

0 I + G 0 I + G >NAME >VALUE >VALUE <b>SUPPLY SYMBOL</b> <b>SUPPLY SYMBOL</b> <b>RESISTOR</b> >NAME >VALUE  
<b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> <p> >NAME >VALUE <b>RESISTOR</b> wave soldering <p> >NAME >VALUE  
<b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> <p> wave soldering >NAME >VALUE  
<b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> <p> wave soldering >NAME >VALUE <b>RESISTOR</b> >NAME >VALUE  
<b>RESISTOR</b> <p> wave soldering >NAME >VALUE <b>RESISTOR</b> <b>RESISTOR</b> <p> wave soldering  
>NAME >VALUE <b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> <p> wave soldering >NAME >VALUE <b>RESISTOR</b>  
>NAME >VALUE <b>RESISTOR</b> <p> wave soldering >NAME >VALUE <b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> <p>  
wave soldering >NAME >VALUE <b>RESISTOR</b> >NAME >VALUE <b>RESISTOR</b> <p> wave soldering >NAME >VALUE  
<b>RESISTOR</b> <p> Source: [http://download.siliconexpert.com/pdfs/2005/02/24/Semi\\_Ap/2/VSH/Resistor/dcrwfre.pdf](http://download.siliconexpert.com/pdfs/2005/02/24/Semi_Ap/2/VSH/Resistor/dcrwfre.pdf) >NAME  
>VALUE <b>RESISTOR</b> wave soldering <p> Source:  
[http://download.siliconexpert.com/pdfs/2005/02/24/Semi\\_Ap/2/VSH/Resistor/dcrwfre.pdf](http://download.siliconexpert.com/pdfs/2005/02/24/Semi_Ap/2/VSH/Resistor/dcrwfre.pdf) >NAME >VALUE <b>RESISTOR</b> <p> MELF  
0.10 W >NAME >VALUE <b>RESISTOR</b> <p> MELF 0.25 W >NAME >VALUE <b>RESISTOR</b> <p> MELF 0.12 W >NAME >VALUE  
<b>RESISTOR</b> <p> MELF 0.10 W >NAME >VALUE <b>RESISTOR</b> <p> MELF 0.25 W >NAME >VALUE <b>RESISTOR</b> <p>  
MELF 0.25 W >NAME >VALUE <b>RESISTOR</b> <p> MELF 0.12 W >NAME >VALUE <b>RESISTOR</b> <p> MELF 0.25 W >NAME  
>VALUE <b>RESISTOR</b> <p> type 0204, grid 5 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0204, grid 7.5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0207, grid 10 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0207, grid 12 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0207, grid 15mm >NAME >VALUE <b>RESISTOR</b> <p> type 0207, grid 2.5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0207, grid 5 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0207, grid 7.5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0309, grid 10mm >NAME >VALUE <b>RESISTOR</b> <p> type 0309, grid 12.5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0411, grid 12.5 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0411, grid 15 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0411, grid 3.81 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0414, grid 15 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0414, grid 5 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0617, grid 17.5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0617, grid 22.5 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0617, grid 5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0922, grid 22.5 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0613, grid 5 mm >NAME  
>VALUE <b>RESISTOR</b> <p> type 0613, grid 15 mm >NAME >VALUE <b>RESISTOR</b> <p> type 0817, grid 22.5 mm >NAME  
>VALUE 0817 <b>RESISTOR</b> <p> type 0817, grid 6.35 mm >NAME >VALUE 0817 <b>RESISTOR</b> <p> type V234, grid 12.5 mm  
>NAME >VALUE <b>RESISTOR</b> <p> type V235, grid 17.78 mm >NAME >VALUE <b>RESISTOR</b> <p> type V526-0, grid 2.5 mm  
>NAME >VALUE <b>Mini MELF 0102 Axial</b> >NAME >VALUE <b>RESISTOR</b> <p> type 0922, grid 7.5 mm >NAME >VALUE 0922  
<b>CECC Size RC2211</b> <b>Reflow Soldering</b> <p> source Beyschlag >NAME >VALUE <b>CECC Size RC2211</b> <b>Wave Soldering</b>  
<p> source Beyschlag >NAME >VALUE <b>CECC Size RC3715</b> <b>Reflow Soldering</b> <p> source Beyschlag >NAME >VALUE <b>CECC  
Size RC3715</b> <b>Wave Soldering</b> <p> source Beyschlag >NAME >VALUE <b>CECC Size RC6123</b> <b>Reflow Soldering</b> <p> source  
Beyschlag >NAME >VALUE <b>CECC Size RC6123</b> <b>Wave Soldering</b> <p> source Beyschlag >NAME >VALUE <b>RESISTOR</b>  
<p> type RDH, grid 15 mm >NAME >VALUE RDH <b>RESISTOR</b> <p> type 0309, grid 2.5 mm >NAME >VALUE <b>RESISTOR</b>  
<p> chip <p> Source: <http://www.vishay.com/docs/20008/dcrw.pdf> >NAME >VALUE <b>Bulk Metal® Foil Technology</b>, Tubular Axial Lead  
Resistors, Meets or Exceeds MIL-R-39005 Requirements <p> MIL SIZE RNC55<br> Source: VISHAY .. vta56.pdf >NAME >VALUE  
<b>Bulk Metal® Foil Technology</b>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements <p> MIL SIZE  
RNC60<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b>, Tubular Axial Lead Resistors, Meets or  
Exceeds MIL-R-39005 Requirements <p> MIL SIZE RBR52<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil  
Technology</b>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements <p> MIL SIZE RBR53<br> Source: VISHAY  
.. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005  
Requirements <p> MIL SIZE RBR54<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b>, Tubular  
Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements <p> MIL SIZE RBR55<br> Source: VISHAY .. vta56.pdf >NAME  
>VALUE <b>Bulk Metal® Foil Technology</b>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements <p> MIL SIZE  
RBR56<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Package 4527</b> <p> Source:  
<http://www.vishay.com/docs/31059/wsrhigh.pdf> >NAME >VALUE <b>Wirewound Resistors, Precision Power</b> <p> Source: VISHAY  
wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision Power</b> <p> Source: VISHAY wscwsn.pdf >NAME >VALUE  
<b>Wirewound Resistors, Precision Power</b> <p> Source: VISHAY wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision  
Power</b> <p> Source: VISHAY wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision Power</b> <p> Source: VISHAY  
wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision Power</b> <p> Source: VISHAY wscwsn.pdf >NAME >VALUE  
<b>CRCW1218 Thick Film, Rectangular Chip Resistors</b> <p> Source: <http://www.vishay.com> .. dcrw.pdf >NAME >VALUE <b>Chip  
Monolithic Ceramic Capacitors</b> Medium Voltage High Capacitance for General Use <p> Source: <http://www.murata.com> ..  
GRM43DR7E224KW01.pdf >NAME >VALUE <b>RESISTOR</b> <p> type 0204, grid 2.5 mm >NAME >VALUE >NAME >VALUE  
<b>RESISTOR</b>, American symbol <b>Pin Header Connectors</b> <p> <author>Created by librarian@cadsoft.de</author> <b>PIN  
HEADER</b> >NAME >VALUE PIN HEADER >NAME >VALUE <b>PIN HEADER</b> Spark Fun Electronics' preferred foot prints.  
<b>Not to be used for commercial purposes.</b> We've spent an enormous amount of time creating and checking these footprints and  
parts. If you enjoy using this library, please buy one of our products at [www.sparkfun.com](http://www.sparkfun.com). >NAME >VALUE Small solder jumper with big  
paste layer so it will short during reflow. >NAME >VALUE >NAME >VALUE Small solder jumper with no paste layer so it will open after  
reflow. >NAME >VALUE >NAME >VALUE <b>Jumper</b> Basic 0.1" spaced jumper. Use with breakaway headers. >NAME >NAME  
>NAME >Value SparkFun SKU# COM-08229 >NAME >VALUE >NAME <b>SSSS811101</b> <br> >NAME >VALUE >Name >Value  
<h3>SWITCH-SPDT\_KIT</h3> Through-hole SPDT Switch <br> <b>Warning:</b> This is the KIT version of this package. This  
package has a smaller diameter top stop mask, which doesn't cover the diameter of the pad. This means only the bottom side of the pads'  
copper will be exposed. You'll only be able to solder to the bottom side. >NAME >VALUE >NAME >VALUE >NAME >VALUE <b>DPDT  
Slide Switch SMD</b> [www.sparkfun.com](http://www.sparkfun.com) SKU : Comp-SMDS >Name >Value >Name >Value <b>OMRON SWITCH</b> >NAME  
>VALUE <h3>4.6 x 2.8mm Tactile Switch</h3> <p><a href="http://www.digikey.com/product-detail/en/KMR231NG%20LFS/CKN10246CT-ND/2176497">Example</a></p> >Name >Value >NAME >VALUE >NAME >Value <h3>Momentary Switch (Pushbutton) - SPST - SMD,  
5.2mm Square</h3> <p>Normally-open (NO) SPST momentary switches (buttons, pushbuttons).</p> <p><a href="https://www.sparkfun.com/datasheets/Components/Buttons/SMD-Button.pdf">Dimensional Drawing</a></p> >Name >Value  
SparkFun SKU# COM-08229 <b>SSSS811101</b> <br> SWITCH-SPDT\_KIT Through-hole SPDT Switch Warning: This is the KIT version  
of this package. This package has a smaller diameter top stop mask, which doesn't cover the diameter of the pad. This means only the  
bottom side of the pads' copper will be exposed. You'll only be able to solder to the bottom side. DPDT Slide Switch SMD  
[www.sparkfun.com](http://www.sparkfun.com) SKU : Comp-SMDS <b>OMRON SWITCH</b> <h3>4.6 x 2.8mm Tactile Switch</h3> <p><a href="http://www.digikey.com/product-detail/en/KMR231NG%20LFS/CKN10246CT-ND/2176497">Example</a></p> Momentary Switch  
(Pushbutton) - SPST - SMD, 5.2mm Square Normally-open (NO) SPST momentary switches (buttons, pushbuttons). Dimensional  
Drawing >NAME >VALUE >NAME >VALUE Various NO switches- pushbuttons, reed, etc <b>SPDT Switch</b> <br> Simple slide switch,  
Spark Fun Electronics SKU : COM-00102<br> DPDT SMT slide switch, AY20202, SWCH-08179 >Name >Value <b>CAPACITOR</b> <p>  
chip >NAME >VALUE >NAME >VALUE >NAME >VALUE >NAME >VALUE >NAME >VALUE CTZ3 Series land pattern for variable  
capacitor - CTZ3E-50C-W1-PF >NAME >VALUE This is the "EZ" version of the .1" spaced ceramic thru-hole cap. <br> It has reduced top  
mask to make it harder to put the component on the wrong side of the board. >Name >Value <h3>CAP-PTH-SMALL-KIT</h3> Commonly  
used for small ceramic capacitors. Like our 0.1uF (<http://www.sparkfun.com/products/8375>) or 22pF caps  
(<http://www.sparkfun.com/products/8571>).<br> <b>Warning:</b> This is the KIT version of this package. This package has a smaller

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



>NAME >VALUE A C <b>CHIPLED 0603</b>  
>VALUE <p>PLCC2 - Reverse Mount</p> <p>Source: http://catalog.osram-os.com/media/\_en/Graphics/00042122\_0.pdf</p> >NAME  
>VALUE <p>Source:  
http://www.cree.com/~media/Files/Cree/LED%20Components%20and%20Modules/XLamp/Data%20and%20Binning/XLampXPE2.pdf</p>  
>NAME >VALUE >NAME Everlight -62-217D lcsc part : C82669 https://datasheet.lcsc.com/lcsc/1810010233\_Everlight-Elec-62-  
217D-KK4D-H5757R2R52633Z15-2T-GC\_C82669.pdf >NAME >VALUE HONGLITRONIC(Hongli Zhihui (HONGLITRONIC)) HL-A-  
5730D1W-S1-08-HR3(LY) C210349 https://datasheet.lcsc.com/szlcsc/2009021504\_HONGLITRONIC-Hongli-Zhihui-HONGLITRONIC-HL-  
A-5730D1W-S1-08-HR3-LY\_C210349.pdf >NAME >VALUE <b>CHIPLED 0805</b> >NAME >VALUE A C <b>CHIPLED 0805</b>  
CHIPLED 0603 CHIPLED 1206 PLCC2 - Reverse Mount Source: http://catalog.osram-os.com/media/\_en/Graphics/00042122\_0.pdf  
Source:  
http://www.cree.com/~media/Files/Cree/LED%20Components%20and%20Modules/XLamp/Data%20and%20Binning/XLampXPE2.pdf  
Everlight -62-217D lcsc part : C82669 https://datasheet.lcsc.com/lcsc/1810010233\_Everlight-Elec-62-217D-KK4D-H5757R2R52633Z15-  
2T-GC\_C82669.pdf HONGLITRONIC(Hongli Zhihui (HONGLITRONIC)) HL-A-5730D1W-S1-08-HR3(LY) C210349  
https://datasheet.lcsc.com/szlcsc/2009021504\_HONGLITRONIC-Hongli-Zhihui-HONGLITRONIC-HL-A-5730D1W-S1-08-HR3-  
LY\_C210349.pdf CHIPLED 0805 >NAME >VALUE >NAME >VALUE <p><b>LED</b></p> <b>0603</b> - 0603 Surface Mount Package  
<hr> <p><b><u>2mA:</u></b></p> <ul> <li>Green LED - Low Power (3.9mcd, 2ma, 1.7Vf) - Digikey: 475-2709-2-ND</li> <li>Orange  
LED - Low Power (9.8mcd, 2ma, 1.8Vf) - Digikey: 475-1194-2-ND</li> <li>Red LED - Low Power (5mcd, 2ma, 1.8Vf) - Digikey: 475-1195-  
2-ND</li> <li>Yellow LED - Low Power (7mcd, 2ma, 1.8Vf) - Digikey: 475-1196-2-ND</li> </ul> <p><b><u>5mA:</u></b></p> <ul>  
<li>Blue LED - Low Power (17mcd, 5ma, 2.9Vf) - Digikey: LNJ937W8CRAC-T-ND</li> <li><b>0805</b> - 0805 Surface Mount Package  
<hr> <p><b><u>2mA:</u></b></p> <ul> <li>Red LED (8.8mcd, 2mA, 1.8Vf, Clear) - Low Power [Digikey: 475-2510-1-ND]</li> <li>Green  
LED (5mcd, 2mA, 1.8Vf, Clear) - Low Power [Digikey: 475-2730-1-ND]</li> <li>Yellow LED (11.3mcd, 2mA, 1.8Vf, Clear) - Low Power  
[Digikey: 475-2555-1-ND]</li> </ul> <p><b><u>20mA:</u></b></p> <ul> <li>Red LED (104mcd, 20mA, Diffused) - LS R976 [Digikey:  
475-1278-6-ND]</li> <li>Red LED (12mcd, 20mA, 2.0Vf, Clear) - APT2012EC [Digikey: 754-1128-1-ND]</li> <li>Green LED (15mcd,  
20mA, 2.2Vf, Clear) - APT2012GC [Digikey: 754-1131-1-ND]</li> <li>Orange LED (160mcd, 20mA, 2.1Vf, Clear) - APT2012SECK  
[Digikey: 754-1130-1-ND]</li> </ul> <li><b>1206</b> - 1206 Surface Mount Package <hr> <ul> <li>Green LED (26mcd, 20mA, Diffused) -  
LG N971 [Digikey: 475-1407-6-ND]</li> <li>Red LED (15mcd, 20mA, Diffused) - LH N974 [Digikey: 475-1416-6-ND]</li> </ul> <li>  
<b>Cree</b> - Cree High-Power Surface Mount LEDs <hr> <ul> <li>XPBWLT-L1-0000-00D50 - White 111lm 350mA 2.9Vf 6200K  
110°</li> <li>XTEAWT-00-0000-00000LEE3 - White 114lm 350mA 2.85Vf 5000K 115°</li> </ul> <li><b>Everlight</b> - Everlight 45-21  
Series Surface Mount LEDs <hr> <ul> <li><b>45-21/QK2C-B2832AC2CB2/2T - Warm White 2000mcd 20mA 3.25Vf 3050K 120°</li> <li><b>45-  
21/LK2C-B38452C4CB2/2T - Neutral White 2000mcd 20mA 3.25Vf 4150K 120°</li> <li><b>45-21/LK2C-B50634C6CB2/2T - Cold White  
2200mcd 20mA 3.25Vf 5650K 120°</li> </ul> <li><b>PLCC2 Reverse Mount</b> <hr> <ul> <li>LS T77K-J1L2-1-0-2-R18-Z - Red  
11.25mcd 2mA 1.8Vf 630nm 120°</li> <li>LO T77K-L1M2-24-Z - Orange 19.6mcd 2mA 1.8Vf 606nm 120°</li> <li>LY T77K-K2M1-26-Z -  
Yellow 15.7mcd 2mA 1.8Vf 587nm 120°</li> </ul> <li><b>Honglitronic</b> - HL-A-5730D1W-S1-08-HR3(LY) <hr> <ul> <li>LCPART  
C210349 </li> <li>https://datasheet.lcsc.com/szlcsc/2009021504\_HONGLITRONIC-Hongli-Zhihui-HONGLITRONIC-HL-A-5730D1W-S1-  
08-HR3-LY\_C210349.pdf - Warm White </li> </ul> <li><b>Everlight</b> - Everlight 62-217D Series Surface Mount LEDs <hr> <ul>  
<li><b>62-217D-KK4D-H5757R2R52633Z15-2T-GC = LCPART C82669 - Warm White </li> </ul> <p><b>LED</b></p> <b>0603</b> - 0603  
Surface Mount Package <hr> <p><b><u>2mA:</u></b></p> <ul> <li>Green LED - Low Power (3.9mcd, 2ma, 1.7Vf) - Digikey: 475-2709-  
2-ND</li> <li>Orange LED - Low Power (9.8mcd, 2ma, 1.8Vf) - Digikey: 475-1194-2-ND</li> <li>Red LED - Low Power (5mcd, 2ma,  
1.8Vf) - Digikey: 475-1195-2-ND</li> <li>Yellow LED - Low Power (7mcd, 2ma, 1.8Vf) - Digikey: 475-1196-2-ND</li> </ul> <p><b><u>  
5mA:</u></b></p> <ul> <li>Blue LED - Low Power (17mcd, 5ma, 2.9Vf) - Digikey: LNJ937W8CRAC-T-ND</li> </ul> <b>0805</b> -  
0805 Surface Mount Package <hr> <p><b><u>2mA:</u></b></p> <ul> <li>Red LED (8.8mcd, 2mA, 1.8Vf, Clear) - Low Power [Digikey:  
475-2510-1-ND]</li> <li>Green LED (5mcd, 2mA, 1.8Vf, Clear) - Low Power [Digikey: 475-2730-1-ND]</li> <li>Yellow LED (11.3mcd,  
2mA, 1.8Vf, Clear) - Low Power [Digikey: 475-2555-1-ND]</li> </ul> <p><b><u>20mA:</u></b></p> <ul> <li>Red LED (104mcd, 20mA,  
Diffused) - LS R976 [Digikey: 475-1278-6-ND]</li> <li>Red LED (12mcd, 20mA, 2.0Vf, Clear) - APT2012EC [Digikey: 754-1128-1-ND]</li>  
<li>Green LED (15mcd, 20mA, 2.2Vf, Clear) - APT2012GC [Digikey: 754-1131-1-ND]</li> <li>Orange LED (160mcd, 20mA, 2.1Vf, Clear) -  
APT2012SECK [Digikey: 754-1130-1-ND]</li> </ul> <li><b>1206</b> - 1206 Surface Mount Package <hr> <ul> <li>Green LED (26mcd,  
20mA, Diffused) - LG N971 [Digikey: 475-1407-6-ND]</li> <li>Red LED (15mcd, 20mA, Diffused) - LH N974 [Digikey: 475-1416-6-ND]</li>  
</ul> <li><b>Cree</b> - Cree High-Power Surface Mount LEDs <hr> <ul> <li>XPBWLT-L1-0000-00D50 - White 111lm 350mA 2.9Vf  
6200K 110°</li> <li>XTEAWT-00-0000-00000LEE3 - White 114lm 350mA 2.85Vf 5000K 115°</li> </ul> <li><b>Everlight</b> - Everlight  
45-21 Series Surface Mount LEDs <hr> <ul> <li><b>45-21/QK2C-B2832AC2CB2/2T - Warm White

<b>RESISTOR</b><p> type 0204, grid 7.5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0207, grid 10 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0207, grid 12 mm >NAME >VALUE <b>RESISTOR</b><p> type 0207, grid 15mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0207, grid 2.5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0207, grid 5 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0207, grid 7.5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0309, grid 10mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0309, grid 12.5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0411, grid 12.5 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0411, grid 15 mm >NAME >VALUE <b>RESISTOR</b><p> type 0411, grid 3.81 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0414, grid 15 mm >NAME >VALUE <b>RESISTOR</b><p> type 0414, grid 5 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0617, grid 17.5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0617, grid 22.5 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0617, grid 5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0922, grid 22.5 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0613, grid 5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0613, grid 15 mm >NAME >VALUE  
<b>RESISTOR</b><p> type 0817, grid 22.5 mm >NAME >VALUE 0817 <b>RESISTOR</b><p> type 0817, grid 6.35 mm >NAME  
>VALUE 0817 <b>RESISTOR</b><p> type V234, grid 12.5 mm >NAME >VALUE <b>RESISTOR</b><p> type V235, grid 17.78 mm  
>NAME >VALUE <b>RESISTOR</b><p> type V526-0, grid 2.5 mm >NAME >VALUE <b>Mini MELF 0102 Axial</b><p> >NAME >VALUE  
<b>RESISTOR</b><p> type 0922, grid 7.5 mm >NAME >VALUE 0922 <b>CECC Size RC2211</b><p> Reflow Soldering<p> source  
Beyschlag >NAME >VALUE <b>CECC Size RC2211</b><p> Wave Soldering<p> source Beyschlag >NAME >VALUE <b>CECC Size  
RC3715</b><p> Reflow Soldering<p> source Beyschlag >NAME >VALUE <b>CECC Size RC3715</b><p> Wave Soldering<p> source  
Beyschlag >NAME >VALUE <b>CECC Size RC6123</b><p> Reflow Soldering<p> source Beyschlag >NAME >VALUE <b>CECC Size  
RC6123</b><p> Wave Soldering<p> source Beyschlag >NAME >VALUE <b>RESISTOR</b><p> type RDH, grid 15 mm >NAME >VALUE  
RDH <b>RESISTOR</b><p> type 0204, grid 2.5 mm >NAME >VALUE <b>RESISTOR</b><p> type 0309, grid 2.5 mm >NAME >VALUE  
<b>RESISTOR</b> chip<p> Source: <http://www.vishay.com/docs/20008/dcrw.pdf> >NAME >VALUE <b>Bulk Metal® Foil  
Technology</b><p>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements<p> MIL SIZE RNC55<br> Source: VISHAY  
.. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b><p>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005  
Requirements<p> MIL SIZE RNC60<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b><p>, Tubular  
Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements<p> MIL SIZE RBR52<br> Source: VISHAY .. vta56.pdf >NAME  
>VALUE <b>Bulk Metal® Foil Technology</b><p>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements<p> MIL SIZE  
RBR53<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b><p>, Tubular Axial Lead Resistors, Meets or  
Exceeds MIL-R-39005 Requirements<p> MIL SIZE RBR54<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil  
Technology</b><p>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements<p> MIL SIZE RBR55<br> Source: VISHAY  
.. vta56.pdf >NAME >VALUE <b>Bulk Metal® Foil Technology</b><p>, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005  
Requirements<p> MIL SIZE RBR56<br> Source: VISHAY .. vta56.pdf >NAME >VALUE <b>Package 4527</b><p> Source:  
<http://www.vishay.com/docs/31059/wsrhigh.pdf> >NAME >VALUE <b>Wirewound Resistors, Precision Power</b><p> Source: VISHAY  
wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision Power</b><p> Source: VISHAY wscwsn.pdf >NAME >VALUE  
<b>Wirewound Resistors, Precision Power</b><p> Source: VISHAY wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision  
Power</b><p> Source: VISHAY wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision Power</b><p> Source: VISHAY  
wscwsn.pdf >NAME >VALUE <b>Wirewound Resistors, Precision Power</b><p> Source: VISHAY wscwsn.pdf >NAME >VALUE  
<b>CRCW1218 Thick Film, Rectangular Chip Resistors</b><p> Source: <http://www.vishay.com> .. dcrw.pdf >NAME >VALUE <b>Chip  
Monolithic Ceramic Capacitors</b><p> Medium Voltage High Capacitance for General Use<p> Source: <http://www.murata.com> ..  
GRM43DR72E224KW01.pdf >NAME >VALUE >NAME >VALUE <b>CAPACITOR</b><p> chip >NAME >VALUE >NAME >VALUE  
>LCPART >NAME >VALUE >NAME >VALUE >NAME >VALUE CTZ3 Series land pattern for variable capacitor - CTZ3E-50C-W1-PF  
>NAME >VALUE This is the "EZ" version of the .1" spaced ceramic thru-hole cap. <br> It has reduced top mask to make it harder to put  
the component on the wrong side of the board. >Name >Value <h3>CAP-PTH-SMALL-KIT</h3> Commonly used for small ceramic  
capacitors. Like our 0.1uF (<http://www.sparkfun.com/products/8375>) or 22pF caps (<http://www.sparkfun.com/products/8571>). <br> <br>  
<b>Warning:</b> This is the KIT version of this package. This package has a smaller diameter top stop mask, which doesn't cover the  
diameter of the pad. This means only the bottom side of the pads' copper will be exposed. You'll only be able to solder to the bottom side.  
>Name >Value >Name >Value >Name >Value >Name >Value >Name >Value >Name >Value >Name >Value <b>PIN HEADER</b><p>  
>NAME >VALUE <b>Solder jumper</b><p> <b>Solder jumper</b><p> Chip RESISTOR 0402 EIA (1005 Metric) RESISTOR RESISTOR  
RESISTOR wave soldering RESISTOR RESISTOR wave soldering RESISTOR RESISTOR wave soldering RESISTOR RESISTOR wave soldering  
RESISTOR RESISTOR wave soldering RESISTOR RESISTOR wave soldering RESISTOR RESISTOR wave soldering RESISTOR RESISTOR wave soldering  
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[http://download.siliconexpert.com/pdfs/2005/02/24/Semi\\_Ap/2/VSH/Resistor/dcrwfre.pdf](http://download.siliconexpert.com/pdfs/2005/02/24/Semi_Ap/2/VSH/Resistor/dcrwfre.pdf) RESISTOR wave soldering Source:  
[http://download.siliconexpert.com/pdfs/2005/02/24/Semi\\_Ap/2/VSH/Resistor/dcrwfre.pdf](http://download.siliconexpert.com/pdfs/2005/02/24/Semi_Ap/2/VSH/Resistor/dcrwfre.pdf) RESISTOR MELF 0.10 W RESISTOR MELF  
0.25 W RESISTOR MELF 0.12 W RESISTOR MELF 0.10 W RESISTOR MELF 0.25 W RESISTOR MELF 0.25 W RESISTOR MELF 0.12  
W RESISTOR MELF 0.25 W RESISTOR type 0204, grid 5 mm RESISTOR type 0204, grid 7.5 mm RESISTOR type 0207, grid 10 mm  
RESISTOR type 0207, grid 12 mm RESISTOR type 0207, grid 15mm RESISTOR type 0207, grid 2.5 mm RESISTOR type 0207, grid 5  
mm RESISTOR type 0207, grid 7.5 mm RESISTOR type 0309, grid 10mm RESISTOR type 0309, grid 12.5 mm RESISTOR type 0411,  
grid 12.5 mm RESISTOR type 0411, grid 15 mm RESISTOR type 0411, grid 3.81 mm RESISTOR type 0414, grid 15 mm RESISTOR type  
0414, grid 5 mm RESISTOR type 0617, grid 17.5 mm RESISTOR type 0617, grid 22.5 mm RESISTOR type 0617, grid 5 mm RESISTOR  
type 0922, grid 22.5 mm RESISTOR type 0613, grid 5 mm RESISTOR type 0613, grid 15 mm RESISTOR type 0817, grid 22.5 mm  
RESISTOR type 0817, grid 6.35 mm RESISTOR type V234, grid 12.5 mm RESISTOR type V235, grid 17.78 mm RESISTOR type V526-  
0, grid 2.5 mm Mini MELF 0102 Axial RESISTOR type 0922, grid 7.5 mm CECC Size RC2211 Reflow Soldering source Beyschlag CECC  
Size RC2211 Wave Soldering source Beyschlag CECC Size RC3715 Reflow Soldering source Beyschlag CECC Size RC3715 Wave  
Soldering source Beyschlag CECC Size RC6123 Reflow Soldering source Beyschlag CECC Size RC6123 Wave Soldering source  
Beyschlag RESISTOR type RDH, grid 15 mm RESISTOR type 0204, grid 2.5 mm RESISTOR type 0309, grid 2.5 mm RESISTOR chip  
Source: <http://www.vishay.com/docs/20008/dcrw.pdf> Bulk Metal® Foil Technology, Tubular Axial Lead Resistors, Meets or Exceeds MIL-  
R-39005 Requirements MIL SIZE RNC55 Source: VISHAY .. vta56.pdf Bulk Metal® Foil Technology, Tubular Axial Lead Resistors, Meets  
or Exceeds MIL-R-39005 Requirements MIL SIZE RNC60 Source: VISHAY .. vta56.pdf Bulk Metal® Foil Technology, Tubular Axial Lead  
Resistors, Meets or Exceeds MIL-R-39005 Requirements MIL SIZE RBR52 Source: VISHAY .. vta56.pdf Bulk Metal® Foil Technology,  
Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements MIL SIZE RBR53 Source: VISHAY .. vta56.pdf Bulk Metal®  
Foil Technology, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements MIL SIZE RBR54 Source: VISHAY ..  
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Source: VISHAY .. vta56.pdf Bulk Metal® Foil Technology, Tubular Axial Lead Resistors, Meets or Exceeds MIL-R-39005 Requirements  
MIL SIZE RBR56 Source: VISHAY .. vta56.pdf Package 4527 Source: <http://www.vishay.com/docs/31059/wsrhigh.pdf> Wirewound  
Resistors, Precision Power Source: VISHAY wscwsn.pdf Wirewound Resistors, Precision Power Source: VISHAY wscwsn.pdf Wirewound  
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Resistors, Precision Power Source: VISHAY wscwsn.pdf Wirewound Resistors, Precision Power Source: VISHAY wscwsn.pdf  
CRCW1218 Thick Film, Rectangular Chip Resistors Source: <http://www.vishay.com> .. dcrw.pdf Chip Monolithic Ceramic Capacitors  
Medium Voltage High Capacitance for General Use Source: <http://www.murata.com> .. GRM43DR72E224KW01.pdf Chip, 0.40 X 0.20 X  
0.16 mm body <p>Chip package with body size 0.40 X 0.20 X 0.16 mm</p> CAPACITOR chip CTZ3 Series land pattern for variable  
capacitor - CTZ3E-50C-W1-PF This is the "EZ" version of the .1" spaced ceramic thru-hole cap. It has reduced top mask to make it harder  
to put the component on the wrong side of the board. CAP-PTH-SMALL-KIT Commonly used for small ceramic capacitors. Like our 0.1uF  
(<http://www.sparkfun.com/products/8375>) or 22pF caps (<http://www.sparkfun.com/products/8571>). Warning: This is the KIT version of this



package. This package has a smaller diameter top stop mask, which doesn't cover the diameter of the pad. This means only the bottom side of the pads' copper will be exposed. You'll only be able to solder to the bottom side.

<b>PIN HEADER</b> >NAME >VALUE >NAME >VALUE >LCPART >NAME >VALUE >LCPART >VALUE KM >NAME >VALUE <B>RESISTOR</B>, American symbol <b>Capacitor</b> Standard 0603 ceramic capacitor, and 0.1" leaded capacitor. <b>SUPPLY SYMBOL</b> <b>PIN HEADER</b> <B>Dual In Line</B> 0.3 inch >NAME >VALUE <B>Thin Plastic Quad Flat Package</B> Grid 0.8 mm >NAME >VALUE <b>SMD DIL28</b><p> dual in line package, body 6.35 mm >NAME >VALUE 1 <b>SMD DIL28</b><p> dual in line package, body 6.35 mm >NAME >VALUE 1 PINS REVERSED TO MATE WITH DIP28 ON BOTTOM <B>Dual In Line</B> 0.3 inch <B>Thin Plastic Quad Flat Package</B> Grid 0.8 mm <b>SMD DIL28</b><p> dual in line package, body 6.35 mm <b>SMD DIL28</b><p> dual in line package, body 6.35 mm >NAME >VALUE <b>MICROCONTROLLER</b><p> 4 Kbytes FLASH<p> 128 bytes SRAM<p> 256 bytes EEPROM<p> UART<p> 6-channel 10 bit ADC >NAME >VALUE <h3>3.2 x 2.5mm SMD Crystal Package</h3> <p>Example: <a href="http://www.digikey.com/product-search/en?keywords=SER3627TR-ND">SX-32S</a><p> >Name >Value <h3>HC49/U 11.6x4.6mm PTH Crystal (13.46mm height)</h3> <p><a href="https://www.digikey.com/Web%20Export/Supplier%20Content/Citizen\_300/PDF/Citizen\_HC49US.pdf?redirected=1">Example Datasheet</a><p> >NAME >VALUE <h3>3x8mm Cylindrical Can (Radial) PTH Crystal</h3> This is the "KIT" version, which has limited top masking for improved ease of assembly. <p>Example product: <a href="https://www.sparkfun.com/products/540">32kHz crystal</a><p> <p><a href="http://www.ecsxtal.com/store/pdf/ECS-3x8.pdf">Example datasheet</a> (ECS-3X8)<p> >NAME >VALUE <h3>2x6mm Cylindrical Can (Radial) PTH Crystal</h3> <p>Example product: <a href="https://www.sparkfun.com/products/540">32kHz crystal</a><p> <p><a href="http://www.ecsxtal.com/store/pdf/ECS-3x8.pdf">Example datasheet</a> (ECS-2X6)<p> >NAME >VALUE <h3>HC-49/UP 11.4x4.8mm SMD Crystal</h3> <p><a href="http://www.standardcrystalcorp.com/pdf%5Cc-3.pdf">Example Datasheet</a><p> >NAME >VALUE <h3>HC49/US 11.6x4.6mm PTH Crystal</h3> <p><a href="https://www.digikey.com/Web%20Export/Supplier%20Content/Citizen\_300/PDF/Citizen\_HC49US.pdf?redirected=1">Example Datasheet</a><p> >NAME >VALUE <h3>6.0x2.0mm Cylindrical Can (Radial) SMD Crystal</h3> <p><a href="http://cfm.citizen.co.jp/english/product/pdf/CMR200T.pdf">Example</a><p> >Name >Value <h3>5x3.2mm SMD Crystal</h3> <p>Example: <a href="https://www.sparkfun.com/products/94">16MHz SMD Crystal</a> (<a href="https://www.sparkfun.com/datasheets/Components/SPK-5032-16MHZ.pdf">Datasheet</a>)<p> >NAME >VALUE <h3>7x1.5mm MC-146 Flat Lead SMD Crystal</h3> <p><a href="https://support.epson.biz/td/api/doc\_check.php?dl=brief\_MC-156\_en.pdf">Example Datasheet</a><p> >Name >Value <h3>2x6mm Cylindrical Can (Radial) PTH Crystal</h3> This is the "KIT" version, which has limited top masking for improved ease of assembly. <p>Example product: <a href="https://www.sparkfun.com/products/540">32kHz crystal</a><p> <p><a href="http://www.ecsxtal.com/store/pdf/ECS-3x8.pdf">Example datasheet</a> (ECS-2X6)<p> >NAME >VALUE <h3>5x3.2mm 2-pad SMD Crystal</h3> <p><a href="http://www.txccrystal.com/images/pdf/7a.pdf">Example Datasheet</a><p> >NAME >VALUE <h3>3.2 x 1.5mm SMD Crystal Package</h3> <p>Example: <a href="http://www.sii.co.jp/en/quartz/files/2013/03/file\_PRODUCT\_MASTER\_50812\_GRAPHIC03.pdf">SX-32S</a><p> >Name >Value 3.2 x 2.5mm SMD Crystal Package Example: SX-32S HC49/U 11.6x4.6mm PTH Crystal (13.46mm height) Example Datasheet 3x8mm Cylindrical Can (Radial) PTH Crystal This is the "KIT" version, which has limited top masking for improved ease of assembly. Example product: 32kHz crystal Example datasheet (ECS-3X8) 2x6mm Cylindrical Can (Radial) PTH Crystal Example product: 32kHz crystal Example datasheet (ECS-2X6) HC-49/UP 11.4x4.8mm SMD Crystal Example Datasheet HC49/US 11.6x4.6mm PTH Crystal Example Datasheet 6.0x2.0mm Cylindrical Can (Radial) SMD Crystal Example 5x3.2mm SMD Crystal Example: 16MHz SMD Crystal (Datasheet) 7x1.5mm MC-146 Flat Lead SMD Crystal Example Datasheet 2x6mm Cylindrical Can (Radial) PTH Crystal This is the "KIT" version, which has limited top masking for improved ease of assembly. Example product: 32kHz crystal Example datasheet (ECS-2X6) 5x3.2mm 2-pad SMD Crystal Example Datasheet 3.2 x 1.5mm SMD Crystal Package Example: SX-32S <h3>Crystal (no ground pin)</h3> >NAME >VALUE 1 2 <h3>Crystals (Generic)</h3> <p>These are <b>passive</b> quartz crystals, which can be used as a clock source for a microcontroller.<p> <p>Crystal's are two-terminal devices. They require external "load" capacitors to generate an oscillating signal.<p> 0 1 2 3 4 5 6 7 10 11 12 13 5.1K GIVES 5V3A 25% 50% 75% 100% Since Version 6.2.2 text objects can contain more than one line, which will not be processed correctly with this version. Since Version 8.2, EAGLE supports online libraries. The ids of those online libraries will not be understood (or retained) with this version. Since Version 8.3, EAGLE supports URNs for individual library assets (packages, symbols, and devices). The URNs of those assets will not be understood (or retained) with this version. Since Version 8.3, EAGLE supports the association of 3D packages with devices in libraries, schematics, and board files. Those 3D packages will not be understood (or retained) with this version. Since Version 9.5, EAGLE supports persistent groups with schematics, and board files. Those persistent groups will not be understood (or retained) with this version. Since Version 8.4, EAGLE supports properties for SPICE simulation. Probes in schematics and SPICE mapping objects found in parts and library devices will not be understood with this version. Update EAGLE to the latest version for full support of SPICE simulation.