

LP3917 CDMA Cellular Phone Power Management Unit

 Check for Samples: [LP3917](#)

FEATURES

- Two High Efficiency Synchronous Magnetic Buck Regulators, I_{OUT} 800 mA and 600 mA
 - High Efficiency PFM Mode @ Low I_{OUT}
 - Auto Mode PFM/PWM Switch
- Low Inductance 2.2 μ H @ 2 MHz Clock
- 9 Low Noise LDOs
 - 3 x 300 mA
 - 5 x 150 mA
 - 1 x 80 mA
- SW Controllable LDO Outputs
- USB 2.0 Compatible Transceiver (12 Mbps)

- Thermal Shutdown with Early Warning Alarm
- Very Low Sleep Mode Current
- Battery Voltage Monitor Output
- Interrupt Request for Reducing SW Polling
- Ultra Small 3.5x3.5 mm Micro SMDxt 49 Bump Package

APPLICATIONS

- CDMA Handsets
Please contact NSC Sales for a full datasheet for the device.

DESCRIPTION

LP3917 is a complete Power Management Unit designed for CDMA cellular phones. LP3917 PMU contains 9 low noise low dropout voltage regulators, 2 buck regulators, an USB Transceiver, two comparators and a high speed serial interface to program on/off conditions and output voltages of individual regulators, and to read status information of the PMU.

Buck regulators have an automatic switch to PFM mode at low load conditions allowing very good efficiency also at low output currents.

LDO regulators provide very low noise, 35 μ V typ, ideally suited for supplying voltage to RF section.

Two comparators can be used for detecting external accessories like ear plug etc.

LP3917 can use interrupt for alerting BB processor of status changes instead of using inefficient status polling.



These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

Table 1. Key Specifications

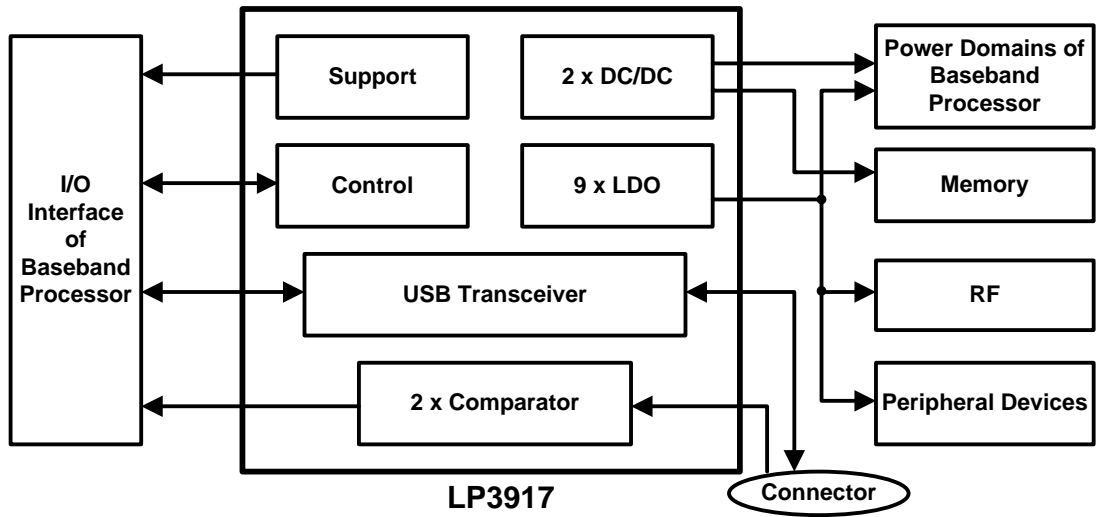
	VALUE	UNIT
Input Voltage Range	3.0–5.5	V
170 mV typ Dropout Voltage on LDOs @ 300 mA		
2% (typ) Output Voltage accuracy on LDOs		
Noise on LDOs	35	μ V
Buck regulators with 3% (typ)	800/600	mA
Accuracy and up to 90% efficiency		



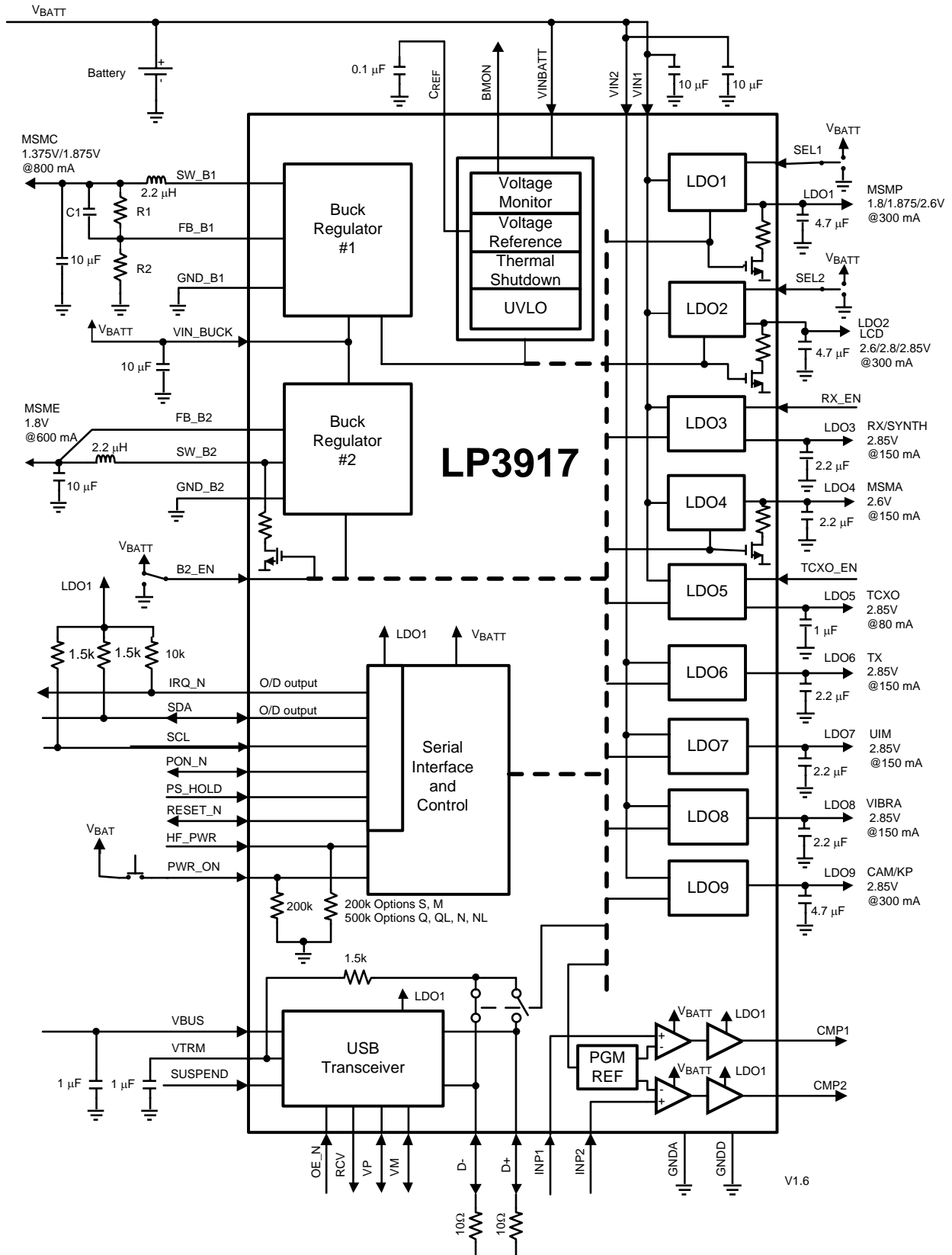
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SYSTEM DIAGRAM



TYPICAL APPLICATION DIAGRAM



DEVICE PIN DIAGRAM

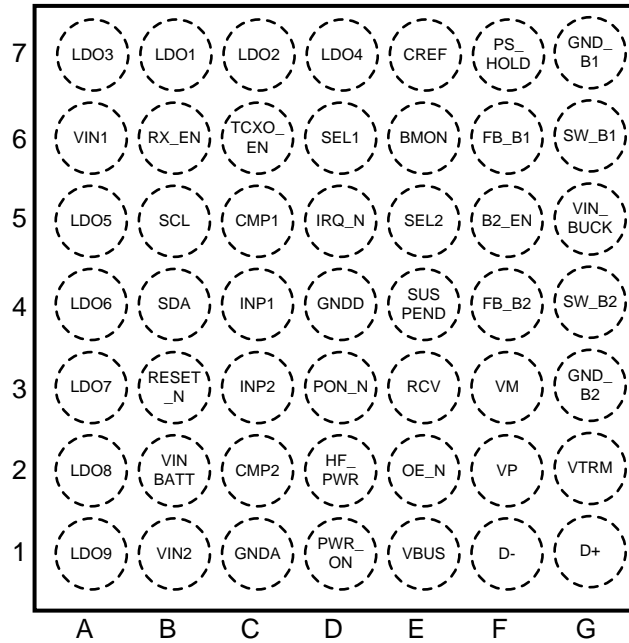
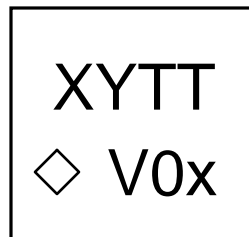


Figure 1. TOP VIEW

PACKAGE MARKING INFORMATION



XY = 2 Digit Date Code
 TT = Die Traceability
 V0x = LP3917 Product ID
 ◊ = Pin 1A

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Top-Side Markings (4)	Samples
LP3917RL-M/NOPB	ACTIVE	DSBGA	YPG	49	250	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V05	Samples
LP3917RL-N/NOPB	ACTIVE	DSBGA	YPG	49	250	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V03	Samples
LP3917RL-Q/NOPB	ACTIVE	DSBGA	YPG	49	250	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V04	Samples
LP3917RL-S/NOPB	ACTIVE	DSBGA	YPG	49	250	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V01	Samples
LP3917RLX-M/NOPB	ACTIVE	DSBGA	YPG	49	1000	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V05	Samples
LP3917RLX-N/NOPB	ACTIVE	DSBGA	YPG	49	1000	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V03	Samples
LP3917RLX-Q/NOPB	ACTIVE	DSBGA	YPG	49	1000	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V04	Samples
LP3917RLX-S/NOPB	ACTIVE	DSBGA	YPG	49	1000	Green (RoHS & no Sb/Br)	SNAG	Level-1-260C-UNLIM		V01	Samples

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

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Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

⁽⁴⁾ Only one of markings shown within the brackets will appear on the physical device.

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TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*All dimensions are nominal

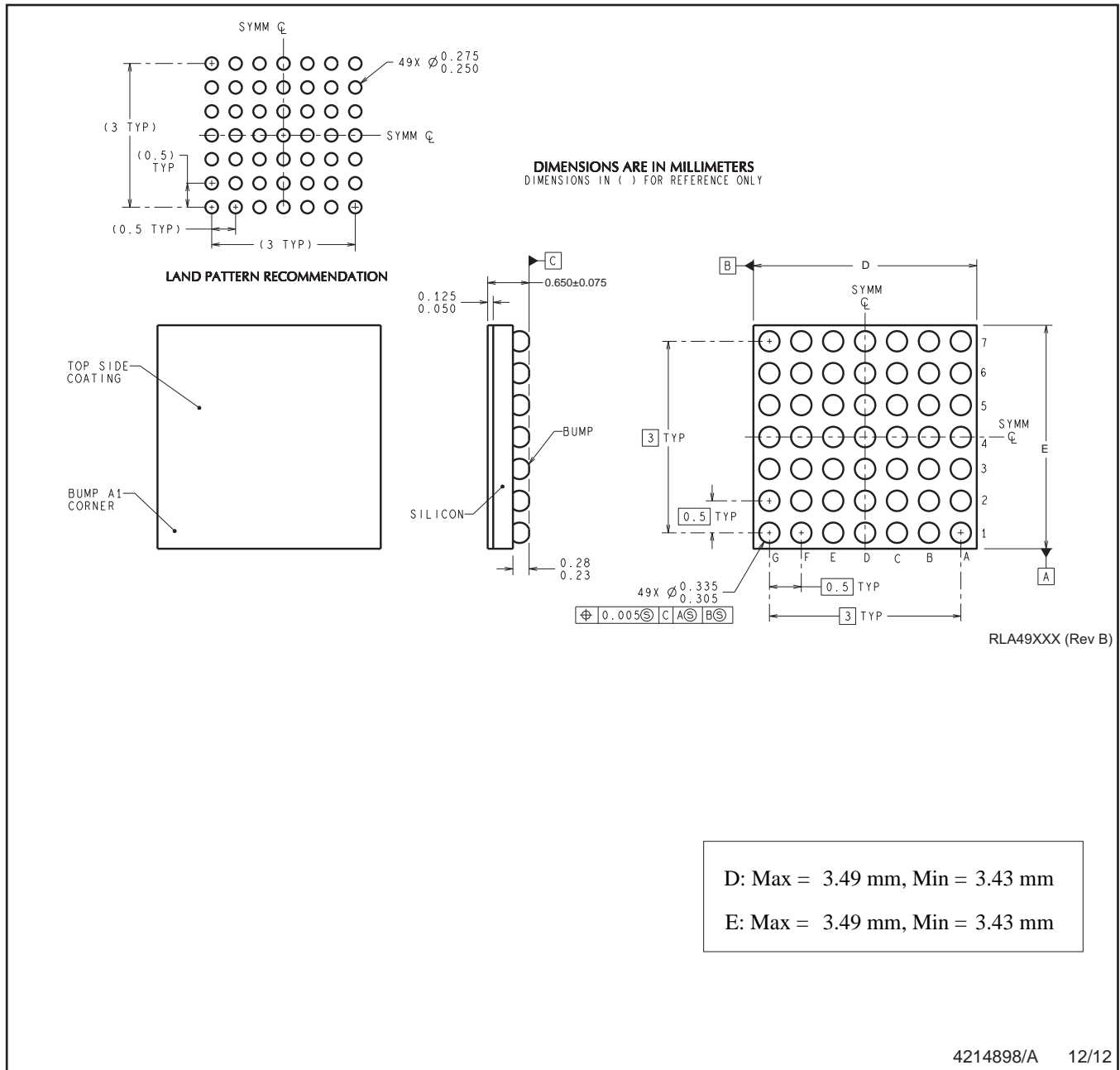
Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
LP3917RL-M/NOPB	DSBGA	YPG	49	250	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RL-N/NOPB	DSBGA	YPG	49	250	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RL-Q/NOPB	DSBGA	YPG	49	250	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RL-S/NOPB	DSBGA	YPG	49	250	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RLX-M/NOPB	DSBGA	YPG	49	1000	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RLX-N/NOPB	DSBGA	YPG	49	1000	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RLX-Q/NOPB	DSBGA	YPG	49	1000	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1
LP3917RLX-S/NOPB	DSBGA	YPG	49	1000	178.0	12.4	3.63	3.63	0.76	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LP3917RL-M/NOPB	DSBGA	YPG	49	250	203.0	190.0	41.0
LP3917RL-N/NOPB	DSBGA	YPG	49	250	203.0	190.0	41.0
LP3917RL-Q/NOPB	DSBGA	YPG	49	250	203.0	190.0	41.0
LP3917RL-S/NOPB	DSBGA	YPG	49	250	203.0	190.0	41.0
LP3917RLX-M/NOPB	DSBGA	YPG	49	1000	206.0	191.0	90.0
LP3917RLX-N/NOPB	DSBGA	YPG	49	1000	206.0	191.0	90.0
LP3917RLX-Q/NOPB	DSBGA	YPG	49	1000	206.0	191.0	90.0
LP3917RLX-S/NOPB	DSBGA	YPG	49	1000	206.0	191.0	90.0

YPG0049



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NOTES: A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
B. This drawing is subject to change without notice.

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