50 Ω µWAVE / mmWAVE CABLE SPECIFICATIONS

STANDARD OFF-THE-SHELF ASSEMBLIES

SERIES		RF047-A, GC47	RF25S	RF405	RF085	RF086	RF23C
Type		.047 (29 AWG), low loss flexible, millimeter wave	Samtec 25 AWG, flexible, microwave	RG 405, .086, (24 AWG), semi-flexbile, microwave	.085 (24 AWG), low loss flexible, millimeter wave	.086 (23 AWG), low loss flexible, millimeter wave	Samtec 23 AWG, flexible, copper shield, millimeter wave
ELECTRICAL							
Max. Frequency (GHz)		65	40	20	50	65	50
Max. Insertion Loss (dB/m)	1 GHz	1.21	0.79	0.72	0.69	0.65	0.68
	26 GHz	7.43	3.80 @ 20 GHz	4.26 @ 20 GHz	4.28	3.90	4.27
	40 GHz	9.68	–		5.59	5.06	5.59
	50 GHz	11.14	–		6.47	5.81	6.46
Propagation Delay (ns/m)		4.76		4.79	4.75	4.20	4.76
Velocity of Propagation		70%				80%	70%
Capacitance (pF/m)		95.00	96.80	104.97	88.20	83.37	97.80
CONSTRUCTION							
Center Conductor	Material	Solid Silver Plated Copper					
	AWG (mm/in.)	29 (.2870 / .0113)	25 (.4570 / .0180)	24 (.5100 / .0200)		23 (.5740 / .0226)	
Dielectric	Material	PFA	Solid FEP	PTFE	Solid PTFE	Foam FEP	FEP
	Dia. (mm/in.)	.9220 / .0363	1.4700 / .0578	1.6800 / .0660	1.6300 / .0640	1.6150 / .0636	1.8470 / .0727
Shield	Material	1) Ag Plated Cu 2) Ag Plated Cu		Tinned Cu	Spiral Strip Ag Plated Cu	1) Ag Plated Cu 2) Ag Plated Cu	1) Ag Plated Cu 2) Cu Tape 3) Ag Plated Cu
Outer Braid	Dia. (mm/in.)	1.1700 / .0460	1.8600 / .0735	2.2000 / .0860	2.1300 / .0840	2.1080 / .0830	2.2730 / .0895
Jacket	Material	FEP		—		FEP	
	Dia. (mm/in.)	1.4200 / .0560	2.0600 / .0810	3.2000 / .1260	2.6400 / .1040	2.5400 / .1000	2.6670 / .1050
MECHANICAL							
Operating Temp		-65˚ C to 125˚ C	-40˚ C to 200˚ C	-40˚ C to 125˚ C	-65˚ C to 125˚ C	-55˚ C to 125˚ C	-65˚ C to 125˚ C
Min. Bend Radius		5.00 mm	9.00 mm	6.35 mm	13.20 mm	8.90 mm	3.18 mm
Connector Options		1.35 mm, 1.85 mm, 2.40 mm, 2.92 mm, SMPM, Ganged	SMA, SMP		2.92 mm, 2.40 mm	1.85 mm, 2.40 mm, 2.92 mm, SMPM	2.92 mm, 2.40 mm, SMPM

SERIES		RF23S	RF120✦	RF402	RF180	RF280
Type		Samtec 23 AWG, flexible, microwave	Samtec 19.5 AWG, flexible, millimeter wave	RG 402, .141 (19 AWG), semi-flexbile, microwave	.178 (16 AWG), low loss flexible, microwave	.277 (11 AWG), low loss flexible, microwave
ELECTRICAL						
Max. Frequency (GHz)		35	45	20	27	18
Max. Insertion Loss (dB/m)	1 GHz	0.72	0.43	0.40	0.27	0.17
	26 GHz	3.71 @ 20 GHz	2.78	2.30 @ 20 GHz	1.23 @ 18 GHz	0.79 @ 18 GHz
	40 GHz	–	3.66		–	
	50 GHz			–		
Propagation Delay (ns/m)		4.72	4.12	4.79	4.17	4.02
Velocity of Propagation		70%	81%	70%	80%	83%
Capacitance (pF/m)		95.45	82.39	98.07	82.00	
CONSTRUCTION						
Center Conductor	Material	Solid Silver Plated Copper				
	AWG (mm/in.)	23 (.5740 / .0226)	19.5 (.8610 / .0339)	19 (.9200 / .0362)	16 (1.3000 / .0512)	11 (2.2600 / .0889)
Dielectric	Material	Solid FEP	Foam FEP	PTFE	PTFE Tape	
	Dia. (mm/in.)	1.8470 / .0727	2.3900 / .0941	2.9800 / .1170	3.6800 / .1450	6.3500 / .2500
Shield	Material	1) Ag Plated Cu 2) Ag Plated Cu		Tinned Cu	1) Flat Ag Plated Cu 2) Al Polyester 3) Round Ag Plated Cu	
Outer Braid	Dia. (mm/in.)	2.2480 / .0885	2.9900 / .1180	3.5800 / .1410	4.5200 / .1780	7.0400 / .2770
–Jacket	Material	FEP		—	FEP	
	Dia. (mm/in.)	2.5900 / .1020	3.8100 / .1500	4.5800 / .1803	4.9500 / .1950	7.6200 / .3000
MECHANICAL						
Operating Temp		-40° C to 200° C	-65° C to 150° C	-40° C to 125° C	-55° C to 200° C	
Min. Bend Radius		8.89 mm	12.50 mm	10.90 mm	24.80 mm	38.10 mm
Connector Options		3.50 mm	2.92 mm, 2.40 mm	SMA	SMA, TNCA, N Type	

✦Preliminary