

KiCad - 3D Viewer

Component materials reference list
(for 3D component model artists)



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Mario Luzeiro
mrluzeiro@ua.pt

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- On this document it is proposed a list of materials to apply in 3D models components to be used in the KiCad 3D Viewer.
- The ambientIntensity was calculated as following:
 - $\text{ambientIntensity} = \frac{(0.212671 * \text{amb.r} + 0.71516 * \text{amb.g} + 0.072169 * \text{amb.b})}{(0.212671 * \text{dif.r} + 0.71516 * \text{dif.g} + 0.072169 * \text{dif.b})}$
- The specularColor was calculated as following:
 - $\text{specularColor} = \text{picked specular} - \text{diffuse}$

- It is presented the VRML 2 material definition in the following format:

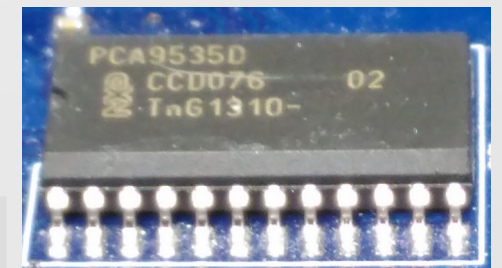
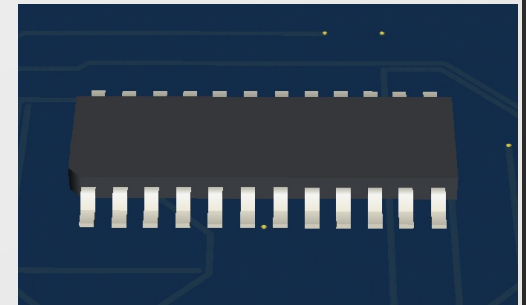
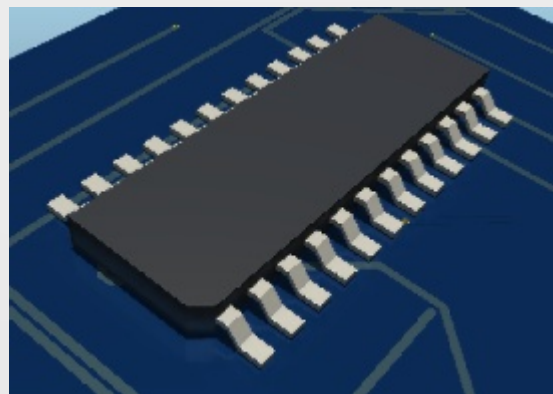
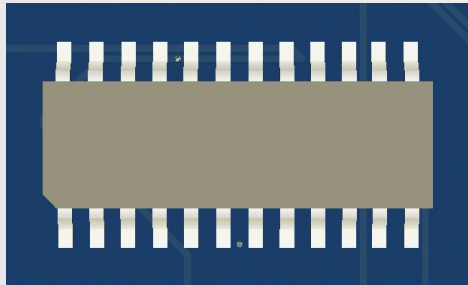
```
material DEF MATERIAL_NAME Material {  
    ambientIntensity 0.000  
    diffuseColor      0.000 0.000 0.000  
    specularColor     0.000 0.000 0.000  
    emissiveColor      0.0 0.0 0.0  
    shininess          0.00  
    transparency       0.0  
}
```

- If using other file format, please consult the format specification on how this values should be applied / converted.

IC-BODY-EPOXY-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
11 11 11	64 67 72	81 72 45	
0.043 0.043 0.043	0.250 0.262 0.281	0.316 0.281 0.176	0.25

```
material DEF IC-BODY-EPOXY-01 Material {  
    ambientIntensity 0.117  
    diffuseColor      0.250 0.262 0.281  
    specularColor    0.316 0.281 0.176  
    emissiveColor    0.0 0.0 0.0  
    shininess        0.25  
    transparency     0.0  
}
```

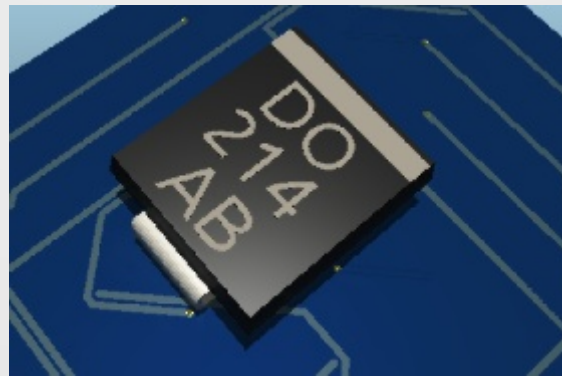
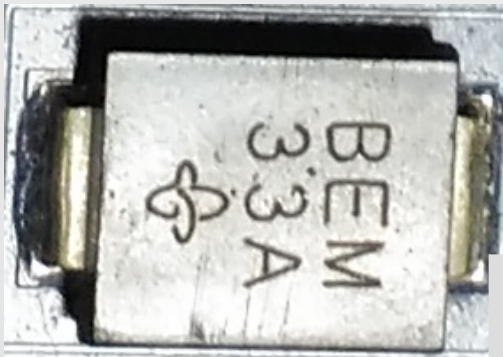
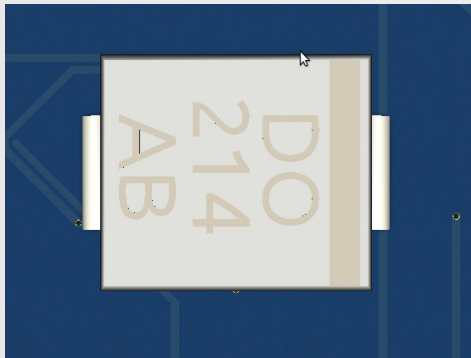


Greyish epoxy, low reflections

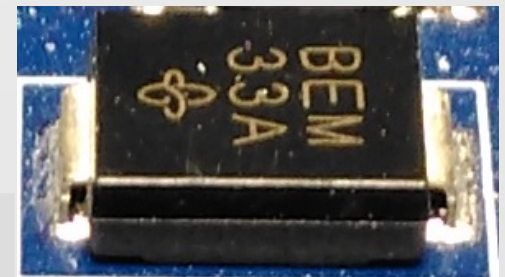
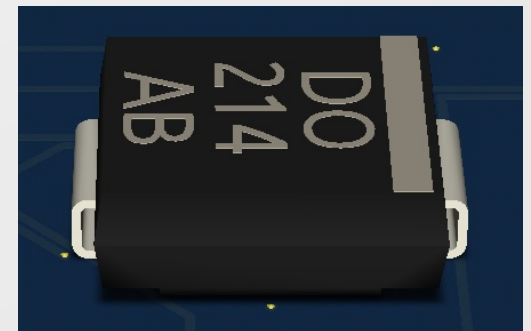
IC-BODY-EPOXY-02

AMBIENT	DIFFUSE	SPECULAR	SHININESS
14 14 14	33 33 33	185 186 181	
0.050 0.050 0.050	0.129 0.129 0.129	0.723 0.727 0.707	0.65

```
material DEF IC-BODY-EPOXY-02 Material {  
    ambientIntensity 0.424  
    diffuseColor      0.129 0.129 0.129  
    specularColor     0.723 0.727 0.707  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.65  
    transparency      0.0  
}
```



Dark epoxy, shine

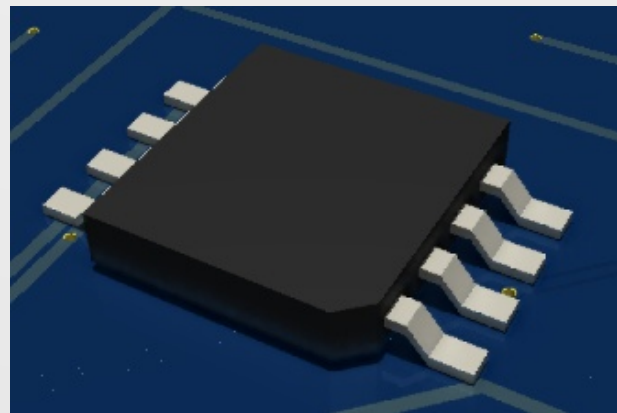
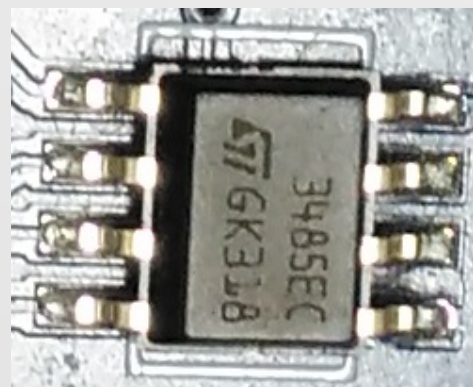
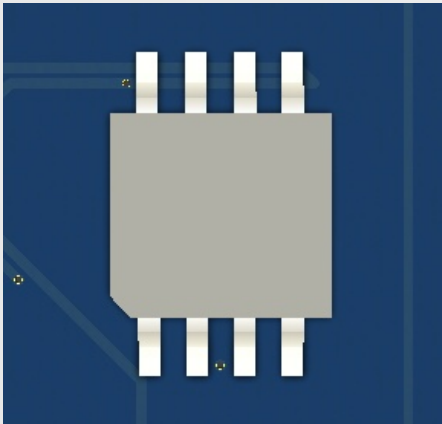


IC-BODY-EPOXY-03

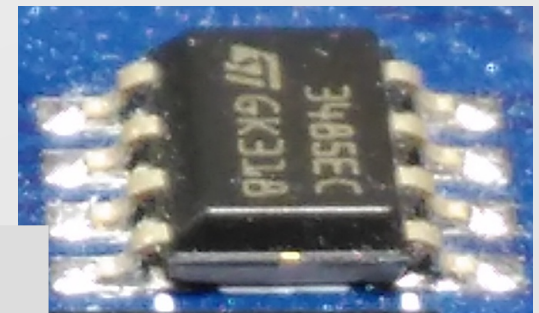
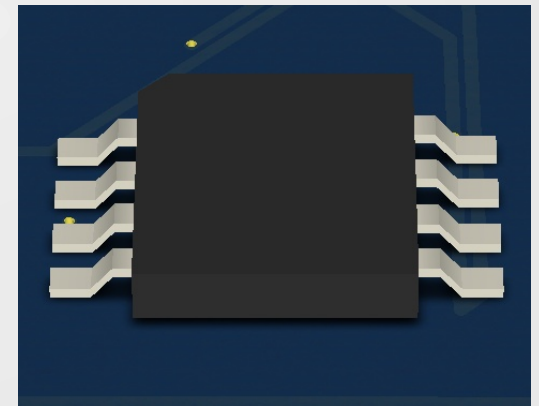
AMBIENT	DIFFUSE	SPECULAR	SHININESS
17 17 13	48 48 49	120 119 109	
0.066 0.066 0.050	0.188 0.188 0.191	0.469 0.465 0.426	0.30

```

material DEF IC-BODY-EPOXY-03 Material {
    ambientIntensity 0.347
    diffuseColor      0.188 0.188 0.191
    specularColor     0.469 0.465 0.426
    emissiveColor     0.0 0.0 0.0
    shininess         0.30
    transparency      0.0
}
    
```



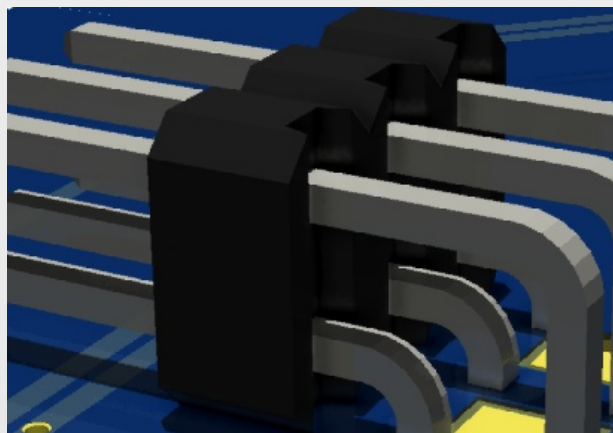
Regular epoxy, smooth



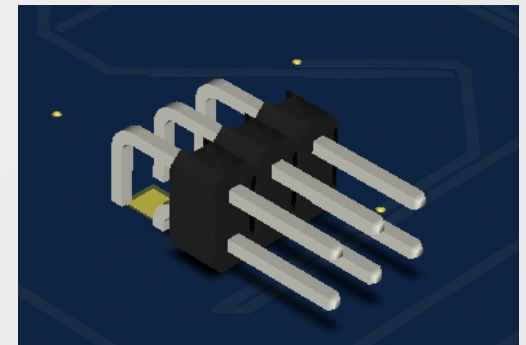
IC-BODY-EPOXY-04

AMBIENT	DIFFUSE	SPECULAR	SHININESS
14 10 11	38 37 37	84 80 78	
0.055 0.039 0.043	0.148 0.145 0.145	0.180 0.168 0.160	0.35

```
material DEF IC-BODY-EPOXY-04 Material {  
    ambientIntensity 0.293  
    diffuseColor      0.148 0.145 0.145  
    specularColor     0.180 0.168 0.160  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.35  
    transparency      0.0  
}
```



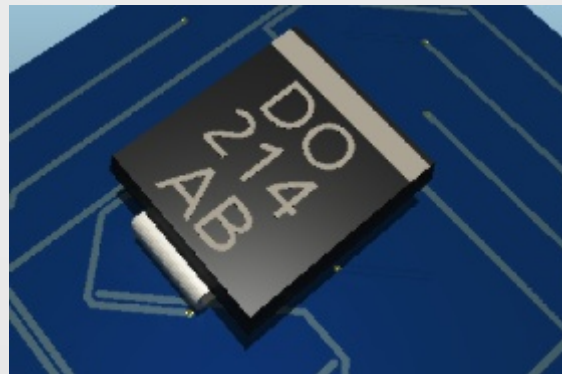
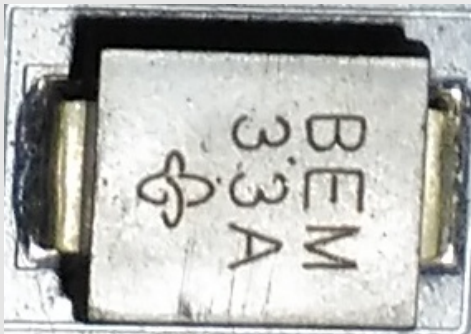
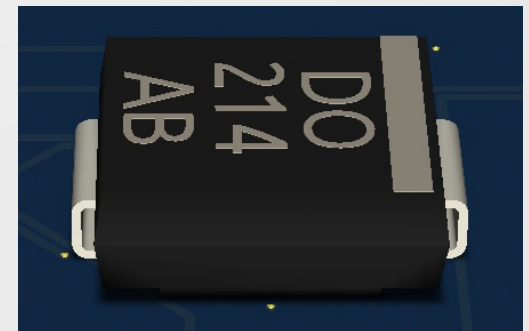
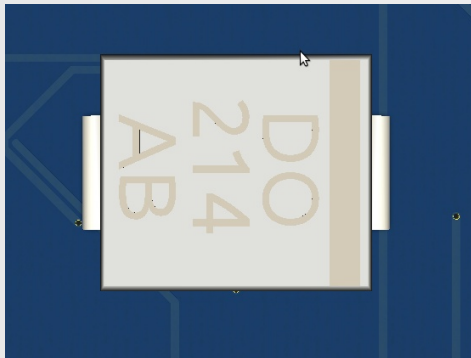
Dark epoxy, rough surface



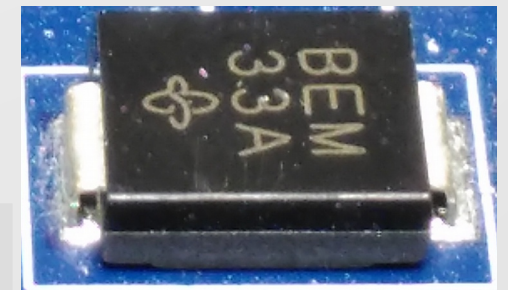
IC-LABEL-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
14 14 14	177 170 153	0 0 0	
0.050 0.050 0.050	0.691 0.664 0.598	0.000 0.000 0.000	0.01

```
material DEF IC-LABEL-01 Material {  
    ambientIntensity 0.082  
    diffuseColor      0.691 0.664 0.598  
    specularColor     0.000 0.000 0.000  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.01  
    transparency      0.0  
}
```



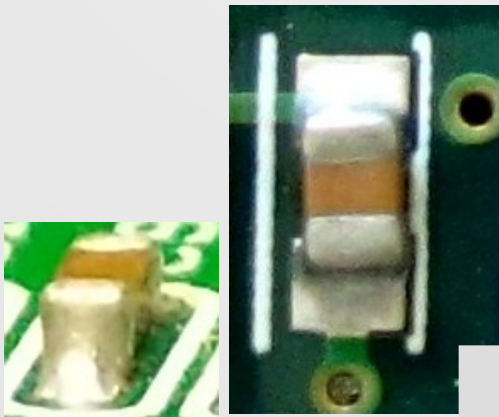
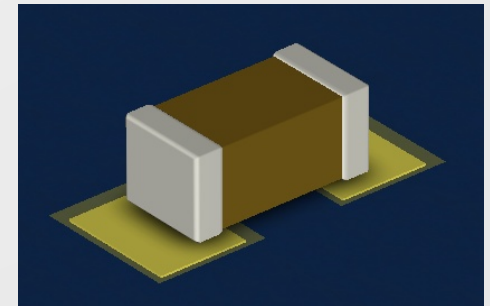
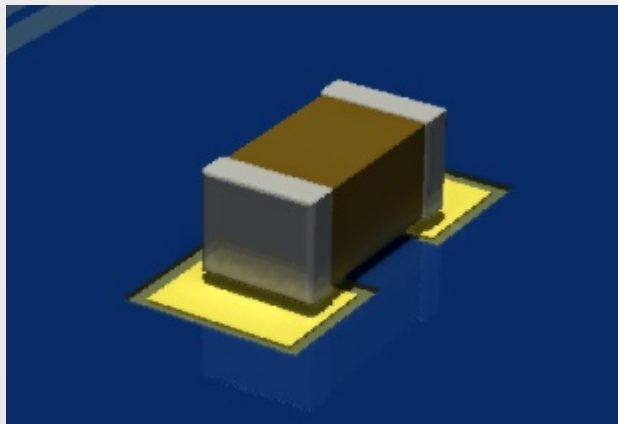
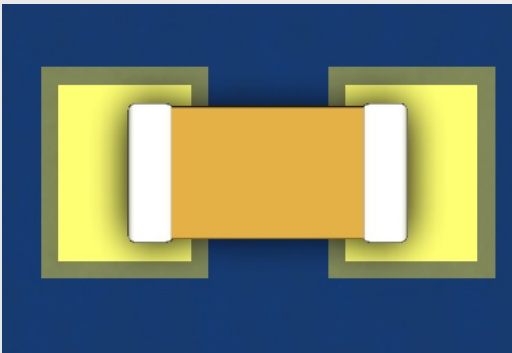
Text mark, yellowish



CAP-CERAMIC-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
84 49 19	120 93 22	84 66 44	
0.328 0.191 0.074	0.469 0.363 0.083	0.328 0.258 0.172	0.30

```
material DEF CAP-CERAMIC-01 Material {  
    ambientIntensity 0.579  
    diffuseColor      0.469 0.363 0.086  
    specularColor     0.328 0.258 0.172  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.3  
    transparency      0.0
```

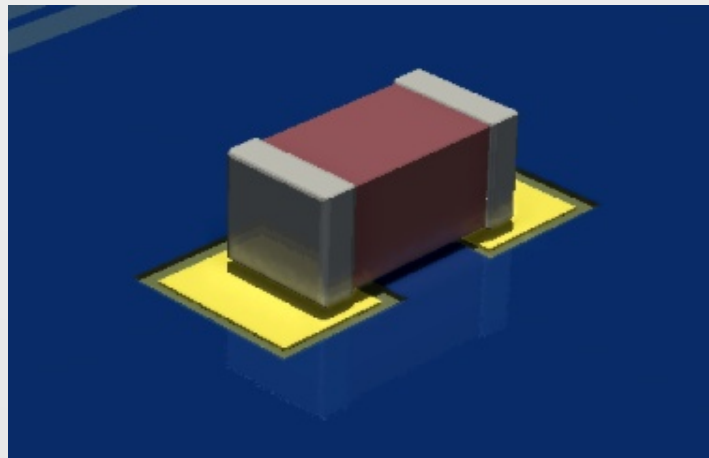
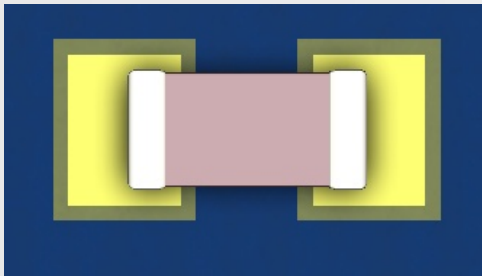


ceramic, light brown, yellowish

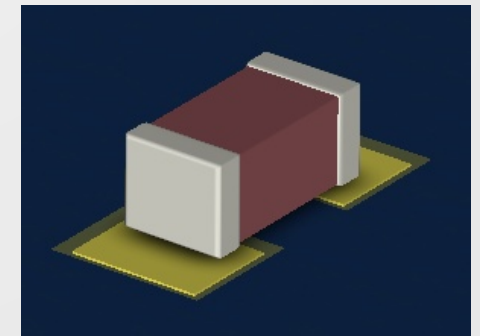
CAP-CERAMIC-02

AMBIENT	DIFFUSE	SPECULAR	SHININESS
83 65 53	148 86 90	27 70 69	
0.324 0.254 0.207	0.578 0.336 0.352	0.105 0.273 0.270	0.25

```
material DEF CAP-CERAMIC-02 Material {  
    ambientIntensity 0.683  
    diffuseColor      0.578 0.336 0.352  
    specularColor     0.105 0.273 0.270  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.25  
    transparency      0.0  
}
```

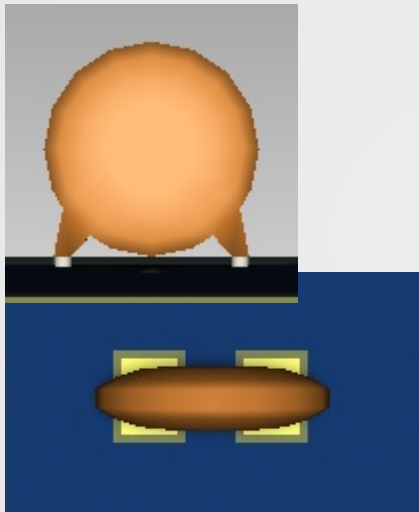


ceramic, pink



CAP-CERAMIC-03

AMBIENT	DIFFUSE	SPECULAR	SHININESS
92 22 12	193 116 44	32 52 71	
0.359 0.086 0.047	0.754 0.453 0.172	0.125 0.203 0.277	0.10



```
material DEF CAP-CERAMIC-03 Material {  
    ambientIntensity 0.284  
    diffuseColor      0.754 0.453 0.172  
    specularColor     0.125 0.203 0.227  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.10  
    transparency      0.0  
}
```



Windell Oskay

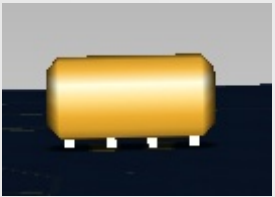


ceramic, disk, orange

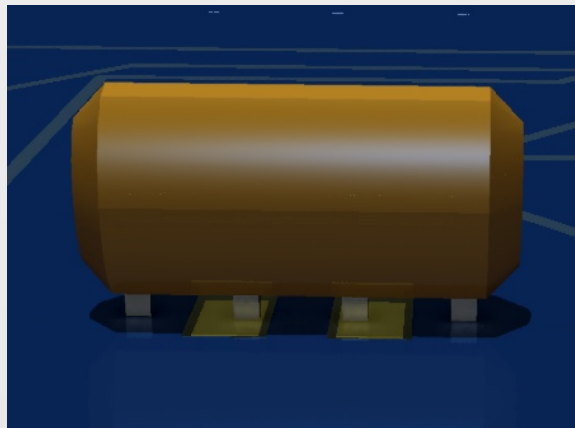
CAP-CERAMIC-04

AMBIENT	DIFFUSE	SPECULAR	SHININESS
91 42 9	208 152 40	45 93 189	
0.355 0.164 0.035	0.813 0.594 0.156	0.176 0.363 0.738	0.55

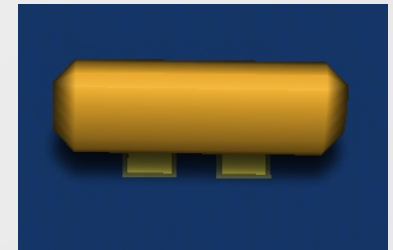
```
material DEF CAP-CERAMIC-04 Material {  
    ambientIntensity 0.321  
    diffuseColor      0.813 0.594 0.156  
    specularColor     0.176 0.363 0.738  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.55  
    transparency      0.0  
}
```



Mataresephotos



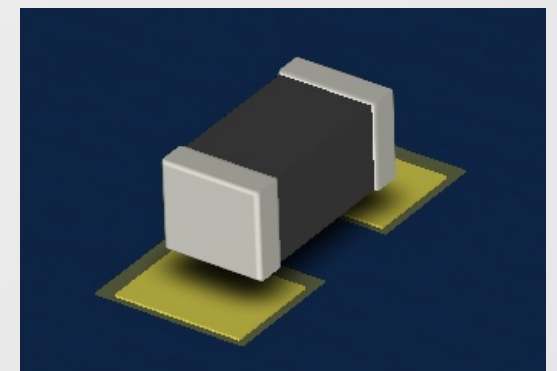
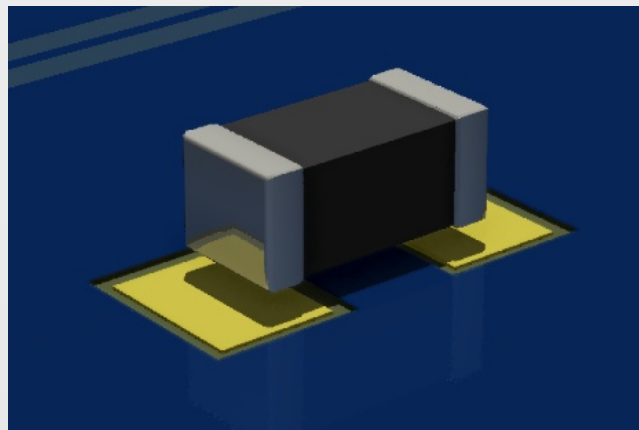
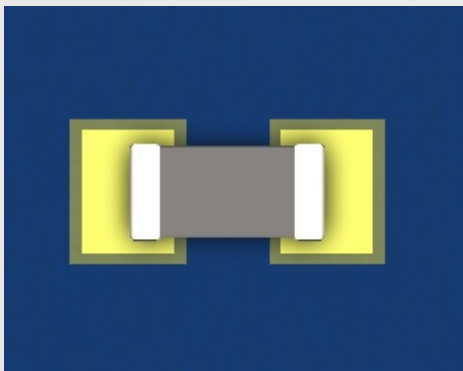
Ceramic, light orange



CAP-CERAMIC-05

AMBIENT	DIFFUSE	SPECULAR	SHININESS
13 12 17	70 70 70	52 48 45	
0.051 0.047 0.066	0.273 0.273 0.273	0.203 0.188 0.176	0.15

```
material DEF CAP-CERAMIC-05 Material {  
    ambientIntensity 0.179  
    diffuseColor      0.273 0.273 0.273  
    specularColor     0.203 0.188 0.176  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.15  
    transparency      0.0  
}
```

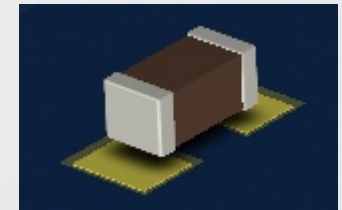
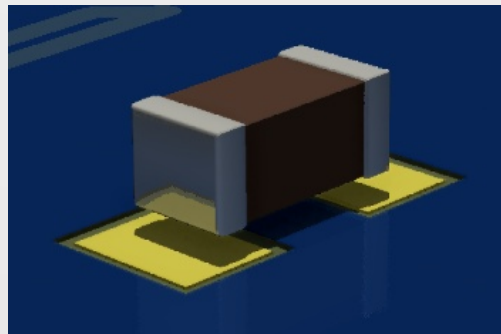
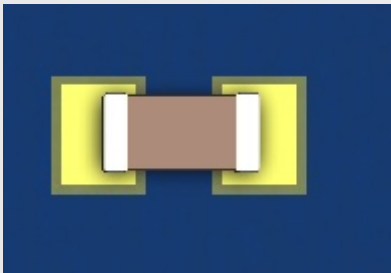


ceramic, ferrite bead

CAP-CERAMIC-06

AMBIENT	DIFFUSE	SPECULAR	SHININESS
44 32 18	97 69 55	57 57 57	
0.172 0.125 0.072	0.379 0.270 0.215	0.223 0.223 0.223	0.15

```
material DEF CAP-CERAMIC-06 Material {  
    ambientIntensity 0.453  
    diffuseColor      0.379 0.270 0.215  
    specularColor     0.223 0.223 0.223  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.15  
    transparency      0.0  
}
```

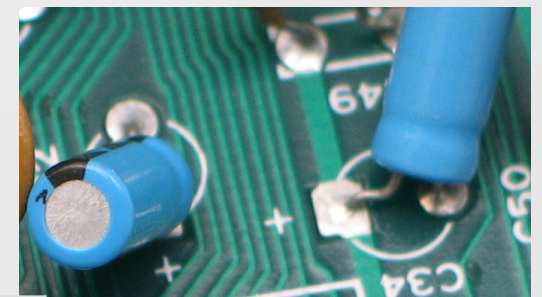
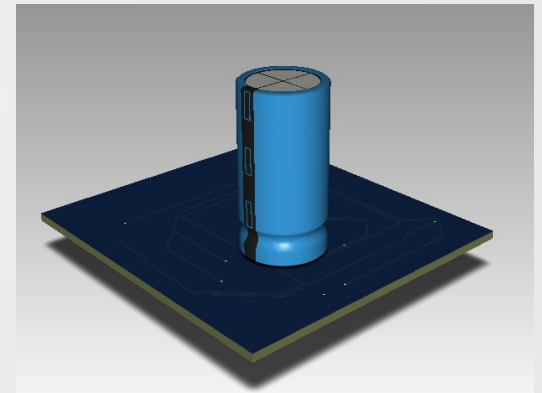
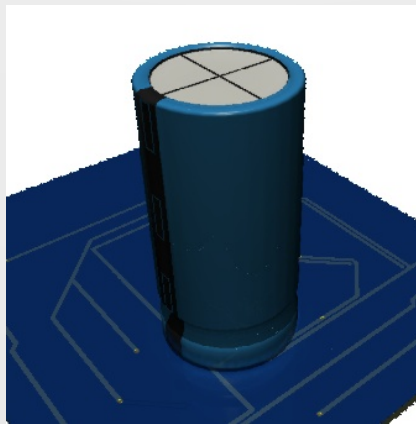
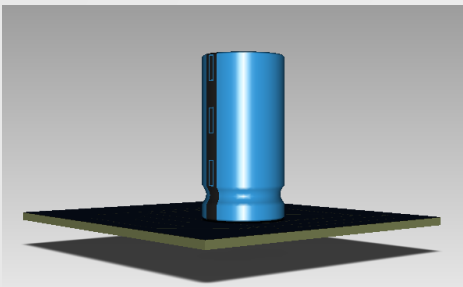


Ceramic, light brown

CAP-RADIAL-BLUE-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
9 35 60	45 131 187	195 118 63	
0.035 0.137 0.234	0.173 0.512 0.730	0.762 0.461 0.246	0.80

```
material DEF CAP-RADIAL-BLUE-01 Material {  
    ambientIntensity 0.268  
    diffuseColor      0.173 0.512 0.730  
    specularColor     0.762 0.461 0.246  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.80  
    transparency      0.0  
}
```



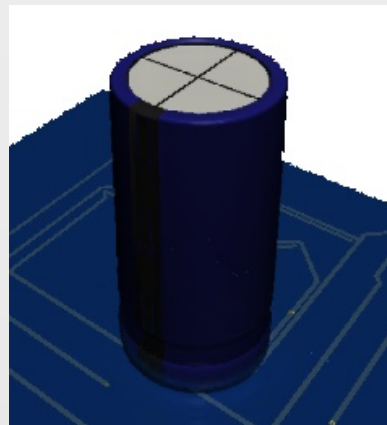
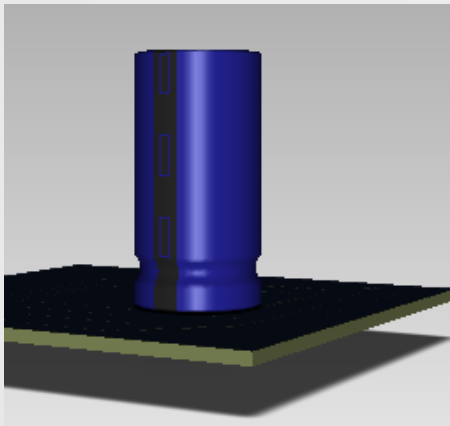
Electrolytic, radial, blue, shiny

(Christian Taube)

CAP-RADIAL-BLUE-02

AMBIENT	DIFFUSE	SPECULAR	SHININESS
12 08 23	29 28 121	95 100 81	
0.047 0.031 0.09	0.113 0.109 0.473	0.371 0.391 0.316	0.80

```
material DEF CAP-RADIAL-BLUE-01 Material {  
    ambientIntensity 0.284  
    diffuseColor      0.113 0.109 0.473  
    specularColor     0.371 0.391 0.316  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.80  
    transparency      0.0  
}
```

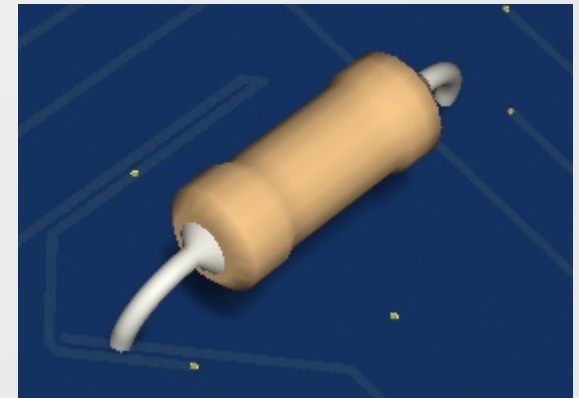
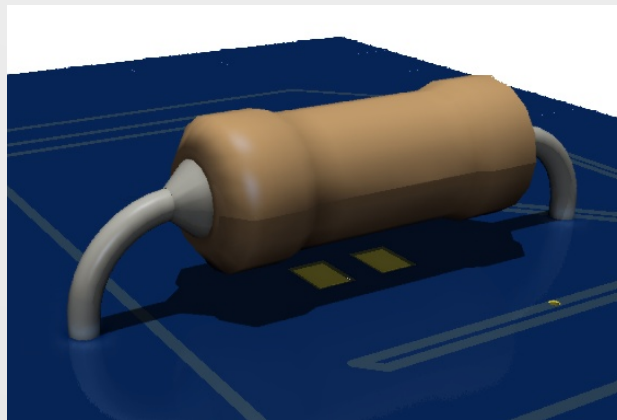


Electrolytic, radial, blue, shiny

RES-THT-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
48 22 28	226 182 126	11 31 72	
0.188 0.086 0.109	0.883 0.711 0.492	0.043 0.121 0.281	0.40

```
material DEF RES-THT-01 Material {  
  ambientIntensity 0.149  
  diffuseColor      0.883 0.711 0.492  
  specularColor    0.043 0.121 0.281  
  emissiveColor    0.0 0.0 0.0  
  shininess        0.40  
  transparency     0.0  
}
```



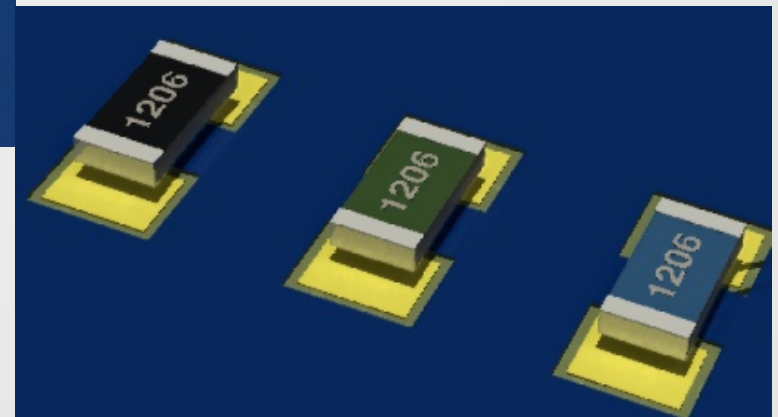
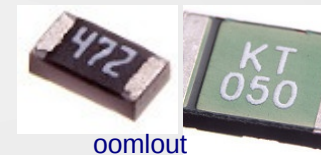
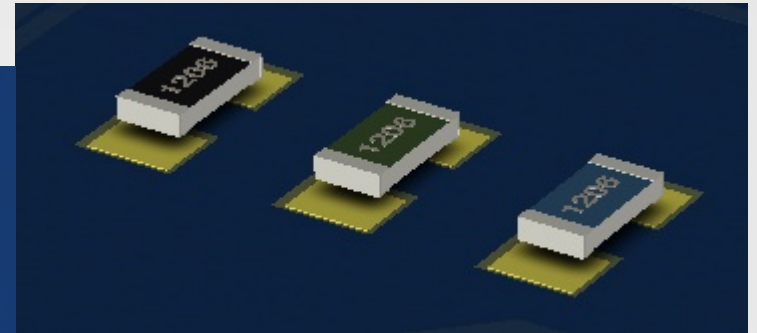
Resistor, cylinder, beige

RES-SMD

```
material DEF RES-SMD-01 Material {  
  diffuseColor 0.082 0.086 0.094  
  emissiveColor 0.000 0.000 0.000  
  specularColor 0.066 0.063 0.063  
  ambientIntensity 0.638  
  transparency 0.0  
  shininess 0.3  
}
```

```
material DEF RES-SMD-02 Material {  
  diffuseColor 0.234 0.332 0.180  
  emissiveColor 0.000 0.000 0.000  
  specularColor 0.105 0.074 0.102  
  ambientIntensity 0.512  
  transparency 0.0  
  shininess 0.3  
}
```

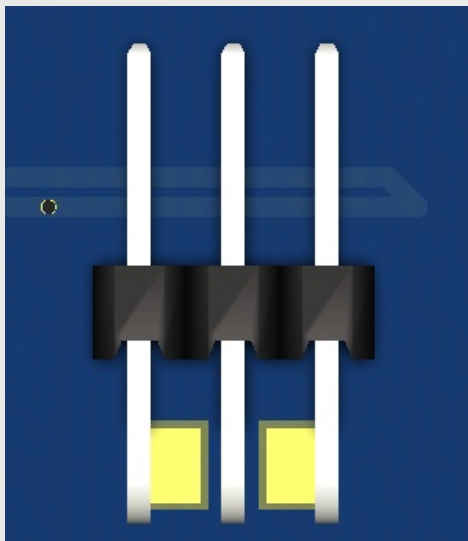
```
material DEF RES-SMD-03 Material {  
  DiffuseColor 0.192 0.352 0.492  
  emissiveColor 0.000 0.000 0.000  
  specularColor 0.289 0.250 0.203  
  ambientIntensity 0.351  
  transparency 0.0  
  shininess 0.3  
}
```



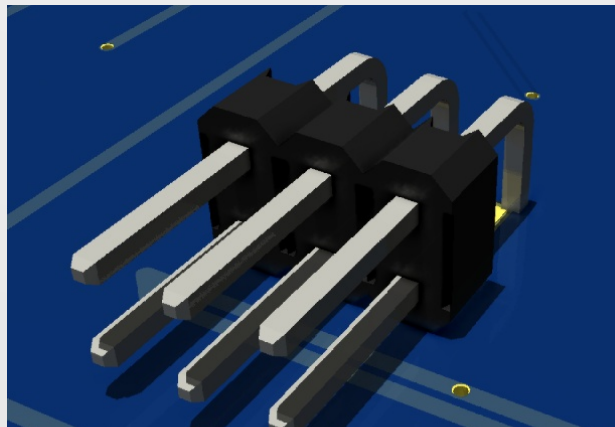
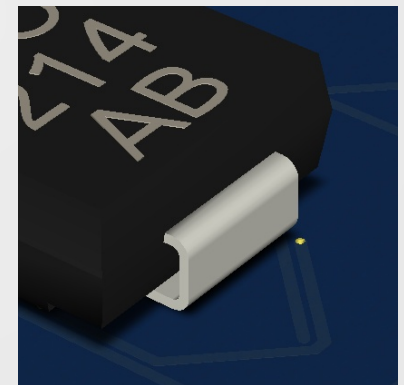
Resistor, SMD, Black, Fuse

PIN-01

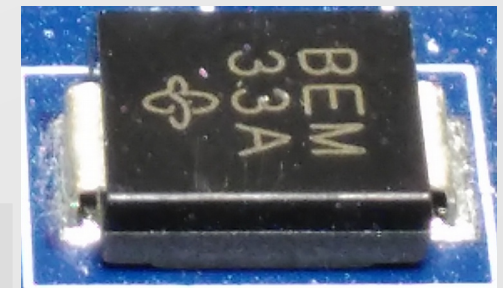
AMBIENT	DIFFUSE	SPECULAR	SHININESS
68 53 62	211 210 200	36 40 55	
0.266 0.207 0.242	0.824 0.820 0.781	0.141 0.156 0.215	0.70



```
material DEF PIN-01 Material {  
  ambientIntensity 0.271  
  diffuseColor      0.824 0.820 0.781  
  specularColor    0.328 0.258 0.172  
  emissiveColor    0.0 0.0 0.0  
  shininess        0.70  
  transparency     0.0  
}
```

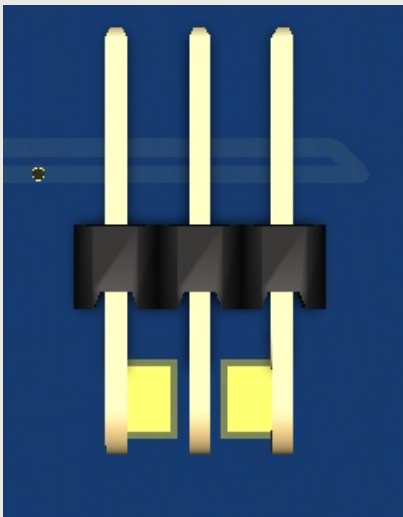


Grey pin, metal, aluminium, shiny

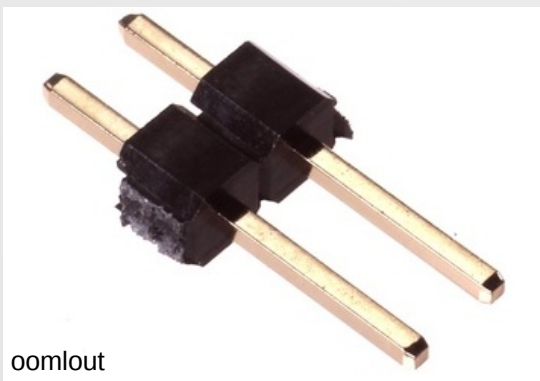
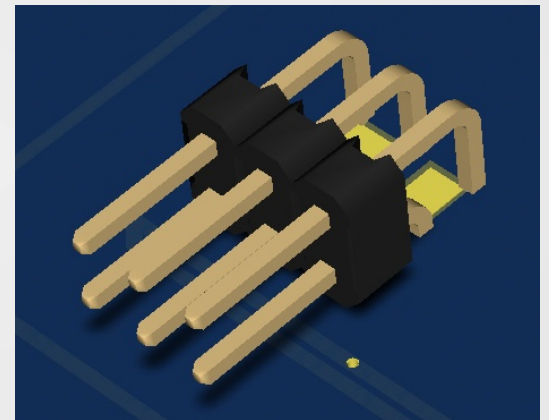


PIN-02

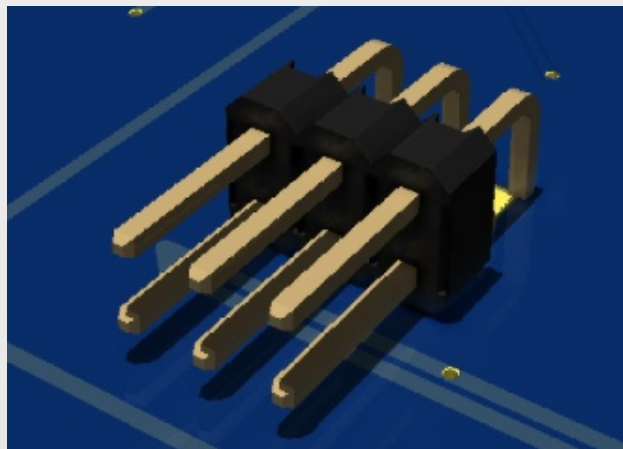
AMBIENT	DIFFUSE	SPECULAR	SHININESS
101 68 33	220 189 127	35 37 47	
0.395 0.266 0.129	0.859 0.738 0.496	0.137 0.145 0.184	0.40



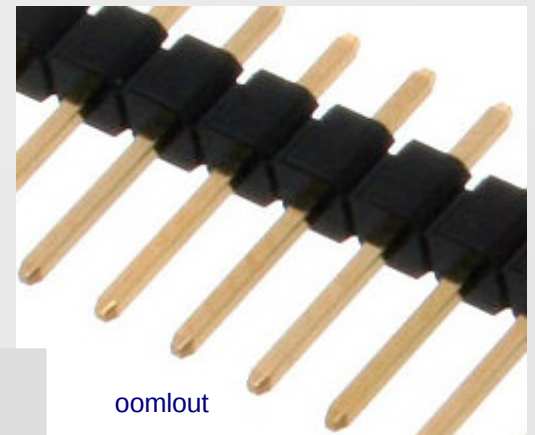
```
material DEF PIN-01 Material {  
  ambientIntensity 0.379  
  diffuseColor      0.859 0.738 0.496  
  specularColor    0.137 0.145 0.184  
  emissiveColor    0.0 0.0 0.0  
  shininess        0.40  
  transparency     0.0  
}
```



oomlout



gold, shiny

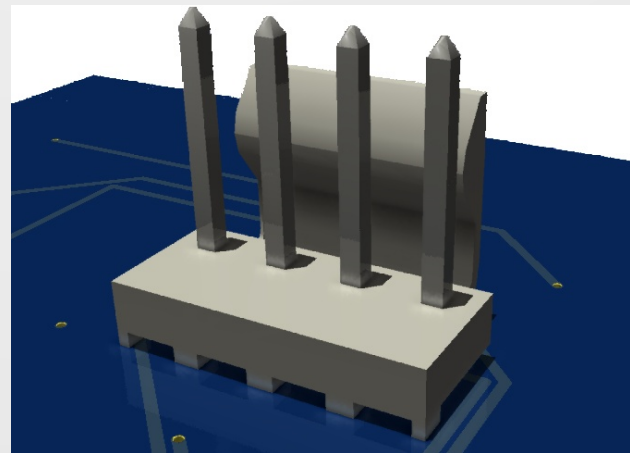


oomlout

PLASTIC-WHITE-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
119 112 93	229 228 208	12 14 28	
0.465 0.438 0.363	0.895 0.891 0.813	0.047 0.055 0.109	0.25

```
material DEF PLASTIC-WHITE-01 Material {  
  ambientIntensity 0.494  
  diffuseColor      0.895 0.891 0.813  
  specularColor    0.047 0.055 0.109  
  emissiveColor    0.0 0.0 0.0  
  shininess        0.25  
  transparency     0.0  
}
```



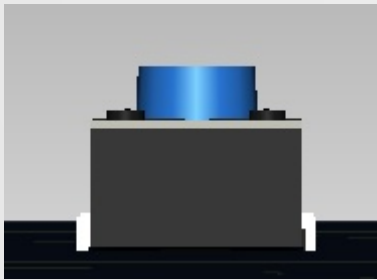
Plastic, white



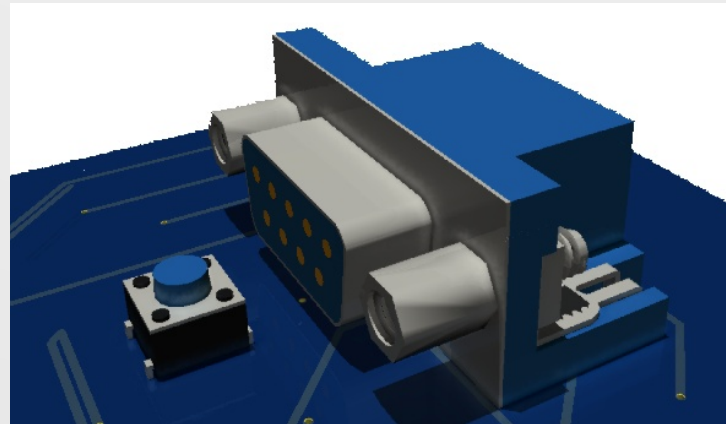
PLASTIC-BLUE-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
35 56 82	35 103 186	92 97 6	
0.137 0.219 0.320	0.137 0.402 0.727	0.359 0.379 0.270	0.25

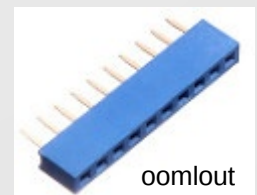
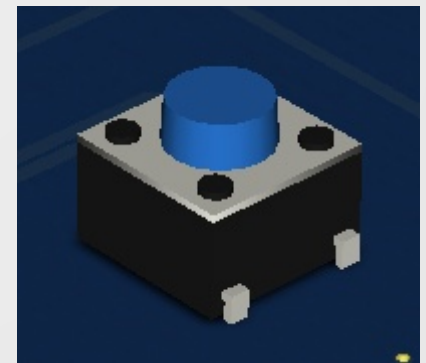
```
material DEF PLASTIC-WHITE-01 Material {  
    ambientIntensity 0.565  
    diffuseColor      0.137 0.402 0.727  
    specularColor     0.359 0.379 0.270  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.25  
    transparency      0.0  
}
```



teardowncentral



Blue, plastic

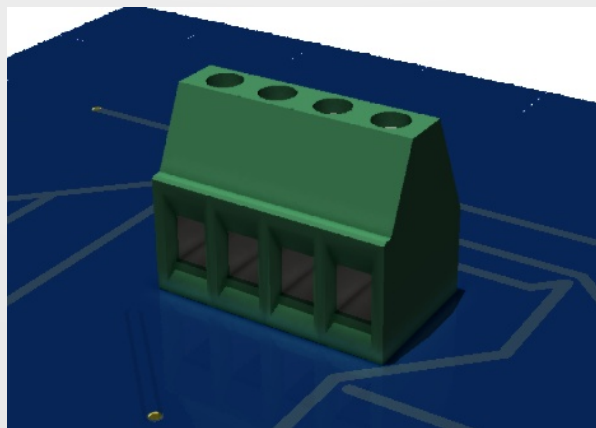
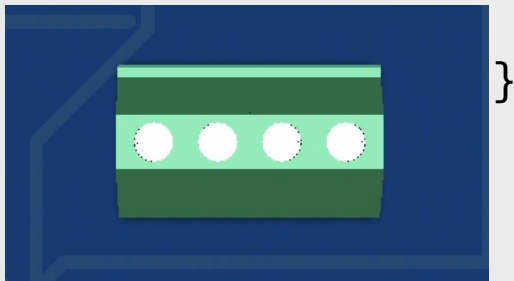


oomlout

PLASTIC-GREEN-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
0 64 27	87 174 114	45 27 50	
0.000 0.250 0.105	0.340 0.680 0.445	0.176 0.105 0.195	0.25

```
material DEF PLASTIC-GREEN-01 Material {  
  ambientIntensity 0.315  
  diffuseColor      0.340 0.680 0.445  
  specularColor    0.176 0.105 0.195  
  emissiveColor    0.0 0.0 0.0  
  shininess        0.25  
  transparency     0.0  
}
```



oomlout

Green, plastic, connector

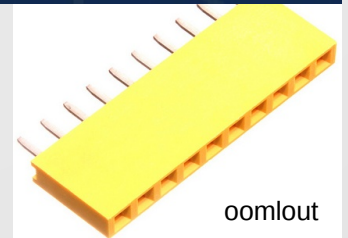
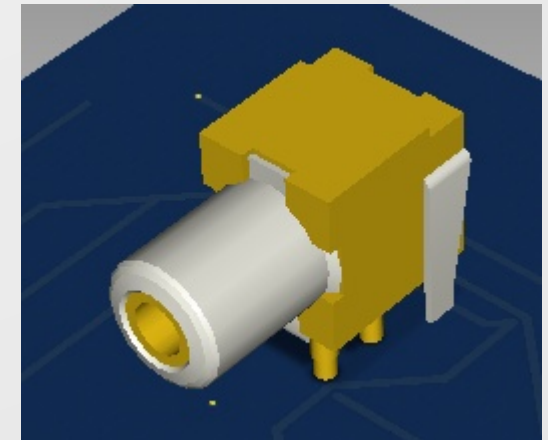
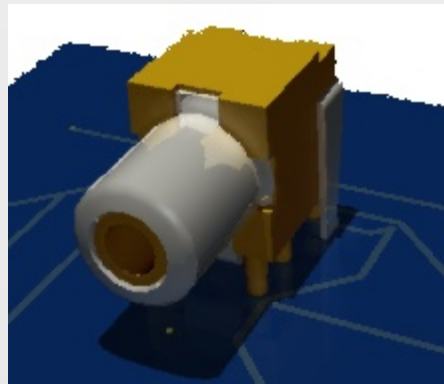
PLASTIC-YELLOW-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
134 85 0	213 174 17	41 52 82	
0.523 0.332 0.000	0.832 0.680 0.066	0.160 0.203 0.320	0.25

```
material DEF PLASTIC-YELLOW-01 Material
{
    ambientIntensity 0.522
    diffuseColor      0.832 0.680 0.066
    specularColor     0.160 0.203 0.320
    emissiveColor     0.0 0.0 0.0
    shininess         0.25
    transparency      0.0
}
```



SparkFun

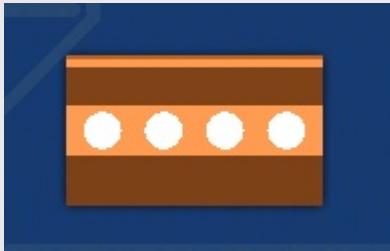


oomlout

Yellow, plastic, connector

PLASTIC-ORANGE-01

AMBIENT	DIFFUSE	SPECULAR	SHININESS
102 19 3	207 109 38	10 26 37	
0.388 0.074 0.012	0.809 0.426 0.148	0.039 0.102 0.145	0.25



```
material DEF PLASTIC-ORANGE-01 Material {  
    ambientIntensity 0.284  
    diffuseColor      0.809 0.426 0.148  
    specularColor     0.039 0.102 0.145  
    emissiveColor     0.0 0.0 0.0  
    shininess         0.25  
    transparency      0.0  
}
```



Orange, plastic, connector

LED

```
material DEF LED-RED Material {  
  diffuseColor 0.700 0.100 0.050  
  emissiveColor 0.000 0.000 0.000  
  specularColor 0.300 0.400 0.150  
  ambientIntensity 0.789  
  transparency 0.15  
  shininess 0.125  
}
```

```
material DEF LED-GREEN Material {  
  diffuseColor 0.400 0.700 0.150  
  emissiveColor 0.000 0.000 0.000  
  specularColor 0.600 0.300 0.100  
  ambientIntensity 0.789  
  transparency 0.15  
  shininess 0.05  
}
```

```
material DEF LED-BLUE Material {  
  DiffuseColor 0.100 0.250 0.700  
  emissiveColor 0.000 0.000 0.000  
  specularColor 0.500 0.600 0.300  
  ambientIntensity 0.789  
  transparency 0.15  
  shininess 0.125  
}
```



RGB, Red, Green, Blue, LED,