CABLE ASSEMBLIES

## Flexible cable 5/50 S (RG58 - KX15)



### P/N: ST291 305 000 (MIL-C-17/28-RG58)

### P/N: ST291 305 010 (NF-C-93/550-KX15)

**APPLICATION NOTE**

RG58 is one of the most popular RG cables.
Due to its construction and raw material construction, RG58 / KX15 is designed to perform the same as 5/50 cables ( RG142, RG223, ECO142 )
This very flexible cable can be considered for applications requiring low electrical performance and reduced cost.

### CONSTRUCTION / DIMENSIONS

| | Material | mm | Inches |
|---|---|---|---|
| Center conductor | Stranded TC[1] | 0.90 | 0.035 |
| Dielectric | Solid PE[2] | 2.95 | 0.116 |
| Inner shield | TC[1] braid | 3.66 | 0.144 |
| Outer shield | - | - | - |
| Jacket | Black PVC[3] | 4.95 | 0.195 |

### ELECTRICAL CHARACTERISTICS

| | | |
|---|---|---|
| Characteristic impedance | 50Ω ± 2Ω | |
| Operating frequency range | DC - 1 GHz | |
| Shielding effectiveness | 40 dB | |
| Voltage withstanding | 5 000 V rms | |
| Peak power | 2.6 kW | |
| Capacitance | 96 pF / m | 29 pF / ft |
| Velocity of propagation | 66 % (5 ns / m) | |

### MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| Recommended minimum bending radius | 20 mm | 0.787 inch |
| Weight | 35 g / m | 0.0234 lbs / ft |

### ENVIRONMENTAL CHARACTERISTICS

| | | |
|---|---|---|
| Operating temperature range | -40 / +85 °C | -40 / +185 °F |
| Fire resistance | No | |
| Halogen free | No | |

### FREQUENCY / ATTENUATION (typ.) / CW MAX POWER (sea level / 25 °C)

| GHz | dB / m | dB / ft | Watts |
|---|---|---|---|
| 0.05 | 0.14 | 0.04 | 246 |
| 0.1 | 0.20 | 0.06 | 174 |
| 0.2 | 0.29 | 0.09 | 123 |
| 0.3 | 0.36 | 0.11 | 100 |
| 0.5 | 0.47 | 0.14 | 78 |
| 0.6 | 0.51 | 0.16 | 71 |
| 0.7 | 0.56 | 0.17 | 66 |
| 0.8 | 0.60 | 0.18 | 61 |
| 1.0 | 0.67 | 0.20 | 55 |
| Attenuation calculation (dB/m) | (0.63 x √f GHz) + (0.04 x f GHz) | | |
| Power calculation (W) | 55 / √f GHz | | |

[1] TC = Tinned Copper
[2] PE = PolyEthylene
[3] PVC = PolyVinyl Chloride

**Note:**
Typical attenuation for a couple of connectors (dB) = 0.045 x √f (GHz)

## Flexible cable 5/50 D (RG142)



### P/N: ST291 320 007 (MIL-C-17/158-RG142)

**APPLICATION NOTE**

RG142 is one of the most popular RG cables.
This cable offers a compromise between flexibility and electrical performances.
RG142 will be selected among other 5/50 RG's for applications requiring high frequency range and low attenuation.
Suitable for severe thermal conditions.

### CONSTRUCTION / DIMENSIONS

| | Material | mm | Inches |
|---|---|---|---|
| Center conductor | Solid SPCCS[1] | 0.94 | 0.037 |
| Dielectric | Solid PTFE[2] | 2.95 | 0.116 |
| Inner shield | SPC[3] braid | - | - |
| Outer shield | SPC[3] braid | 4.19 | 0.165 |
| Jacket | Brown FEP[4] | 4.95 | 0.195 |

### ELECTRICAL CHARACTERISTICS

| | | |
|---|---|---|
| Characteristic impedance | 50Ω ± 2Ω | |
| Operating frequency range | DC - 12.4 GHz | |
| Shielding effectiveness | 65 dB (DC - 3GHz) | |
| Voltage withstanding | 5 000 V rms | |
| Peak power | 3.4 kW | |
| Capacitance | 97 pF / m | 29.3 pF / ft |
| Velocity of propagation | 70 % (4.8 ns / m) | |

### MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| Recommended minimum bending radius | 25 mm | 0.984 inch |
| Weight | 64 g / m | 0.043 lbs / ft |

### ENVIRONMENTAL CHARACTERISTICS

| | | |
|---|---|---|
| Operating temperature range | -55 / +200 °C | -67 / +392 °F |
| Fire resistance | yes (CSA FT6 / IEC 332-2) | |
| Halogen free | No | |

### FREQUENCY / ATTENUATION (typ.) / CW MAX POWER (sea level / 25 °C)

| GHz | dB / m | dB / ft | Watts |
|---|---|---|---|
| 0.5 | 0.30 | 0.09 | 665 |
| 1.0 | 0.44 | 0.13 | 470 |
| 1.5 | 0.55 | 0.17 | 384 |
| 2.0 | 0.65 | 0.20 | 332 |
| 3.0 | 0.81 | 0.25 | 271 |
| 6.0 | 1.22 | 0.37 | 192 |
| 8.0 | 1.45 | 0.44 | 166 |
| 10.0 | 1.66 | 0.50 | 149 |
| 12.4 | 1.90 | 0.58 | 133 |
| Attenuation calculation (dB/m) | (0.40 x √f GHz) + (0.04 x f GHz) | | |
| Power calculation (W) | 470 / √f GHz | | |

[1] SPCCS = Silver Plated Copper Covered Steel
[2] PTFE = PolyTetraFluoroEthylene
[3] SPC = Silver Plated Copper
[4] FEP = Fluorinated Ethylene Propylene