

WL2843D

Low noise, High PSRR, High speed, CMOS LDO

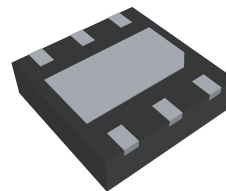
[Http://www.ovt.com](http://www.ovt.com)

Descriptions

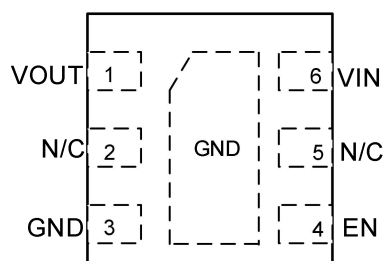
The WL2843D series are high accuracy, low noise, high speed, high PSRR, low dropout CMOS Linear regulators with high ripple rejection. The devices offer a new level of cost effective performance in cellular phones, laptop and notebook computers, and other portable devices.

The WL2843D 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 WL2843D regulators are available in standard DFN2x2-6L Package. Standard products are Pb-free and Halogen-free.



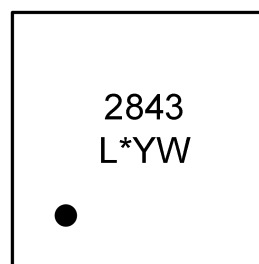
DFN2x2-6L



Pin Configuration (Top View)

Features

- Input Voltage Range : 1.4V~5.5V
- Output Voltage Range : 0.9V~3.3V
- Output current : 500mA
- Quiescent current : 50µA Typ.
- Shut-down current : < 1µA
- Dropout voltage : 617mV@V_{OUT}=1.2V, I_{OUT}=0.5A
- PSRR : 80dB @ 1kHz, V_{OUT}=1.2V
- Low Output Voltage Noise : 20 µV_{RMS} Typ
- Output Voltage Tolerance : ±1% @ V_{OUT}>2V
- Recommend capacitor : 1µF
- Thermal-Overload and Short-Circuit Protection



2843:Product Code

L : Device Code

***: Voltage Code**

Y : Year Code

W: Week Code

For detail marking information, please see page 9.

Marking

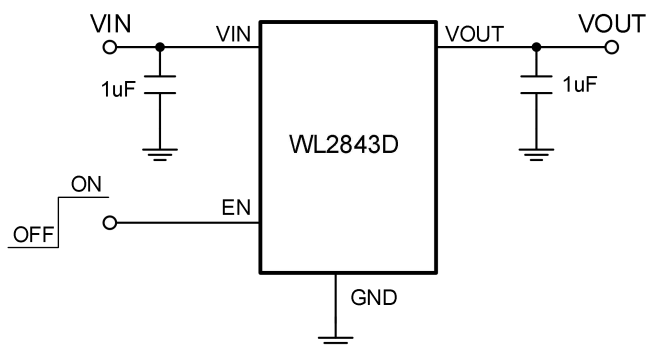
Applications

- MP3/MP4 Players
- Cellphones, radiophone, digital cameras
- Bluetooth, wireless handsets
- Others portable electronics device

Order Information

For detail order information, please see page 9.

Typical Application

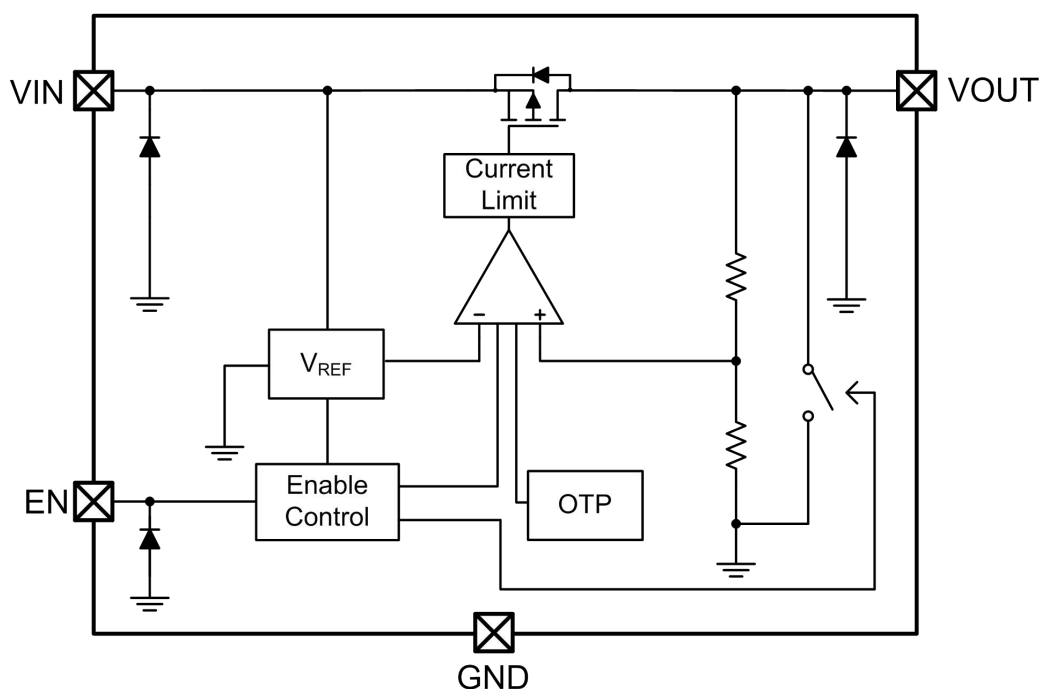


Pin Description

DFN2x2-6L

PIN	Symbol	Description
1	V _{OUT}	Output
2	N/C	
3	GND	GND
4	EN	Enable (Active high)
5	N/C	
6	V _{IN}	Input
EP		GND level, this pin must connect to GND.

Block Diagram



Absolute Maximum Ratings

Parameter	Value	Unit
Power Dissipation, $P_D@T_A=25^{\circ}\text{C}$	900	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 Range	260	$^{\circ}\text{C}$
Storage Temperature Range	-55 ~ 150	$^{\circ}\text{C}$
Operating Junction Temperature Range	150	$^{\circ}\text{C}$
MSL	Level-1	
ESD Ratings	HBM	2000 V
	CDM	2000 V

Recommend Operating Ratings

Parameter	Value	Unit
Operating Supply voltage	1.4~5.5	V
Operating Temperature Range	-40~85	$^{\circ}\text{C}$
Thermal Resistance, $R_{\theta JA}$ (DFN2x2-6L), Note1	110	$^{\circ}\text{C/W}$

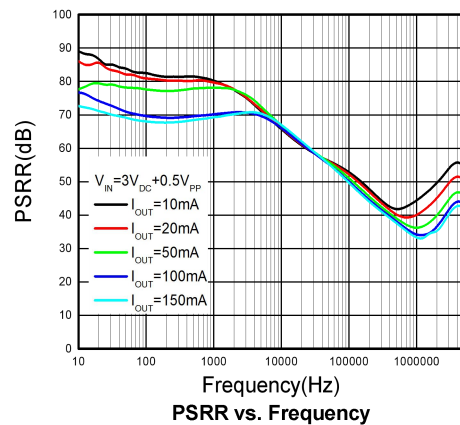
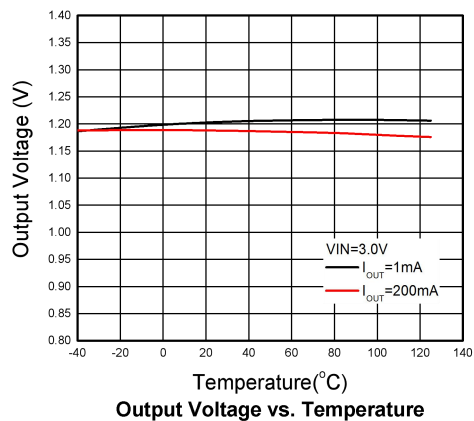
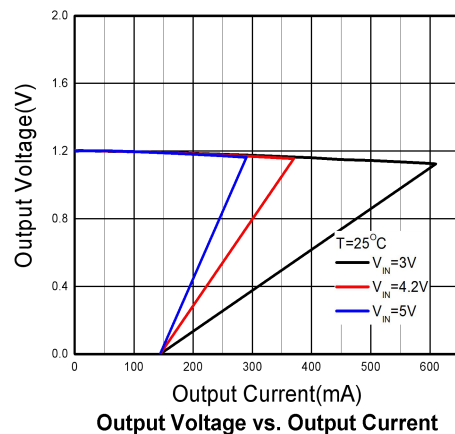
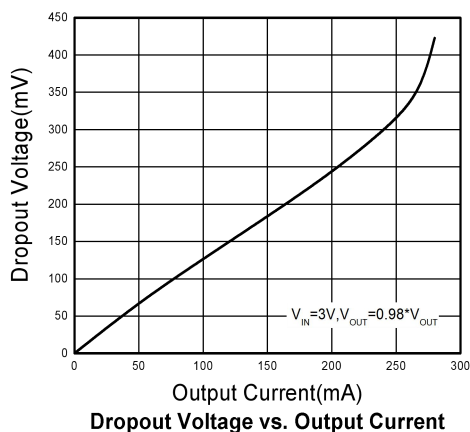
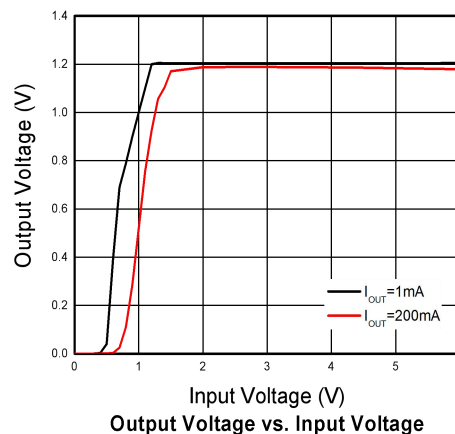
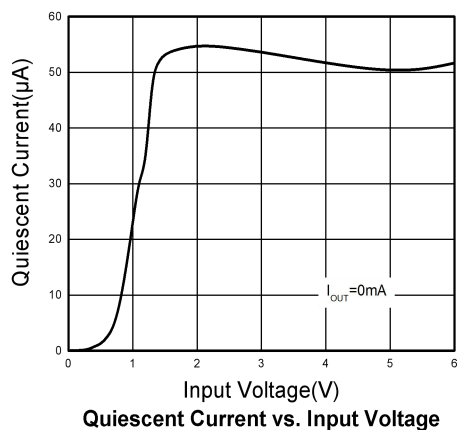
Note1. Surface mounted on FR-4 Board using 1 oz, 1 square inch Cu area, PCB board size 1.5*1.5 square inches.

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}	$V_{OUT} \leq 2\text{V}$	-20		+20	mV
		$V_{OUT} > 2\text{V}$	-1%		+1%	V
Input Voltage	V_{IN}		1.4		5.5	V
Current Limit	I_{LIM}	$V_{EN}=V_{IN}$	500			mA
Dropout Voltage	V_{DROP}	$V_{OUT}=1.2\text{V}$, $I_{OUT}=500\text{mA}$		617	715	mV
Line Regulation	ΔV_{LINE}	$V_{IN}=V_{OUT}+0.5\text{V}\sim 5.5\text{V}$		1	5	mV
Load Regulation	ΔV_{Load}	$I_{OUT}=1\sim 500\text{mA}$		42	73	mV
Quiescent Current	I_Q	$V_{OUT}=1.2\text{V}$, $I_{OUT}=0$		50	90	μA
Short Current	I_{SHORT}	$V_{EN}=V_{IN}$, V_{OUT} Short to GND		150		mA
Shut-down Current	I_{SHDN}	$V_{EN}=0\text{V}$			1.0	μA
Power Supply Rejection Rate	PSRR	$V_{IN}=3V_{DC}+0.5V_{P-P}$ $I_{OUT}=10\text{mA}$, $V_{OUT}=1.2\text{V}$	$f=100\text{Hz}$		85	dB
			$f=1\text{kHz}$		80	dB
			$f=10\text{kHz}$		66	dB
EN logic high voltage	V_{ENH}	$V_{IN}=5.5\text{V}$, $I_{OUT}=1\text{mA}$	1			V
EN logic low voltage	V_{ENL}	$V_{IN}=5.5\text{V}$, $V_{OUT}=0\text{V}$			0.4	V
EN Input Current	I_{EN}	$V_{EN}=0$ to 5.5V		120		nA
Output Noise Voltage	e_{NO}	10Hz to 100KHz, $C_{OUT}=1\mu\text{F}$		20		μV_{RMS}
Thermal shutdown threshold	T_{SD}			160		$^{\circ}\text{C}$
Thermal shutdown hysteresis	ΔT_{SD}			30		$^{\circ}\text{C}$
Auto-discharge Nch Tr, ON Resistance	R_{LOW}	$V_{IN}=4\text{V}$, $V_{CE}=0\text{V}$, $V_{OUT}=2.8\text{V}$		120		Ω

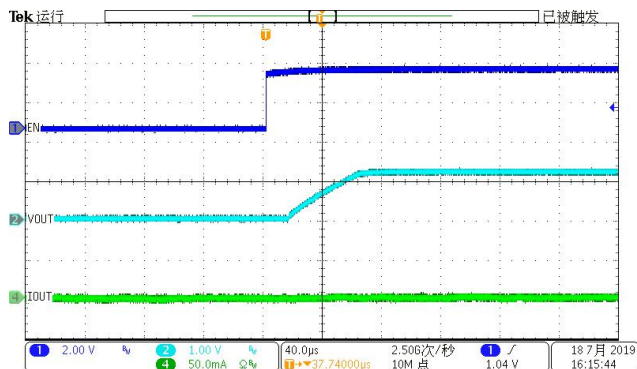
Typical characteristics ($T_a=25^\circ\text{C}$, $V_{IN}=V_{OUT}+1\text{V}$, $I_{OUT}=1\text{mA}$, $C_{IN}=C_{OUT}=1\ \mu\text{F}$, unless otherwise noted)



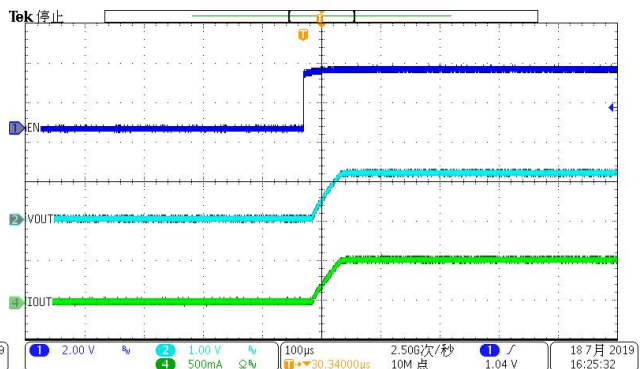
1.Start up (Soft Start from EN)

V_{OUT}=1.2V

V_{IN}=2.2V,C_{OUT}=1μF,I_{OUT}=1mA



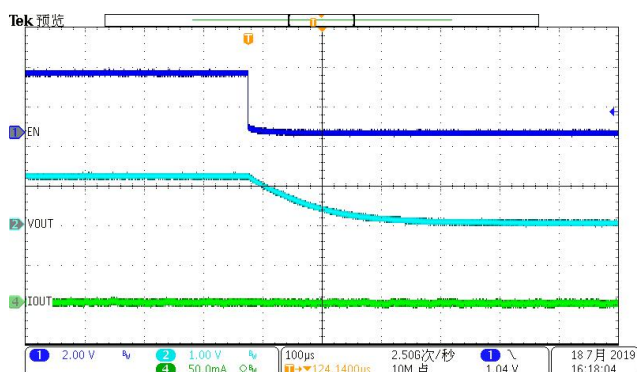
V_{IN}=2.2V,C_{OUT}=1μF,I_{OUT}=500mA



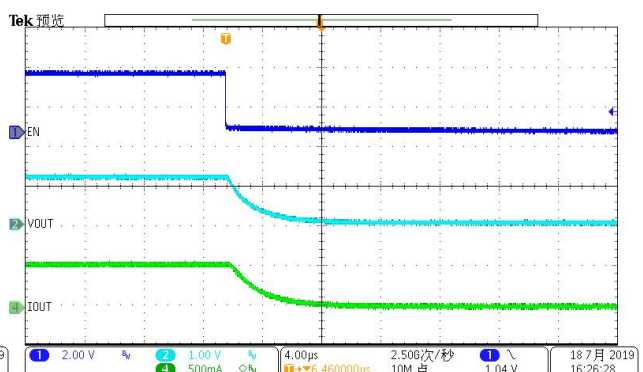
2. Shutdown (Shutdown from EN)

V_{OUT}=1.2V

V_{IN}=2.2V,C_{OUT}=1μF,I_{OUT}=1mA



V_{IN}=2.2V,C_{OUT}=1μF,I_{OUT}=500mA

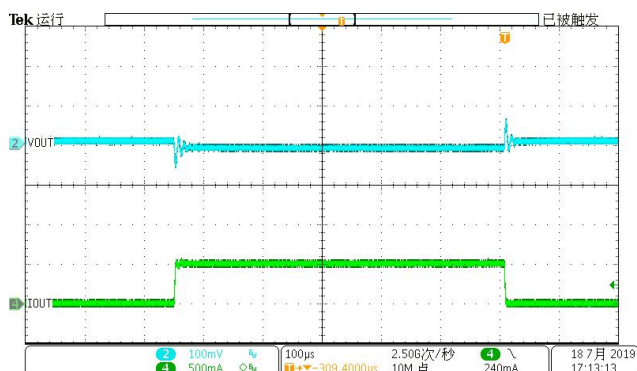


3.Load & Line Transient

Load step

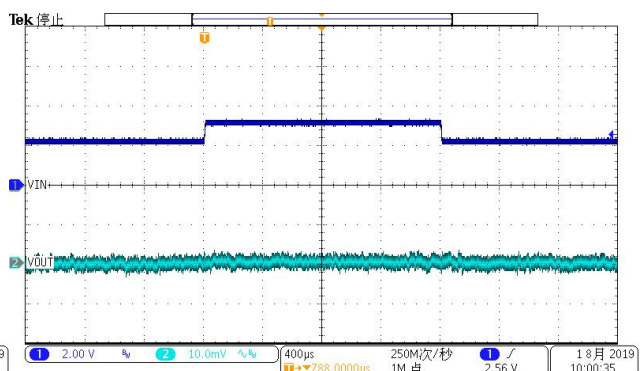
V_{OUT}=1.2V

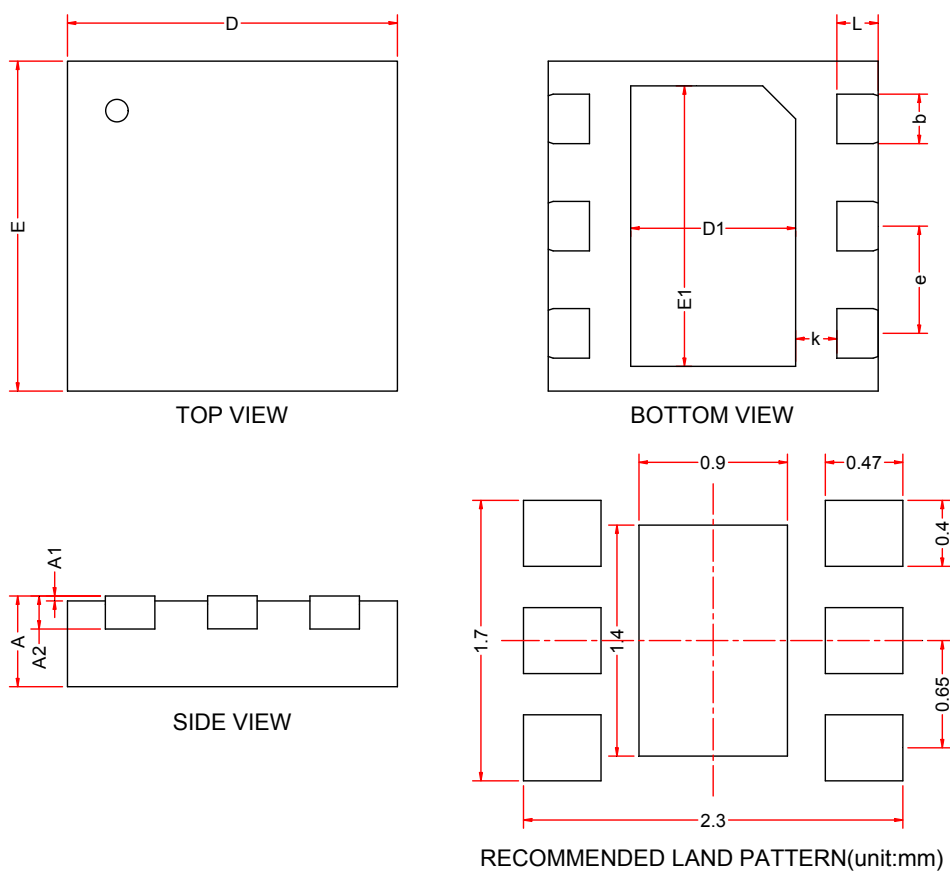
V_{IN}=2.2V,C_{OUT}=1μF,I_{OUT}=1mA-500mA in 1μs



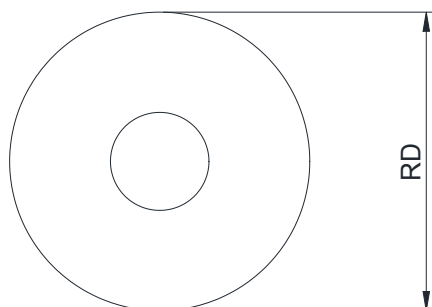
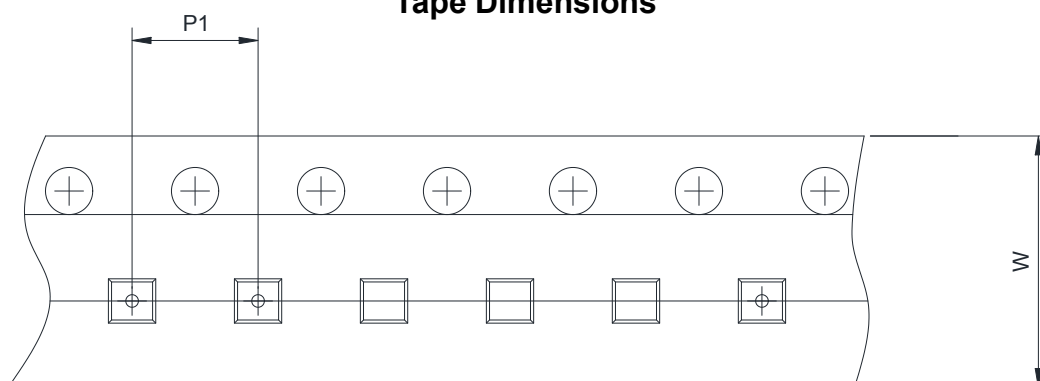
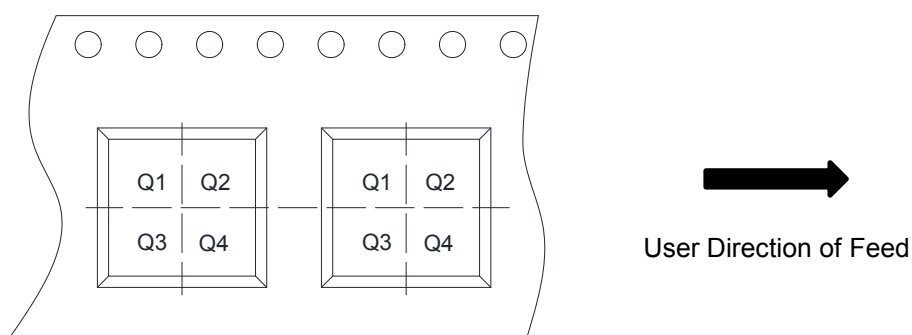
Line Step

V_{IN}=2.2V-3.2V ,C_{OUT}=1μF, I_{OUT}=1mA



PACKAGE OUTLINE DIMENSIONS
DFN2x2-6L


Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2	0.20 Ref		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
D1	0.90	1.00	1.10
E	1.90	2.00	2.10
E1	1.50	1.60	1.70
e	0.55	0.65	0.75
L	0.20	0.25	0.30
K	0.15	0.25	0.35

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

ORDER INFORMATION

Ordering No.	V _{OUT} (V)	Package	Operating Temperature	Marking	Shipping
WL2843D11-6/TR	1.1	DFN2x2-6L	-40 ~ +85°C	2843 LDYW	Tape and Reel, 3000
WL2843D12-6/TR	1.2	DFN2x2-6L	-40 ~ +85°C	2843 LEYW	Tape and Reel, 3000