

# R\_10005

## Driving the LPC2900 with Murata resonators

Rev. 1.1 — 21 November 2013

Report

### Document information

Info	Content
<b>Keywords</b>	LPC2939FBD208; LPC2930FBD208, LPC2929FBD144; LPC2927FBD144, LPC2926FBD144, LPC2925FBD100; LPC2923FBD100; LPC2921FBD100; LPC2919FBD144/01, LPC2917FBD144/01
<b>Abstract</b>	Characterization results of Murata resonators for LPC2900



**Revision history**

Rev	Date	Description
1.1	20131121	Corrected link, added LPC2926FBD144
1	20100421	Initial release

**Contact information**

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## 1. Introduction

The LPC2900 series microcontrollers are based on the ARM968E-S core operating at frequencies up to 125 MHz. On-chip peripherals include USB Host/Device/OTG, Motor Control PWM/QEI, 2 × 3 V and 1 × 5 V ADC, EEPROM, I<sup>2</sup>C, Q-SPI and external memory interfaces. The microcontrollers are designed for use in general-purpose and specialty embedded applications such as high speed document printers/scanners, industrial control and motor control.

The LPC2900 devices have an integrated IRC oscillator. On the LPC2900, the oscillator range is 0.4 MHz to 0.6 MHz over temperature and voltage. Many applications can utilize the IRC as the clock source; others may use a suitable crystal for more accuracy, particularly for USB applications. The LPC2900 device can also use a resonator as a clock source.

## 2. Characterization results

Based on characterization results, the following tables detail the most suitable devices available from Murata. Note that devices from other manufacturers can also be used.

**Table 1. Recommended devices (for consumer) [1]**

$V_{DD(CORE)}$ : 1.71 V to 1.89 V; -40 to +85 °C

Device	Freq. [MHz]	Type	Part number	Supply voltage range	Temp. range
LPC2927	12	SMD	CSTCE12M0G55-R0	1.71 to 1.89	-40 to +85 °C
LPC2929	16	SMD	CSTCE16M0V53-R0		
	20	SMD	CSTCE20M0V53-R0		

[1] These resonators have load capacitors included so external load capacitors are not necessary.  
Suffix indicates packaging style.  
SMD type[ -R0:Plastic tape package( $\varnothing$  = 180mm), -B0:Bulk]

For USB applications, the following resonators are recommended.

**Table 2. Recommended devices (for consumer) [1]**

$V_{DD(CORE)}$ : 1.71 V to 1.89 V; -40 to +85 °C

Device	Freq. [MHz]	Type	Part number	Supply voltage range	Temp. range
LPC2927	12	SMD	CSTCE12M0GH5L**-R0	1.71 to 1.89	-40 to +85 °C
LPC2929	16	SMD	CSTCE16M0VH3L**-R0		

[1] These resonators have load capacitors included so external load capacitors are not necessary.  
"\*\*\*" means temporary part number; formal part number will be applied after the frequency measurement process on actual board by Murata.  
Suffix indicates packaging style.  
SMD type[ -R0:Plastic tape package( $\varnothing$  = 180mm), -B0:Bulk]

For more information and a detailed report please go to the Murata website <http://search.murata.co.jp/Ceramy/ICsearchAction.do?sLang=en> and search for 'LPC'.

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Date of release: 21 November 2013

Document identifier: R\_10005