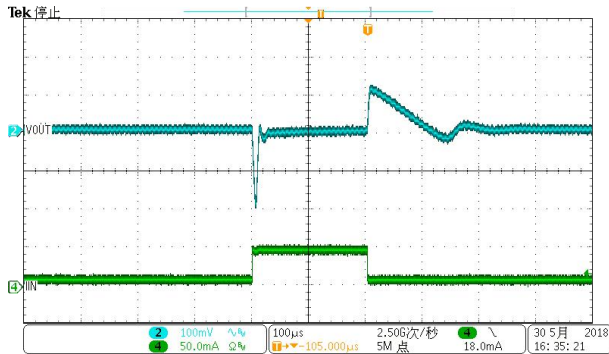


$V_{IN}=5V, C_{OUT}=1\mu F, I_{OUT}=500mA$

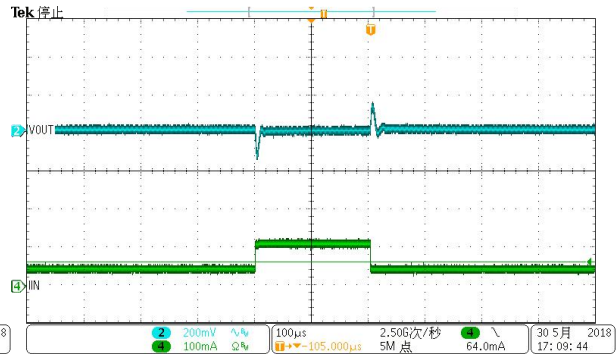


2. Load & Line Transient

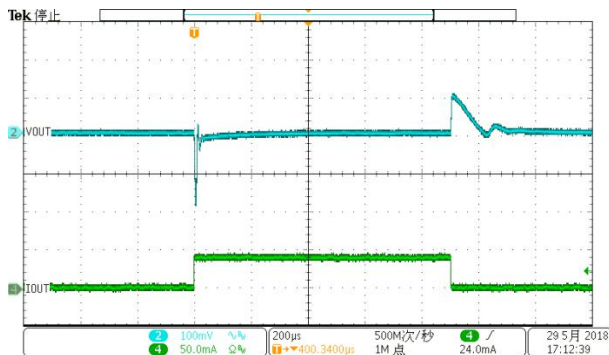
$V_{IN}=4.3V, V_{OUT}=3.3V, C_{OUT}=1\mu F, I_{OUT}=1mA-40mA$



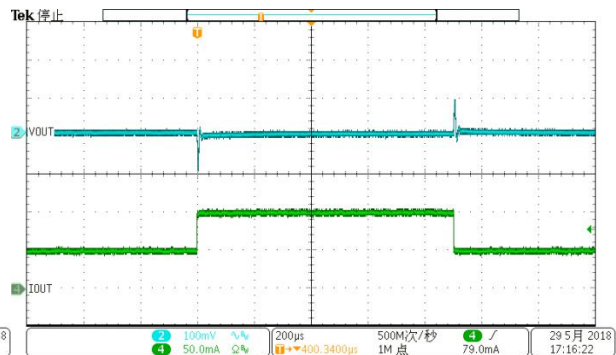
$V_{IN}=4.3V, V_{OUT}=3.3V, C_{OUT}=1\mu F, I_{OUT}=50mA-100mA$



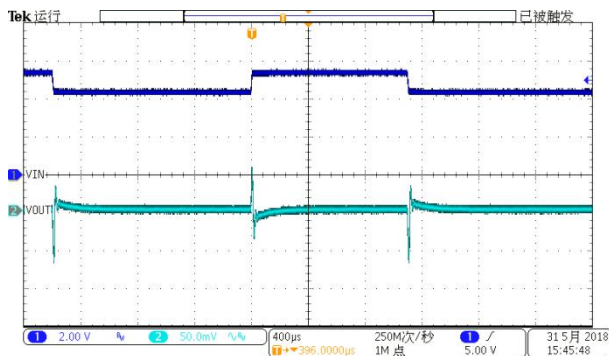
$V_{IN}=5V, V_{OUT}=4V, C_{OUT}=1\mu F, I_{OUT}=1mA-40mA$



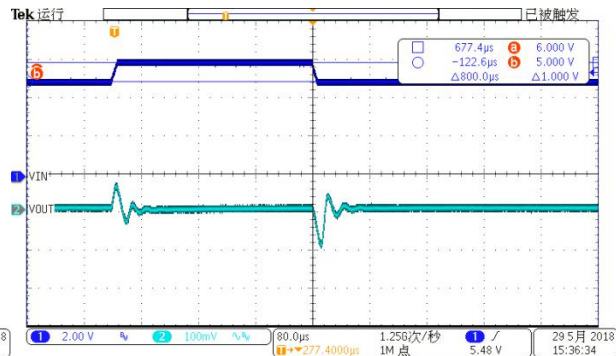
$V_{IN}=5V, V_{OUT}=4V, C_{OUT}=1\mu F, I_{OUT}=50mA-100mA$

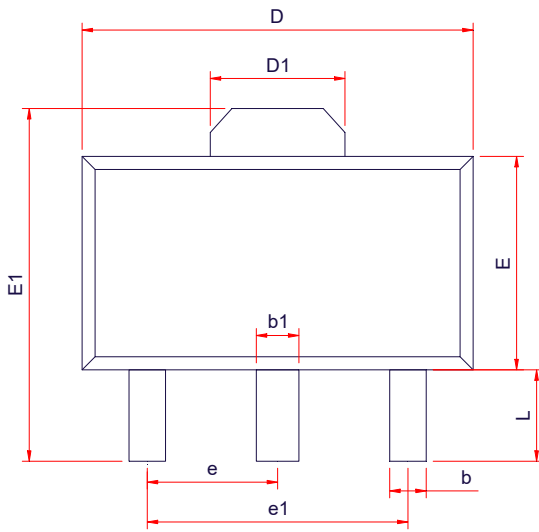
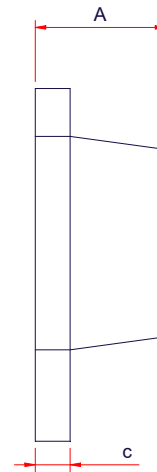
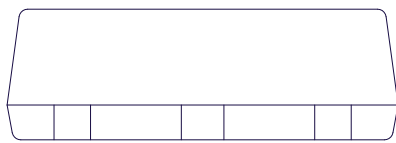


$V_{IN}=4.3-5.3V, V_{OUT}=3.3V, I_{OUT}=10mA$

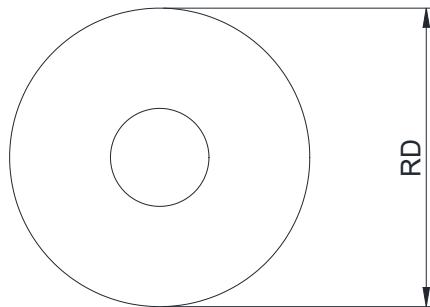
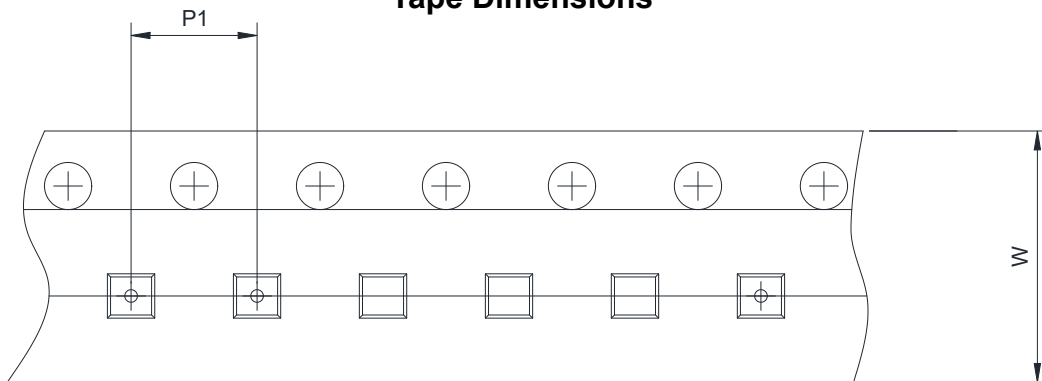
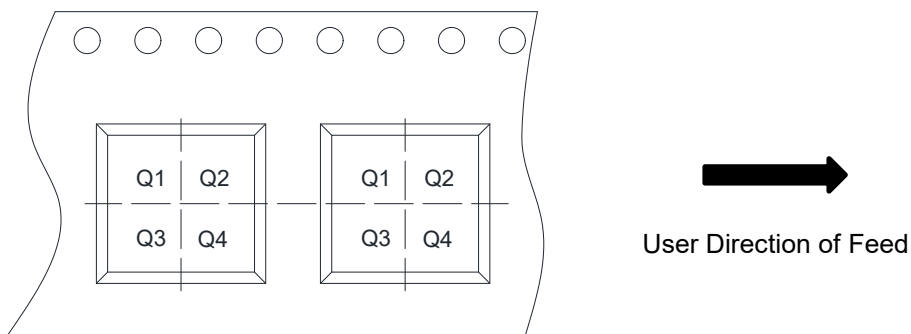


$V_{IN}=5-6V, V_{OUT}=4V, I_{OUT}=10mA$



PACKAGE OUTLINE DIMENSIONS
SOT-89-3L

TOP VIEW

SIDE VIEW

SIDE VIEW

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	1.40	1.50	1.60
b	0.32	0.42	0.52
b1	0.40	0.49	0.58
c	0.30	0.40	0.50
D	4.40	4.50	4.60
D1	1.60 Ref		
E	2.30	2.45	2.60
E1	3.75	4.00	4.25
e	1.50 BSC		
e1	3.00 BSC		
L	1.05 Ref		

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	<input checked="" type="checkbox"/> 7inch	<input type="checkbox"/> 13inch
W	Overall width of the carrier tape	<input type="checkbox"/> 8mm	<input checked="" type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input type="checkbox"/> 4mm <input checked="" type="checkbox"/> 8mm
Pin1	Pin1 Quadrant	<input type="checkbox"/> Q1	<input type="checkbox"/> Q2 <input checked="" type="checkbox"/> Q3 <input type="checkbox"/> Q4

ORDER INFORMATION

Ordering No.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2855K18-3/TR	1.8	SOT-89-3L	-40~85℃	BJYW	Tape and Reel, 1000
WL2855K28-3/TR	2.8	SOT-89-3L	-40~85℃	CJYW	Tape and Reel, 1000
WL2855K30-3/TR	3.0	SOT-89-3L	-40~85℃	DAYW	Tape and Reel, 1000
WL2855K33-3/TR	3.3	SOT-89-3L	-40~85℃	DDYW	Tape and Reel, 1000
WL2855K37-3/TR	3.7	SOT-89-3L	-40~85℃	DHYW	Tape and Reel, 1000
WL2855K38-3/TR	3.8	SOT-89-3L	-40~85℃	DJYW	Tape and Reel, 1000
WL2855K40-3/TR	4.0	SOT-89-3L	-40~85℃	EAYW	Tape and Reel, 1000
WL2855K50-3/TR	5.0	SOT-89-3L	-40~85℃	FAYW	Tape and Reel, 1000

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