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tone()

Description

Generates a square wave of the specified frequency (and 50% duty cycle) on a pin. A duration can be specified, otherwise the wave continues until a call to `noTone` ([//www.arduino.cc/en/Reference/NoTone](http://www.arduino.cc/en/Reference/NoTone)()). The pin can be connected to a piezo buzzer or other speaker to play tones.

Only one tone can be generated at a time. If a tone is already playing on a different pin, the call to `tone()` will have no effect. If the tone is playing on the same pin, the call will set its frequency.

Use of the `tone()` function will interfere with PWM output on pins 3 and 11 (on boards other than the Mega).

Board	Min frequency (Hz)	Max frequency (Hz)
Uno, Mega, Leonardo and other AVR boards	31	65535
Gemma	Not implemented	Not implemented
Zero	41	275000
Due	Not implemented	Not implemented

For technical details, see Brett Hagman's notes (https://code.google.com/p/rogue-code/wiki/ToneLibraryDocumentation#Ugly_Details).

NOTE: if you want to play different pitches on multiple pins, you need to call `noTone()` on one pin before calling `tone()` on the next pin.

Syntax

`tone(pin, frequency)`
`tone(pin, frequency, duration)`

Parameters

pin: the pin on which to generate the tone

frequency: the frequency of the tone in hertz - *unsigned int*

duration: the duration of the tone in milliseconds (optional) - *unsigned long*

Returns

nothing

See also

- `noTone` ([//www.arduino.cc/en/Reference/NoTone](http://www.arduino.cc/en/Reference/NoTone)())
- `analogWrite` ([//www.arduino.cc/en/Reference/AnalogWrite](http://www.arduino.cc/en/Reference/AnalogWrite)())
- [Tutorial:Tone](http://www.arduino.cc/en/Tutorial/Tone) ([//www.arduino.cc/en/Tutorial/Tone](http://www.arduino.cc/en/Tutorial/Tone))
- [Tutorial:Pitch follower](http://www.arduino.cc/en/Tutorial/Tone2) ([//www.arduino.cc/en/Tutorial/Tone2](http://www.arduino.cc/en/Tutorial/Tone2))
- [Tutorial:Simple Keyboard](http://www.arduino.cc/en/Tutorial/Tone3) ([//www.arduino.cc/en/Tutorial/Tone3](http://www.arduino.cc/en/Tutorial/Tone3))

- Tutorial: multiple tones ([//www.arduino.cc/en/Tutorial/Tone4](http://www.arduino.cc/en/Tutorial/Tone4))
- Tutorial: PWM ([//www.arduino.cc/en/Tutorial/PWM](http://www.arduino.cc/en/Tutorial/PWM))

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Corrections, suggestions, and new documentation should be posted to the Forum (<http://arduino.cc/forum/index.php/board,23.0.html>).

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