

# Pi Power Controls Catalog

Pi Power and more online @  
**NCPCS.COM**

**Programmable  
Lighting Solutions**

**Motion activated  
Switching**

**Remote Operated  
Multi-Colored LED**

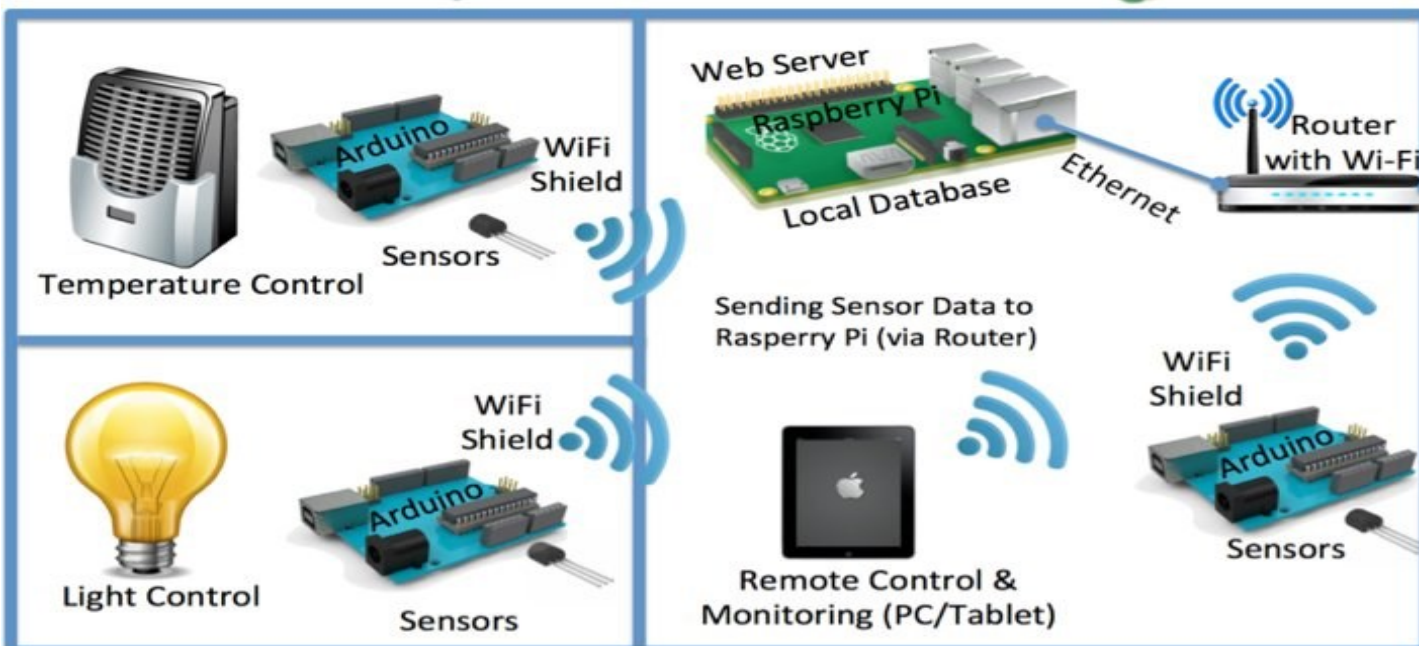
**Relays, Resistors  
Transistors,  
Custom Cabling and  
More**



## Home Automation with Arduino & Raspberry Pi



Cloud Data Server

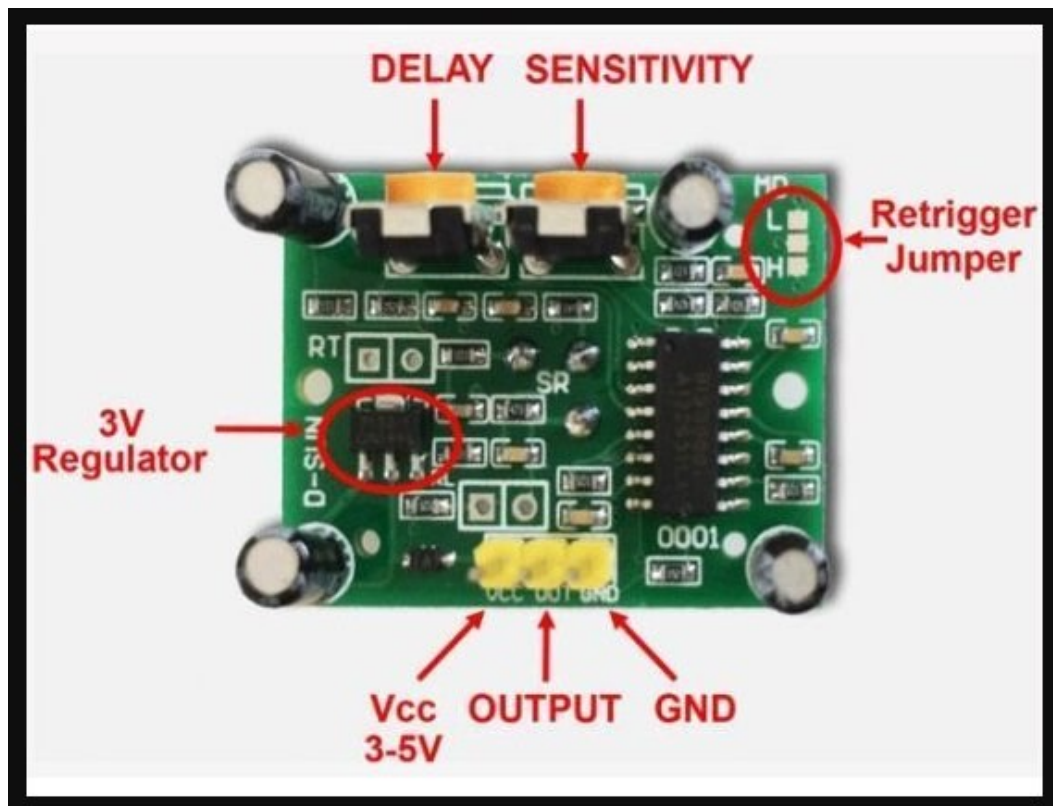


Remote Control &  
Monitoring from Internet  
(PC/Tablet)



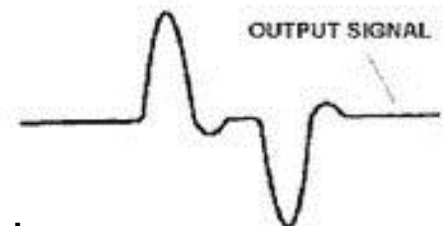
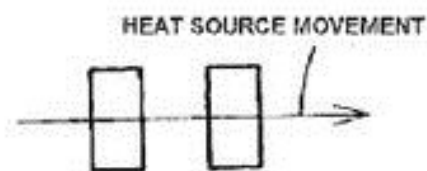
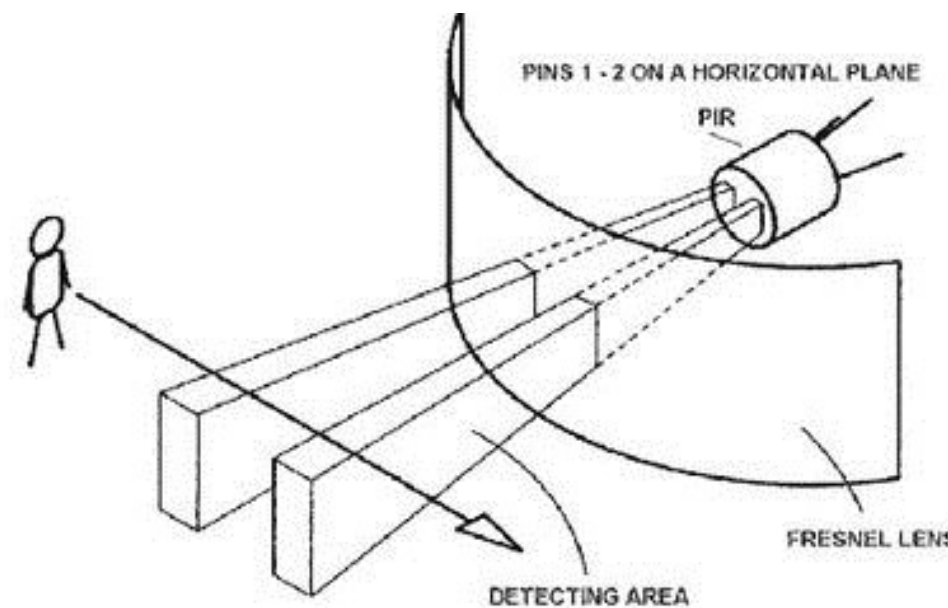
# Motion Sensor Detector Module

**HC-SR501 IR Pyroelectric Infrared PIR**



**\$ 3.25**

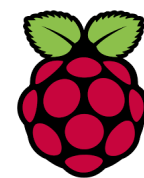
*Always In Stock*



## Description:

Can be used independently, similar to the example seen on page 3 or....!

Great for microcontrollers such as Arduino, and raspberry pi!



HC--SR501 is a Motion Sensor Module

A delay time can be adjusted between 5 to 200seconds

Long range sensing 3meter to 7meters.

Broad working voltage range: DC 4.5-20V

Very low drain static current: <50uA

High level output: 3.3 V / low 0V (Light an LED or switch a Transistor)

Delay time: 0.5-200S (adjustable) can be produced range 0.1 seconds - a few minutes

Blocking time: 2.5S (the default) can be produced range 0.1 seconds, tens of seconds

Size: 32mm\*24mm circuit board

Induction angle: <100 degree cone angle

Working temperature: -15-+70 degrees

Induction of lens size: diameter: 23mm



# General Purpose Low Power Transistors

CT2N 3904  
For Amplifying or Switching

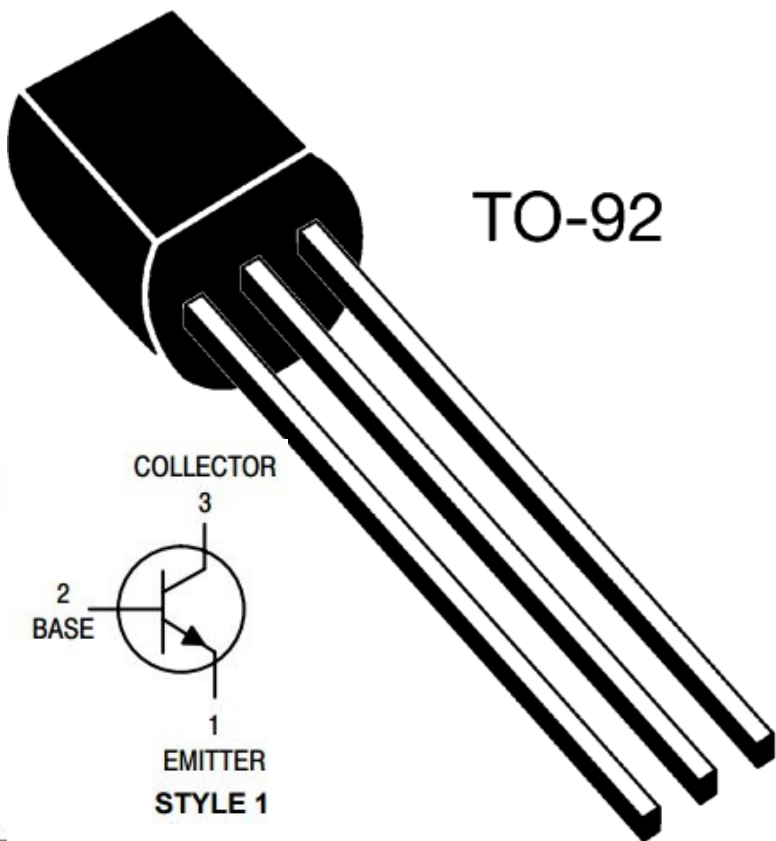
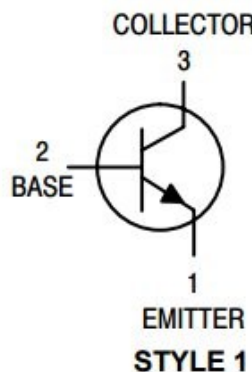
\$ 1.25

## Features

- Through Hole Package
- Capable of 600mWatts of Power Dissipation

Always In Stock

Pin Configuration  
Bottom View



TO-92

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
--------	-----------	-----	-----	-------

### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ( $I_C=1.0mA_{dc}$ , $I_B=0$ )	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=10\mu A_{dc}$ , $I_E=0$ )	60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=10\mu A_{dc}$ , $I_C=0$ )	6.0		Vdc
$I_{BL}$	Base Cutoff Current ( $V_{CE}=30V_{dc}$ , $V_{BE}=3.0V_{dc}$ )		50	nAdc
$I_{CEX}$	Collector Cutoff Current ( $V_{CE}=30V_{dc}$ , $V_{BE}=3.0V_{dc}$ )		50	nAdc

### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain* ( $I_C=0.1mA_{dc}$ , $V_{CE}=1.0V_{dc}$ ) ( $I_C=1.0mA_{dc}$ , $V_{CE}=1.0V_{dc}$ ) ( $I_C=10mA_{dc}$ , $V_{CE}=1.0V_{dc}$ ) ( $I_C=50mA_{dc}$ , $V_{CE}=1.0V_{dc}$ ) ( $I_C=100mA_{dc}$ , $V_{CE}=1.0V_{dc}$ )	40 70 100 60 30	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=10mA_{dc}$ , $I_B=1.0mA_{dc}$ ) ( $I_C=50mA_{dc}$ , $I_B=5.0mA_{dc}$ )		0.2 0.3	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=10mA_{dc}$ , $I_B=1.0mA_{dc}$ ) ( $I_C=50mA_{dc}$ , $I_B=5.0mA_{dc}$ )	0.65	0.85 0.95	Vdc

### SMALL-SIGNAL CHARACTERISTICS

$f_T$	Current Gain-Bandwidth Product ( $I_C=10mA_{dc}$ , $V_{CE}=20V_{dc}$ , $f=100MHz$ )	300		MHz
$C_{obo}$	Output Capacitance ( $V_{CB}=5.0V_{dec}$ , $I_E=0$ , $f=1.0MHz$ )		4.0	pF
$C_{ibo}$	Input Capacitance ( $V_{BE}=0.5V_{dc}$ , $I_C=0$ , $f=1.0MHz$ )		8.0	pF
NF	Noise Figure ( $I_C=100\mu A_{dc}$ , $V_{CE}=5.0V_{dc}$ , $R_S=1.0k\Omega$ $f=10Hz$ to $15.7kHz$ )		5.0	dB

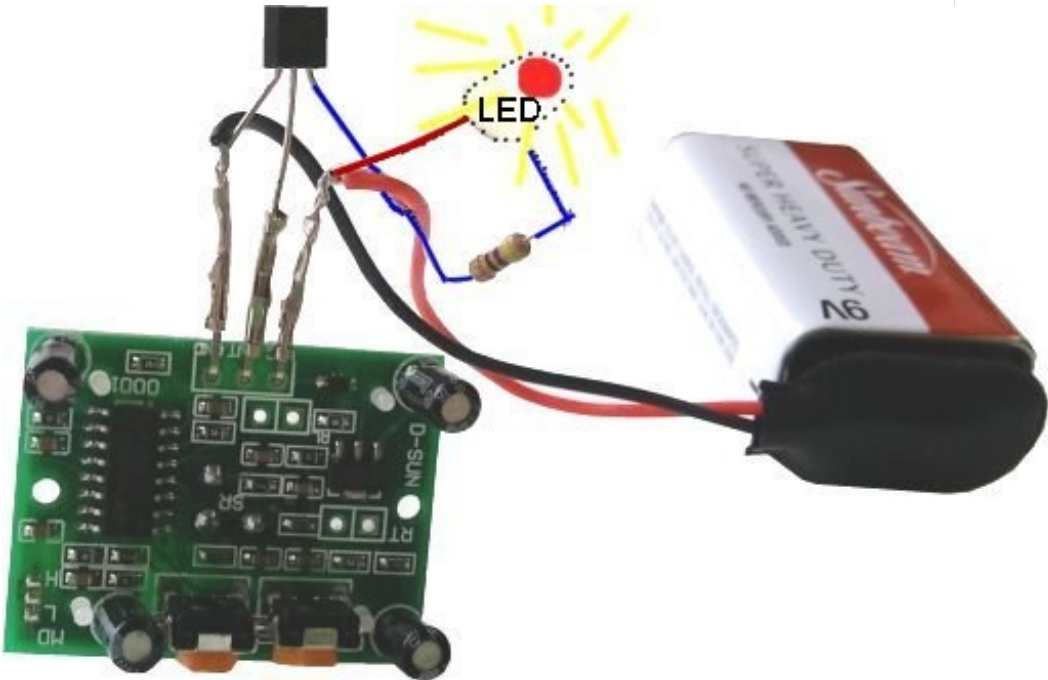
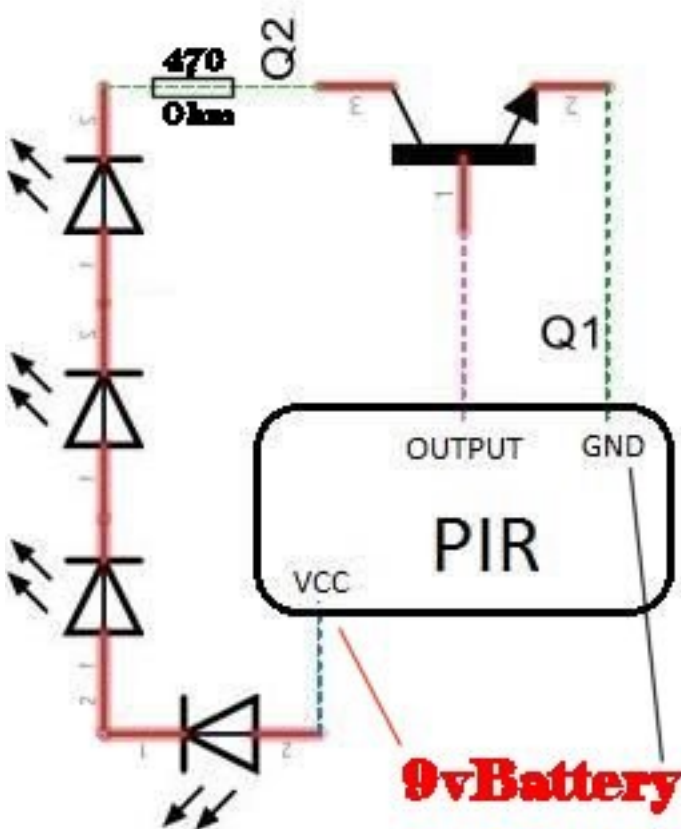
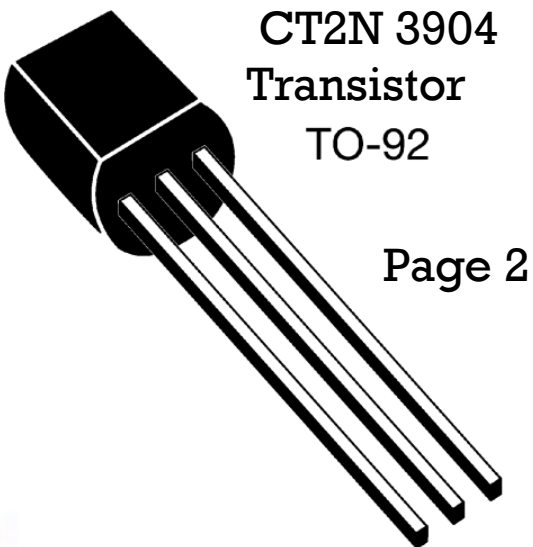
### SWITCHING CHARACTERISTICS

$t_d$	Delay Time	$(V_{CC}=3.0V_{dc}$ , $V_{BE}=0.5V_{dc}$ $I_C=10mA_{dc}$ , $I_{B1}=1.0mA_{dc}$ )	35	ns
$t_r$	Rise Time		35	ns
$t_s$	Storage Time	$(V_{CC}=3.0V_{dc}$ , $I_C=10mA_{dc}$ $I_{B1}=I_{B2}=1.0mA_{dc}$ )	200	ns
$t_f$	Fall Time		50	ns

\*Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$



# Robust Low Voltage Motion Alarm Circuit



use a Relay instead of an LED  
to turn your Home Lights On  
when you enter a room

# 3V DC Relays

## PCB Relay

JQC-3F ☐ DC12V

**Normally Open + Normally Closed**

Coil Voltage 3,5,6,9,12,24,48VDC  
Contact Ratings 1H,1Z  
Relay Type

## Contact Ratings

Contact Ratings	1H 1Z
Contact Resistance	100mΩ(at 1A 6VDC)
Contact Material	银合金 Silver Alloy
Contact capacity	10A 250VAC, 7A 250VAC

## Specification

Insulation Resistance	100MΩ 500VDC
Dielectric Strength	BCC 1500V 1 min
	BOC 750V 1 min
Operate Time	10ms/5ms
Terminal Type	PCB

## Coil Ratings

Nominal Coil Power	0.36W,0.45W
--------------------	-------------

Nominal Voltage VDC	Coil Resistance at 20°C±10%(Ω)		Max Operate Voltage (VDC)	Min Release Voltage (VDC)	Max Applicable Voltage (VDC)
	0.36W	0.45W			
3	25	20	2.25	0.3	3.9
5	70	55	3.75	0.5	6.5
6	100	80	4.50	0.6	7.8
9	225	180	6.75	0.9	11.7
12	400	320	9.00	1.2	15.6
24	1600	1280	18.00	2.4	31.2
48	6400	5100	36.00	4.8	62.4

**\$ 2.10**



JQC-3F(T73)

3 Volt In Stock NOW

Custom Electronic Solutions made simple.

[www.NCPCS.com](http://www.NCPCS.com)

**N.C. Professional Computer Services**

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4100 Kernersville Road  
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N.C. Professional  
Computer Services

**OOPSI! BETTER  
CALL (336)  
788-8900**

Accidents happen. Bring your  
computer to the experienced  
technicians at NCPCS. Any  
brand, any problem - we've  
seen it all.



# Power

## Multi-Purpose Adjustable Buck Converters

### Power-Supply Step Down Modules

\$ 5.15

Always In Stock



**Feature:**

- Input Voltage:3~40
- Output Voltage:1.5~35V,Adjustable Continuous Voltage
- Max Output Current:3A
- Small Size (L\*W\*H):45mm\*20mm\*14mm
- Use SANYO Solid Capacitance,36u Upset Circuit Board, with a Blue Output LED

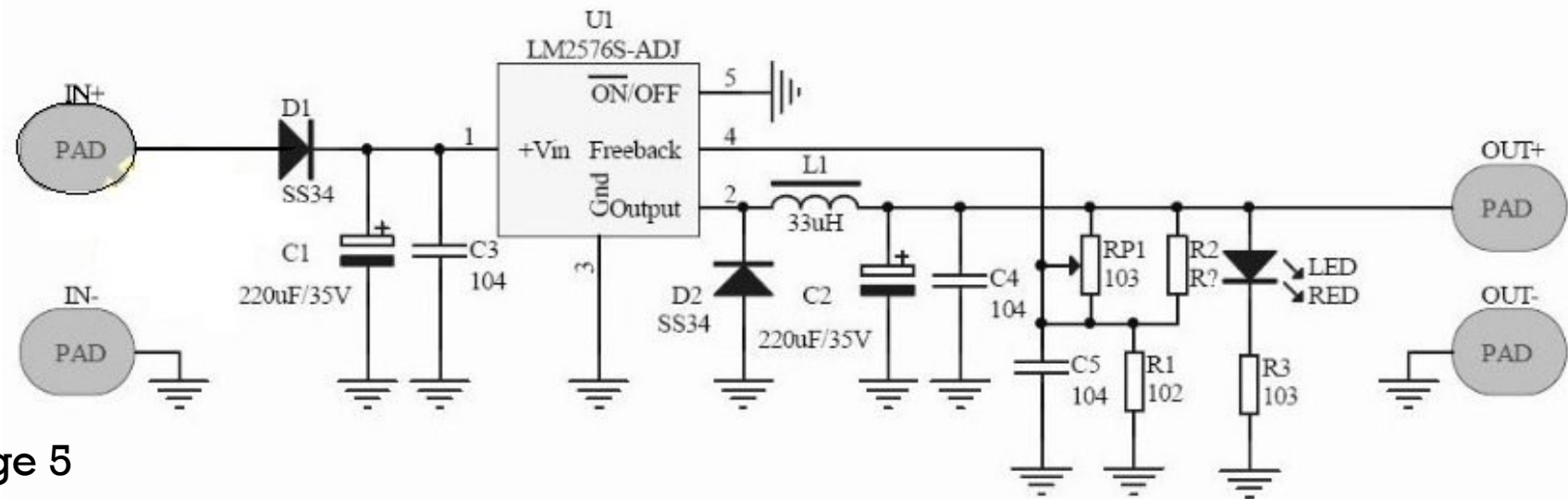
**Descriptions:**

- This is a high performance DC to DC step-down adjustable power supply module, switching regulator.
- Output current: rated current 2A, maximum 3A (need to add heat sink), if the output power greater than 20W, combined heat sink is proposed.
- Double wiring, bottom large copper clad guarantee more good heat dissipation.

Product Name	Step Down Module
Main Color	Green
Net Weight	12g
Country of Manufacture	CHINA
Output Rated Current	2A (Max. 3A)
Model	LM2596S
Package Content	1 x Step Down Module
Output Voltage	1.25-26V
Material	Plastic,Metal
Input Voltage	4.75-30V
Size	43 x 20 x 10mm/1.69"x0.78"x0.39"(L*W*H)



**Schematic of our rugged general purpose adjustable, Step Down power module**



# 9v Battery Leads

**DIY power supply, 9v replacement, power source lead.**



## Features:

1. Made of hard plastic material, durable and reliable to use
2. 2 Wire leads
3. 9V battery buckle
4. I-shaped design, with red and black connecting lines
5. The length of line is long enough for using

**\$ 0.99**

**In Stock  
NOW**

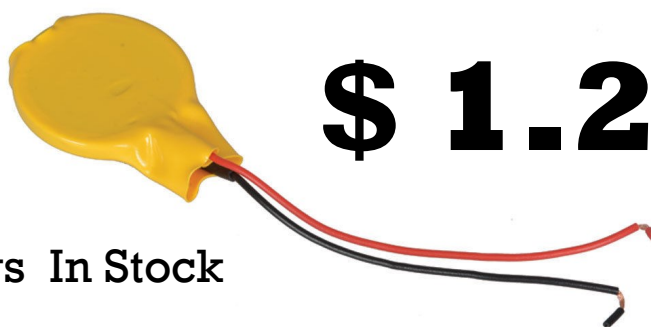
9 Volt Battery

Connector Clip Snap On Plug - Long 6.5cm Wire Leads

# 3V CR2032

- Features:
- 2" Red & Black wire leads
- Cell Size: CR2032
- Tabbed & Soldered
- Yellow Shrink Wrapped
- 3V 225mAh

**Lithium Coin Battery with 2" Leads**



**\$ 1.25**

**Always In Stock**

- coin cell with 2" wire leads
- Lithium Manganese Dioxide
- Dimensions: 0.787" diameter x 0.13" thick

# Custom Battery Tabbing

**We can add Soldering Tabs to almost any Battery**

[www.NCPCS.com](http://www.NCPCS.com)



**Battery Packs  
Made**



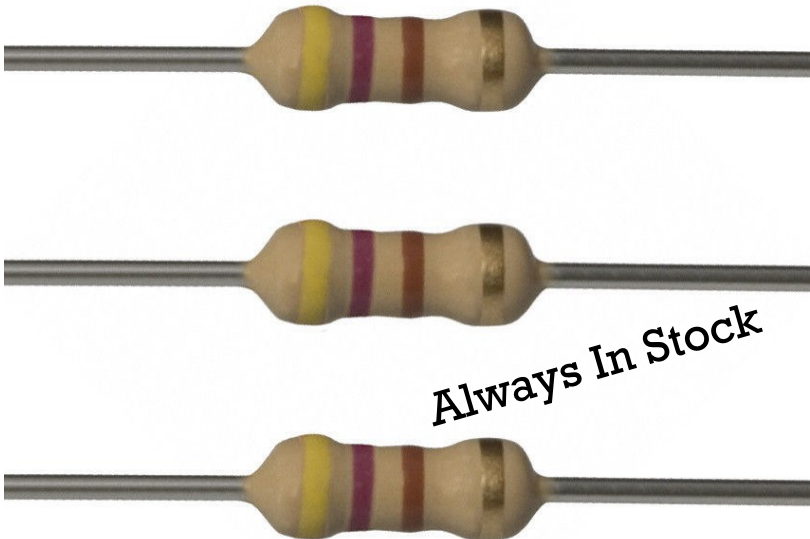
# Resistors

Less than \$0.32 each

**470 ohm resistors. 1/2 watt, 5% tolerance. Flame retardant coating.  
Lead free & RoHS Compliant.**

1/2 Watt  
5% Tolerance  
Cut Tape Packaging  
Flame Retardant Coating  
Lead free / RoHS Compliant  
10 in a Pack

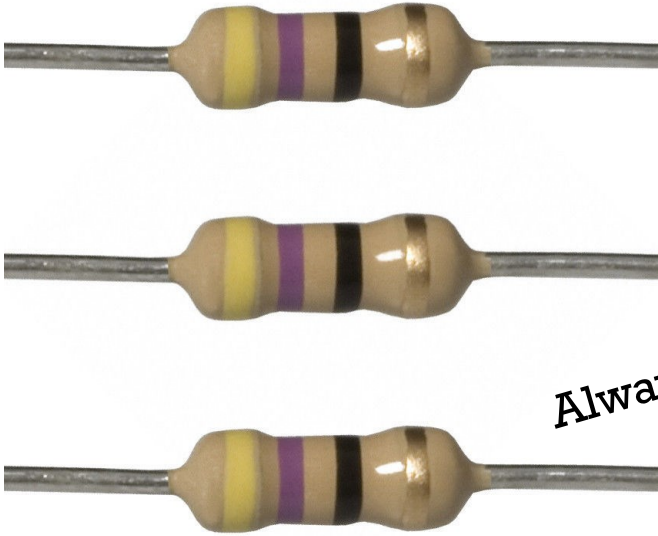
**\$ 3.15**



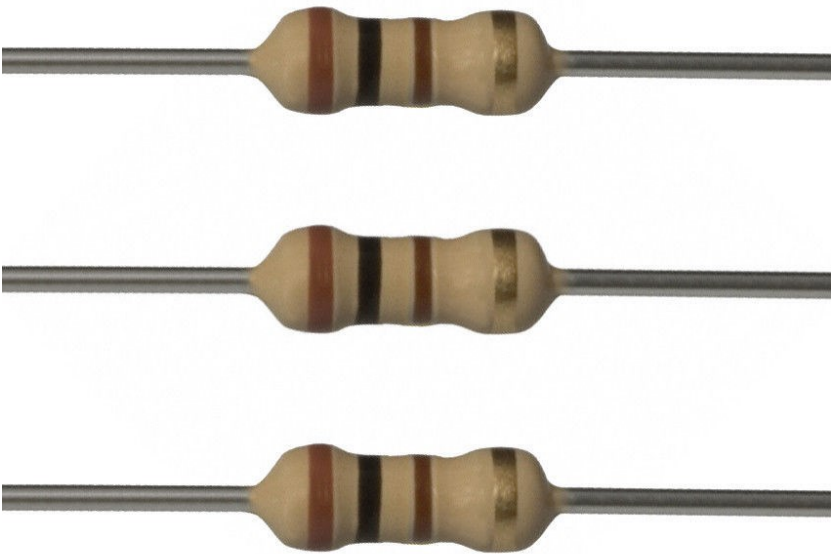
**10 each 47 ohm resistors. 1/4 watt, 5% tolerance. Flame retardant coating.  
Lead free & RoHS Compliant.**

- 1/4 Watt
- 5% Tolerance
- Cut Tape Packaging
- Flame Retardant Coating
- Lead free / RoHS Compliant
- 10 in a Pack

**\$ 3.15**



**10 each Pack 100 ohm resistors. 1/4 watt, 5% tolerance. Flame retardant coating. Lead free & RoHS Compliant.**



1/4 Watt  
5% Tolerance  
Cut Tape Packaging  
Flame Retardant Coating  
Lead free / RoHS Compliant  
Packs of 10

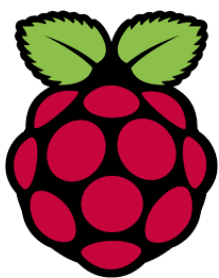
**\$ 3.15**

*Always In Stock*



# GPIO header pin connectors

Great For  
Raspberry Pi's



## Make Custom Cables

50pcs 2.54mm Dupont Jumper Wire Cable  
Housing Female Pin Connector Terminals

Item Description:

Quantity: 50pcs only

Connector: Female

Pitch: 2.54mm

Material: Copper

**\$ 3.55**



## Custom Wiring & Harnessing



Full Service  
Wire Processing Shop

[www.NCPCS.com](http://www.NCPCS.com)



We have the tooling and experience to create your custom cabling, sub-assemblies and modular components on a production level. Some common cables we currently support include Amphenol, Deutsch, Delphi, Dupont, Cannon, Molex and Raychem. Contact us to see if we can save you some time and money on your next wire, wiring or harnessing job.

## 4pin RGB Tri-Color LEDs

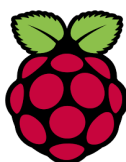
5MM Red Green Blue 4 pin LED with a Common Anode

7 colors: Red, Green, Blue, Yellow, Turquoise, Purple, and White

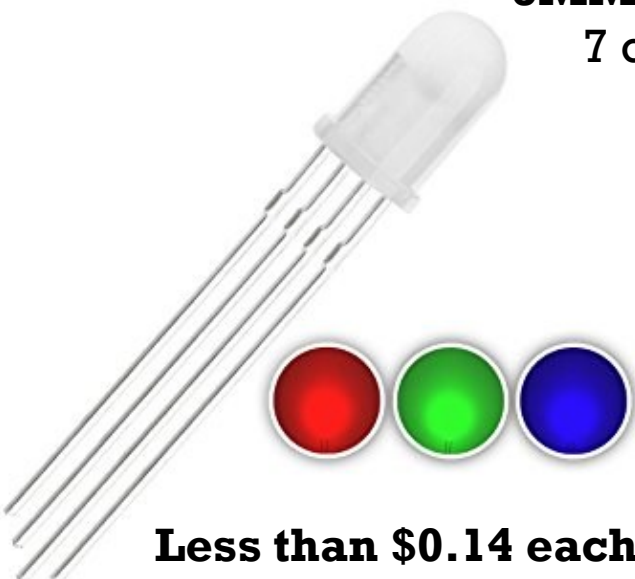
50 Pieces

**\$ 6.95**

Always in Stock



Perfect for Arduino and Raspberry Pi  
A Great Option for creating a multitude of lighting  
choices with only a Few GPIO pins...



Less than \$0.14 each



# Light Emitting Diodes

## Super Bright LEDs

Red, Blue, Green, Yellow, White, Pink, Purple, Orange all colors Your Choice

## 2-PINS 5MM Super Bright Bulbs

50pcs of any color

Size: 5mm

Forward voltage: 1.9 - 3.6V DC

Luminous intensity: 500-20000 mcd

# Solid Color BRIGHT LEDs

## Standard order unless specified

10 X 5mm Red LED Bulb

10 X 5mm Blue LED Bulb

10 X 5mm Green LED Bulb

10 X 5mm Yellow LED Bulb

10 X 5mm White LED Bulb

50 Pieces

# \$ 1.95

Always in Stock

Less than \$0.04 each



## AUTOMATIC FLASHING LEDs

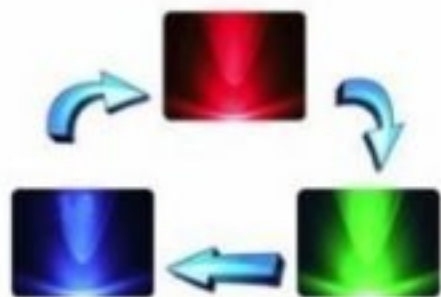
RGB Rainbow FAST or SLOW flash 2-PINS F5 5MM Super Bright Bulbs

50 Pieces

# \$ 3.10

Always in Stock

Less than \$0.07 each



# Fast & Slow FLASHING

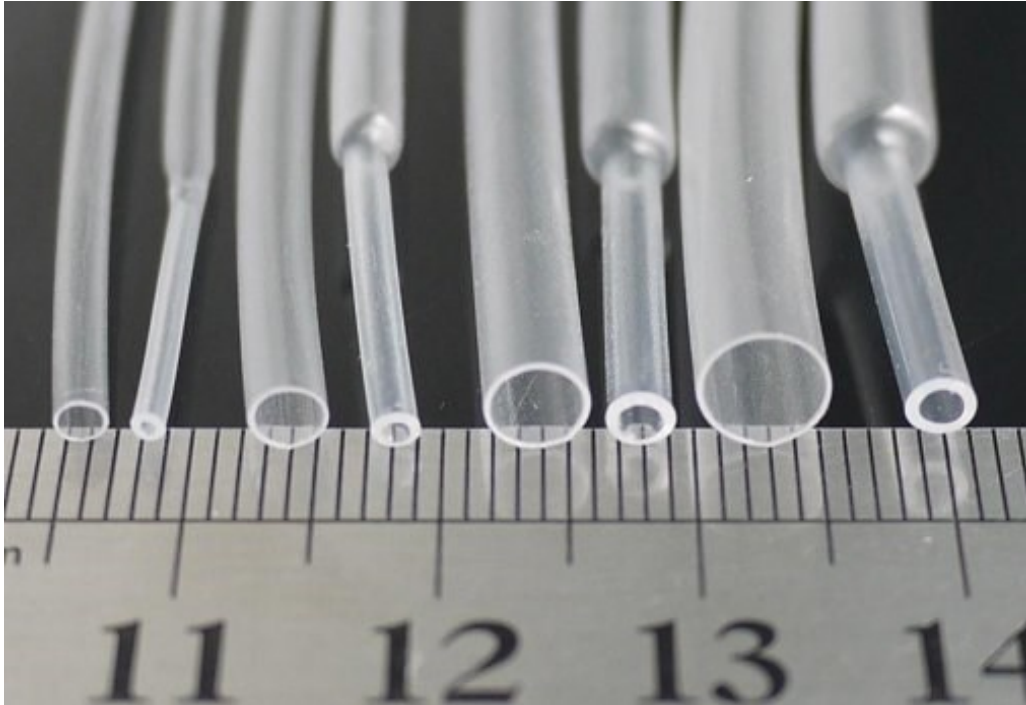




# Heat-Shrink Tube by the Foot



www.HeBran.com



**HeBran**  
Industries  
Form, Fit & Function

Heat-Activated, Shrinking HI-Tubing



12" Inches

**\$ 1.00**

These Sizes Always in Stock

Less than \$0.09 an inch

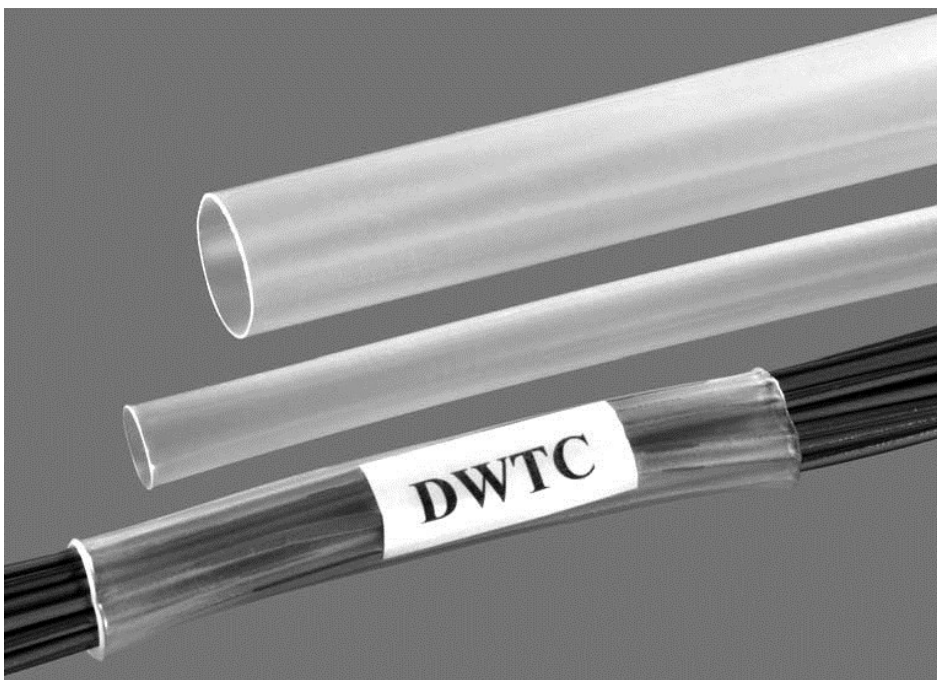
**Military & Aviation Grade**

**Clear 3/4 inch supplied shrinks down to  
3/8 inch inside diameter**

**White 1/2 inch supplied shrinks down to  
1/4 inch inside diameter**

**Clear 3/8 inch supplied shrinks down to  
less than 1/4 inch inside diameter**

**Clear 1/4 inch supplied shrinks down to  
less than 1/8 inch inside diameter**



**Mark Bundles  
Protect Wires  
Organize Cables**



# Your Next Computer is Here



**\$ 48.00** With Taxes & Shipping

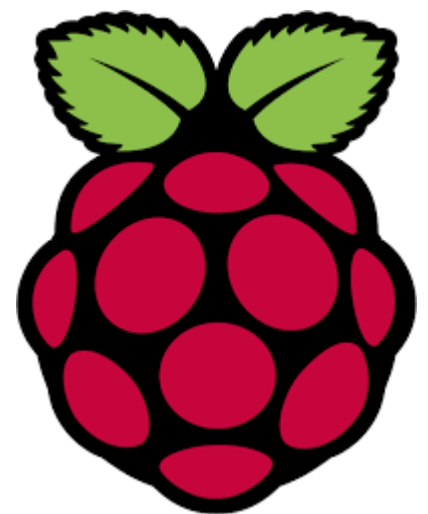
## Raspberry Pi 3 Model B

1GB RAM

In Stock NOW..!

Built on the latest Broadcom 2837 ARMv8 64bit processor, the new generation Raspberry Pi 3 Model B is faster and more powerful than its predecessors. With built-in wireless and Bluetooth connectivity, it becomes the ideal IoT ready solution.

1.2GHz QUAD Core  
64bit ARMv8 processor  
WiFi & Bluetooth on board  
>1GB RAM  
4x USB 2 ports  
40pin extended GPIO  
HDMI and RCA video output





**Protect and secure your Raspberry Pi 3 Model B from shocks, scratches and dust**

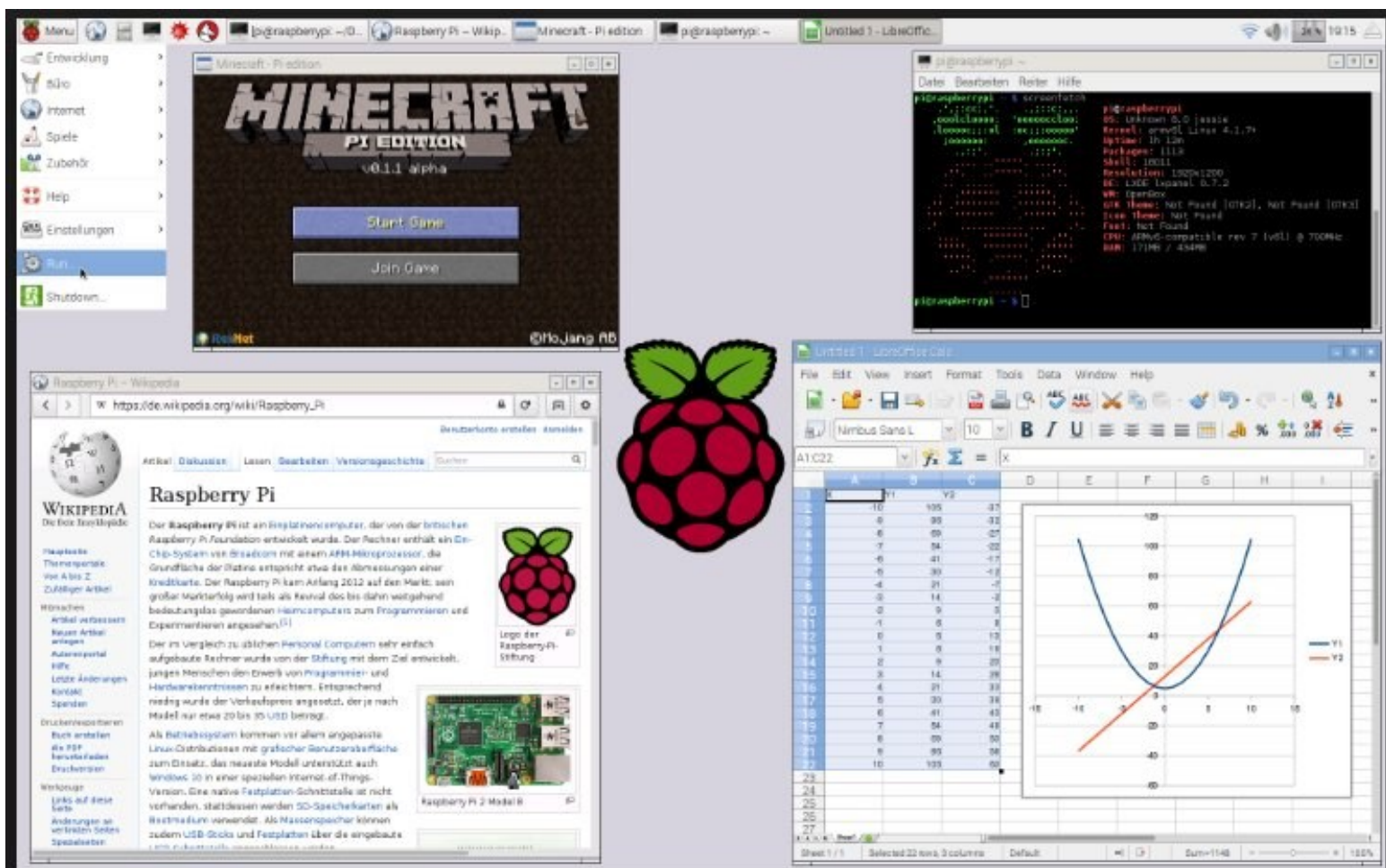
# Pi Case

**\$ 5.48**

*Always In Stock*



Designed for Raspberry Pi 3 Model B;  
Full access to all controls and features  
The protective case consists of five-piece PMMA enclosure that provides the best available protection/ accessibility for Raspberry Pi 3 Model B



**The new Raspberry Pi 3 is the fastest and most powerful device the Raspberry Pi Foundation has released to date. 3-17-2017**

**It is Tiny**

About the size of a Credit Card

**It is Cheap**

High-End Model starts at about \$35. before shipping & Taxes

**Very Versatile**

It can run a variety of Operating Systems,

**Linux or Android or even Windows IOT**

**Everyone Needs a Pi**

**An Entire Computer that fits in the palm of your hand.....!**

Browse the Web, Check your E-Mail, View or edit Pictures, Watch a Movie, Play a Game and Much Much MORE.....! Very low power consumption only 5v

Stop by and see one in action at NCPCS.com

Or Test Drive one today here @ 4100 Kernersville Road, Winston-Salem NC 27107. We are happy to support all of the products we sell.

**Once you have your New Raspberry Pi your still going to need a few things to get started.**

First a Memory Card to hold your Operating System and all of your software. We recommend a 32GB SSD card and a couple of USB Thumb drives for your data. A Keyboard and Mouse maybe a Video cable to hook to your TV or Monitor. That's it, you should be up and running. If you need help getting started feel free to give us a call or stop by. Remember we always have a large inventory of common cables and connectors in stock.

# Add a Voice to your project

## ISD1820 Voice Recording Playback Module Sound Recorder Board

Main chip: ISD1820

Board Size: 38mm \* 42.5mm

Working voltage: DC 3 ~ 5V

requires speaker and or below PAM8403

Features:

10 seconds recording, easy to use.

high-quality, natural voice to restore

used as a voice or sound module

with a loop playback, jog playback, single-pass playback

can be controlled with single-chip controller

the module can directly drive an 8 ohm 0.5W small speaker



**\$ 6.85**

*Always In Stock*

# make it LOUDER

**PAM8403 module a 3W, class-D stereo audio amplifier.**

**\$ 3.49**

*Always In Stock*

Features:

5V input power

High efficiency: 90%

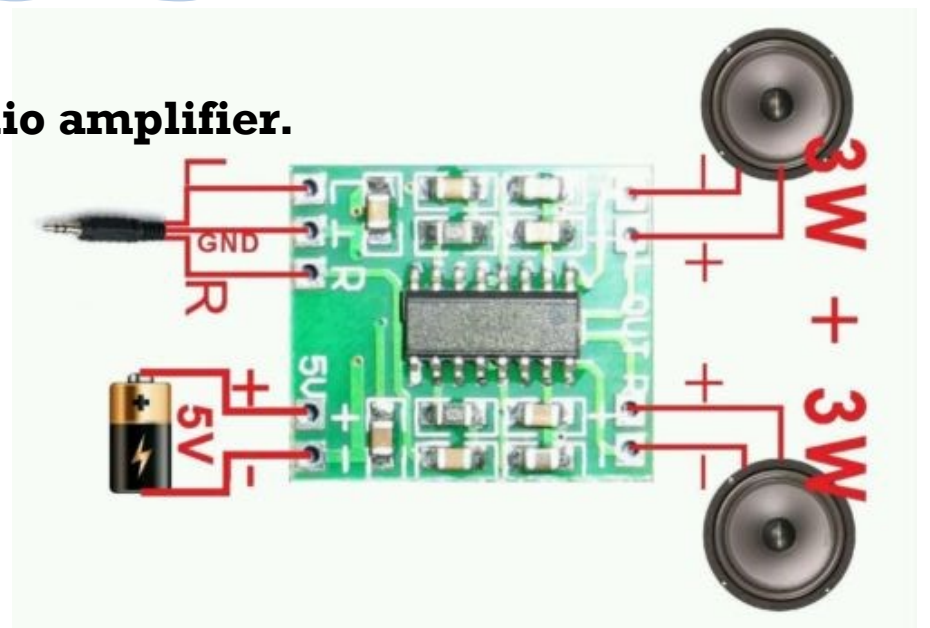
Can provide 3W (left channel) + 3W (right channel) output power into a 4Ω speaker load and 5V power supply

CMOS class D amplifier design for high efficiency and low cost

Noise canceling circuit built into the amplifier board

Power on / off without popping noise

Module has short-circuit current protection, under-voltage lockout and over-temperature protection (shuts down at an internal temperature of 140C +/- 15C)



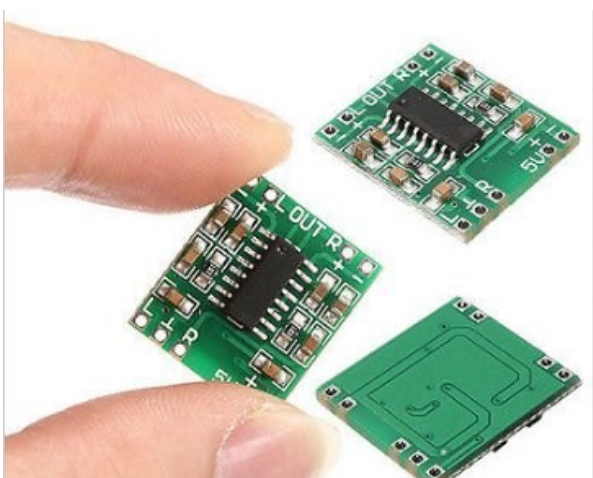
Specifications:

Operating voltage: 2.5V-5.5V

Speaker Load: 4-8 Ohms

Size: 21 x 18 x 3.4 mm (L x W x H)

Net weight: 1g





# SEE the Sounds

**Melody Lamp Module**

**\$ 4.85**

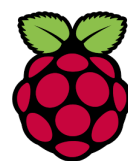
Always In Stock



## Description:

- 8 LED Light Controller
- Size: Approx. 45 x 35mm/ 1.8 x 1.4inch
- Operating Voltage: DC 5V-6V (Note that no more than 6V)
- Can be placed on the sound nearby, and make the light dance to the music
- With an integrated circuit, it has high sensitivity, which can be adjusted to fit different environments
- The 8 Bright LEDs will flash with the rhythm of music or other sounds; it can be used as light controller for projects

North Carolina



# Professional Computer Services

@ **NCPCS.com**

From Python Scripting to Custom Computers and other Out-of-the-ordinary customizations We're always happy to work with electronics and our computers. We even program scripts on demand and help debug customized scripts for your projects.

We can create program controlled features and functionality designed to meet your requirements.

Please consult with someone on our Programming Team for specific requests; scripting power to help you to achieve what you are looking for from your micro-controller.

## More than just Wiring

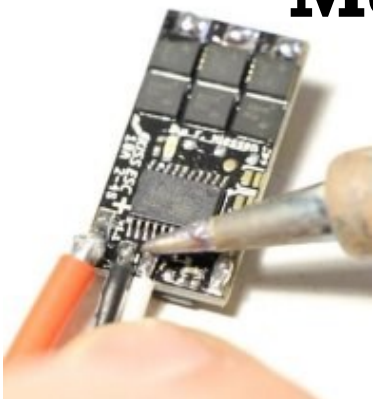
**Soldering & Electronics Repairs**

**Low Voltage Lighting**

**Security Systems**

**&**

**Remote Access Digital Video**

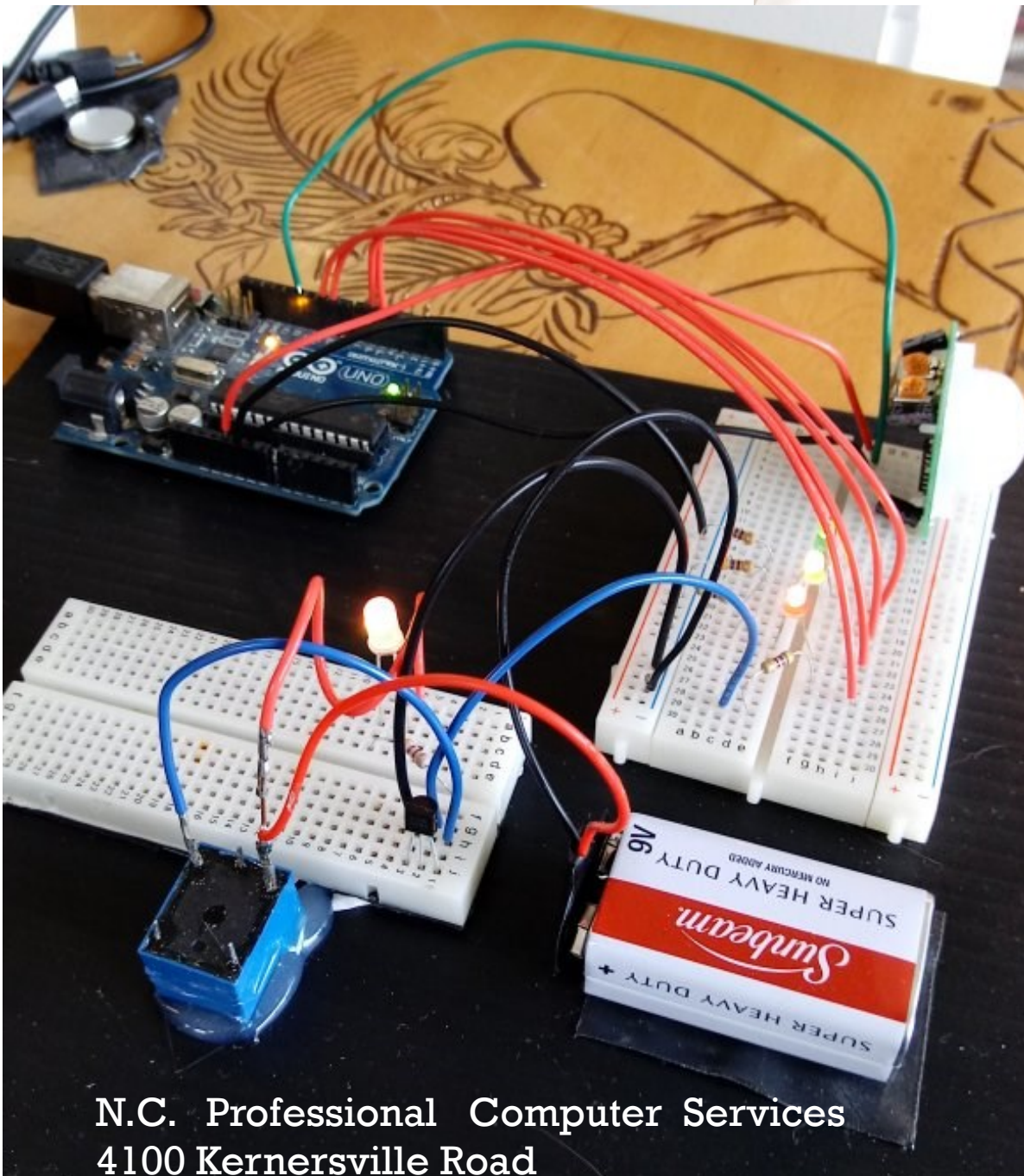
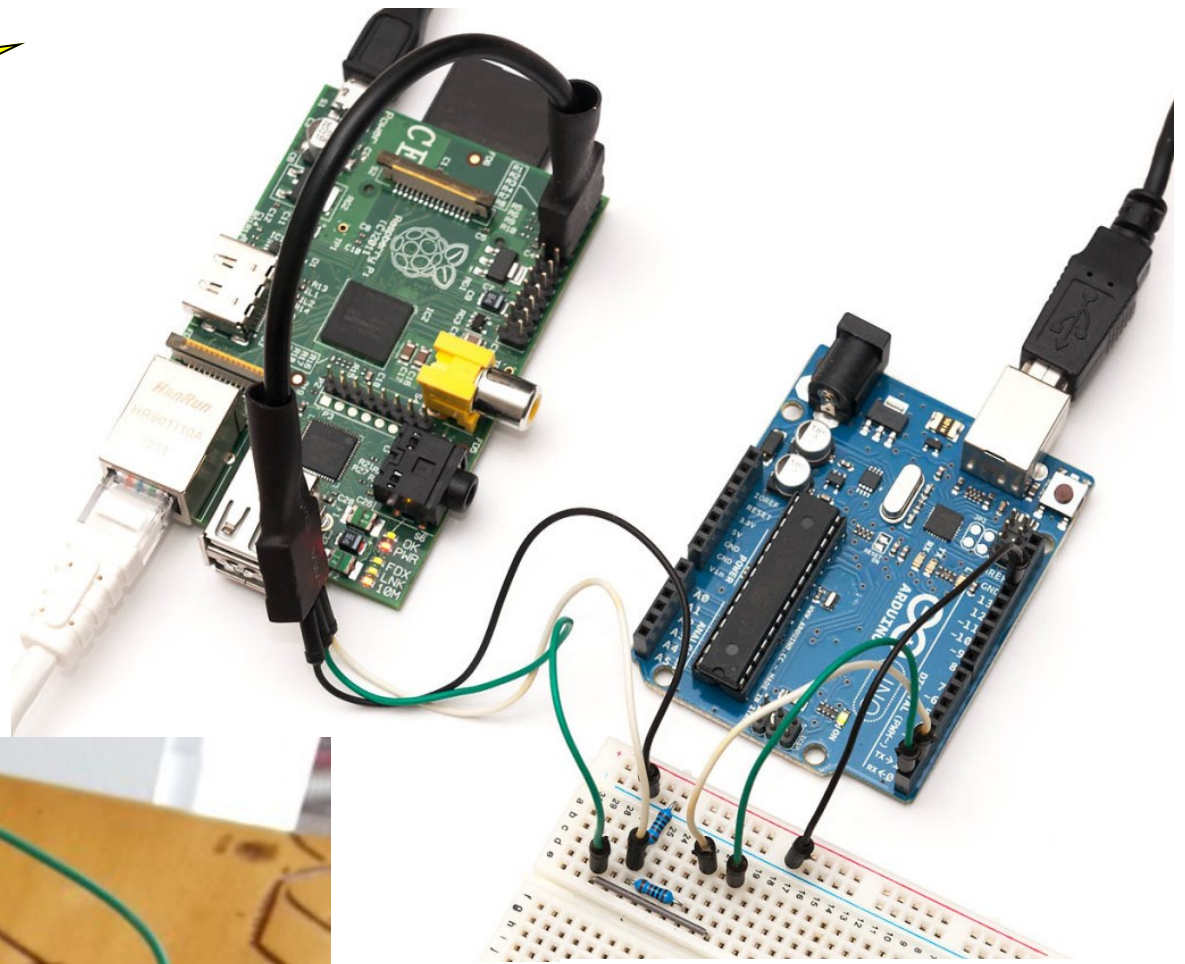


**Ask how we  
Can Help You**



# Pi Power Controls Catalog

Pi Power and more online @  
**NCPCS.COM**



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Winston-Salem, N.C. 27107  
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Phone: 336-788-8900



Programming for the Raspberry Pi

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**Are**

**Powering Your**

**Green Energy Solutions & Programming with Python**  
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