

## 2. SPU Series (Shielded Type)

### Applications

- Hand Phone of new generation.
- Personal computers.
- Other various electronic appliances.

### Features

- Small size with the electrode attached to the ferrite RI core directly.
- Magnetically shielded construction.
- Excellent property with high saturation for surface mounting.
- Ideal inductor for DC-DC conversion in notebook computer, Step-up or Step-down converters, etc.



### Inductance and Rated Current ranges

| Part Series | Inductances range | Rated Current range   |
|-------------|-------------------|---|
| * SPU3017   | 2.2~47 $\mu$ H    | 1.70~0.36A (I <sub>rms</sub> ) ; 0.98~0.21A (I <sub>sat</sub> ) |
| * SPU3018   | 1.5~15 $\mu$ H    | 1.65~0.50A (I <sub>rms</sub> ) ; 1.85~0.56A (I <sub>sat</sub> ) |
| * SPU3028   | 10~100 $\mu$ H    | 1.20~0.25A (I <sub>rms</sub> ) ; 0.86~0.25A (I <sub>sat</sub> ) |

(Dimension data (Refer to Fig. 1))

| Part Series | Inductances range | Rated Current range   |
|-------------|-------------------|---|
| * SPU5011   | 1.5~100 $\mu$ H   | 1.80~0.20A (I <sub>rms</sub> ) ; 1.50~0.18A (I <sub>sat</sub> ) |
| * SPU5016   | 1.8~100 $\mu$ H   | 1.75~0.30A (I <sub>rms</sub> ) ; 1.70~0.27A (I <sub>sat</sub> ) |
| * SPU5018   | 1.0~100 $\mu$ H   | 2.80~0.32A (I <sub>rms</sub> ) ; 2.85~0.31A (I <sub>sat</sub> ) |
| * SPU5028   | 1.2~100 $\mu$ H   | 3.50~0.47A (I <sub>rms</sub> ) ; 3.40~0.42A (I <sub>sat</sub> ) |

(Dimension data (Refer to Fig. 2))

| Part Series | Inductances range | Rated Current range   |
|-------------|-------------------|---|
| * SPU1030   | 3.5~150 $\mu$ H   | 5.00~0.85A (I <sub>rms</sub> ) ; 5.20~0.84A (I <sub>sat</sub> ) |
| * SPU1040   | 3.8~330 $\mu$ H   | 6.60~0.62A (I <sub>rms</sub> ) ; 5.80~0.60A (I <sub>sat</sub> ) |
| * SPU1050   | 4.7~1000 $\mu$ H  | 5.20~0.47A (I <sub>rms</sub> ) ; 5.10~0.40A (I <sub>sat</sub> ) |
| * SPU1065   | 2.8~100 $\mu$ H   | 6.50~1.80A (I <sub>rms</sub> ) ; 7.50~1.40A (I <sub>sat</sub> ) |

(Dimension data (Refer to Fig. 3))

| Part Series | Inductances range | Rated Current range |
|-------------|-------------------|---------------------|
| * SPU0302   | 0.47~1800 $\mu$ H | 1.84~0.036A         |
| * SPU0303   | 1.00~3300 $\mu$ H | 1.90~0.026A         |
| * SPU0502   | 0.47~820 $\mu$ H  | 2.33~0.120A         |
| * SPU0503   | 0.47~2500 $\mu$ H | 4.82~0.045A         |
| * SPU0603   | 0.82~3300 $\mu$ H | 4.80~0.078A         |

(Dimension data (Refer to Fig. 4))

2. SPU Series (Shielded Type)

**Inductance and Rated Current ranges (Cont'd)**

| Part Series | Inductances range | Rated Current range |
|-------------|-------------------|---------------------|
| * SPU0830   | 1.0~100μH         | 6.50~0.75A          |
| * SPU0840   | 1.8~100μH         | 7.00~1.05A          |
| * SPU0845   | 1.0~100μH         | 9.00~1.30A          |

(Dimension data (Refer to Fig. 5))

**Characteristics**

Rated DC Current : The current when the inductance becomes 35% lower than its initial value.  
(For SPU0302, 0303, 0502, 0503, 0603 series : the inductance becomes 30% lower than its initial value.)

Test equipment:

L: HP4284A LCR meter @100KHz 0.1V

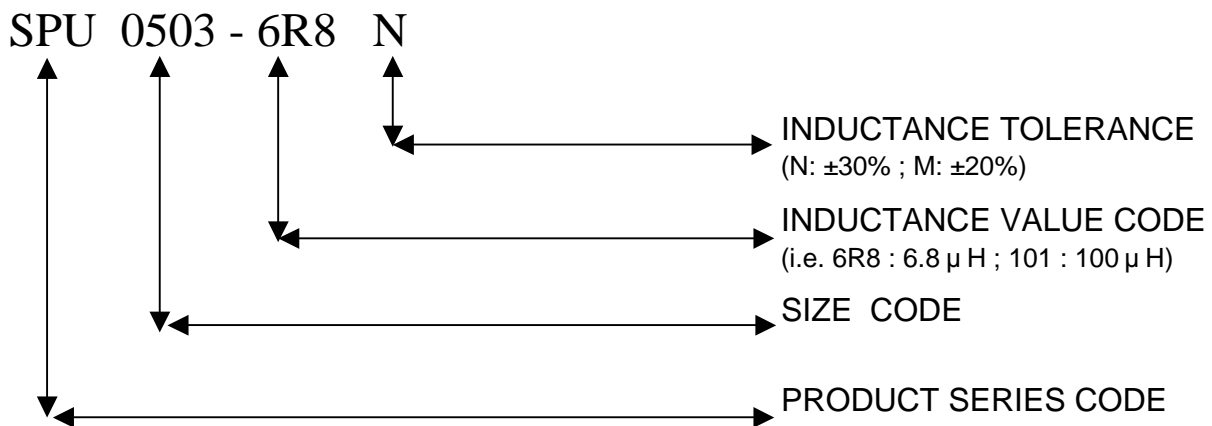
DCR Resistance: Milli-ohm meter or equivalent.

Electrical specifications at 25 .

Operating temperature range:

-40 ~+125 :

**Part Numbering System**



2. SPU Series (Shielded Type)

Dimensions (mm)

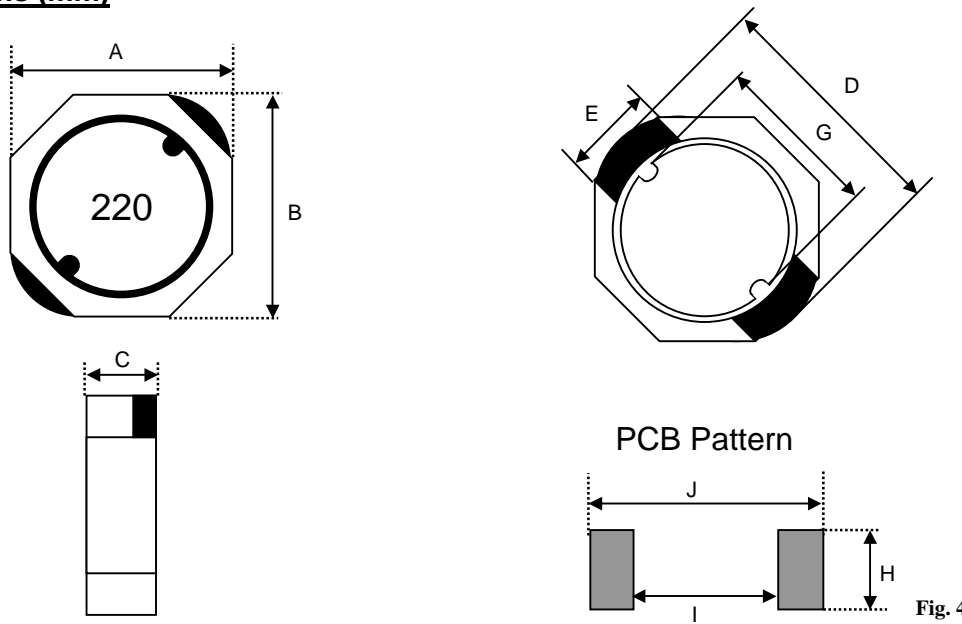


Fig. 4

| Codes   | A         | B         | C (Max) | D         | E    | G    | H    | I    | J    |
|---------|-----------|-----------|---------|-----------|------|------|------|------|------|
| SPU0302 | 3.85±0.30 | 3.85±0.30 | 2.00    | 3.90±0.20 | 1.60 | 3.20 | 1.90 | 3.00 | 4.55 |
| SPU0303 | 3.85±0.30 | 3.85±0.30 | 3.00    | 3.90±0.20 | 1.60 | 3.20 | 1.90 | 3.00 | 4.55 |
| SPU0502 | 5.30max   | 5.30max   | 2.00    | 5.70±0.40 | 1.60 | 4.20 | 1.90 | 3.90 | 5.70 |
| SPU0503 | 5.30max   | 5.30max   | 3.00    | 5.70±0.40 | 1.60 | 4.20 | 1.90 | 3.90 | 5.70 |
| SPU0603 | 5.90±0.20 | 5.90±0.20 | 3.00    | 6.40±0.30 | 2.40 | 4.70 | 2.70 | 4.40 | 6.50 |

## 2. SPU Series (Shielded Type)

### Electrical Characteristics

#### SPU 0302 / 0303 TYPE

| Inductance value code | L (μH) | Tol. | DC Resistance ( ) Max. |        | Rated DC Current (A) Max. |       |
|-----------------------|--------|------|------------------------|--------|---------------------------|-------|
|                       |        |      | 0302                   | 0303   | 0302                      | 0303  |
| R47                   | 0.47   | N    | 0.017                  | -      | 1.840                     | -     |
| 1R0                   | 1.0    | N    | 0.030                  | 0.009  | 1.800                     | 1.900 |
| 1R2                   | 1.2    | N    | 0.043                  | 0.010  | 1.700                     | 1.750 |
| 1R5                   | 1.5    | N    | 0.052                  | 0.013  | 1.600                     | 1.450 |
| 1R8                   | 1.8    | N    | 0.056                  | -      | 1.550                     | -     |
| 2R0                   | 2.0    | N    | 0.057                  | 0.016  | 1.510                     | 1.250 |
| 2R2                   | 2.2    | N    | 0.058                  | 0.025  | 1.500                     | 1.150 |
| 2R4                   | 2.4    | N    | 0.059                  | -      | 1.410                     | -     |
| 2R5                   | 2.5    | N    | 0.059                  | 0.018  | 1.400                     | 1.050 |
| 2R7                   | 2.7    | N    | 0.060                  | 0.020  | 1.350                     | 1.000 |
| 3R3                   | 3.3    | N    | 0.064                  | 0.030  | 1.300                     | 0.960 |
| 3R5                   | 3.5    | N    | 0.127                  | 0.025  | 1.300                     | 0.950 |
| 3R9                   | 3.9    | N    | -                      | 0.033  | -                         | 0.870 |
| 4R7                   | 4.7    | N    | 0.146                  | 0.039  | 1.100                     | 0.780 |
| 5R6                   | 5.6    | N    | 0.176                  | 0.044  | 0.950                     | 0.740 |
| 6R2                   | 6.2    | N    | 0.220                  | -      | 0.910                     | -     |
| 6R8                   | 6.8    | N    | 0.238                  | 0.051  | 0.900                     | 0.680 |
| 8R2                   | 8.2    | N    | 0.272                  | 0.065  | 0.800                     | 0.570 |
| 100                   | 10     | M    | 0.299                  | 0.092  | 0.700                     | 0.430 |
| 120                   | 12     | M    | 0.350                  | 0.100  | 0.620                     | 0.380 |
| 150                   | 15     | M    | 0.472                  | 0.113  | 0.610                     | 0.330 |
| 180                   | 18     | M    | 0.552                  | 0.125  | 0.580                     | 0.300 |
| 220                   | 22     | M    | 0.592                  | 0.146  | 0.520                     | 0.280 |
| 270                   | 27     | M    | 0.630                  | 0.176  | 0.440                     | 0.260 |
| 330                   | 33     | M    | 1.075                  | 0.214  | 0.430                     | 0.230 |
| 390                   | 39     | M    | 1.269                  | 0.225  | 0.370                     | 0.210 |
| 470                   | 47     | M    | 1.309                  | 0.304  | 0.340                     | 0.190 |
| 560                   | 56     | M    | 1.960                  | 0.324  | 0.290                     | 0.170 |
| 680                   | 68     | M    | 2.613                  | 0.472  | 0.250                     | 0.156 |
| 820                   | 82     | M    | 2.950                  | 0.539  | 0.200                     | 0.142 |
| 101                   | 100    | M    | 3.255                  | 0.608  | 0.190                     | 0.128 |
| 121                   | 120    | M    | 3.350                  | 0.757  | 0.150                     | 0.116 |
| 151                   | 150    | M    | 3.550                  | 0.882  | 0.120                     | 0.106 |
| 181                   | 180    | M    | 4.000                  | 1.130  | 0.100                     | 0.095 |
| 221                   | 220    | M    | 4.900                  | 1.269  | 0.090                     | 0.087 |
| 271                   | 270    | M    | 5.300                  | 1.570  | 0.085                     | 0.080 |
| 331                   | 330    | M    | 7.280                  | 1.930  | 0.080                     | 0.078 |
| 391                   | 390    | M    | 8.200                  | 2.360  | 0.078                     | 0.073 |
| 471                   | 470    | M    | 9.200                  | 2.770  | 0.075                     | 0.068 |
| 561                   | 560    | M    | 11.000                 | 3.520  | 0.072                     | 0.065 |
| 681                   | 680    | M    | 13.370                 | 4.250  | 0.070                     | 0.056 |
| 821                   | 820    | M    | 16.500                 | 4.830  | 0.068                     | 0.050 |
| 102                   | 1000   | M    | 19.550                 | 6.260  | 0.065                     | 0.047 |
| 122                   | 1200   | M    | 25.500                 | 7.860  | 0.045                     | 0.043 |
| 152                   | 1500   | M    | 36.150                 | 9.980  | 0.038                     | 0.039 |
| 182                   | 1800   | M    | 57.620                 | 12.170 | 0.036                     | 0.036 |
| 272                   | 2700   | M    | -                      | 16.120 | -                         | 0.029 |
| 332                   | 3300   | M    | -                      | 38.000 | -                         | 0.026 |

1. Test Frequency :  
0.47μH~8.2μH @100KHz 0.25V ; 10μH~3300μH @1KHz 0.25V
2. Test equipment :  
L/Q : HP4284A LCR meter  
DCR : Milli-ohm meter.
3. Rated DC current : The current when the inductance becomes 30% lower than its initial value.
4. Operating temperature range : -40 ~+125 .

## 2. SPU Series (Shielded Type)

### Electrical Characteristics (Cont'd)

#### SPU 0502 / 0503 / 0603 TYPE

| Inductance value code | L (μH) | Tol. | DC Resistance ( ) Max. |        |        | Rated DC Current (A) Max. |       |       |
|-----------------------|--------|------|------------------------|--------|--------|---------------------------|-------|-------|
|                       |        |      | 0502                   | 0503   | 0603   | 0502                      | 0503  | 0603  |
| R47                   | 0.47   | N    | 0.015                  | 0.010  | -      | 2.330                     | 4.820 | -     |
| R82                   | 0.82   | N    | -                      | -      | 0.013  | -                         | -     | 4.800 |
| 1R0                   | 1.0    | N    | 0.024                  | 0.015  | 0.014  | 2.270                     | 4.000 | 4.700 |
| 1R1                   | 1.1    | N    | -                      | 0.020  | -      | -                         | 3.870 | -     |
| 1R2                   | 1.2    | N    | 0.044                  | 0.022  | 0.016  | 2.150                     | 3.800 | 3.900 |
| 1R5                   | 1.5    | N    | 0.045                  | 0.026  | 0.018  | 2.000                     | 3.000 | 3.520 |
| 1R8                   | 1.8    | N    | -                      | -      | 0.019  | -                         | -     | 3.250 |
| 2R0                   | 2.0    | N    | 0.046                  | 0.027  | 0.022  | 1.900                     | 2.920 | 2.950 |
| 2R2                   | 2.2    | N    | 0.059                  | 0.029  | 0.022  | 1.630                     | 2.410 | 2.950 |
| 2R5                   | 2.5    | N    | -                      | -      | 0.024  | -                         | -     | 2.750 |
| 3R0                   | 3.0    | N    | -                      | -      | 0.027  | -                         | -     | 2.550 |
| 3R3                   | 3.3    | N    | 0.073                  | 0.040  | 0.030  | 1.340                     | 1.950 | 2.450 |
| 3R5                   | 3.5    | N    | 0.073                  | 0.040  | -      | 1.340                     | 1.950 | -     |
| 3R9                   | 3.9    | N    | -                      | 0.042  | 0.034  | -                         | 1.930 | 2.350 |
| 4R1                   | 4.1    | N    | 0.087                  | -      | -      | 1.140                     | -     | -     |
| 4R7                   | 4.7    | N    | 0.087                  | 0.052  | 0.042  | 1.140                     | 1.600 | 2.250 |
| 5R6                   | 5.6    | N    | -                      | 0.052  | 0.048  | -                         | 1.600 | 2.050 |
| 6R2                   | 6.2    | N    | -                      | 0.062  | -      | -                         | 1.550 | -     |
| 6R8                   | 6.8    | N    | 0.105                  | 0.068  | 0.054  | 0.950                     | 1.510 | 1.850 |
| 8R2                   | 8.2    | N    | 0.139                  | 0.084  | 0.058  | 0.900                     | 1.380 | 1.650 |
| 100                   | 10     | M    | 0.150                  | 0.090  | 0.065  | 0.760                     | 1.330 | 1.450 |
| 120                   | 12     | M    | -                      | 0.120  | 0.082  | -                         | 1.060 | 1.350 |
| 150                   | 15     | M    | 0.210                  | 0.142  | 0.096  | 0.630                     | 1.050 | 1.250 |
| 180                   | 18     | M    | 0.270                  | 0.192  | 0.110  | 0.600                     | 0.900 | 1.150 |
| 220                   | 22     | M    | 0.275                  | 0.208  | 0.140  | 0.560                     | 0.860 | 0.980 |
| 270                   | 27     | M    | 0.452                  | 0.222  | 0.170  | 0.480                     | 0.750 | 0.900 |
| 330                   | 33     | M    | 0.455                  | 0.257  | 0.210  | 0.440                     | 0.720 | 0.800 |
| 390                   | 39     | M    | -                      | 0.320  | 0.240  | -                         | 0.640 | 0.720 |
| 470                   | 47     | M    | 0.730                  | 0.352  | 0.280  | 0.350                     | 0.620 | 0.700 |
| 560                   | 56     | M    | -                      | 0.459  | 0.340  | -                         | 0.530 | 0.660 |
| 680                   | 68     | M    | 0.935                  | 0.525  | 0.410  | 0.300                     | 0.510 | 0.580 |
| 820                   | 82     | M    | 1.300                  | 0.770  | 0.490  | 0.270                     | 0.480 | 0.520 |
| 101                   | 100    | M    | 1.500                  | 0.801  | 0.550  | 0.230                     | 0.430 | 0.460 |
| 121                   | 120    | M    | 1.910                  | 0.850  | 0.700  | 0.220                     | 0.340 | 0.420 |
| 151                   | 150    | M    | 2.680                  | 1.100  | 0.780  | 0.210                     | 0.260 | 0.360 |
| 181                   | 180    | M    | 3.040                  | 1.190  | 0.960  | 0.200                     | 0.240 | 0.340 |
| 221                   | 220    | M    | 3.520                  | 1.530  | 1.080  | 0.195                     | 0.200 | 0.320 |
| 271                   | 270    | M    | 4.380                  | -      | 1.360  | 0.193                     | -     | 0.280 |
| 331                   | 330    | M    | 5.560                  | 2.030  | 1.820  | 0.190                     | 0.190 | 0.240 |
| 391                   | 390    | M    | 6.850                  | 3.000  | 2.050  | 0.185                     | 0.160 | 0.220 |
| 471                   | 470    | M    | 7.820                  | 3.500  | 2.580  | 0.180                     | 0.150 | 0.200 |
| 561                   | 560    | M    | -                      | 4.080  | 3.160  | -                         | 0.140 | 0.180 |
| 681                   | 680    | M    | -                      | -      | 4.040  | -                         | -     | 0.160 |
| 821                   | 820    | M    | 15.000                 | -      | 4.900  | 0.120                     | -     | 0.140 |
| 102                   | 1000   | M    | -                      | -      | 6.000  | -                         | -     | 0.130 |
| 122                   | 1200   | M    | -                      | 8.500  | 7.600  | -                         | 0.070 | 0.120 |
| 152                   | 1500   | M    | -                      | 10.000 | 9.440  | -                         | 0.065 | 0.100 |
| 182                   | 1800   | M    | -                      | 13.150 | 11.700 | -                         | 0.062 | 0.098 |
| 222                   | 2200   | M    | -                      | 19.000 | 13.400 | -                         | 0.050 | 0.095 |
| 252                   | 2500   | M    | -                      | 20.000 | -      | -                         | 0.045 | -     |
| 272                   | 2700   | M    | -                      | -      | 17.300 | -                         | -     | 0.086 |
| 332                   | 3300   | M    | -                      | -      | 22.100 | -                         | -     | 0.078 |

1. Test Frequency :  
0.47μH~8.2μH @100KHz 0.25V ; 10μH~3300μH @1KHz 0.25V
2. Test equipment :  
L/Q : HP4284A LCR meter  
DCR : Milli-ohm meter.
3. Rated DC current : The current when the inductance becomes 30% lower than its initial value.
4. Operating temperature range : -40 ~+125 .