

## WL2803E

Ultra low dropout, 500mA, CMOS LDO

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

### Descriptions

The WL2803E series are ultra low dropout, Low quiescent current, high PSRR CMOS LDO. The dropout voltage is 130mV (Typ.) at 500mA load current.

Using CMOS construction, the quiescent current consumed by the WL2803E is typically 150uA over the entire input voltage range, making it attractive for consumer, networking applications that demand high output current. The WL2803E series are available in wide output voltage range version from 1.2V to 3.3V with 0.1V step.

The WL2803E series offer thermal shutdown (OTP) and current limit functions, to assure the stability of chip and power system at wrong condition, and it uses trimming technique to guarantee output voltage accuracy within  $\pm 2\%$ .

The WL2803E regulators are available in SOT-23-5L packages. Standard products are Pb-free and Halogen-free.

### Features

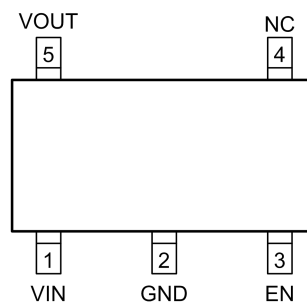
- Input voltage : 2.5V~5.5V
- Output voltage : 1.2V~3.3V
- Output current : 500mA
- PSRR : 65dB @ 1KHz
- Dropout voltage : 130mV @  $I_{OUT}=0.5A$
- Output noise : 100uV
- Quiescent current : 150uA Typ.

### Applications

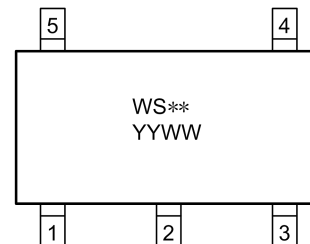
- LCD TV
- STB
- Computer, Graphic card
- Network communication equipments
- Others portable electronics devices



**SOT-23-5L**



**Pin Configuration (Top View)**

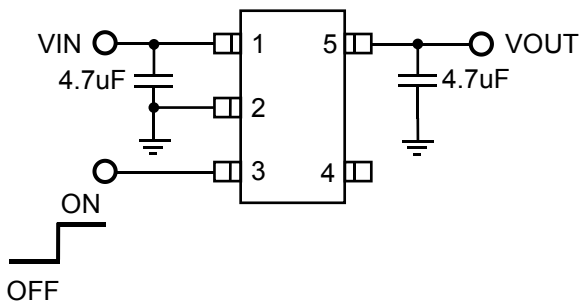


WS = Device code  
 \*\* = Voltage code (33: 3.3V)  
 YY = Year code  
 WW = Week code

### Marking

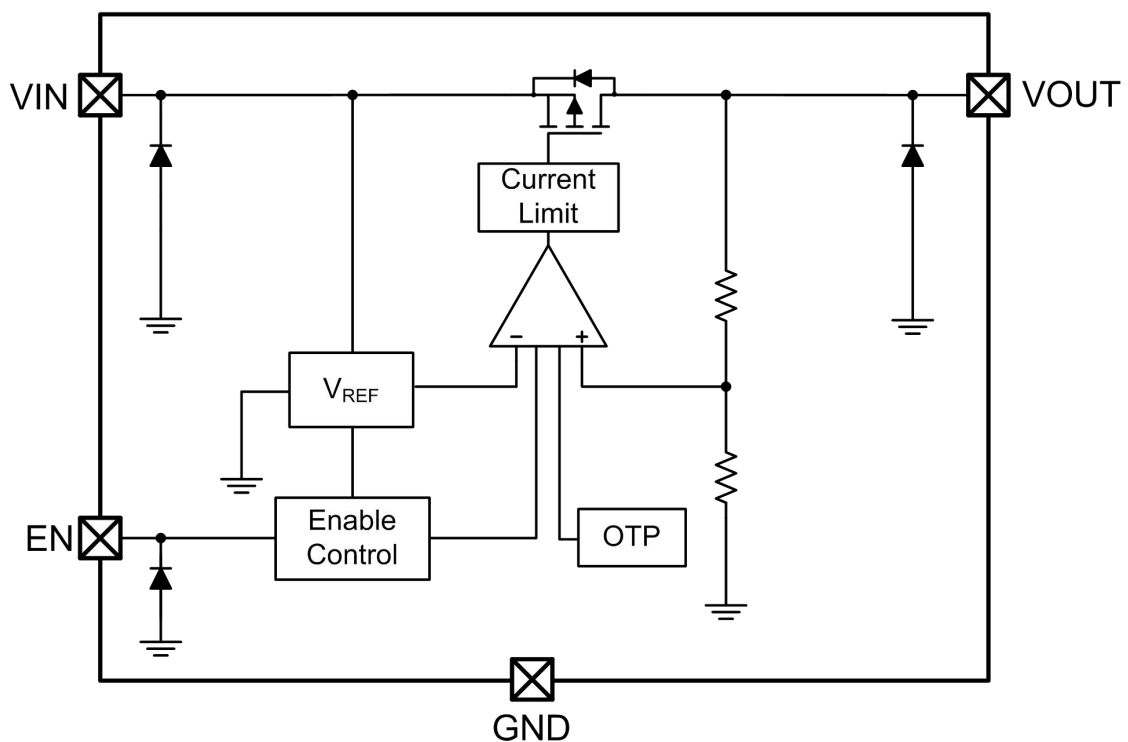
### Order Information

For detail information, Please refer to page 9.

**Typical Application**

**Pin Description**

PIN	Symbol	Description
1	VIN	Input
2	GND	Ground
3	EN	Enable, Active High
4	NC	Not connect
5	VOUT	Output

When the output is less than 2V, it is recommended that the Cout is more than 10uF.

**Block Diagram**


**Absolute Maximum Ratings**

Parameter	Symbol	Value	Unit
Input voltage range	$V_{IN}$	-0.3~6.5	V
Output voltage range	$V_{OUT}$	-0.3~ $V_{IN}$	V
Power dissipation *1 *3	$P_D$	0.7	W
Power dissipation *2 *3		0.5	W
Thermal resistance *1	$R_{\theta JA}$	180	°C/W
Thermal resistance *2		250	°C/W
Junction temperature	$T_J$	150	°C
Lead temperature(10s)	$T_L$	260	°C
Storage temperature	$T_{stg}$	-55 ~ 150	°C
ESD Ratings	HBM	±8000	V
	MM	±400	V

**Note:** These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

\*1: Surface mounted on FR-4 Board using 1 square inch pad size, dual side, 1oz copper

\*2: Surface mounted on FR-4 board using minimum pad size, 1oz copper

\*3: Power dissipation is calculate by  $P_D = (V_{IN}-V_{OUT}) \times I_{OUT}$

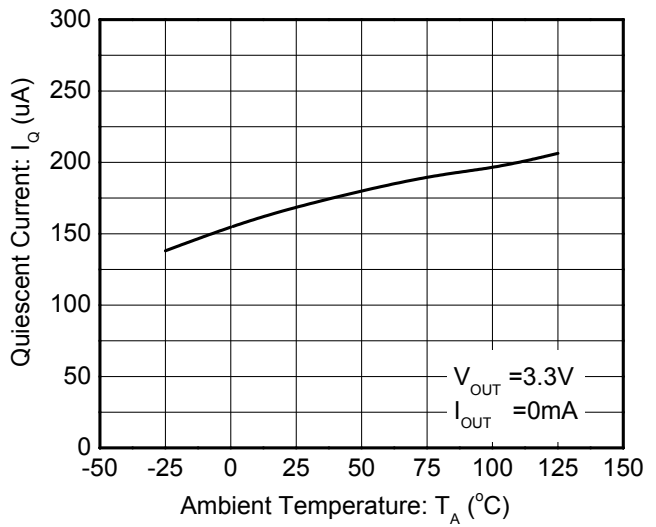
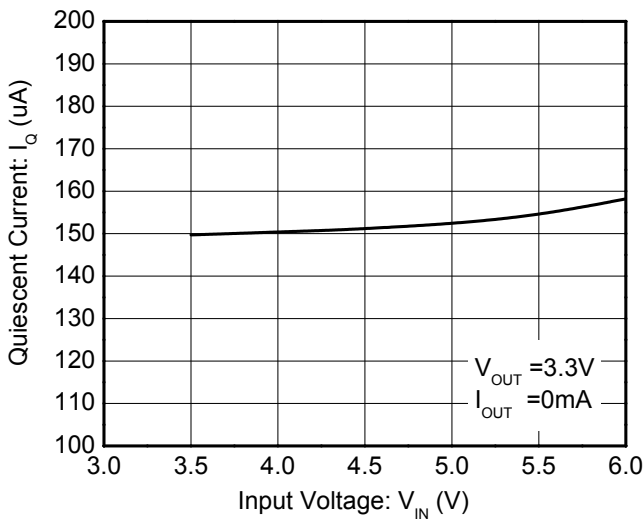
**Recommend Operating Ratings**

Parameter	Symbol	Value	Unit
Operating Supply voltage	$V_{IN}$	2.5~5.5	V
Operating Temperature Range	$T_{opr}$	-40~85	°C

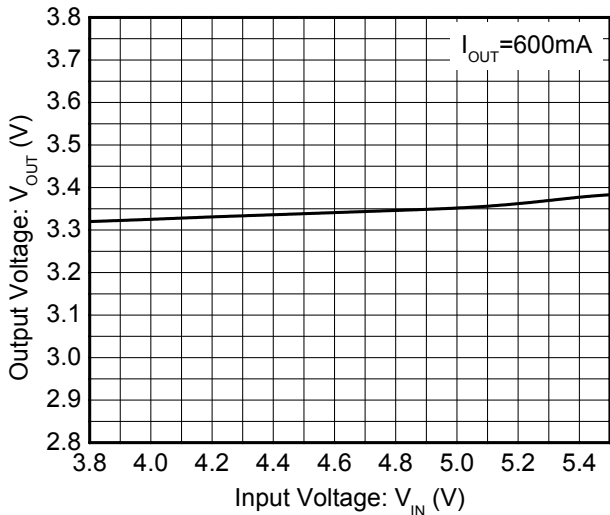
**Electronics Characteristics (Ta=25°C, V<sub>IN</sub>=V<sub>OUT</sub>+1V, C<sub>IN</sub>=C<sub>OUT</sub>=4.7uF, unless otherwise noted)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>OUT</sub>	V <sub>OUT</sub> < 1.5V, V <sub>IN</sub> =2.5V, I <sub>OUT</sub> =1mA	V <sub>OUT</sub> - 30mV	V <sub>OUT</sub>	V <sub>OUT</sub> + 30mV	V
		V <sub>OUT</sub> ≥ 1.5V, I <sub>OUT</sub> =1mA	V <sub>OUT</sub> * 0.98	V <sub>OUT</sub>	V <sub>OUT</sub> * 1.02	
Dropout Voltage	V <sub>DROP</sub>	V <sub>OUT</sub> =V <sub>OUT</sub> *0.98, I <sub>OUT</sub> =500mA		130	230	mV
Current Limit	I <sub>LIM</sub>	V <sub>IN</sub> =5V	0.65			A
Line Regulation	ΔV <sub>LINE</sub>	V <sub>OUT</sub> =3.3V, V <sub>IN</sub> =4.3~6.0V, I <sub>OUT</sub> =1mA		5	10	mV
Load Regulation	ΔV <sub>Load</sub>	V <sub>OUT</sub> =3.3V, I <sub>OUT</sub> =1~500mA		10	30	mV
Quiescent Current	I <sub>Q</sub>	V <sub>OUT</sub> =3.3V, I <sub>OUT</sub> =0		150	200	uA
Shut-down Current	I <sub>SHDN</sub>	V <sub>EN</sub> = 0V		0.1	1.0	uA
Power Supply Ripple Rejection	PSRR	V <sub>IN</sub> =(V <sub>OUT</sub> +1V) <sub>DC</sub> +0.2V <sub>P-P</sub> F=1KHZ, I <sub>OUT</sub> =10mA		65		dB
		V <sub>IN</sub> =(V <sub>OUT</sub> +1V) <sub>DC</sub> +0.2V <sub>P-P</sub> F=10KHZ, I <sub>OUT</sub> =10mA		58		
Output noise voltage	e <sub>NO</sub>	10Hz to 100KHZ, C <sub>OUT</sub> =4.7μF		100		μV <sub>P-P</sub>
EN logic high voltage	V <sub>ENH</sub>	V <sub>IN</sub> =5.5V, I <sub>OUT</sub> =1mA	1.2			V
EN logic low voltage	V <sub>ENL</sub>	V <sub>IN</sub> =5.5V, I <sub>OUT</sub> =0mA			0.4	V
Thermal shutdown threshold	T <sub>SD</sub>			165		°C
Thermal shutdown hysteresis	Δ T <sub>SD</sub>			30		°C

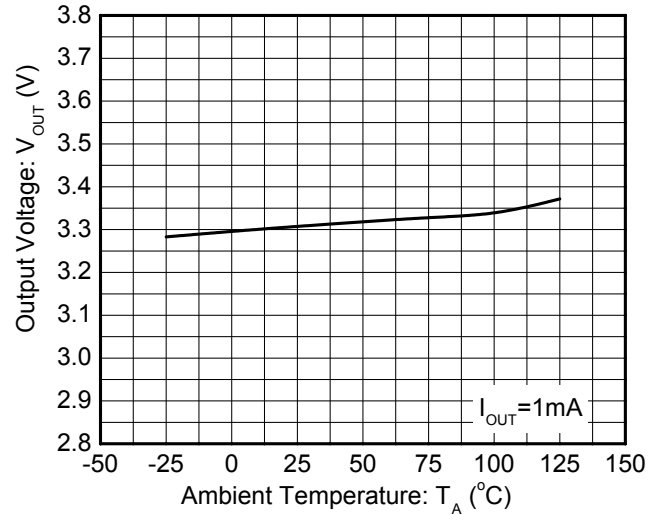
Typical characteristics ( $T_a=25^\circ\text{C}$ ,  $V_{IN}=V_{OUT}+1\text{V}$ ,  $C_{IN}=C_{OUT}=4.7\mu\text{F}$ , unless otherwise noted)



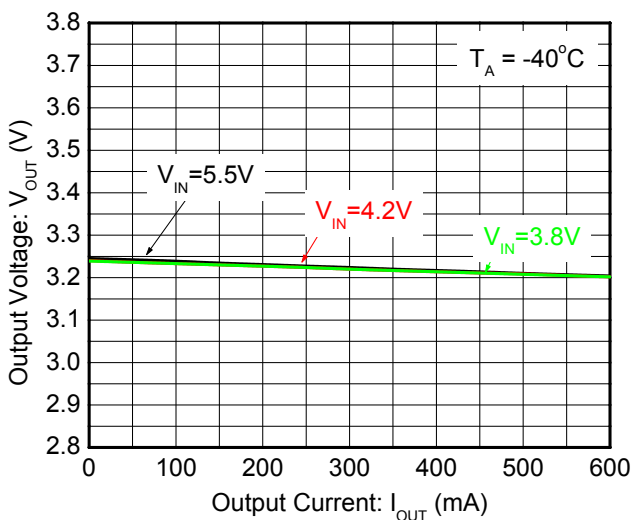
Quiescent current vs. Supply voltage



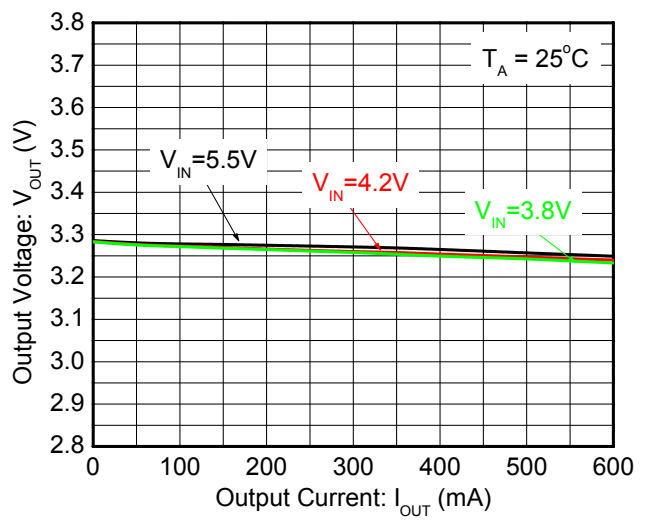
Quiescent current vs. Ambient temperature



Output voltage vs. Supply voltage

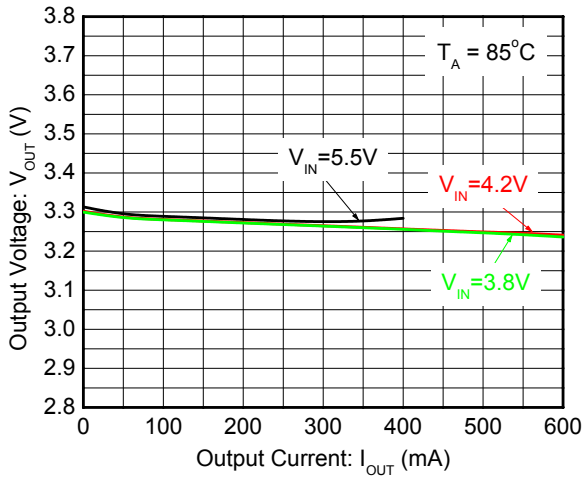
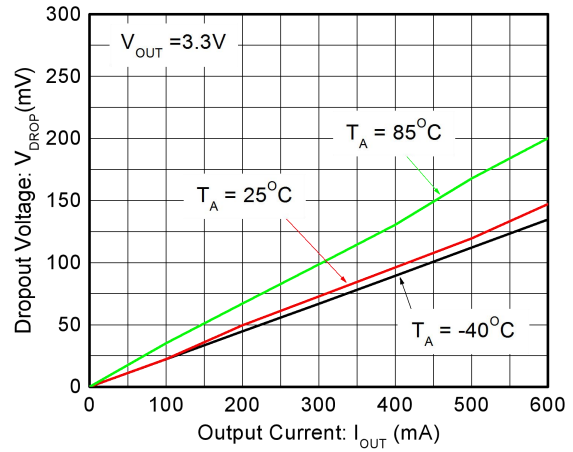
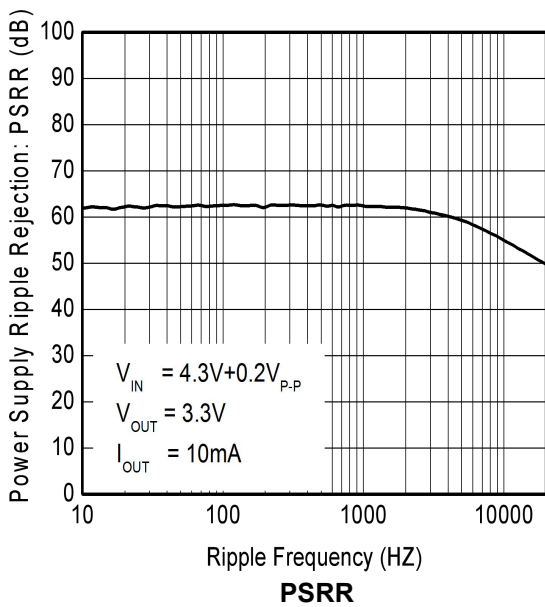
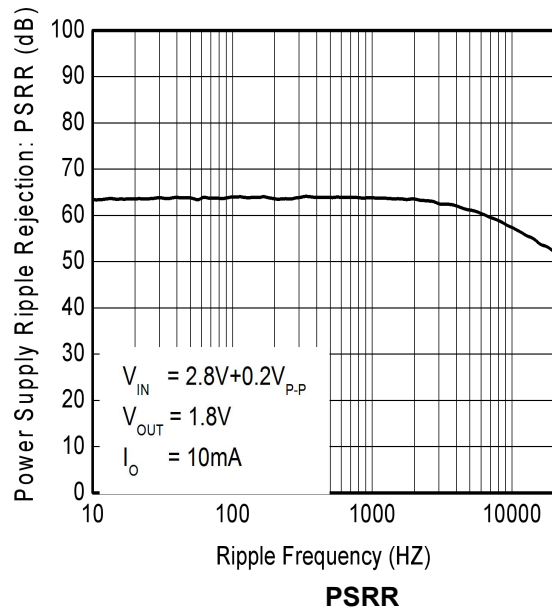


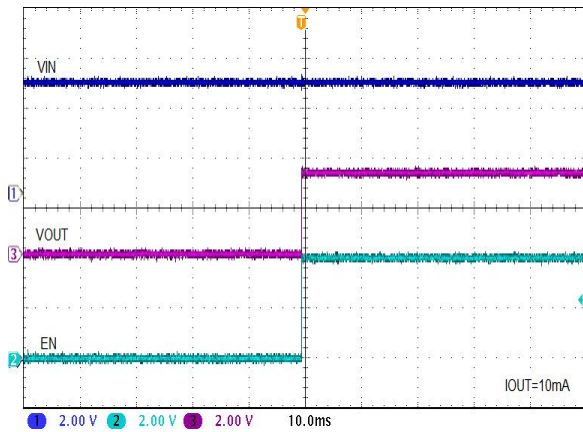
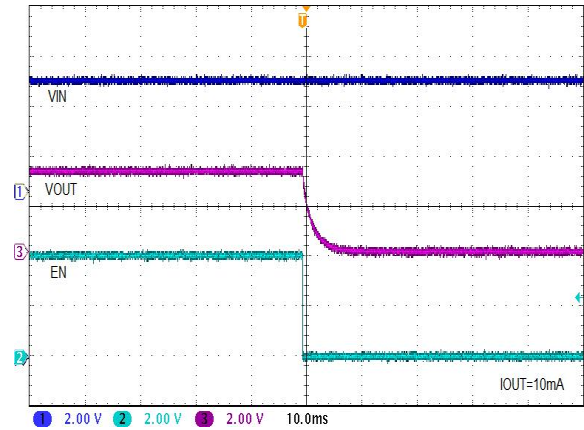
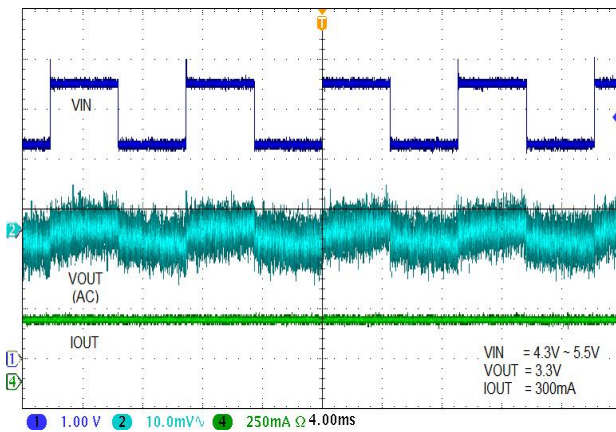
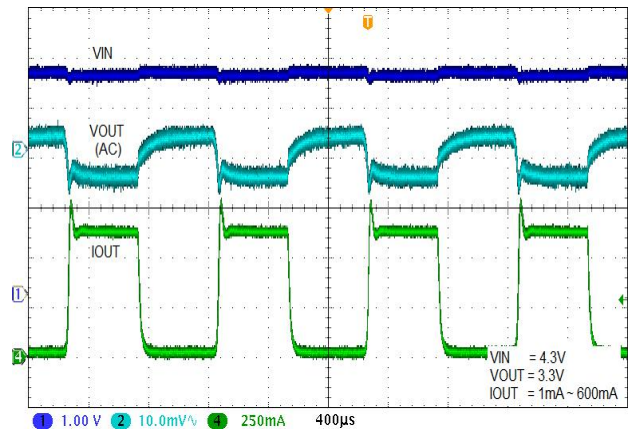
Output voltage vs. Ambient temperature

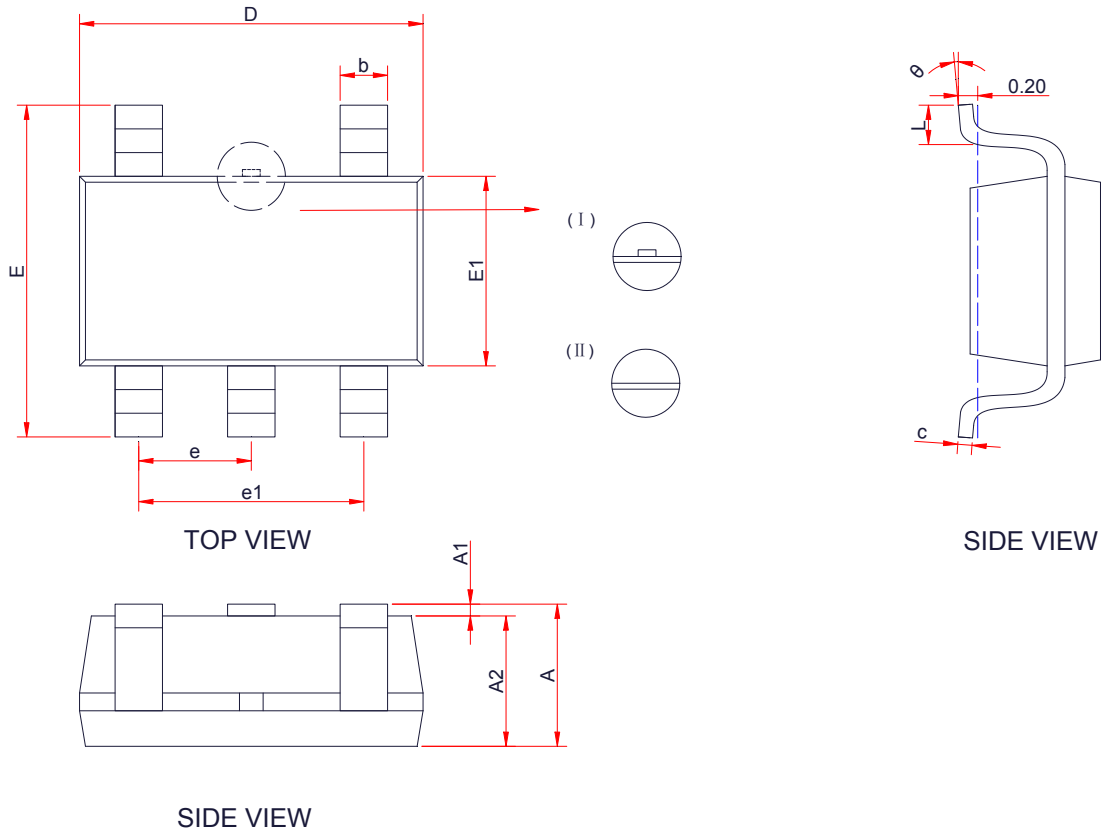


Output voltage vs. Output current

Output voltage vs. Output current

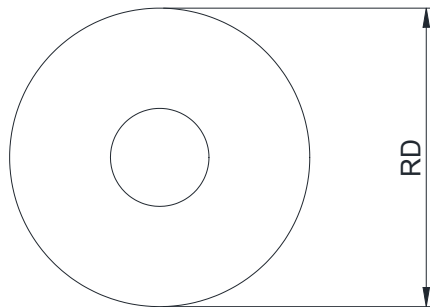
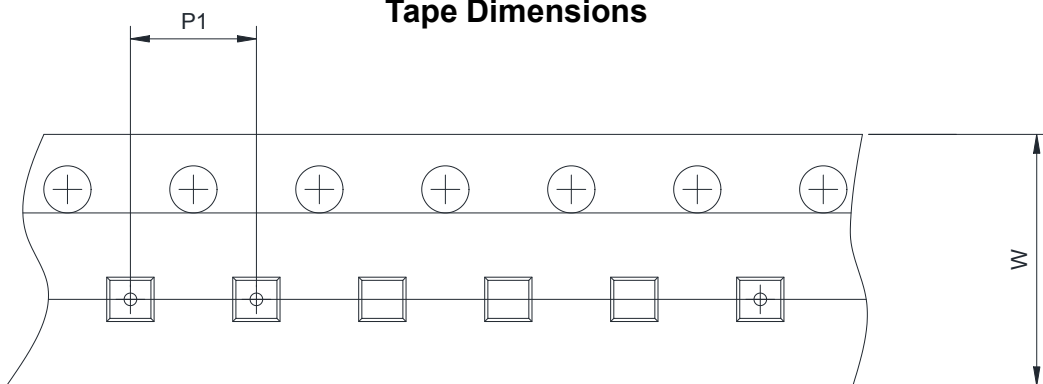
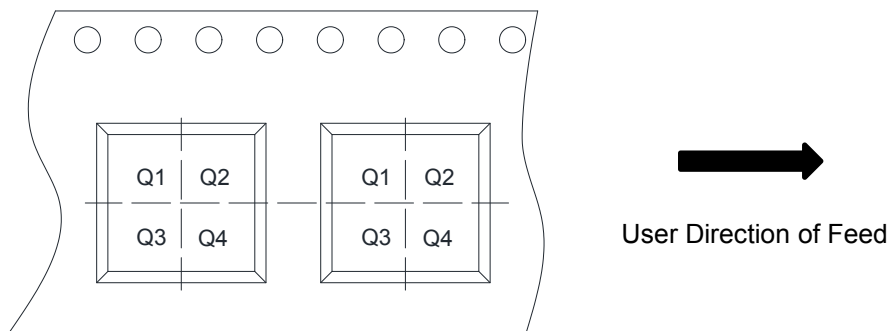

**Output voltage vs. Output current**

**Dropout voltage vs. Output current**

**PSRR**

**PSRR**


**Startup with EN**

**Shutdown with EN**

**Line Regulation**

**Load Regulation**

**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
$\theta$	0°	-	8°



**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 checked="" type="checkbox"/> 8mm	<input type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input checked="" type="checkbox"/> 4mm <input 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.	V <sub>OUT</sub> (V)	Package	Marking	Operating Temperature	Shipping
WL2803E12-5/TR	1.2	SOT-23-5L	WS12/YYWW	-40 ~ +85°C	3000/Tape and Reel
WL2803E18-5/TR	1.8	SOT-23-5L	WS18/YYWW	-40 ~ +85°C	3000/Tape and Reel
WL2803E25-5/TR	2.5	SOT-23-5L	WS25/YYWW	-40 ~ +85°C	3000/Tape and Reel
WL2803E28-5/TR	2.8	SOT-23-5L	WS28/YYWW	-40 ~ +85°C	3000/Tape and Reel
WL2803E30-5/TR	3.0	SOT-23-5L	WS30/YYWW	-40 ~ +85°C	3000/Tape and Reel
WL2803E33-5/TR	3.3	SOT-23-5L	WS33/YYWW	-40 ~ +85°C	3000/Tape and Reel

单击下面可查看定价，库存，交付和生命周期等信息

[>>Willsemi\(韦尔半导体\)](#)