

Technical Data

Conversions	
1 mm	0.039 inches
1 M	3.281 feet
1 km	0.621 miles
1 litre	0.220 gallons
1 gram	0.035 ounces
1 kg	2.205 pounds
°C	(°F-32) x 5/9

Microwave Bands		
Band	Frequency (GHz)	Wavelength (cm)
L	1.0 - 2.0	30.0 - 15.0
S	2.0 - 4.0	15.0 - 7.50
C	4.0 - 8.0	7.50 - 3.25
X	8.0 - 12.4	3.25 - 2.42
Ku	12.4 - 18.0	2.42 - 1.67
K	18.0 - 26.6	1.67 - 1.13
Ka	26.5 - 40.0	1.13 - 0.75
U	40.0 - 60.0	0.75 - 0.05
V	50.0 - 75.1	0.60 - 0.40
W	75.0 - 110.0	0.40 - 0.27

VSWR Return Loss (dB)

VSWR	Return Loss
1.01	46.06
1.02	40.09
1.03	36.61
1.04	34.15
1.05	32.26
1.06	30.71
1.07	29.42
1.08	28.3
1.09	27.31
1.10	26.44
1.12	24.94
1.14	23.69
1.16	22.61
1.18	21.66
1.20	20.83
1.30	17.69
1.40	15.56
1.50	13.98
1.60	12.74
1.70	11.73
1.80	10.88
1.90	10.16
2.0	9.54
2.5	7.36
3.0	6.02

Waveguide Data and Dimensions						
Designation				Frequency Range	Internal Dimensions	External Dimensions
Europe		USA				
R	WG	RG	WR	GHz	mm	mm
14	6	69/U - 103/U	650	1.14 - 1.73	165.10 x 82.55	169.16 x 86.61
18	7	337/U - 338/U	510	1.45 - 2.20	129.54 x 64.77	133.60 x 68.83
22	8	104/U - 105/U	430	1.72 - 2.61	109.22 x 54.61	113.28 x 58.67
26	9A	112/U - 113/U	340	2.70 - 3.30	86.36 x 43.18	90.42 x 47.24
32	10	48/U - 75/U	284	2.60 - 3.95	72.14 x 34.04	76.20 x 38.10
40	11A	340/U - 341/U	229	3.22 - 4.90	58.17 x 29.083	61.42 x 32.33
48	12	49/U - 95/U	187	3.94 - 5.99	47.5 x 22.149	50.80 x 25.40
58	13	343/U - 344/U	159	4.64 - 7.05	40.39 x 20.193	43.64 x 23.44
70	14	50/U - 106/U	137	5.38 - 8.18	34.85 x 15.799	38.10 x 19.05
84	15	51/U - 68/U	112	6.58 - 10.0	28.50 x 12.624	31.75 x 15.88
100	16	52/U - 67/U	90	8.20 - 12.5	22.86 x 10.16	25.40 x 12.70
120	17	346/U - 347/U	75	9.84 - 15.0	19.05 x 9.525	21.59 x 12.06
140	18	91/U - 349/U	62	11.90 - 18.0	15.80 x 7.90	17.83 x 9.93
180	19	351/U - 352/U	51	14.50 - 22.00	12.95 x 6.477	14.99 x 8.51
220	20	53/U - 121/U	42	17.6 - 26.7	10.67 x 4.318	12.7 x 6.35
260	21	354/U - 355/U	34	21.7 - 33.0	8.636 x 4.318	10.67 x 6.35
320	22	271/U	28	26.4 - 40.1	7.112 x 3.556	9.14 x 5.60
400	23	272/U	22	33.0 - 50.1	5.690 x 2.845	7.72 x 4.88
500	24	358/U	19	39.3 - 59.7	4.755 x 2.388	6.81 x 4.43
620	25	88/U - 273/U	15	49.9 - 75.8	3.759 x 1.880	5.79 x 3.92
740	26	274/U	12	60.5 - 92.0	3.099 x 1.549	5.13 x 3.58
900	27	359/U	10	73.8 - 112.0	2.540 x 1.270	4.57 x 3.30

dB Ratio			
dB	Ratio	XMSN	XMTD
		Loss %	Power %
0.1	1.02	2.28	97.72
0.2	1.05	4.5	95.5
0.3	1.07	6.67	93.33
0.4	1.1	8.8	91.2
0.5	1.12	10.87	89.13
0.6	1.15	12.9	87.1
0.7	1.18	14.89	85.11
0.8	1.2	16.82	83.18
1	1.26	20.57	79.43
1.5	1.41	29.221	70.79
2	1.59	36.9	63.1
2.5	1.78	43.77	56.23
3	1.99	49.88	50.12
4	2.51	60.19	39.81
5	3.16	68.38	31.62
6	3.98	74.88	25.12
7	5.01	80.05	19.95
8	6.31	84.15	15.85
10	10	90	10
50	1x10 ⁵	99.99	0.001

Properties of Materials		
Resistivity (relative to Copper)		Temperature Stability (ppm/°C)
1	Copper, annealed (1.742E—8ohm mtrs)	17.0
1.03	Copper, hard drawn	17.0
0.95	Silver	19.7
1.42	Gold	14.2
1.64	Aluminium	22.0
3.25	Tungsten	4.5
3.4	Zinc	29.0
3.9	Brass	18.5
5.05	Nickel	13.0
6.165	Platinum	9.0
52.8	Stainless Steel	16.0



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Note: Every care has been taken to ensure that the information in these tables is correct, however the Company cannot accept any liability for errors