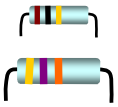
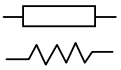
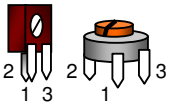
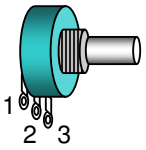
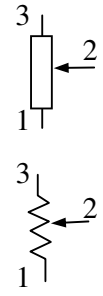
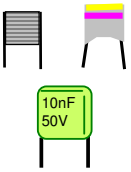
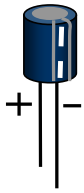
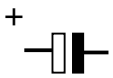
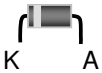
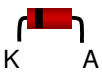
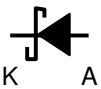
Component Chart

Leaded Components

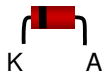
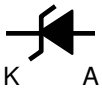
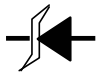
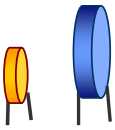
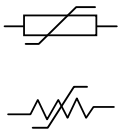
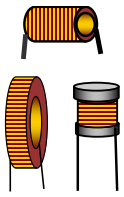
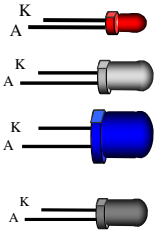
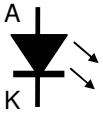
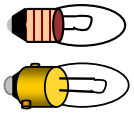
Common passsive components (Low Power)

TITLE	UNIT MEASUREMENT	SYMBOL	VALUE RANGE	SIZE RATING	VIEW	Circuit Symbol
RESISTOR **R** (Ω)	milliohm Ohm kilo Ohm mega Ohm	mΩ Ω kΩ MΩ	0.001 Ω 1 Ω 1,000 Ω 1,000,000 Ω	0.2 to 2 Watt		
VARIABLE RESISTOR **VR** (Ω)	Ohm kilo Ohm Mega Ohm	Ω kΩ MΩ	1 Ω 1,000 Ω 1,000,000 Ω	0.2 to 1 Watt	Trimpot  Potentiometer 	
CAPACITOR **C** (µF)	pico farad nano farad micro farad milli farad Farad	pF nF uF mF F	1 exp -12 F 1 exp -9 F 0.000001 F 0.001 F 1 F	25 to 2500 Volt		
ELECTROLYTIC CAPACITOR **C** (µF) POLARISED	micro farad milli farad Farad	uF mF F	0.000001 F 0.001 F 1 F	25 to 800 Volt		
DIODE **D** POLARISED	Current Voltage	I (Amp) V (Volt)	0.2 to 6 Amp 50 to 2000 V 0.5-0.6 V Fwd	0.2 to 1 Watt		
SCHOTTKY DIODE **D** POLARISED	Current Voltage	I (Amp) V (Volt)	0.2 to 6 Amp 50 to 200 V 0.2-0.4 V Fwd	0.2 to 1 Watt		

Component Chart

Leaded Components

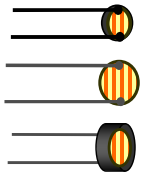
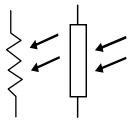
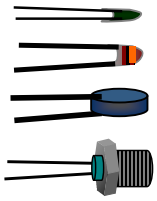
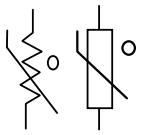
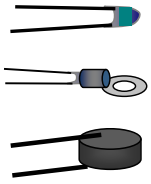
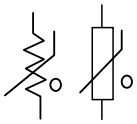
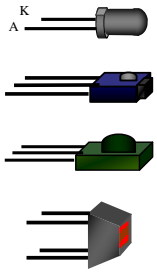
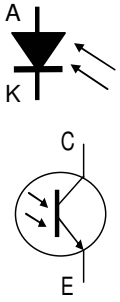
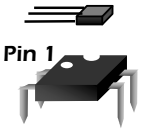
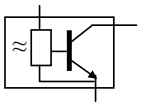
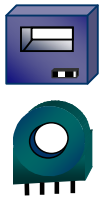
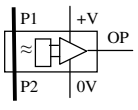
Common passive components (Low Power)

TITLE	UNIT MEASUREMENT	SYMBOL	VALUE RANGE	SIZE RATING	VIEW	Circuit Symbol
ZENER DIODE **ZD** (V) POLARISED	Voltage Current	V (Volt) I (Amp)	50 to 2000 V 0.2 to 6 Amp	0.2 to 3 Watt		
TANSIENT VOLTAGE SUPPRESSOR **TVS** (V)	Voltage Power	V (Volt) W (Watt)	2V to 200 V 300 to 1k W Impulse rating	300W to 1k W	Unidirectional  Bidirectional 	POLARISED  
VARISTOR **VDR** (V) TANSIENT SUPPRESSOR	Voltage Energy	V (Volt) J (joule)	2V to 200 V 0.8 – 300J Transient Energy 10/10,000µS	Diameter Ø9mm Ø12mm Ø20mm		
INDUCTOR **L** (µH)	nano Henry micro Henry milli Henry Henry	nH uH mH H	1 exp -9 H 0.000001 H 0.001 H 1 H	0.01 A to 200 A (Amps)		Air Core  Iron Core 
LIGHT EMITTING DIODE **LED** POLARISED	Current (milliAmp) Intensity (milliCandela) Colour Wave Length (nanometer)	mA mcd λ nm	5 – 30mA 3mcd – 15cd Blue, Green Yellow, Orange, Red & White (430-660nm) Infrared - **IR** (800-950nm)	Diameter Ø3mm Ø5mm Ø10mm 50mA peak		
INDICATOR **BULB**	Watt Voltage	W V	0.2 – 100W 1.5 – 230V	MES MBC		

Component Chart

Leaded Components

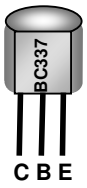
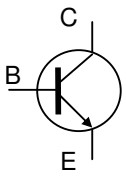
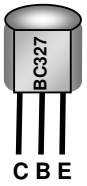
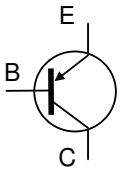
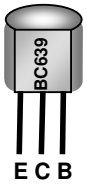
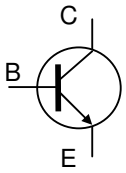
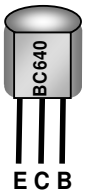
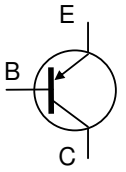
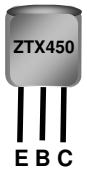
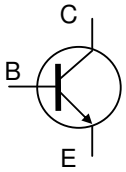
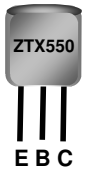
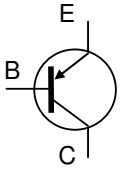
Common Sensor components (Low Power)

TITLE	UNIT MEASUREMENT	SYMBOL	VALUE RANGE	SIZE RATING	VIEW	Circuit Symbol
LGHT DEPENDANT RESISTOR **LDR**	**LIGHT** Low Resistance **DARK** High Resistance	Ω kΩ MΩ	Light – Dark 5kΩ - 15MΩ 300Ω - 200kΩ	Diameter Ø4mm Ø10mm		
THERMAL SENSOR **NTC** **N**EGATIVE **T**EMPERATURE **C**OEFFICIENT	**HOT** Low Resistance **COLD** High Resistance	Ω - kΩ	Room Temperature Resisance 1kΩ - 10kΩ 20kΩ - 100kΩ Thermal measurement	Diameter Ø2mm Ø4mm Ø10mm Stud		
THERMAL SENSOR **PTC** **POSI**TIVE **T**EMPERATURE **C**OEFFICIENT	**HOT** High Resistance **COLD** Low Resistance	Ω - kΩ mA - A	Over-Temperature Protection & Current Limiting	Diameter Ø4mm Ø9mm Ø16mm		
INFRARED RECIVER **IRR**	Current & Voltage Levels	uA uV Logic Level	Infrared - IR (800-950nm) Modulation Frequency 28 – 100kHz	Photodiode Photo-transistor Demodulator Emitter & Detector		
HALL EFFECT **HEF**	Current & Voltage Levels	V Logic Level	Proportional Output Logic level switch	3pin Inline		
CURRENT TRANSFORMER **CT**	Current or Voltage Output	mA V	Proportional Output -5V to +5V or 0V to 5V	Direct Current Transformer **DCCT**		

Leaded Components

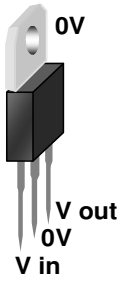
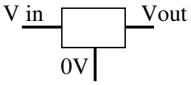
Semiconductor components (Low Power)

TRANSISTOR Tr or Q

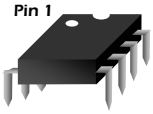
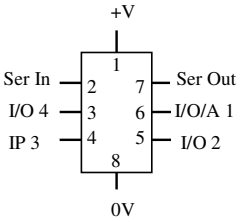
TYPE (Collector Voltage, Collector Current, Gain hfe)	JUNCTION	PACKAGE	VIEW	Circuit Symbol
BC337 (45V, 800mA, hfe 100-630) BC546 (65V, 100mA, hfe 125-500) BC547 (45V, 100mA, hfe 200-450) BC548 / 9 (30V, 100mA, hfe 110-800)	NPN	TO92 TO237		
BC307B (45V, 100mA, hfe 180-460) BC327 (45V, 500mA, hfe 100-600) BC556 /B (65V, 100mA, hfe 125-460) BC557 (45V, 100mA, hfe 110-800)	PNP	TO92 TO237		
BC639 (80V, 1A, hfe 63-250) 2N3704 (30V, 800mA, hfe 100-300) BCU81 (10V, 3A, hfe 210 typ) BCU83 (20V, 5A, hfe 100-560)	NPN	TO92 TO237		
BC640 (80V, 1A, hfe 63-250) TIPP32C (100V, 2A, hfe 20)	PNP	TO92 TO237		
ZTX450 (45V, 1A, hfe 100 - 300) **ZTX451** (60V, 1A, hfe 50 - 150) **ZTX453** (100V, 1A, hfe 40 - 200) **ZTX651** (60V, 2A, hfe 100 - 300) **ZTX653** (100V, 2A, hfe 100 – 300) **ZTX690B** (45V, 2A, hfe 500 min) **ZTX851** (60V, 5A, hfe 100 – 300) **ZTX853** (100V, 4A, hfe 100 – 300)	NPN	E-LINE		
ZTX550 (45V, 1A, hfe 100 min) **ZTX551** (60V, 1A, hfe 50 - 150) **ZTX751** (60V, 2A, hfe 100 – 300) **ZTX753** (100V, 2A, hfe 100 – 300) **ZTX951** (60V, 4A, hfe 100 – 300) **ZTX953** (100V, 3.5A, hfe 100 – 300)	PNP	E-LINE		

Leaded Components Semiconductor components

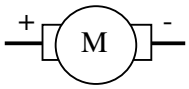
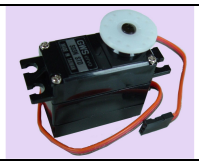
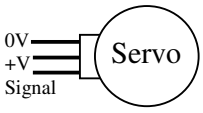
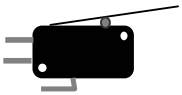
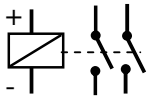
VOLTAGE REGULATOR IC Reg

TYPE VOUT, VIN MIN, ± TOLERANCE, I MAX.	MAXIMUM INPUT VOLTAGE	PACKAGE	VIEW	Circuit Symbol
Positive Linear Regulators **LM7805CT 5V,** 7V, 5%, 1A **L7805CV 5V,** 7.5V, 7%, 1.5A **MC7809CT 9V,** 11V, 5%, 1A **LM7812CT 12V,** 14V, 5%, 1A **MC78T12CT 12V,** 14.5V, 5%, 3A **LM7815CT 15V,** 17V, 5%, 1A **MC78T15CT 15V,** 17.5V, 5%, 3A **MC7824CT 24V,** 26V, 5%, 1A	**35V**	**TO220**		

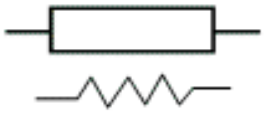
Microcontroller IC U

PIC Microcontroller chip **12F629**	**5V**	**DIP8**		

Electromechanical

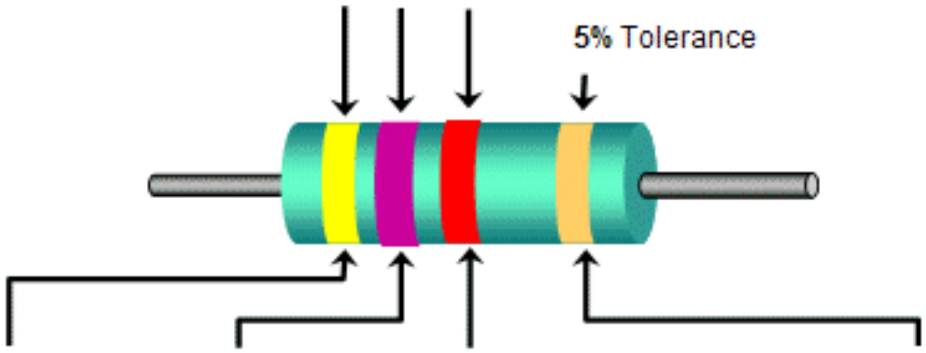
ELECTRIC MOTOR	**3V to 12Vdc**	**Motor M**		
SERVO MOTOR	**6Vdc**	**Servo Ser**		
SWITCH Microswitch 0.1 to 20A	**6V to 240Vac**	**SW S**		
RELAY 0.5 to 30A	**6 to 48V**	**Relay RLY K**		

Resistor Colour Code Chart

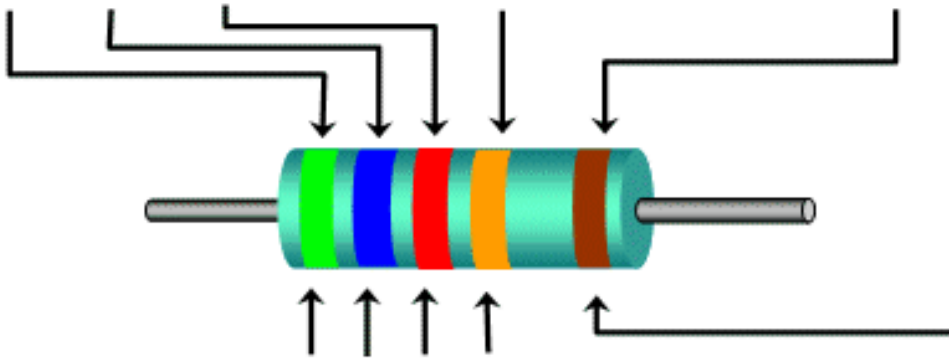


Four Band Resistor

4 7 x 100 = 4700Ω or 4.7k Ω or 4k7 Ω



1st & 2nd Colour Band			3rd Colour Band			4th Colour Band	
Black		0	Silver		Divide by 100		
Brown		1	Gold		Divide by 10		
Red		2	Black		Multiply by 1	Tolerance	
Orange		3	Brown		Multiply by 10 (1)	Brown	± 1%
Yellow		4	Red		Multiply by 100 (2)	Red	± 2%
Green		5	Orange		Multiply by 1,000 (3)	Gold	± 5%
Blue		6	Yellow		Multiply by 10,000 (4)	Silver	± 10%
Violet		7	Green		Multiply by 100,000 (5)		
Grey		8	Blue		Multiply by 1000,000 (6)		
White		9	4th Colour Band			5th Colour Band	
1st, 2nd & 3rd Colour Band							



Five Band Resistor 5 6 2 x1000 = 562,000 Ω or 562k Ω 1% Tolerance