

WL2853K

High Input Voltage, Low Quiescent Current LDO

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

Descriptions

The WL2853K series is a high accuracy, high input voltage low quiescent current, high speed, and low dropout Liner regulator with high ripple rejection.

The WL2853K offers over-current limit and over temperature protection to ensure the device working in well conditions.

The WL2853K regulators are available in standard SOT-89-3L packages. Standard products are Pb-free and Halogen-free.

Features

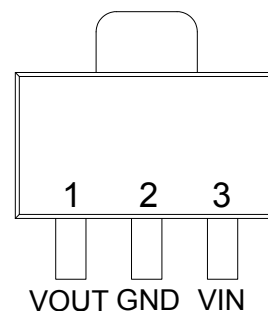
- Supply Voltage : 4.5V~36V
- Output Range : 3V~12V
- Output Accuracy : <+/-2%
- Output Current : 150mA@(V_{IN}-V_{OUT}=2V)(Typ.)
- PSRR : 65dB @ 0.1KHz
- Dropout Voltage : 900mV @ I_{OUT}=150mA
- Quiescent Current : 4.5μA@V_{IN}=12V(Typ.)
- Recommend Capacitor : 10uF

Applications

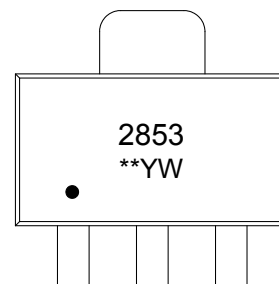
- Battery-Powered Equipment
- Communication Equipment
- Audio/Video Equipment
- Smoke Detector



SOT-89



Pin Configuration (Top View)



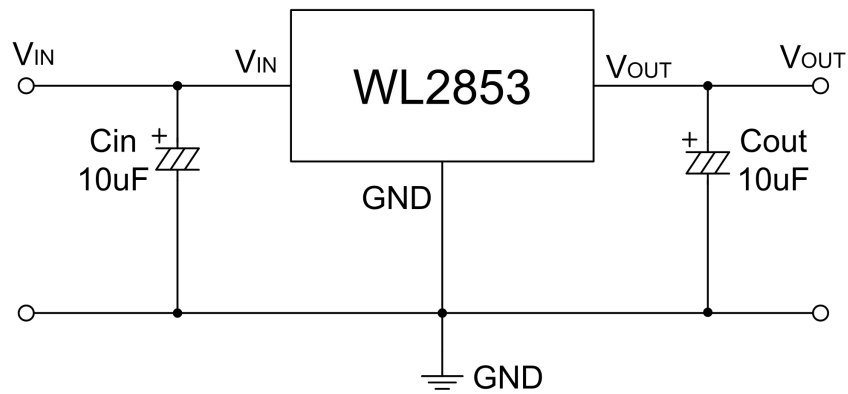
Marking

2853** = Device Code
Y = Year
W = Week

Order Information

For detail order information, please see page 10.

Typical Application

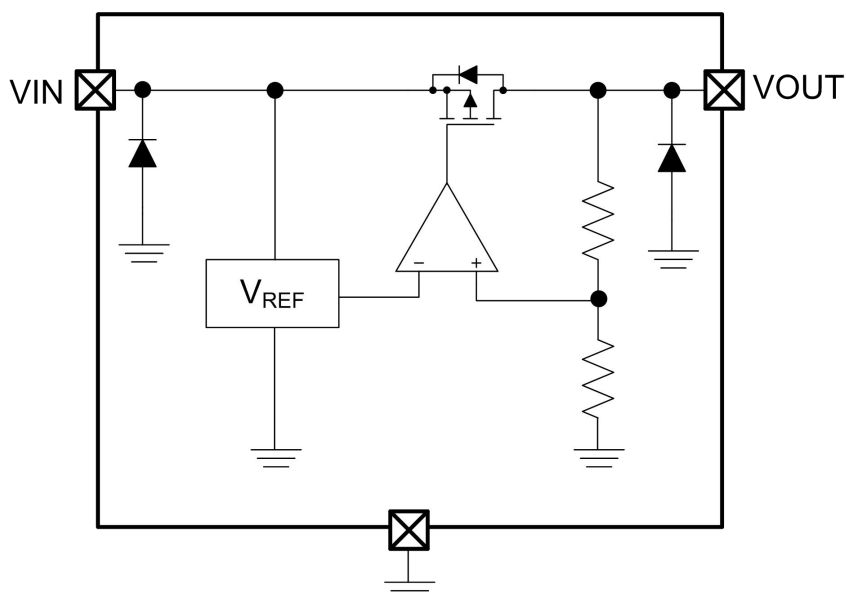


(Locate Cin and Cout as close to the Vin pin and Vout pin as possible.)

Pin Description

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

Block Diagram



Absolute Maximum Ratings

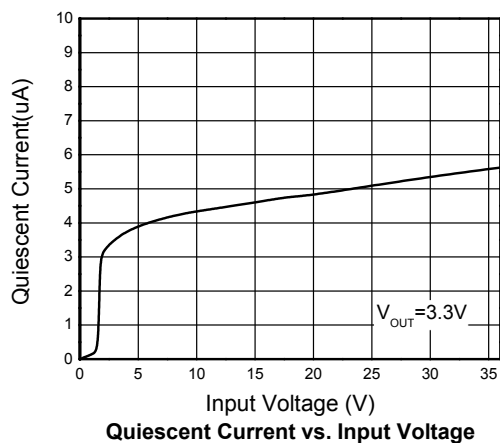
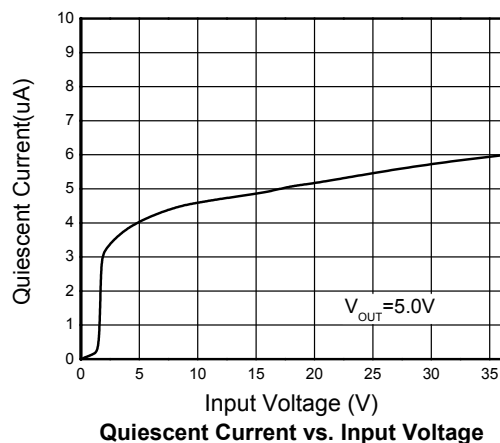
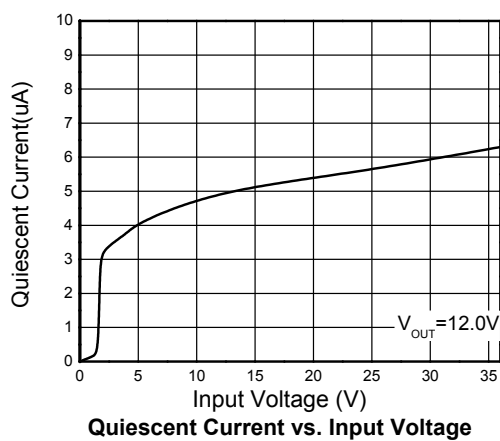
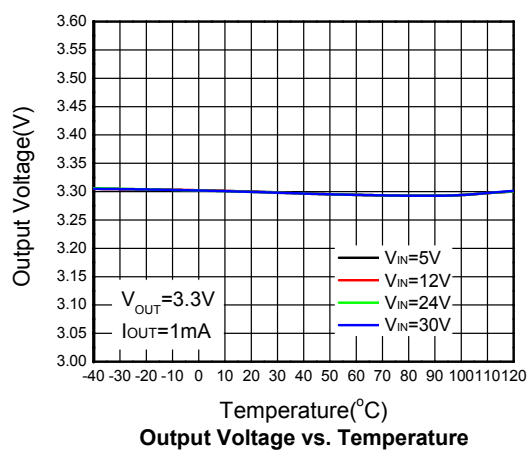
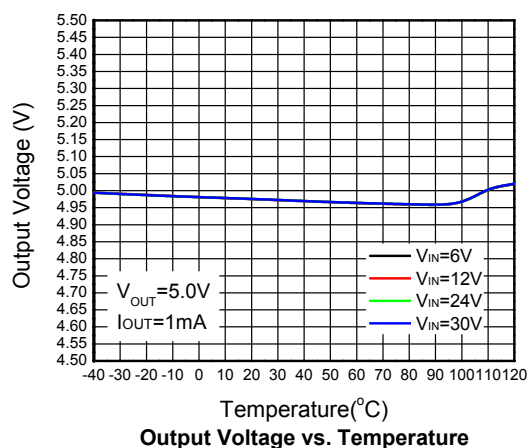
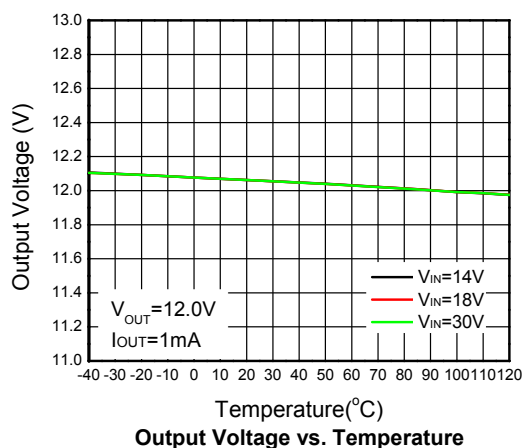
Parameter	Value	Unit
Power Dissipation	1000	mW
V _{IN} Range	-0.3~44	V
V _{OUT} Range	-0.3~15	V
Lead Temperature Range	260	°C
Storage Temperature Range	-55 ~ 150	°C
Operating Junction Temperature Range	150	°C
ESD MM	600	V
ESD HBM	8K	V

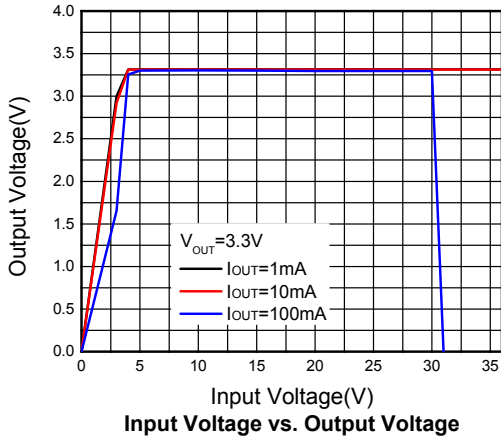
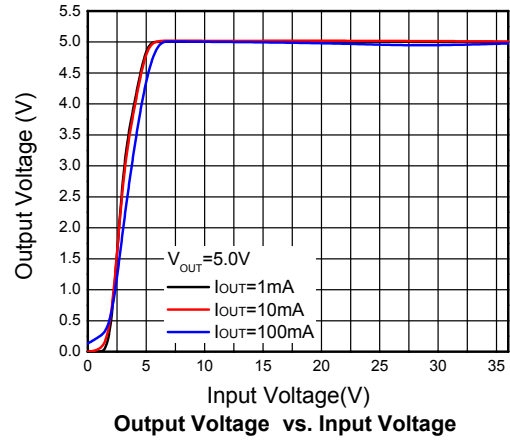
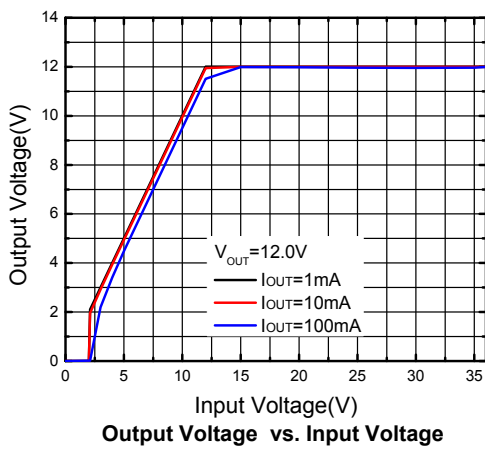
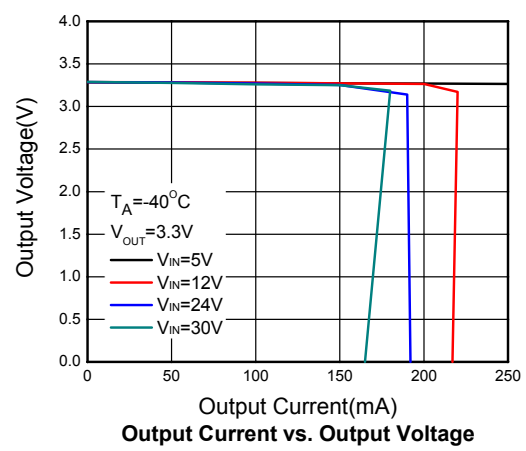
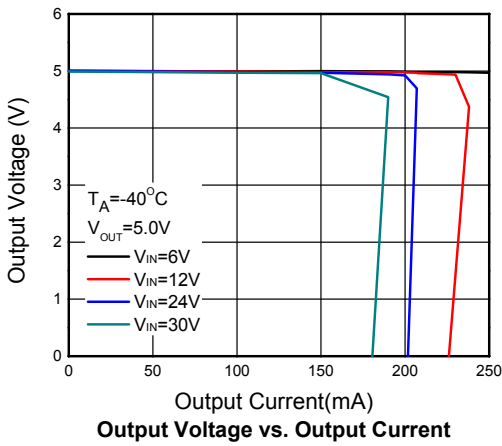
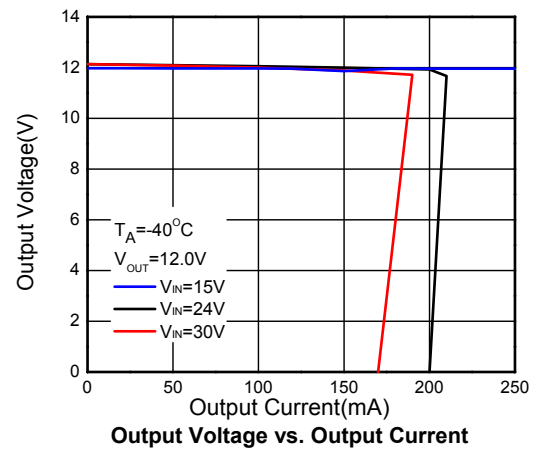
Recommend Operating Ratings

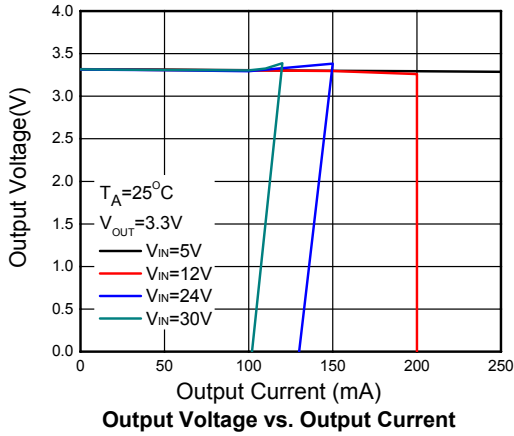
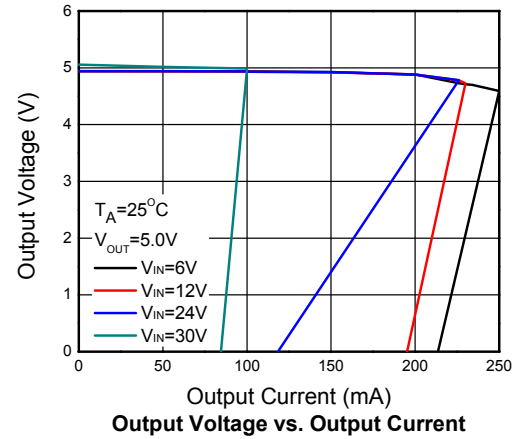
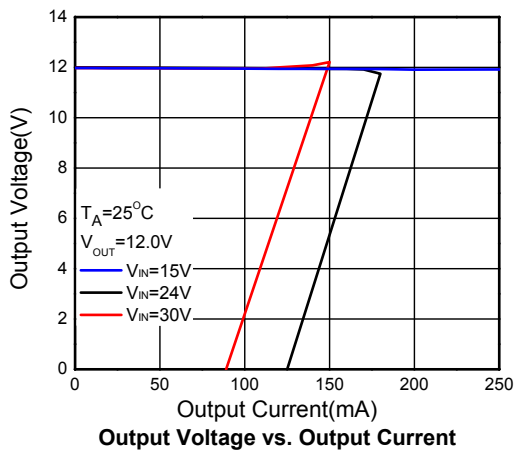
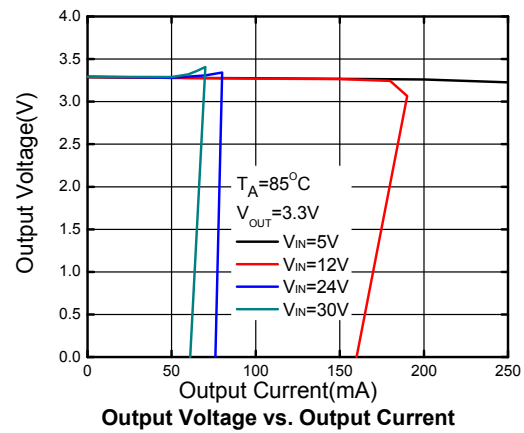
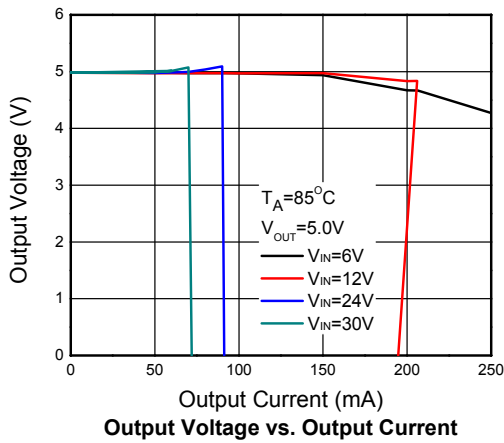
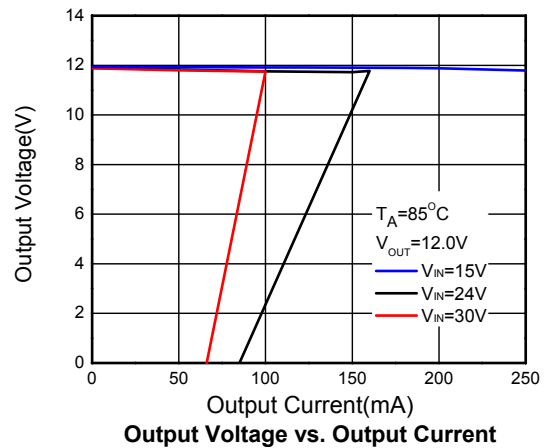
Parameter	Value	Unit
Operating Supply voltage	4.5~36	V
Operating Temperature Range	-40~85	°C
Thermal Resistance (On PCB) , R _{θJA}	43.5	°C/W

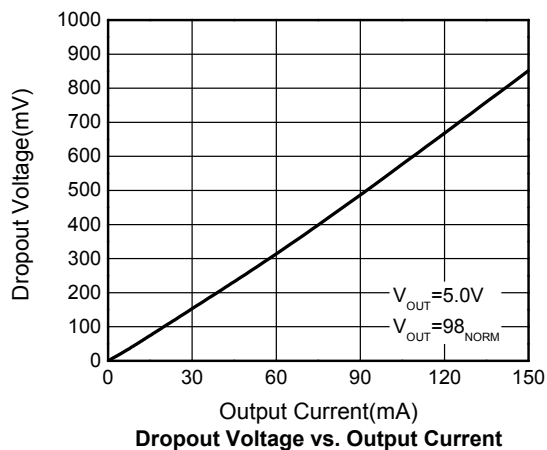
Electronics Characteristics ($T_A=25^{\circ}\text{C}$, $V_{IN}=12\text{V}$, $C_{IN}=C_{OUT}=10\mu\text{F}$, $V_{OUT}=5\text{V}$, unless otherwise noted)

Symbol	Parameter	Test Condition	WL2853K 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	$V_{IN}=12\text{V}, I_{OUT}=10\text{mA}$	3.234	3.3	3.366	V
			4.9	5.0	5.1	V
		$V_{IN}=18\text{V}, I_{OUT}=10\text{mA}$	11.76	12.0	12.24	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 $V_{OUT}=12\text{V}$	$V_{IN}=18\text{V}$, No load		5.5		μA
V_{DROP}	Dropout Voltage	$I_{OUT}=1\text{mA}$		6		mV
		$I_{OUT}=150\text{mA}$		900		
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	$I_{OUT}=10\text{mA}, V_{OUT}=5\text{V}$		300		μV
PSRR	Ripple Rejection	$V_{IN}=10\text{V}$ $V_{PP}=0.5\text{V}$ $I_{OUT}=1\text{mA}$	$f=100\text{Hz}$	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

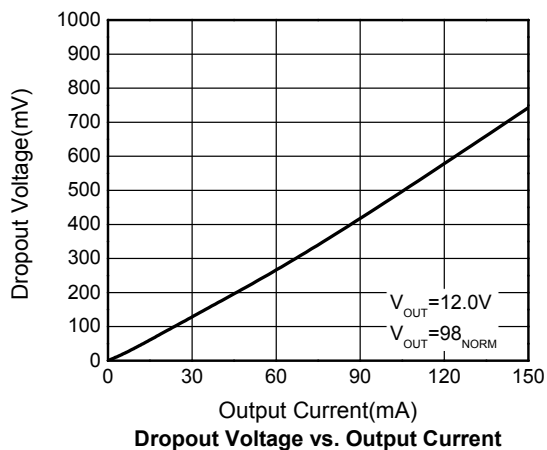
Typical Characteristics ($T_A=25^{\circ}\text{C}$, $C_{IN}=C_{OUT}=10\mu\text{F}$, unless otherwise noted)




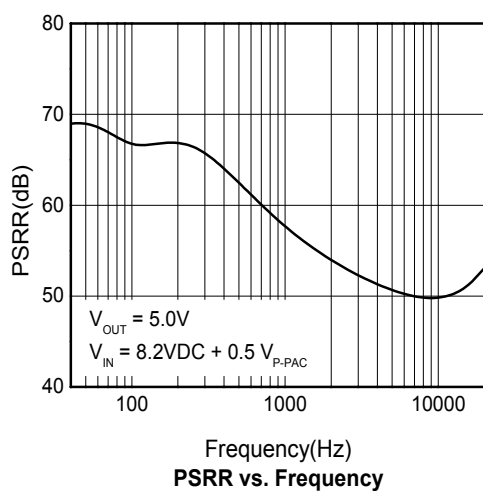




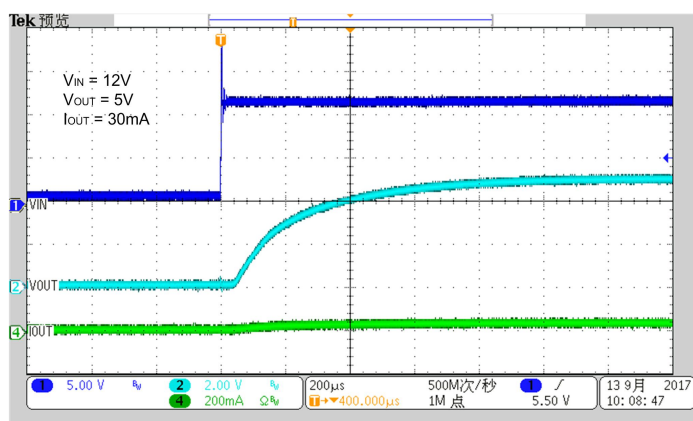
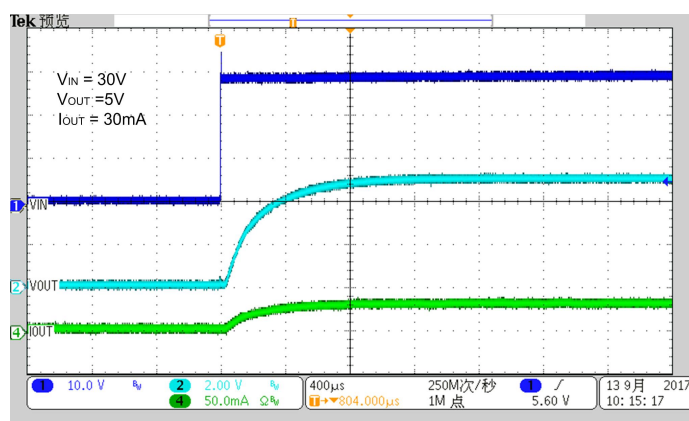
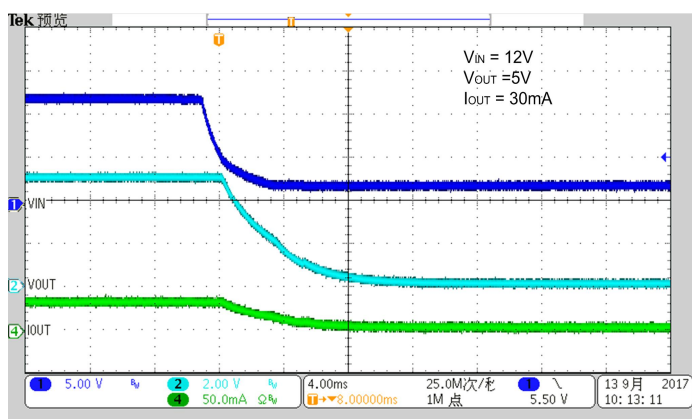
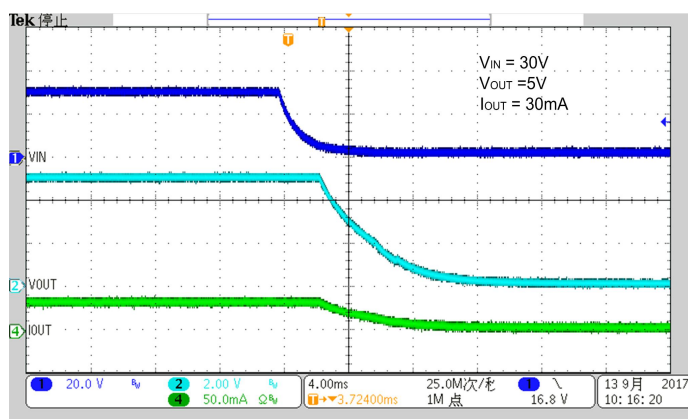
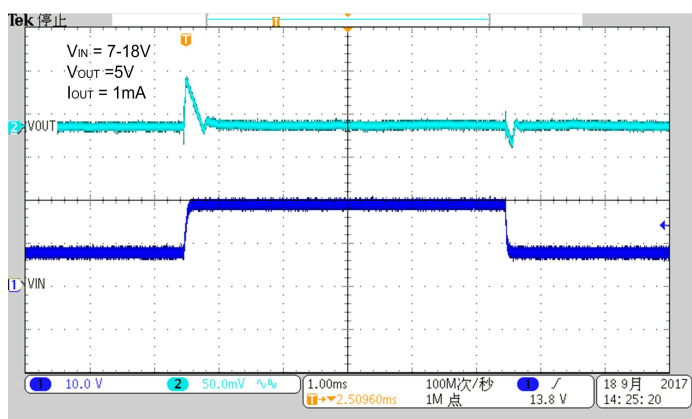
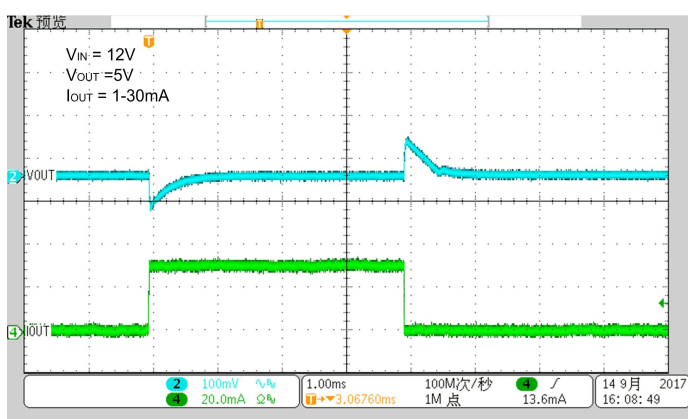
Dropout Voltage vs. Output Current



Dropout Voltage vs. Output Current

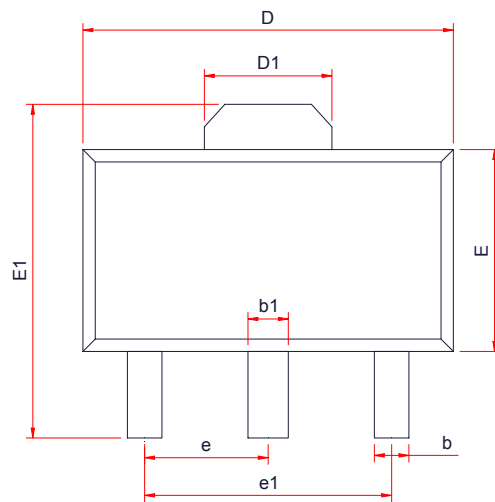
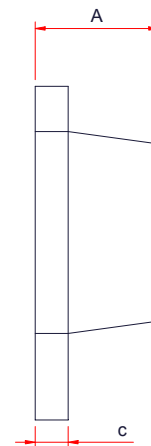


PSRR vs. Frequency


Start up from Power ON

Start up from Power ON

Shutdown from Power OFF

Shutdown from Power OFF

Line Transient Response

Line Transient Response

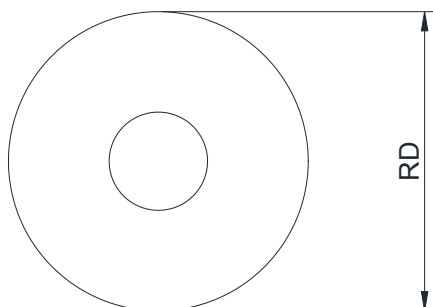
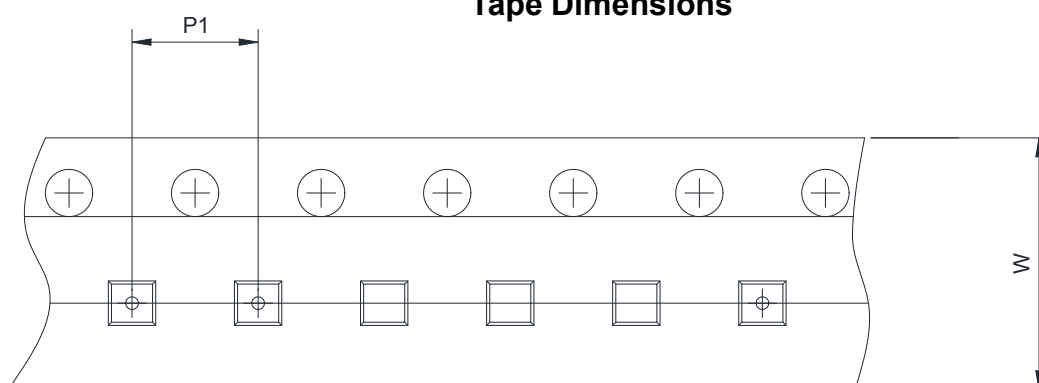
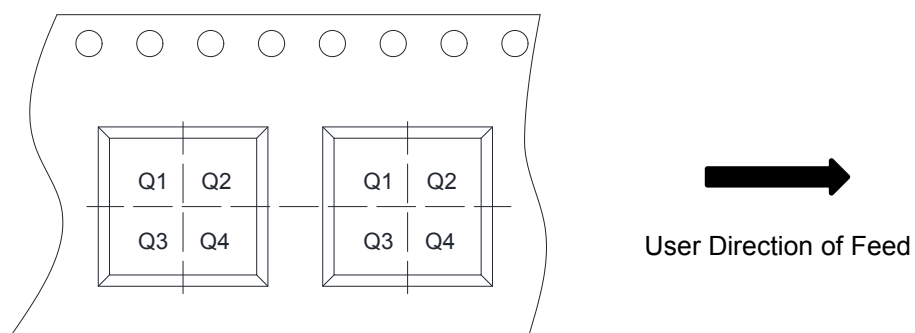
ORDER INFORMATION

Ordering No.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2853K33-3/TR	3.3	SOT-89	-40~+85°C	2853 DDYW	Tape and Reel, 1000
WL2853K50-3/TR	5.0	SOT-89	-40~+85°C	2853 FAYW	Tape and Reel, 1000
WL2853KC0-3/TR	12.0	SOT-89	-40~+85°C	2853 BCYW	Tape and Reel, 1000

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	1.50	1.65	1.80
E	2.30	2.45	2.60
E1	3.75	4.00	4.25
e	1.50BSC		
e1	3.00BSC		
L	0.89		1.20

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