

WL2835D

Low power consumption, CMOS LDO

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

Descriptions

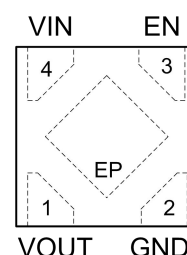
The WL2835D series are low dropout linear regulators and optimized to provide a high performance solution for battery powered system with low quiescent current. The devices offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

The WL2835D series are designed to work stably with the low cost ceramic capacitors. They offer thermal shutdown protection (OTP) and enhance the efficiency in order to prolong the battery life of those portable devices.

The WL2835D regulators are available in DFN1x1-4L packages. The level of MSL is level-3. Standard products are Pb-free and Halogen free products.



DFN1x1-4L



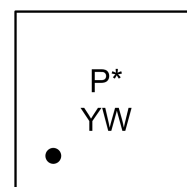
Features

- Quiescent current : 0.54μA Typ.
- Shut-down current : ≤ 0.15μA
- Input voltage : 2.5-5.5V
- Output voltage : 1.2-3.3V
- Maximum Output current : 150mA
- Dropout voltage : 175mV@150mA
- Recommend capacitor : ≥1μF
- Operating Temperature : -40 ~ 85 °C
- Thermal-Overload and Short-Circuit Protection

Applications

- Cell phones
- Bluetooth earphone
- Wireless mouse
- Others electronics devices

Pin Configuration (Top View)



P : Device Code

***: Voltage Code**

Y : Year Code

W: Week Code

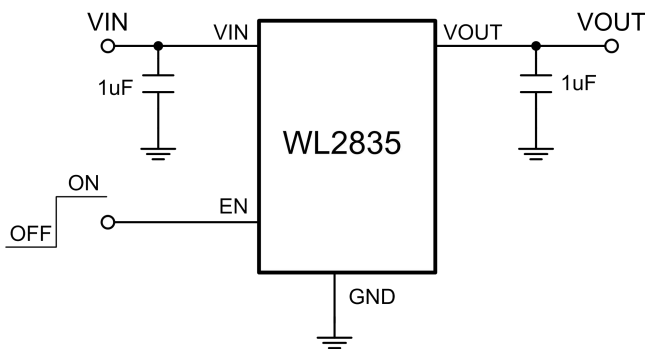
For detail marking information, please see page 11.

Marking

Order Information

For detail order information, please see page 11.

Typical Application

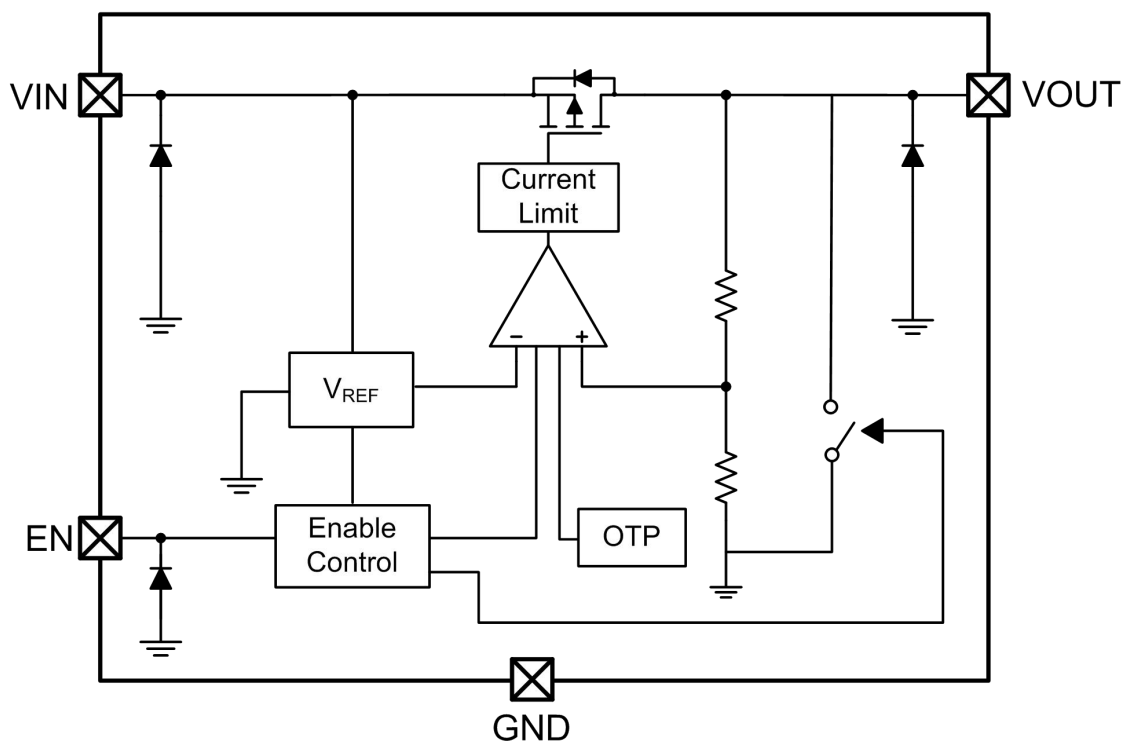


Pin Description

DFN1x1-4L

PIN	Symbol	Description
1	VOUT	Output
2	GND	Ground
3	EN	Enable (Active high, not floating)
4	VIN	Input
EP		GND level, this pin must connect to GND.

Block Diagram



Absolute Maximum Ratings

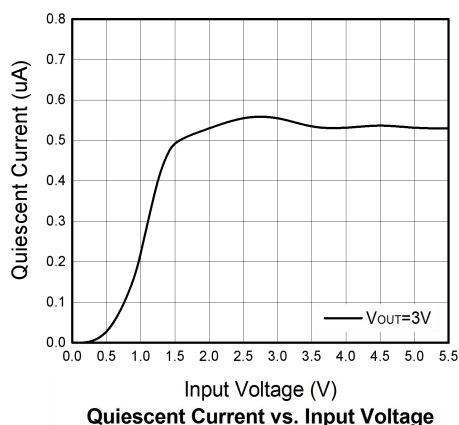
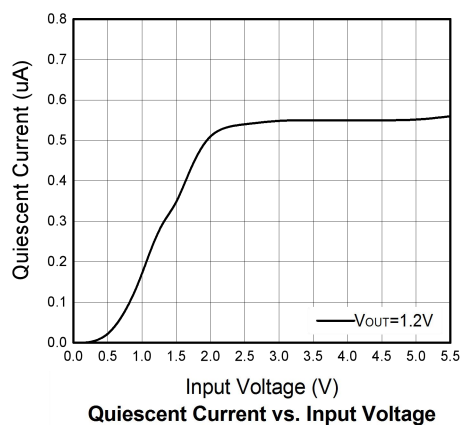
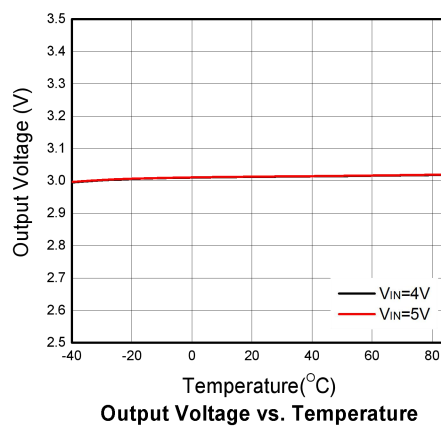
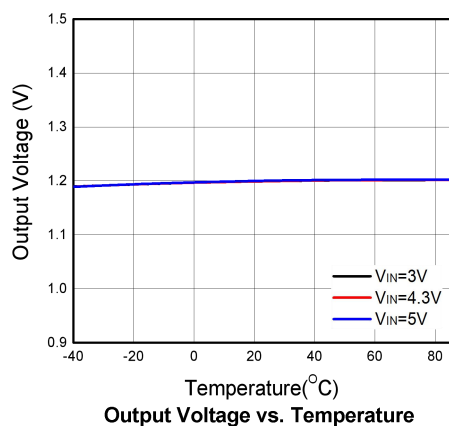
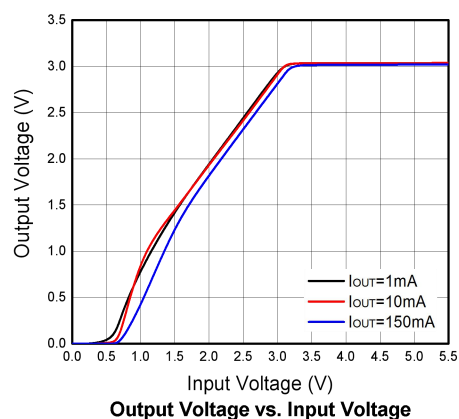
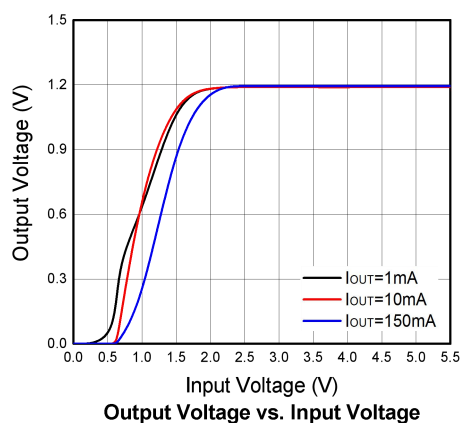
Parameter	Value	Unit
Power Dissipation	400	mW
V _{IN} Range	-0.3~6.5	V
V _{EN} Range	-0.3~V _{IN}	V
V _{OUT} Range	-0.3~V _{IN}	V
Lead Temperature	260	°C
Storage Temperature	-55~150	°C
Operating Junction Temperature	150	°C
ESD Capability, Human Body Model	2000	V
ESD Capability, Machine Model	200	V

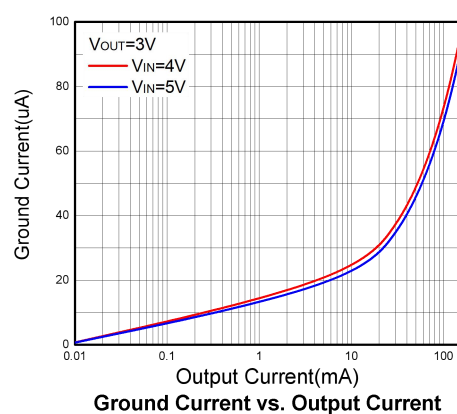
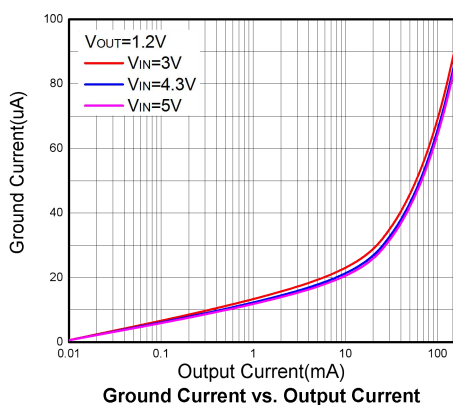
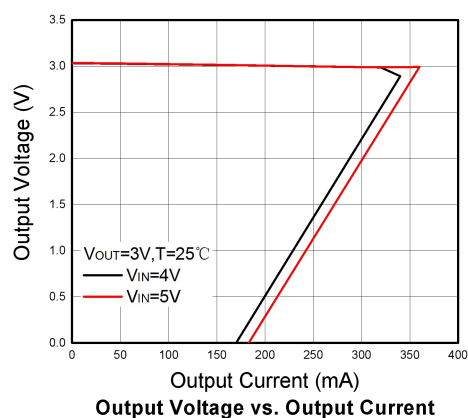
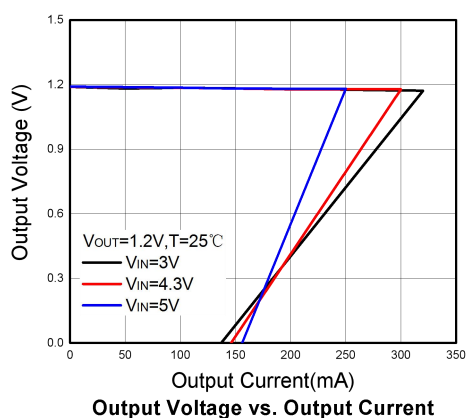
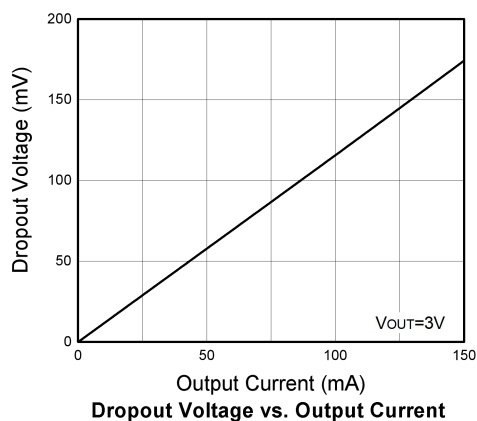
Operating Range

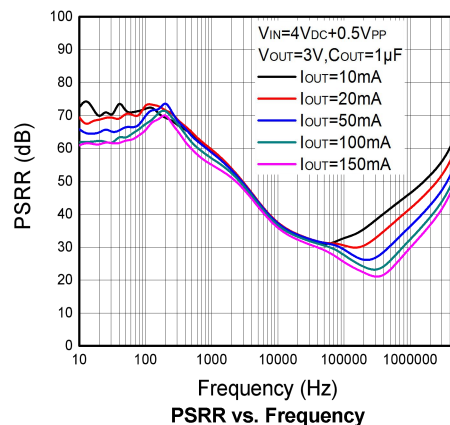
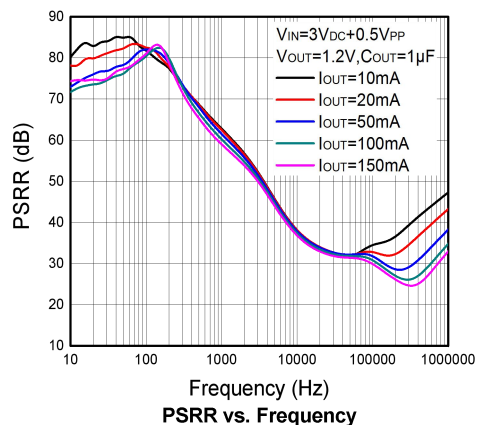
Parameter	Value	Unit
Thermal Resistance, R _{θJA}	250	°C/W
Input Voltage	2.5-5.5	V
Operating Temperature Range	-40~85	°C

Electronics Characteristics ($V_{IN} = V_{OUT} + 1V$ or $2.5V$, whichever is greater; $C_{IN}=C_{OUT}=1\mu F$, $T_A=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	V_{OUT}	$V_{OUT} < 2V$, $I_{OUT}=1mA$	-30		30	mV
		$V_{OUT} \geq 2V$, $I_{OUT}=1mA$	-1.5		+1.5	%
Current Limit	I_{LIM}	$V_{EN}=V_{IN}$	150			mA
Output Short Current Limiter	I_{SHORT}	$V_{OUT}=GND$		160	250	mA
Dropout Voltage	V_{DROP}	$I_{OUT} = 150mA$, $V_{OUT}=2.8V$		195	450	mV
		$I_{OUT} = 150mA$, $V_{OUT}=3V$		175	450	
Line Regulation	ΔV_{LINE}	$V_{IN}=V_{OUT}+1V-5.5V$, $I_{OUT}=1mA$		1	6	mV
Load Regulation	ΔV_{LOAD}	$I_{OUT} = 1-150mA$		10	25	mV
Quiescent Current	I_Q	$V_{IN} = V_{OUT} + 1V$, $I_{OUT}=0A$		0.54	1	μA
Output Voltage Temperature Coefficient	TC	$-40^\circ C \leq T_A \leq 85^\circ C$		80		ppm/ $^\circ C$
Power Supply Ripple Rejection	PSRR	$V_{IN}=4V_{DC}+0.5V_{pp}$ $I_{OUT}=10mA$ $V_{OUT}=3V$	F=100Hz		73	dB
			F=217Hz		70	
			F=1kHz		60	
			F=10kHz		38	
Output Noise Voltage	V_{NO}	BW=10Hz to 100kHz $I_{OUT}=10mA$, $V_{OUT}=3V$		70		μV_{rms}
Shut Down Current	I_{SD}	$V_{EN}=0V$			150	nA
Soft-Start Time	Tss	$V_{OUT}=3V$, $V_{OUT}=10\%-90\%$ $I_{OUT}=10mA$, $C_{OUT}=1\mu F$		950		us
EN Logic High Voltage	V_{ENH}	$V_{IN} = 4V$, $I_{OUT} = 1mA$	1.2			V
EN Logic Low Voltage	V_{ENL}	$V_{IN} = 4V$, $V_{OUT} = 0V$			0.4	V
Output Discharge resistance	R_{DIS}	$V_{IN} = 4V$, $V_{EN}=0V$		200		Ω
Thermal Shutdown Threshold	T_{SD}			150		$^\circ C$
Thermal Shutdown Hysteresis	ΔT_{SD}			20		$^\circ C$

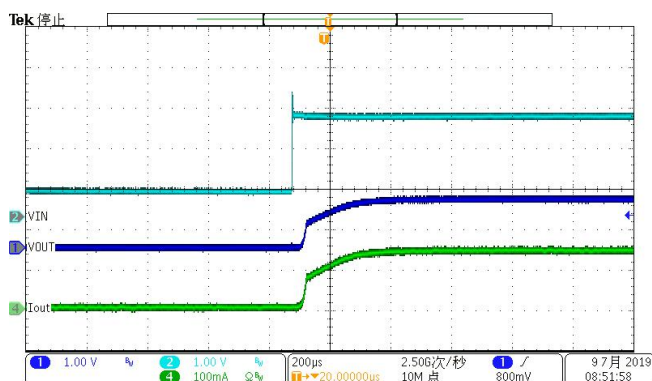
Typical Characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)




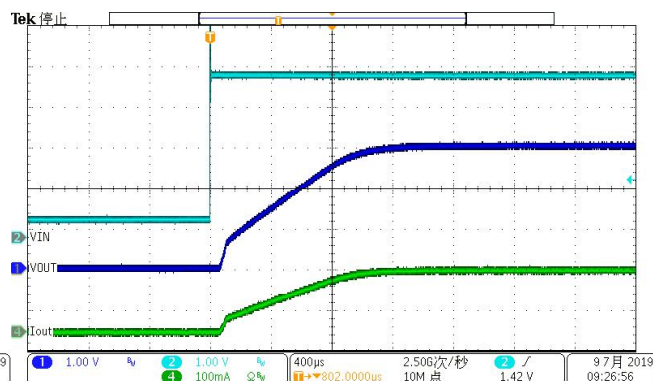


1 Start up (Soft Start from V_{IN})

$V_{OUT}=1.2V$ $C_{OUT}=1\mu F$ $I_{OUT}=150mA$

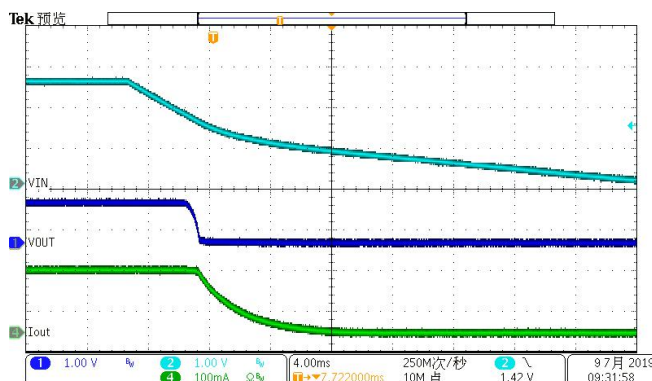


$V_{OUT}=3V$ $C_{OUT}=1\mu F$ $I_{OUT}=150mA$

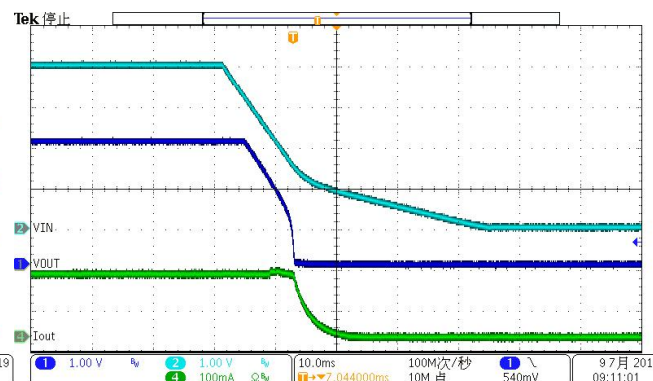


2 Shutdown (Shutdown from V_{IN})

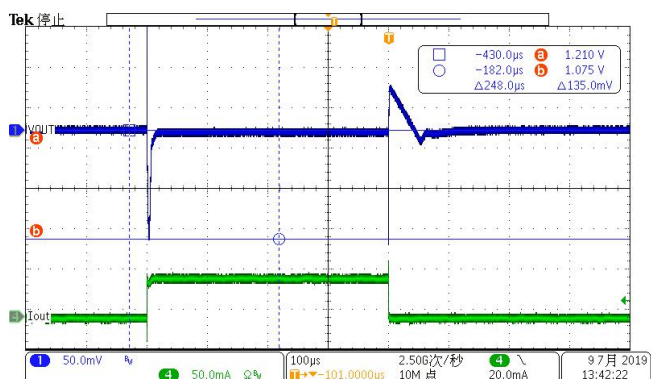
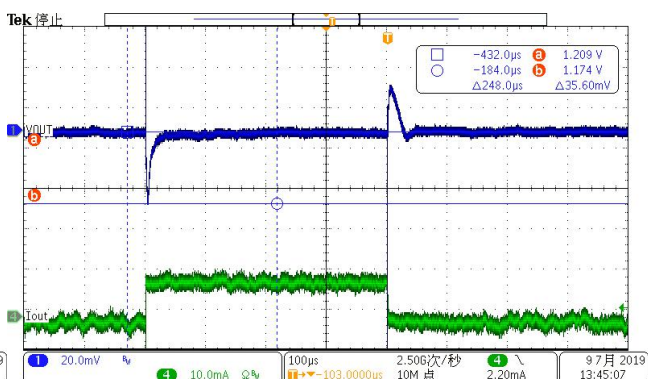
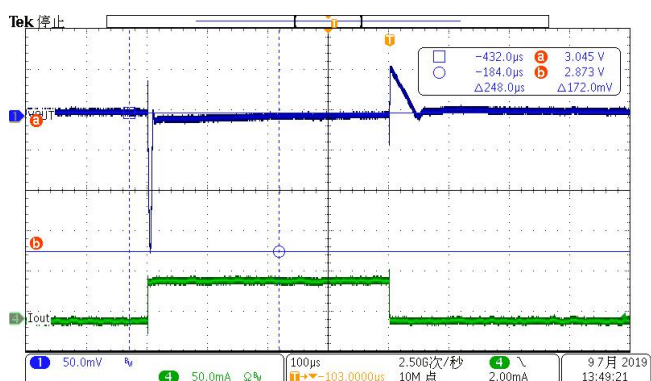
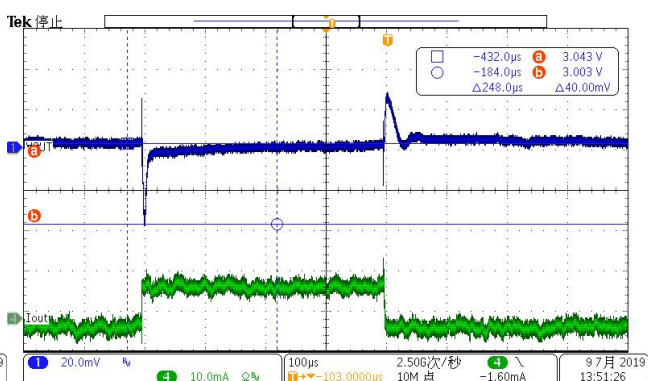
$V_{OUT}=1.2V$ $C_{OUT}=1\mu F$ $I_{OUT}=150mA$



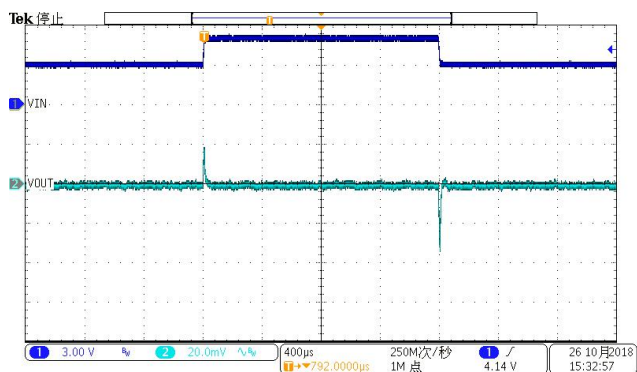
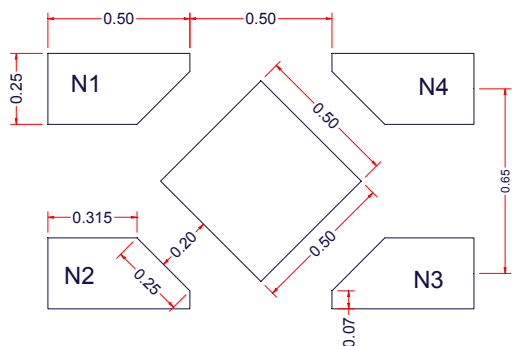
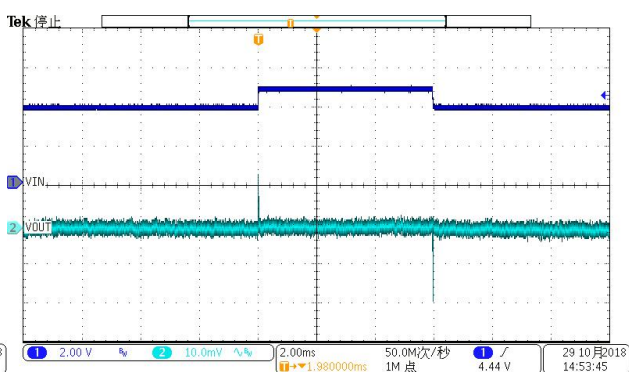
$V_{OUT}=3V$ $C_{OUT}=1\mu F$ $I_{OUT}=150mA$



3 Load Transient

 $V_{IN}=5.5V$ $V_{OUT}=1.2V$ $C_{IN}=C_{OUT}=1\mu F$ $I_{OUT}=1mA-50mA$

 $V_{IN}=5.5V$ $V_{OUT}=1.2V$ $C_{IN}=C_{OUT}=1\mu F$ $I_{OUT}=1mA-10mA$

 $V_{IN}=5.5V$ $V_{OUT}=3V$ $C_{IN}=C_{OUT}=1\mu F$ $I_{OUT}=1mA-50mA$

 $V_{IN}=5.5V$ $V_{OUT}=3V$ $C_{IN}=C_{OUT}=1\mu F$ $I_{OUT}=1mA-10mA$


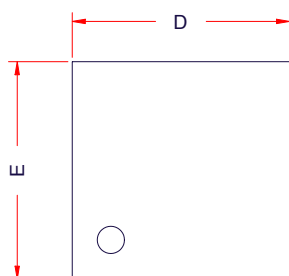
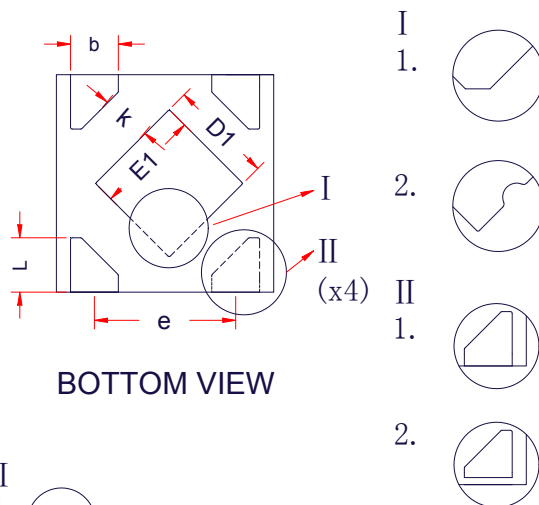
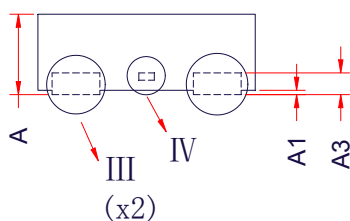
4 Line Transient

 $V_{OUT}=1.2V$ $C_{OUT}=1\mu F$ $I_{OUT}=10mA$

 $V_{OUT}=3V$ $C_{OUT}=1\mu F$ $I_{OUT}=10mA$


RECOMMENDED LAND PATTERN(unit:mm)

Notes:

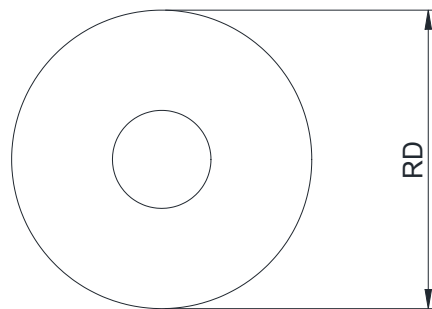
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

PACKAGE OUTLINE DIMENSIONS
DFN1x1-4L

TOP VIEW

BOTTOM VIEW

SIDE VIEW

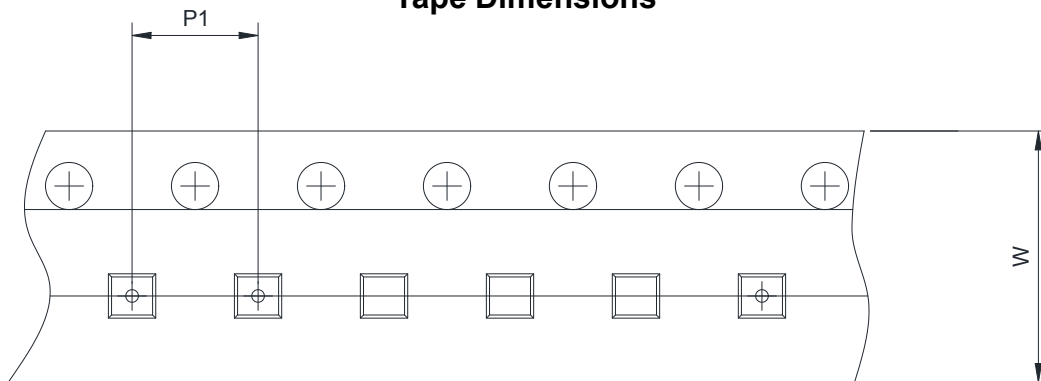
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.32	0.37	0.42
A1	-	-	0.05
A3	0.10 Ref.		
b	0.17	0.22	0.28
L	0.17	-	0.30
D	0.95	1.00	1.05
E	0.95	1.00	1.05
D1	0.43	0.48	0.54
E1	0.43	0.48	0.54
K	0.14	-	-
e	0.65BSC		

TAPE AND REEL INFORMATION

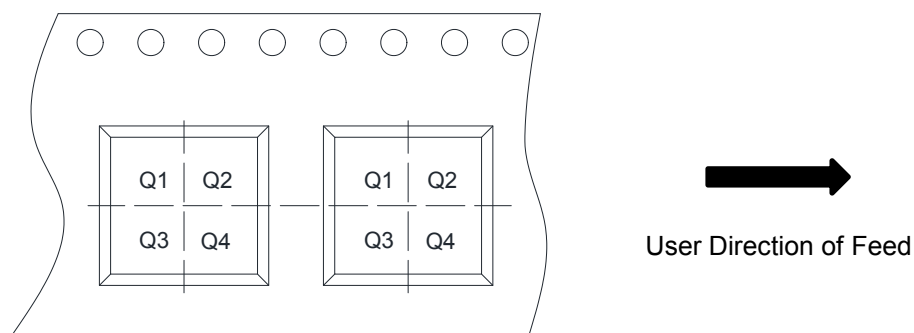
Reel Dimensions



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 checked="" type="checkbox"/> 2mm	<input 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.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2835D12-4/TR	1.2	DFN1x1-4L	-40~+85°C	PE YW	10,000 Tape & Reel
WL2835D15-4/TR	1.5	DFN1x1-4L	-40~+85°C	PG YW	10,000 Tape & Reel
WL2835D18-4/TR	1.8	DFN1x1-4L	-40~+85°C	PH YW	10,000 Tape & Reel
WL2835D25-4/TR	2.5	DFN1x1-4L	-40~+85°C	PK YW	10,000 Tape & Reel
WL2835D28-4/TR	2.8	DFN1x1-4L	-40~+85°C	PL YW	10,000 Tape & Reel
WL2835D30-4/TR	3.0	DFN1x1-4L	-40~+85°C	PM YW	10,000 Tape & Reel
WL2835D33-4/TR	3.3	DFN1x1-4L	-40~+85°C	PN YW	10,000 Tape & Reel