CABLE ASSEMBLIES

## Semi-rigid cable .141 (Non magnetic)



### P/N: ST291861061

**APPLICATION NOTE**

Based on RG402 standard, this cable is used where non magnetic is required.

### CONSTRUCTION / DIMENSIONS

| | Material | mm | Inches |
|---|---|---|---|
| Center conductor | Solid SPC[1] | 0.92 | 0.036 |
| Dielectric | Solid PTFE[2] | 2.98 | 0.117 |
| Inner shield | Copper tubing | 3.58 | 0.141 |
| Outer shield | - | - | - |
| Jacket | - | - | - |

### ELECTRICAL CHARACTERISTICS

| | | |
|---|---|---|
| Characteristic impedance | 50Ω ± 1Ω | |
| Operating frequency range | DC - 20 GHz | |
| Shielding effectiveness | 110 dB | |
| Voltage withstanding | 5 000 V rms | |
| Peak power | 3.4 kW | |
| Capacitance | 89 pF / m | 27 pF / ft |
| Velocity of propagation | 70 % (4.8 ns / m) | |

### MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| Recommended minimum bending radius | 2.54 mm | 0.100 inch |
| Weight | 46 g / m | 0.0309 lbs / ft |

### ENVIRONMENTAL CHARACTERISTICS

| | | |
|---|---|---|
| Operating temperature range | -40 / +125 °C | -40 / +257 °F |
| Fire resistance | N/A | |
| Halogen free | No | |

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

| GHz | dB / m | dB / ft | Watts |
|---|---|---|---|
| 1.0 | 0.34 | 0.10 | 315 |
| 2.0 | 0.50 | 0.15 | 223 |
| 3.0 | 0.64 | 0.19 | 182 |
| 6.0 | 0.97 | 0.30 | 129 |
| 8.0 | 1.17 | 0.35 | 111 |
| 10.0 | 1.35 | 0.41 | 100 |
| 12.4 | 1.55 | 0.47 | 89 |
| 18.0 | 1.99 | 0.60 | 74 |
| 20.0 | 2.14 | 0.65 | 70 |
| Attenuation calculation (dB/m) | (0.30 x √f GHz) + (0.04 x f GHz) | | |
| Power calculation (W) | 315 / √f GHz | | |

[1] SPC = Silver Plated Copper
[2] PTFE = PolyTetraFluoroEthylene

## Semi-rigid cable .141 (Aluminum)



### P/N: ST291864187 (MIL-C-17/130-00009)

**APPLICATION NOTE**

Based on RG402 standard, this cable will be selected for application requiring easy conformability and/or application requiring reduced weight.

Due to the aluminum outer conductor, this cable can be hand formed with exceptional ease with no spring back effect.

Cable can be reshaped, eliminating the need for costly drawings. The outer conductor material (aluminum) slightly increases the attenuation compared to standard RG402.

### CONSTRUCTION / DIMENSIONS

| | Material | mm | Inches |
|---|---|---|---|
| Center conductor | Solid SPCCS[1] | 0.92 | 0.036 |
| Dielectric | Solid PTFE[2] | 2.98 | 0.117 |
| Inner shield | TPAl[3] | 3.58 | 0.141 |
| Outer shield | - | - | - |
| Jacket | - | - | - |

### ELECTRICAL CHARACTERISTICS

| | | |
|---|---|---|
| Characteristic impedance | 50Ω ± 1Ω | |
| Operating frequency range | DC - 20 GHz | |
| Shielding effectiveness | 110 dB | |
| Voltage withstanding | 5 000 V rms | |
| Peak power | 3.4 kW | |
| Capacitance | 89 pF / m | 27 pF / ft |
| Velocity of propagation | 70 % (4.8 ns / m) | |

### MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| Recommended minimum bending radius | 3.17 mm | 0.125 inch |
| Weight | 30 g / m | 0.0185 lbs / ft |

### ENVIRONMENTAL CHARACTERISTICS

| | | |
|---|---|---|
| Operating temperature range | -40 / +125 °C | -40 / +257 °F |
| Fire resistance | N/A | |
| Halogen free | No | |

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

| GHz | dB / m | dB / ft | Watts |
|---|---|---|---|
| 1.0 | 0.36 | 0.11 | 315 |
| 2.0 | 0.53 | 0.16 | 223 |
| 3.0 | 0.67 | 0.20 | 182 |
| 6.0 | 1.02 | 0.31 | 129 |
| 8.0 | 1.23 | 0.37 | 111 |
| 10.0 | 1.41 | 0.43 | 100 |
| 12.4 | 1.62 | 0.49 | 89 |
| 18.0 | 2.08 | 0.63 | 74 |
| 20.0 | 2.23 | 0.68 | 70 |
| Attenuation calculation (dB/m) | (0.32 x √f GHz) + (0.04 x f GHz) | | |
| Power calculation (W) | 315 / √f GHz | | |

[1] SPCCS = Silver Plated Copper Covered Steel
[2] PTFE = PolyTetraFluoroEthylene
[3] TPAl = Tin Plated Aluminum

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