

LM3210

PRODUCT BRIEF 1.25A Miniature, Adjustable, Step-Down DC-DC Converter for RF Power Amplifiers

Check for Samples: [LM3210](#)

FEATURES

- Operates from a single Li-Ion cell (2.7V to 5.5V)
- Adjustable Output Voltage (0.5V to 3.6V)
- Fast Output Voltage Transient (0.5V to 2.7V in 30 μ s max)
- 1.25A Maximum load capability
- High Efficiency

- Current Overload Protection
- Thermal Overload Protection

APPLICATIONS

- Cellular Phones
- Hand-Held Radios
- RF PC Cards
- Battery Powered RF Devices

DESCRIPTION

The LM3210 is a DC-DC converter optimized for powering RF power amplifiers (PAs) from a single Lithium-Ion cell. However, it may be used in many other applications. It steps down an input voltage in the range from 2.7V to 5.5V to an adjustable output voltage of 0.5V to 3.6V. Output voltage is set by using a V_{CON} analog input to control power levels and efficiency of the RF PA.

The LM3210 offers superior performance for mobile phones and similar RF PA applications. Fixed-frequency PWM operation minimizes RF interference. A shutdown function turns the device off and reduces battery consumption to 0.01 μ A (typ.).

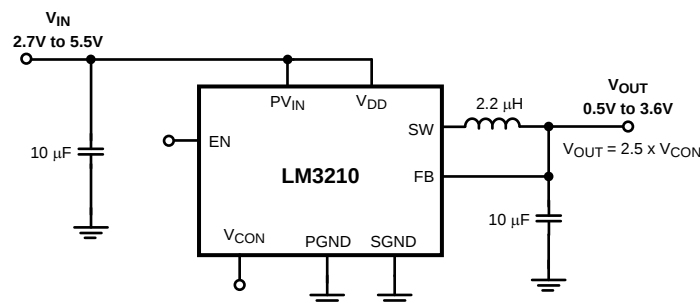
Only three small external surface-mount components, an inductor and two ceramic capacitors, are required.

Notice: This document is not a full datasheet. For more information regarding this product or to order samples please contact your local National Semiconductor sales office or visit <http://www.national.com/support/dir.html>



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.

Typical Applications



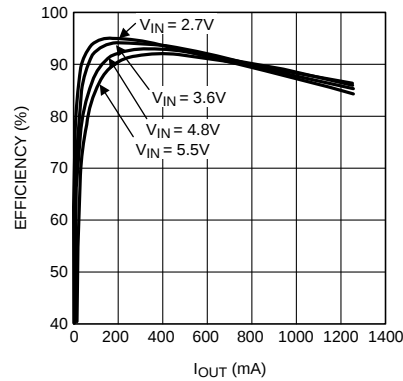
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PRODUCT PREVIEW



For detailed datasheet or samples, please contact National Semiconductor sales.

Pin Identification

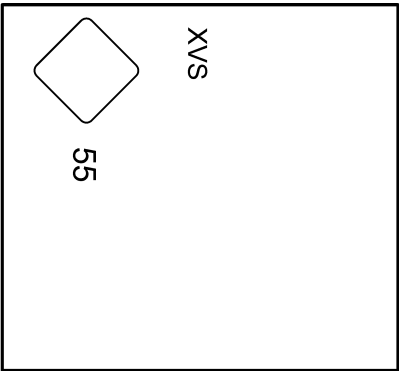


Figure 1. Package Mark — Top View

Order Information

Order Number	Package Marking (Note)	Supplied As
LM3210TLE	XVS/55	250 units, Tape-and-Reel
LM3210TLX	XVS/55	1000 units, Tape-and-Reel

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
LM3210TLE/NOPB	ACTIVE	DSBGA	YZR	8	250	Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM		S 55	Samples
LM3210TLX/NOPB	ACTIVE	DSBGA	YZR	8	3000	Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM		S 55	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.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

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.

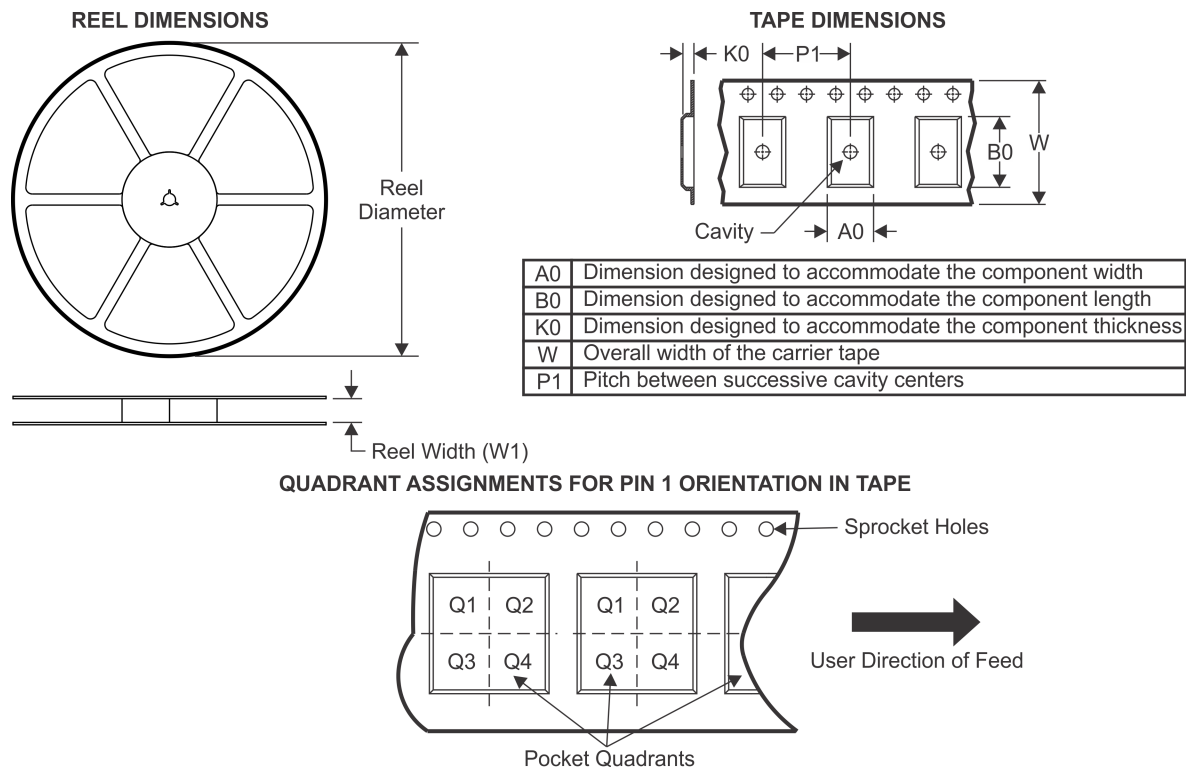
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(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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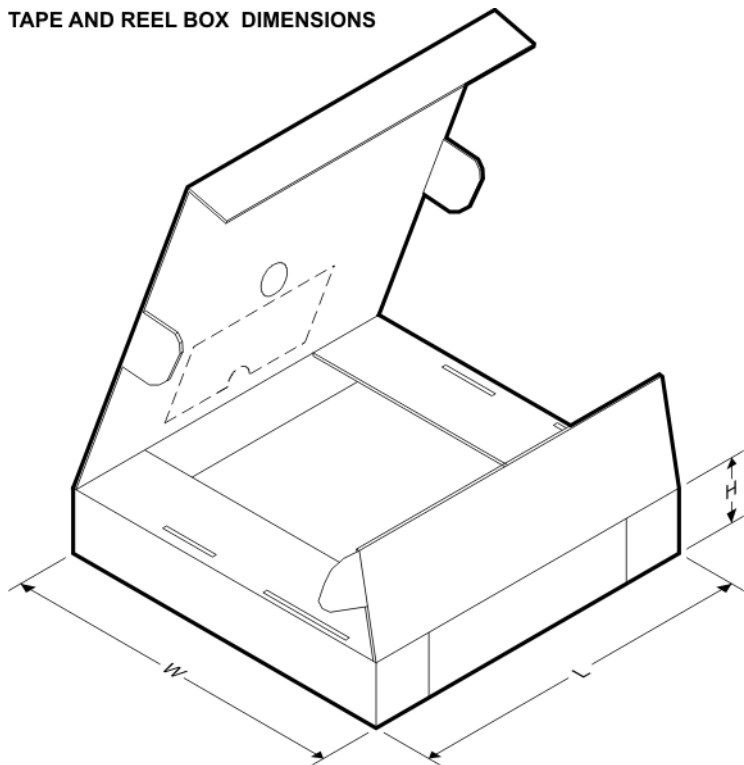
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TAPE AND REEL INFORMATION


*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
LM3210TLE/NOPB	DSBGA	YZR	8	250	178.0	8.4	1.85	2.01	0.76	4.0	8.0	Q1
LM3210TLX/NOPB	DSBGA	YZR	8	3000	178.0	8.4	1.85	2.01	0.76	4.0	8.0	Q1

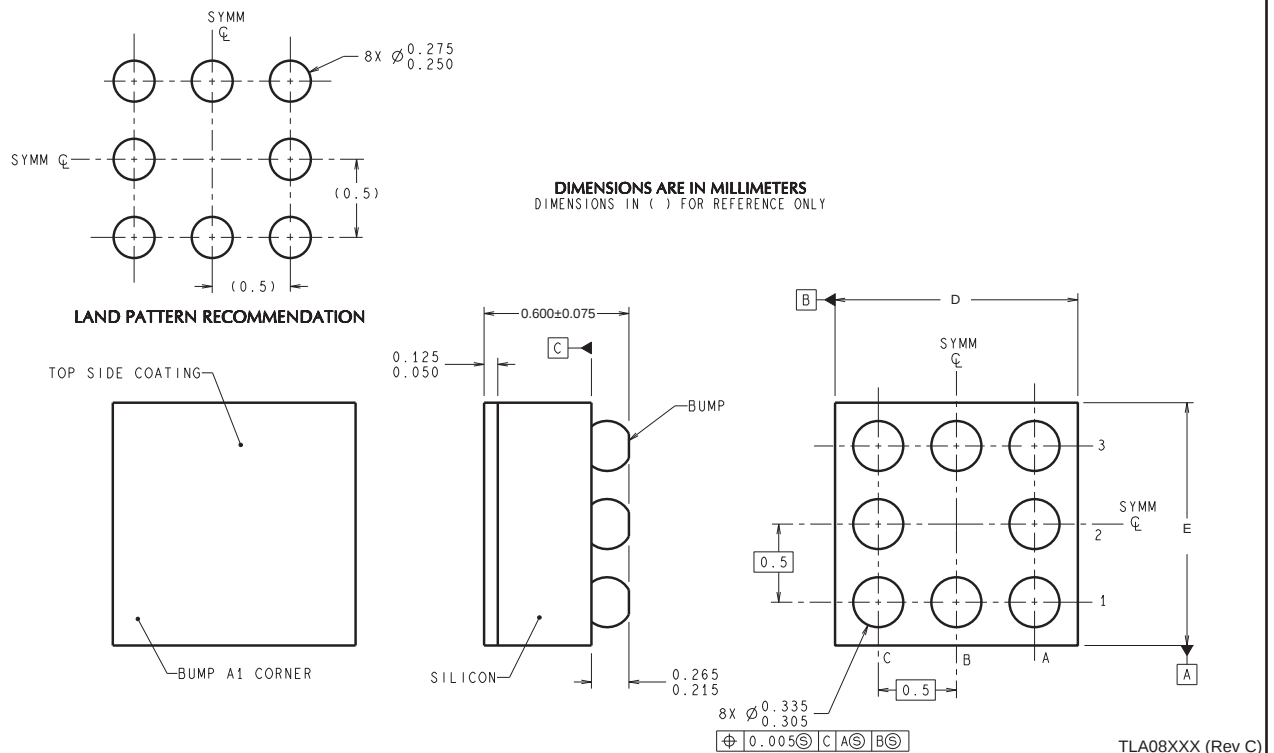
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LM3210TLE/NOPB	DSBGA	YZR	8	250	203.0	190.0	41.0
LM3210TLX/NOPB	DSBGA	YZR	8	3000	206.0	191.0	90.0

YZR0008



D: Max = 1.882 mm, Min = 1.782 mm

E: Max = 1.732 mm, Min = 1.632 mm

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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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