## Mating conditions

Float mount tolerance guide



Rigid mount vertical to tolerance guide


Panel cut-out
Rear panel mounting
Front panel mounting


| Shell size | $\mathbf{A}_{ \pm 0,13}$ | $\mathbf{B}_{ \pm 0,13}$ | $\mathbf{C}_{ \pm 0,13}$ | $\mathbf{D}_{ \pm 0,13}$ | $\mathbf{E}_{ \pm 0,13}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 20.50 | 22.20 | 25.00 | 11.40 | 13.00 |
| 2 | 28.80 | 30.50 | 33.30 | 11.40 | 13.00 |
| 3 | 42.50 | 44.30 | 47.04 | 11.40 | 13.00 |
| 4 | 59.10 | 60.70 | 63.50 | 11.40 | 13.00 |
| 5 | 56.30 | 58.30 | 61.10 | 14.10 | 15.80 |

## Part Number Creator



| Mounting style |  |  |  |
| :---: | :---: | :---: | :---: |
| A1 | = Riveted | E6 | = 4-40 UNC threaded rear spacer with PCB clip, PCB $126^{\prime \prime} / 3.20 \mathrm{~mm}$ |
| A2 | = M3 threaded insert | F1 | = M3 clip and threaded rear spacer with PCB clip, PCB .063"/ 1.60 mm |
| A3 | = 4-40 UNC threaded insert | F2 | = 4-40 UNC clip and threaded rear spacer with PCB clip, PCB .063" $/ 1.60 \mathrm{~mm}$ |
| A4 | = M3 threaded rear spacer | F3 | = M3 clip and threaded rear spacer with PCB clip, PCB .091"/ 2.30 mm |
| A5 | = 4-40 UNC threaded rear spacer | F4 | = 4-40 UNC clip and threaded rear spacer with PCB clip, PCB .091"/2.30 mm |
| A6 | = Float fastening | F5 | $=$ M3 clip and threaded rear spacer with PCB clip, PCB . $126^{\prime \prime} / 3.20 \mathrm{~mm}$ |
| A7 | = Threaded rear spacer for M3 press fit | F6 | $=4-40$ UNC clip and threaded rear spacer with PCB clip, PCB .126"/3.20 mm |
| A8 | = Threaded rear spacer for 4-40 UNC press fit | Gl | = Metal bracket, M3 threaded insert for . 370 / 9.40 mm |
| Cl | = M3 threaded rear spacer with PCB clip, PCB .063"/ 1.60 mm | G2 | $=$ Metal bracket, 4-40 UNC threaded insert for . 370 " 9.40 mm |
| C2 | = 4-40 UNC threaded rear spacer with PCB clip, PCB $.063{ }^{\prime \prime} / 1.60 \mathrm{~mm}$ | G3 | = Metal bracket, M3 threaded insert and clip for . 370 / $/ 9.40 \mathrm{~mm}$ |
| C3 | = M3 threaded rear spacer with PCB clip, PCB .091"/2.30 mm | G4 | = Metal bracket, 4-40 UNC threaded insert and clip for $.370^{\prime \prime} / 9.40 \mathrm{~mm}$ |
| C4 | = 4-40 UNC threaded rear spacer with PCB clip, PCB .091"/2.30 mm | H1 | $=$ Metal bracket, M3 threaded lock for . 370 " $/ 9.40 \mathrm{~mm}$ |
| C5 | = M3 threaded rear spacer with PCB clip, PCB $126^{\prime \prime} / 3.20 \mathrm{~mm}$ | H2 | $=$ Metal bracket, 4-40 UNC threaded lock for . $370^{\prime \prime} / 9.40 \mathrm{~mm}$ |
| C6 | = 4-40 UNC Threaded rear spacer with PCB clip, PCB . $126^{\prime \prime} / 3.20 \mathrm{~mm}$ | H3 | = Metal bracket, M3 threaded lock and clip for . 370 " $/ 9.40 \mathrm{~mm}$ |
| D1 | = M3 clip and threaded rear spacer with PCB clip, PCB .063"/ 1.60 mm | H4 | = Metal bracket, 4-40 UNC threaded lock and clip for . 370 " $/ 9.40 \mathrm{~mm}$ |
| D2 | = 4-40 UNC clip and threaded rear spacer with PCB clip, PCB .063" $/ 1.60 \mathrm{~mm}$ | N1 | = Metal bracket, M3 threaded insert for . 280 " $/ 7.19 \mathrm{~mm}$ |
| D3 | = M3 clip and threaded rear spacer with PCB clip, PCB .091"/ 2.30 mm | N2 | = Metal bracket, 4-40 UNC threaded insert for . $280^{\prime \prime} / 7.19 \mathrm{~mm}$ |
| D4 | = 4-40 UNC clip and threaded rear spacer clip, PCB .091"/2.30 mm | N3 | = Metal bracket, M3 threaded insert and clip for . $280^{\prime \prime} / 7.19 \mathrm{~mm}$ |
| D5 | $=$ M3 clip and threaded rear spacer with PCB clip, PCB .126" $/ 3.20 \mathrm{~mm}$ | N4 | = Metal bracket, 4-40 UNC threaded insert and clip for . 280 / $/ 7.19 \mathrm{~mm}$ |
| D6 | = 4-40 UNC clip and threaded rear spacer with PCB clip, PCB .126"/3.20 mm | P1 | = Metal bracket, M3 threaded lock for . 280 / $/ 7.19 \mathrm{~mm}$ |
| E1 | $=$ M3 threaded rear spacer with PCB clip, PCB $.063^{\prime \prime} / 1.60 \mathrm{~mm}$ | P2 | = Metal bracket, 4-40 UNC threaded lock for . 280 / $/ 7.19 \mathrm{~mm}$ |
| E2 | = 4-40 UNC threaded rear spacer with PCB clip, PCB $.063{ }^{\prime \prime} / 1.60 \mathrm{~mm}$ | P3 | = Metal bracket, M3 threaded lock and clip for 280 " $/ 7.19 \mathrm{~mm}$ |
| E3 | = M3 threaded rear spacer with PCB clip, PCB .091 "/ 2.30 mm | P4 | = Metal bracket, 4-40 UNC threaded lock and clip for .280"/7.19 mm |
| E4 | = 4-40 UNC threaded rear spacer with PCB clip, PCB .091"/2.30 mm | W1 | = Threaded rear spacer with M3 press in pin |
| E5 | $=\mathrm{M} 3$ threaded rear spacer with PCB clip, PCB $126^{\prime \prime} / 3.20 \mathrm{~mm}$ | W2 | = Threaded rear spacer with 4-40 UNC press in pin |

## Combination D-SUB Connectors

## Technical Data

| Materials | Connector with signal contacts | Coaxial contacts | High power contacts | High voltage contacts |
| :---: | :---: | :---: | :---: | :---: |
| Insulator <br> Green standard / black crimp | $\begin{aligned} & \text { PBTP, GV } \\ & \text { (UL94 V-O) } \end{aligned}$ |  |  |  |
| Shell | steel tin plated Brass or stainless steel on request |  |  |  |
| Contact plating | Gold plated over nickel |  |  |  |
| Contact material | CU alloy |  |  |  |
| PCB clip |  | CU alloy | CU alloy | PI |
| Insulator | PTFE/PBTP/PI |  | PTFE |  |
| Mechanical and electrical characteristics |  |  |  |  |
| Current rating | 7.5 A (UL) / 5 A (CSA, VDE) |  |  |  |
| Test voltage between 2 contacts contact and shell | $\begin{gathered} 1000 \mathrm{~V}, 50 \mathrm{~Hz} \\ 1 \mathrm{~min} . \end{gathered}$ |  |  |  |
| Resistance between mated contacts | $2.7 \mathrm{~m} \Omega$ |  |  |  |
| Insulation resistance | $5 \mathrm{G} \Omega$ | $10^{7} \mathrm{~m} \Omega$ | $5 \mathrm{G} \Omega$ | $2 \times 10^{7} \mathrm{~m} \Omega$ |
| Contact resistance | $10^{16} \Omega \mathrm{~cm}$ |  |  |  |
| Dielectric impedance | $50 \mathrm{KV} / \mathrm{mm}$ |  |  |  |
| Characteristic impedance |  | 50/75 |  |  |
| Contact resistance inner/outer conductor | $2.7 \mathrm{~m} \Omega$ | $2.7 \mathrm{~m} \Omega$ | $1 \mathrm{~m} \Omega$ | $2.7 \mathrm{~m} \Omega$ |
| VSWR-value at according  <br> MIL-C-39012 1.2 GHz <br>  1.5 GHz <br>  2.0 GHz |  | $\begin{aligned} & 1.2 \\ & 1.3 \\ & 1.5 \end{aligned}$ |  |  |
| Dielectric voltage |  | 750 V 50 Hz |  | 3.8 kV |
| Frequency range |  | $0-2 \mathrm{CHz}$ |  |  |
| Working voltage | 250 V | 250 V |  | max. 2.8kV |
| Temperature range |  | $-55^{\circ}$ | to $+125^{\circ} \mathrm{C}$ |  |
| Insertion force per contact | $3,4 \mathrm{~N}$ | 7N | 7N | 5N |
| Extraction force per contact | 0,2N | 7N | ca. 5 N | ca. 2.5 N |
| Mating cycles | $A=$ Quality class $3=50$ mating cycles, $B=$ Quality class $2=200$ mating cycles, $C=$ Quality class $1=500$ mating cycles |  |  |  |

## 6|4 <br> CONEC ${ }^{\circ}$

## Technical informations

## SKIN EFFECT

Alternating currents do not uniformly occupy the entire cross section of the conductor, rather inductance effect in the conductor deflects the current towards the surface of the conductor, whereby this deflection increases with the frequency.
The resistive attenuation of a transmission line increases with the frequency as a result of this skin effect.
The skin depth (equivalent thickness of the layer in which current flows) can be determined using
$\delta=\frac{1}{\sqrt{f \pi \sigma \mu_{0} \mu_{r}}}$
$\mathrm{f}=$ frequency
$\sigma=$ conductivity of the conductor material
$\sigma_{\mathrm{Ag}}=62 \times 10^{6} \mathrm{~S} / \mathrm{m}$
$\sigma_{\mathrm{Cu}}=58 \times 10^{6} \mathrm{~S} / \mathrm{m}$
$\mu_{0}=1,25610^{6} \mathrm{Vs} / \mathrm{Am}$
$\mu_{r} \quad . .$. relative permeability constant for the employed material

## VSWR-VALUE

The ratio between the value of the largest and the smallest voltages on a loss-free line is known as the ripple or voltage standing wave ratio $s$ (where $1 \mathrm{~m} 1 \infty$ ). The reciprocal value of the VSWR is known as the inverse voltage standing wave ratio m (where 0 ml ).
(VSWR = Voltage standing ware ratio)
The value of is linked with the $\Rightarrow$ reflection coefficient $r$ on $s$ transmission line according to the equation
$s=\frac{(1+|r|)}{(1-|r|)}$

## Current Rating



## Crimping instructions for coax contacts



Strip the wire

Slide sleeve over coax cable


Crimp the inner contact on the inner conductor

Snap the inner contact into the outer contact


## Pin configuration - Mating side of socket connector

Shell size 1


3W3C


Shell size 4


Shell size 3


Shell size 5


[^0]
[^0]:    Connectors 3W3, 5W5 and 8W8 with female insulators: Socket contacts are fingerprobe safe according to UL 1950 and CSA 22.2.950.

