WL2863CT

Ultra-Low Noise, High PSRR LDO, 250mA Linear Regulator for RF and Analog Circuits

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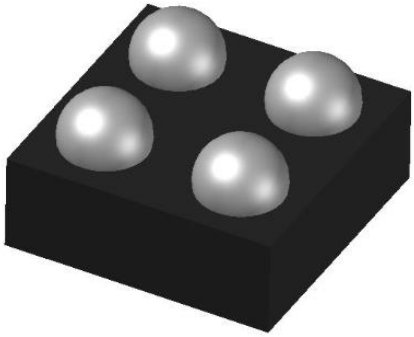
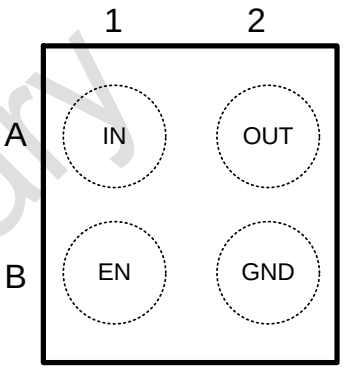
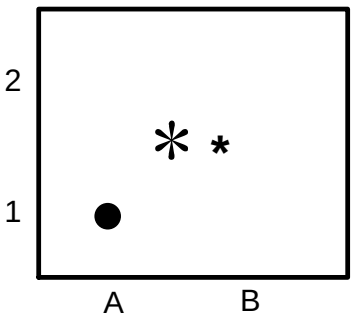


CSP-4L



Pin Configuration (Top View)



Marking

*** : Voltage Code**

*** : Month Code**

Descriptions

The WL2863CT is a linear regulator capable of supplying 250mA output current. Designed to meet the requirements of RF and analog circuits, the WL2863CT device provides low noise, high PSRR, low quiescent current and very good load /line transients.

The device is designed to work with a 1μF input and 1μF output ceramic capacitor (no separate noise Operation bypass capacitor is required).

The WL2863CT regulators are available in standard CSP-4L Package. Standard products are Pb-free and Halogen-free.

Features

- Input Voltage Range :2.2V~5.5V
- Output Voltage Range :1.2V~4.3V
- Output current :250mA
- PSRR :Typ.100dB at 10mA, f =1KHz
  :Typ. 45dB at 10mA , f =1MHz
- Low Dropout :Typ. 115mV at 250mA
- Quiescent current :Typ. 22μA
- Low Output Voltage Noise :Typ. 6μVRMS
- Output Voltage Tolerance :±2%
- Shutdown Current :Typ. 0.01μA
- UVLO Threshold(V) :Typ. 2.05V
- Recommend capacitor :1uF
- Stable with 1μF Ceramic Input and Output capacitor
- No Noise Bypass Capacitor Required
- Thermal-Overload Protection

Applications

- Cell phones , radiophone, digital cameras
- Bluetooth, wireless handsets
- HiFi products
- Others portable electronic device

Order Information

For detail order information, please see page 8

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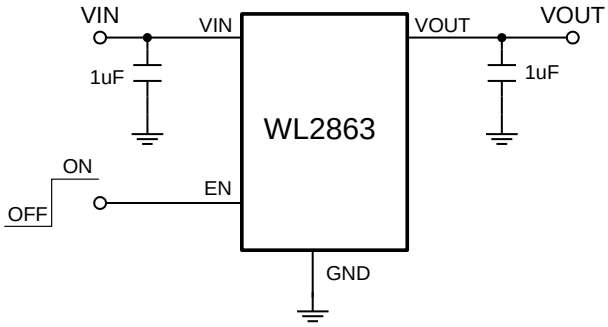
Typical Application

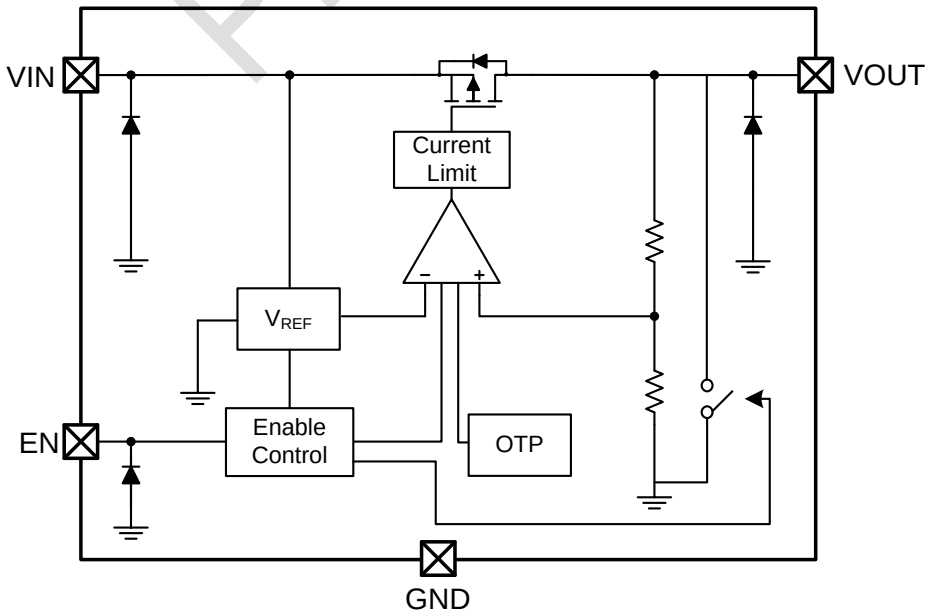


Note : The input and output capacitor must be located a distance of not more than 1 cm

PIN Functions

PIN	Symbol	Description
A1	IN	Input voltage supply pin , 1μF capacitor should be connected at this input
A2	OUT	Regulated output voltage. 1μF capacitor should be connected at this input
B1	EN	Chip enable: Applying VEN < 0.4 V disables the regulator, Pulling VEN > 1.2 V enables the LDO.
B2	GND	Common ground connection

Block Diagram



Absolute Maximum Ratings

Parameter		Value	Unit
Power Dissipation, PD@T_A=25 °C		Internally Limited	mW
V_{IN} Range		-0.3～6.0	V
V_{EN} Range		−0.3 to V_{IN} + 0.3	V
V_{OUT} Range		−0.3 to V_{IN} + 0.3	V
I_{OUT}		300	mA
Lead Temperature Range		260	°C
Storage Temperature Range		-55 ~ 150	°C
Operating Junction Temperature Range		150	°C
ESD Ratings	HBM	2000	V
	MM	200	V

Recommend Operating Ratings

Parameter	Value	Unit
Operating Supply voltage	2.2～5.5	V
Operating Temperature Range	-40～85	°C
Thermal Resistance, $R_{\theta JA}$	206	°C/W

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Electronics Characteristics (V_{IN}=$V_{OUT(NOM)}$+1V, C_{IN}=C_{OUT}=1uF, V_{EN} = 1.2 V. Typical values are at Ta = +25°C ,unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Input Voltage	V_{IN}		2.2		5.5	V
Output Voltage Accuracy	V_{OUT}	V_{IN} = $V_{OUT(NOM)}$ + 1 V I_{OUT}=1mA	-2		+2	%
Output Current Limit	I_{LIM}	V_{OUT} = 90% VOUT(NOM)	250			mA
Dropout Voltage		V_{OUT}=2.8$V_{(NOM)}$, I_{OUT}=250mA		85		mV
		V_{OUT}=3.0$V_{(NOM)}$, I_{OUT}=250mA		80		
Line Regulation	△V_{LINE}	V_{IN}=(V_{OUT}+1)V~5V , I_{OUT}=1mA		0.1	6.5	mV
Load Regulation	△V_{Load}	I_{OUT}=1~200mA		10		mV
Quiescent Current	I_Q	I_{OUT}=0mA		22	28	μA
Short Current	I_{SHORT}	V_{OUT}=0V		420	550	mA
Shut-down Current	I_{SHDN}	V_{EN}=0V, V_{IN} = 4.8 V		0.01	1.0	μA
Power Supply Rejection Rate	PSRR	I_{OUT} =10mA f=100Hz f=1KHz f=100KHz f=1MHz		95 100 62 45		dB
EN logic high voltage	V_{ENH}	V_{IN}=5.5V, I_{OUT}=1mA	1.2			V
EN logic low voltage	V_{ENL}	V_{IN}=5.5V, V_{OUT}=0V			0.4	V
EN Input Current	I_{EN}	V_{EN} = 0 to 5.5V			1	μA
Turn−On Time		C_{OUT} = 1μF, From assertion of VEN to V_{OUT} = 95% V_{OUT} (NOM)		1		mS
Output Voltage Noise	e_{NO}	10Hz to 100KHz, I_{OUT} =1mA I_{OUT} =200mA		6 5		μVRMS
Thermal shutdown threshold	T_{SDH}	Temperature rising		150		°C
	T_{SDL}	Temperature falling		120		°C
Under voltage lock out threshold	V_{UVLO}			2.05		V
Active Output Discharge Resistance	R_{LOW}	V_{EN}<0.4V		300		Ω
Line Transient	$Tran_{LINE}$	V_{IN} = ($V_{OUT(NOM)}$ + 2 V) to ($V_{OUT(NOM)}$ + 1 V) in 30 us, I_{OUT} = 1 mA	−1			mV
		V_{IN} = ($V_{OUT(NOM)}$ + 1 V) to ($V_{OUT(NOM)}$ + 2 V) in 30 us, I_{OUT} = 1 mA			+1	
Load Transient	$Tran_{LOAD}$	I_{OUT} = 1 mA to 200 mA in 10 us	−10			mV
		I_{OUT} = 200 mA to 1 mA in 10 us			+10	

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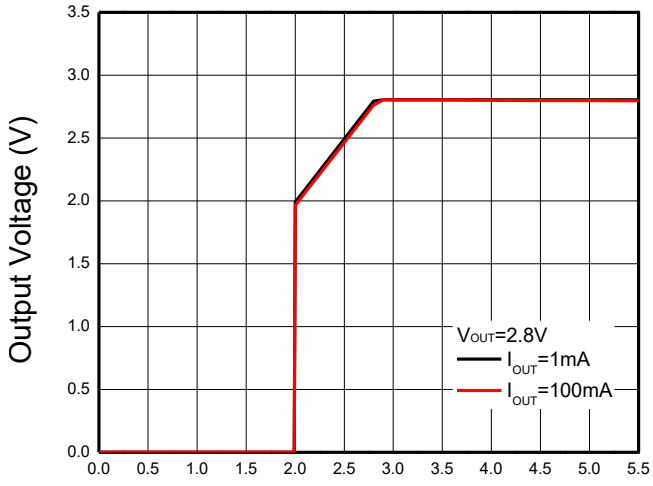
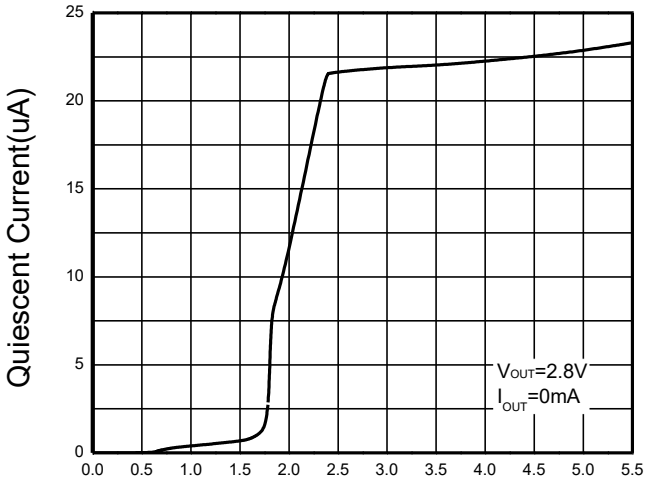
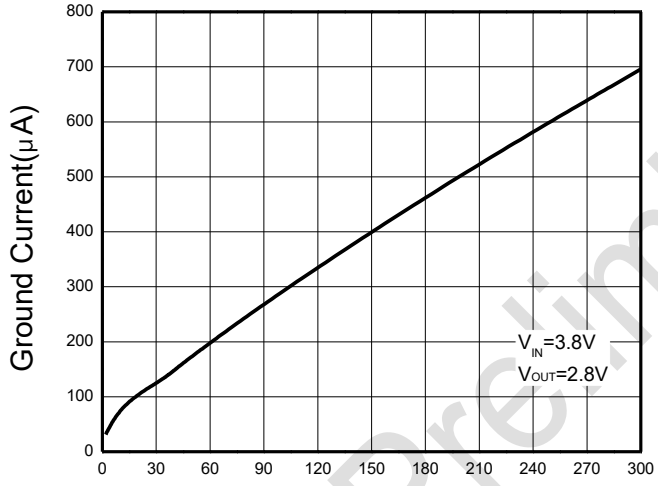
Typical characteristics (Ta=25 °C, V_{IN}=V_{OUT} +1 V, C_{IN}=C_{OUT}=1uF, unless otherwise noted)



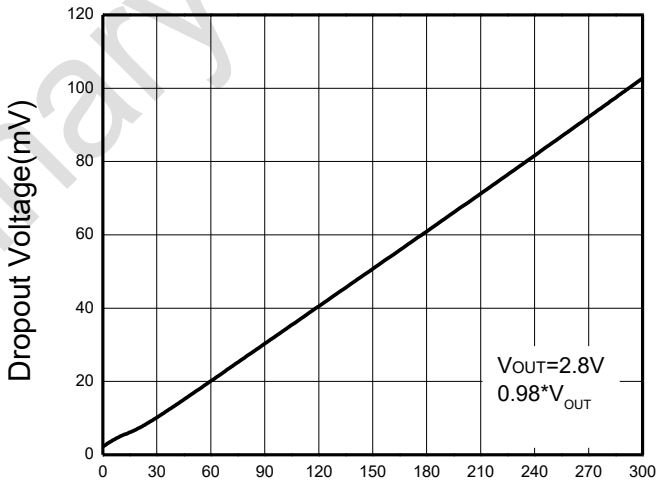
Input Voltage VS Output Voltage



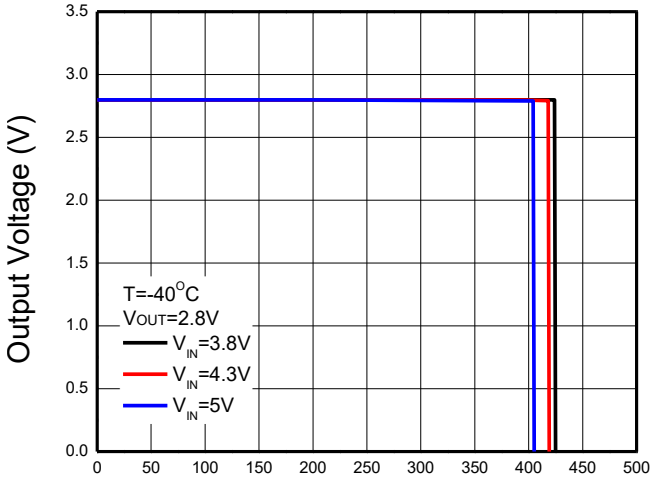
Input Voltage VS Quiescent Current



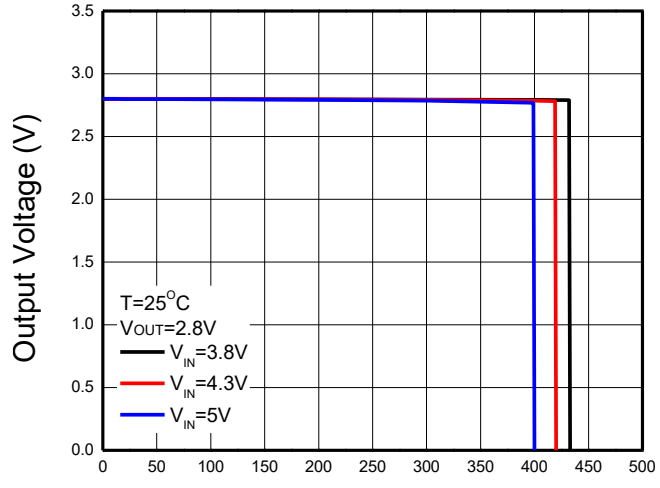
Output Current VS Ground Current



Output Voltage VS Dropout Voltage



Output Voltage VS Output Current



Output Voltage VS Output Current

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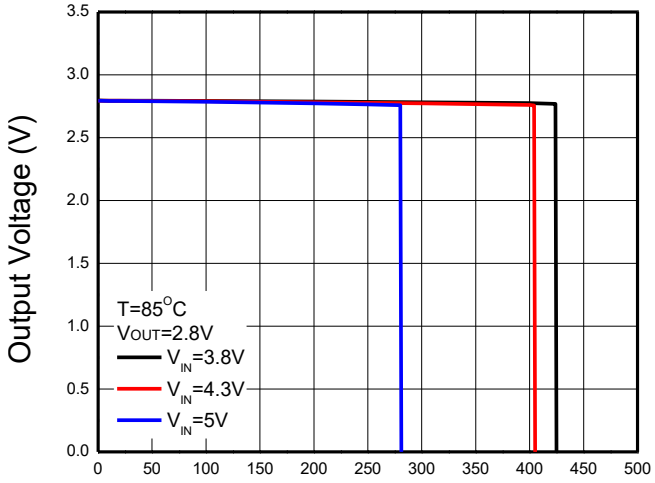
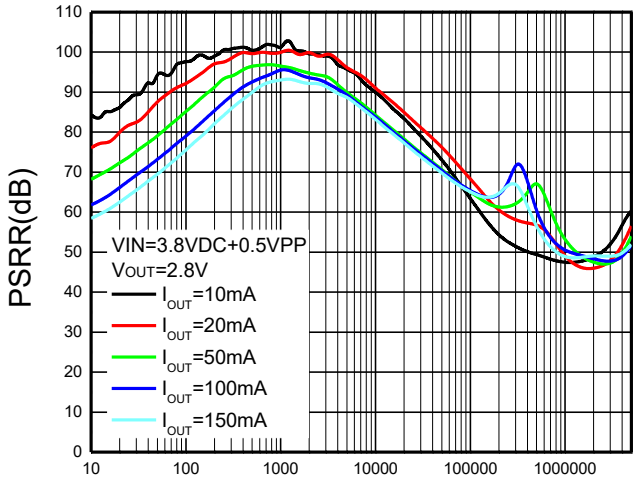
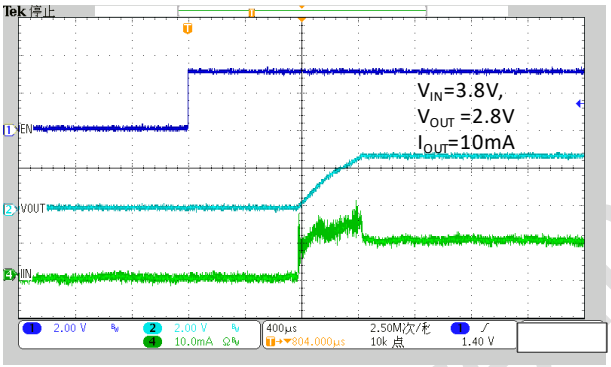


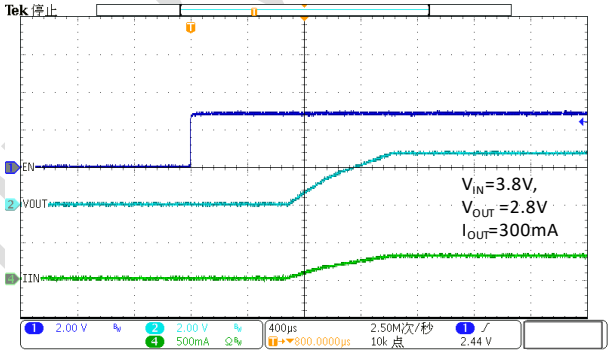
Output Voltage VS Output Current



PSRR vs Frequency



Soft-Start From EN



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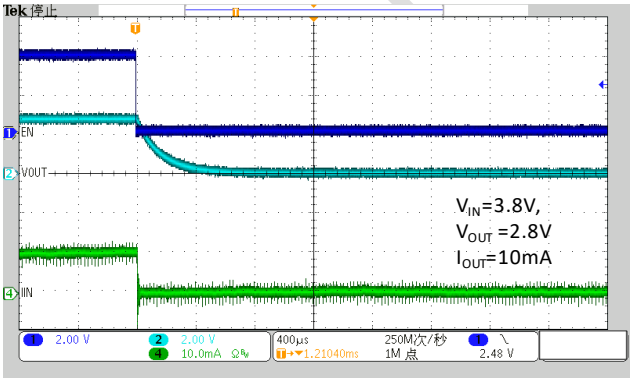
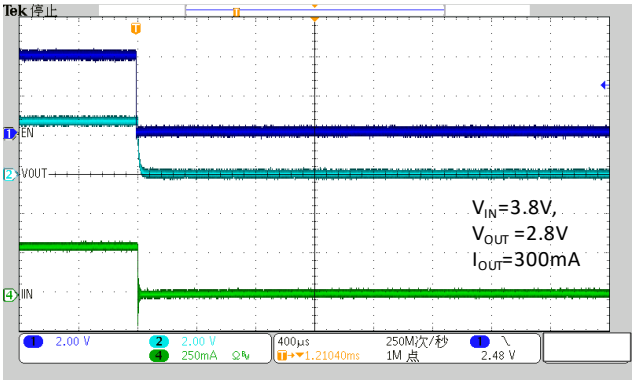


EN Shutdown



EN Shutdown

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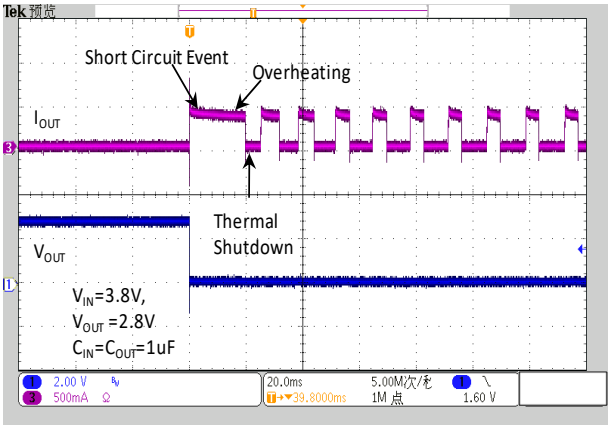
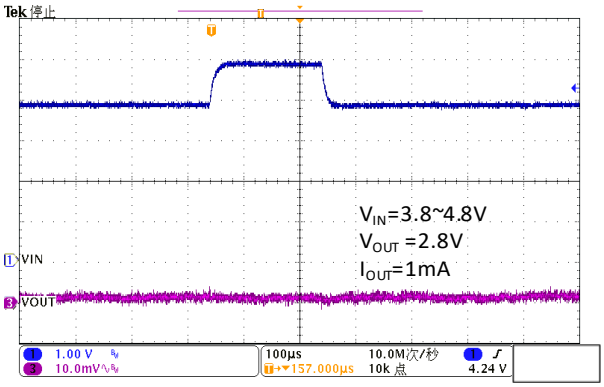
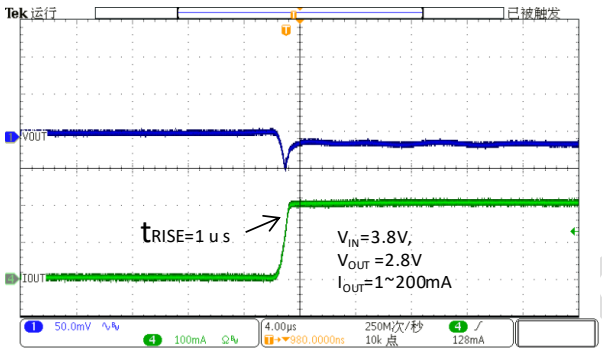


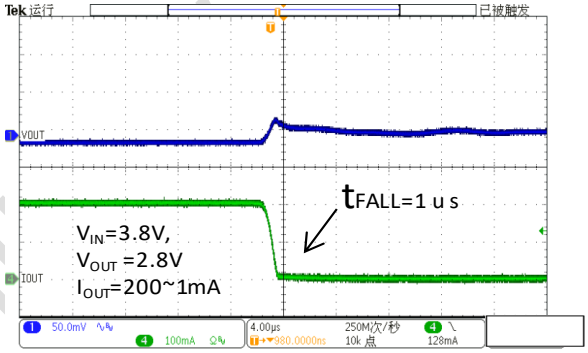
Short Circuit and Thermal Shutdown



Line Transient Response



Load Transient Response



Load Transient Response

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ORDER INFORMATION

Ordering No.	Vout (V)	Package	Operating Temperature	Marking	Shipping
WL2863CT12-4/TR	1.2	CSP-4L	-40~+85°C	**	Tape and Reel, 3000
WL2863CT18-4/TR	1.8	CSP-4L	-40~+85°C	**	Tape and Reel, 3000
WL2863CT28-4/TR	2.8	CSP-4L	-40~+85°C	**	Tape and Reel, 3000
WL2863CT29-4/TR	2.9	CSP-4L	-40~+85°C	**	Tape and Reel, 3000
WL2863CT30-4/TR	3.0	CSP-4L	-40~+85°C	**	Tape and Reel, 3000
WL2863CT33-4/TR	3.3	CSP-4L	-40~+85°C	**	Tape and Reel, 3000

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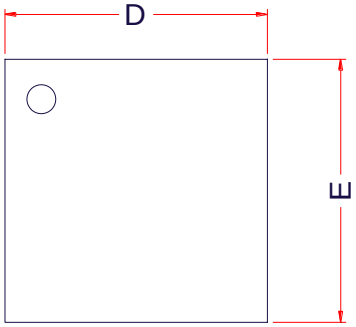
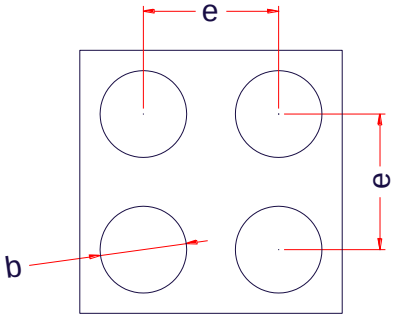
PACKAGE OUTLINE DIMENSIONS

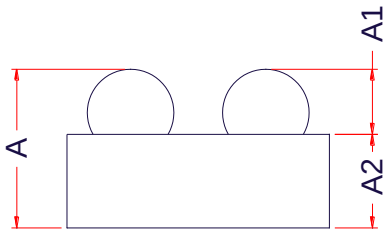
CSP-4L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.220	0.260	0.300
A1	0.040	0.060	0.080
A2	0.180	0.200	0.220
D	0.610	0.630	0.660
E	0.610	0.630	0.660
e	0.350BSC		
b	0.140	0.160	0.180

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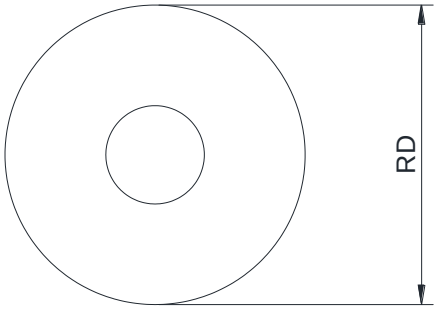
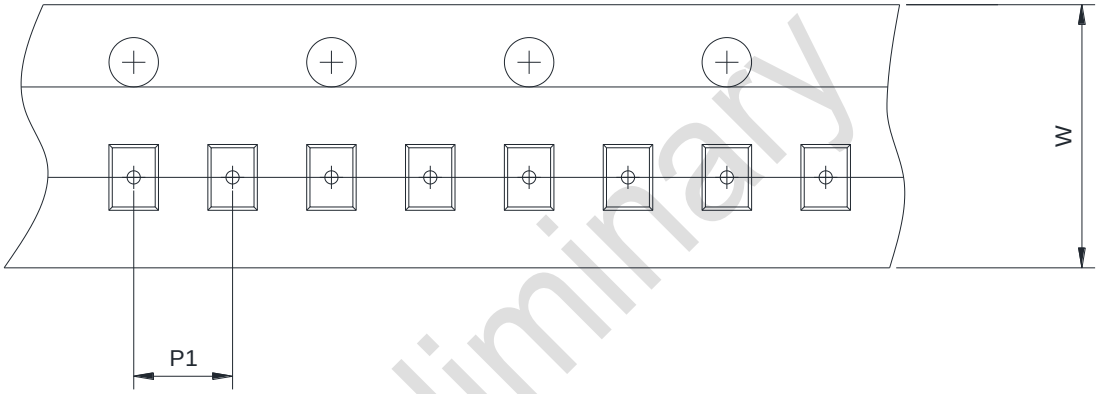
TAPE AND REEL INFORMATION

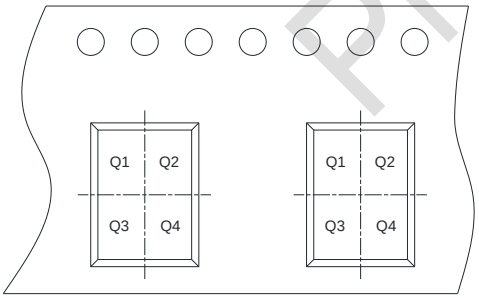
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



User Direction of Feed

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

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