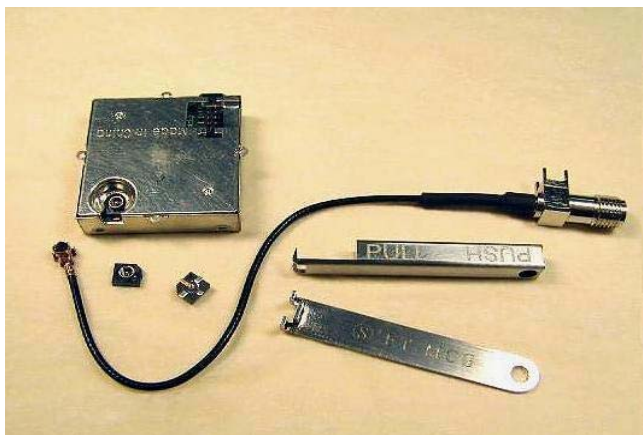


Sunridge MCG Series – Miniature Coaxial Interconnect, 3.0mm Mated Height for Robust Use



Sunridge MCG series coaxial product fulfills the rigorous demands of both highly reliable RF signal transmission and rugged usage as required in mobile or on-vehicle wireless IT devices. In a small form factor of 4.5mm x 5.0mm footprint and 3.0mm mated height, and designed for 50 Ohm impedance over a working frequency range from DC to 6.0 GHz, MCG features a supreme performance of low insertion loss and a VSWR below 1.10 (at 1575 MHz GPS frequency) and it provides for a sturdy retention force of 1.5Kg. MCG offers a reliable, cost-effective solution for board to board or board to panel integration.

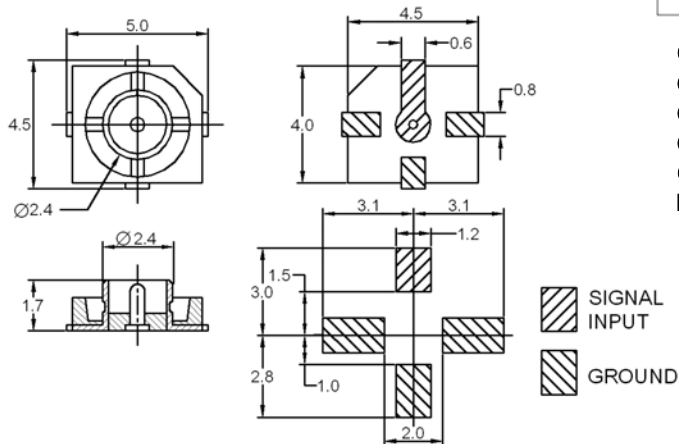


Typical Application:

Portable or on-vehicle tracking device, monitoring base station equipment. Particularly, telecommunication or GPS module in rugged or vibratory environment.

PCB Connector

Pn: MCG-ST-00T



Recommended PCB Layout

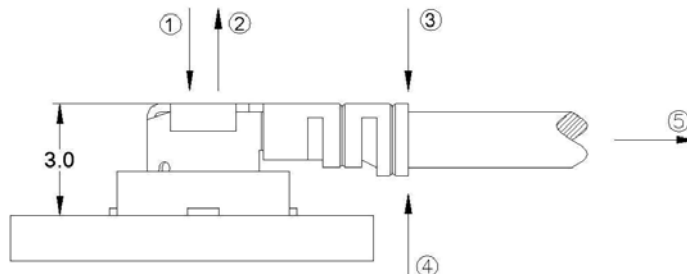
Material Specification

Outer Contact: Copper Alloy, Gold Plated.
Center Contact: Copper Alloy, Gold Plated.
Insulator: Engineering Plastic.
Cable: Silver plated center conductor with Teflon dielectric and jacket.

Features

- Space Economy: 4.5mmx5.0mm footprint, 3.0mm mated height
- Cable Connector: designed for study mating with PCB socket.
- Teflon Cable: silver plated center conductor and braid, Teflon dielectric and jacket. Cable options available for requirements in routing flexibility, structural strength, or double-shielding.
- PCB socket: On-piece integral molded construction. High temp plastic housing for IR reflow. Protection for mated cable head.
- Strength: Lead-in and interlock features make for easy insertion and sturdy engagement among mating components.
- Accessory: Insertion/extraction tool for open space or recessed area. SMA adapter for connection to network analyzer.

Form Factor and Mechanical Application



- ① Insertion force (with tool): 1800 gf.
 - ② Extraction force (with tool): 1400 gf.
 - ③ Retention, downward force: 500gf Max.
 - ④ Retention, upward force: 400gf Max.
 - ⑤ Retention, pull back: 1000gf Max
- Durability: 20 cycles

Characteristics

Frequency Range	DC to 6GHz
Nominal Impedance	50 ohm
Temperature Range	-40°C to +90°C
Contact Resistance	25m ohm max
Withstanding Voltage	AC 200Vrms
Insulation Resistance	500M ohm min
Durability	20 Cycles

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(dimension: mm)



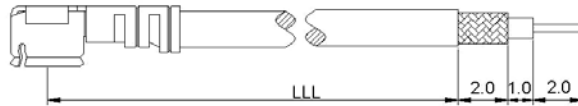
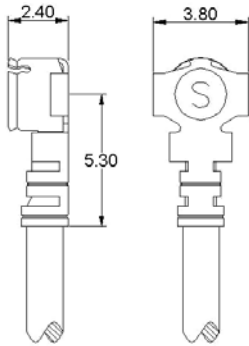
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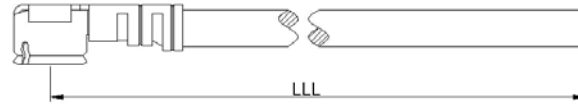




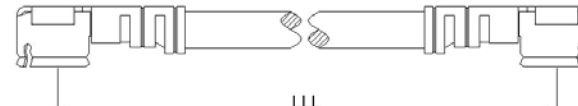
MCG Cable Assembly



Pn: MCG-SH-XX-LLL-T



Pn: MCG-SH-XX-LLL-F



Pn: MCG-DH-XX-LLL

P/N Designation

MCG- XX - XX - XXX - X
A B C D

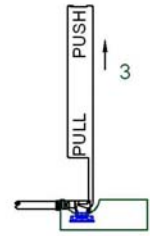
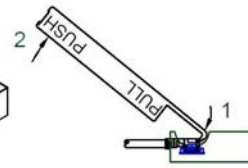
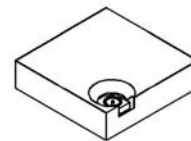
- A. Head Configuration: SH: Single-Headed Cable construction
DH: Double-Headed Cable construction
- B. Coaxial Cable Code: see cable selection guide
- C. Length (in mm): e.g. LLL = 200 means 200mm.
- D. End Cut (SH only): T : open end striped & tinned.
F : open end flat cut

Insertion/Extraction Tool

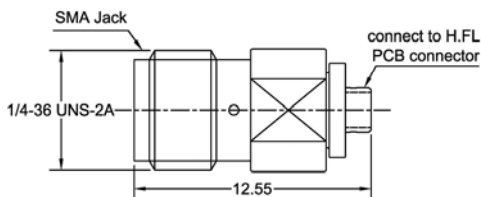
- Pn: ET-MCG (for open space)
For insertion and extraction, dual use



- Pn: ETS-MCG (for recess area; e.g. Trimble Lassen module)
For extraction use only



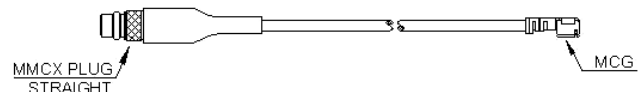
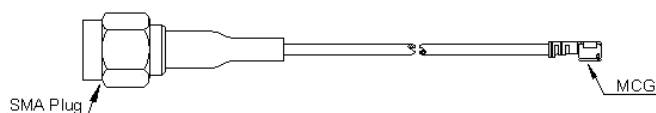
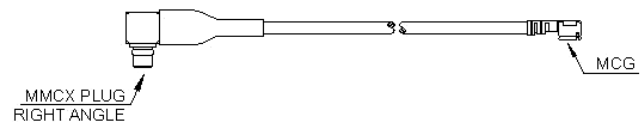
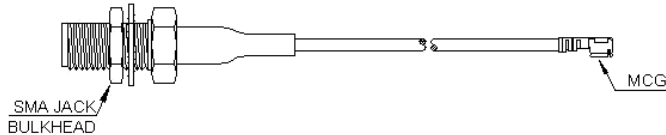
Test Adaptor Pn: MCGP-SMAJ (Connection to Network Analyzer)



To extract MCG- connector from Trimble module without tearing up the cable assembly

Integrated Solution

MCG- single headed cable is typically integrated with another R/F connector for interconnection, say, from module board to panel or to antenna fitting. Sunridge is equally committed to both R/F cable assembly customers and OEM's. Send your application requirement to engineering@sunridgecorp.com for a project evaluation.



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(dimension: mm)



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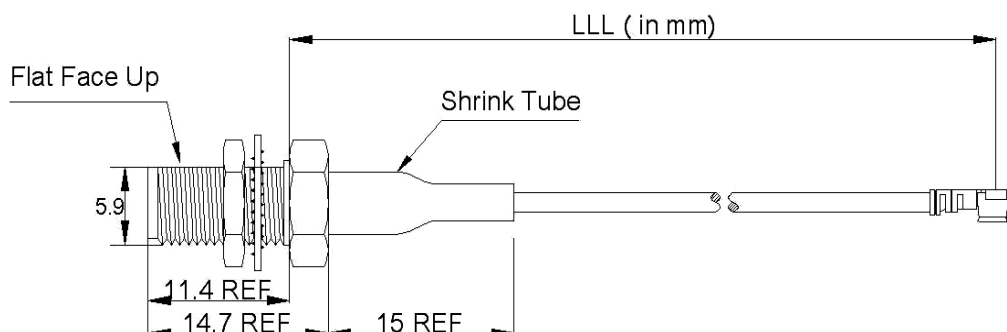




MCG- Derivative Cable Assembly P/N Selector:

(Illustration of the most commonly used MCG-RF cable assy. A variety of other RF configurations is readily available at Sunridge Corp. Contact engineering@sunridgecorp.com for project inquiry.)

■ MCG to SMA Bulkhead Jack Cable Assembly:

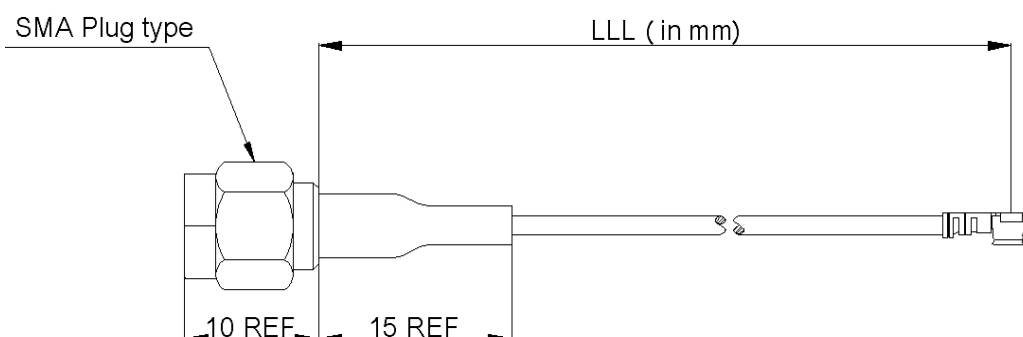


Range	Tolerance
50 < LLL < 100	± 2
100 < LLL < 200	± 3
300 < LLL < 300	± 5
300 < LLL < 500	± 10
500 < LLL < 1000	± 25
1000 < LLL	±60

LLL: Length in mm. e.g., LLL = 200 means 200mm; LLL = 073 means 73mm

Descriptions	Cable Material	Sunridge P/N
MCG to SMAJB	#51, 1.48 mm OD	MCG-RH-51-LLL-SMAJB801
MCG to SMAJB Reverse Polarity (RP)	#51, 1.48 mm OD	MCG-RH-51-LLL-SMAJB881
MCG to SMAJB with O-Ring Seal	#51, 1.48 mm OD	MCG-RH-51-LLL-SMAJB803
MCG to SMAJB RP, with O-ring Seal	#51, 1.48 mm OD	MCG-RH-51-LLL-SMAJB883
MCG to SMAJB	#54, 1.33 mm OD	MCG-RH-54-LLL-SMAJB207
MCG to SMAJB Reverse Polarity (RP)	#54, 1.33 mm OD	MCG-RH-54-LLL-SMAJB281
MCG to SMAJB with O-Ring Seal	#54, 1.33 mm OD	MCG-RH-54-LLL-SMAJB209
MCG to SMAJB RP with O-ring Seal	#54, 1.33 mm OD	MCG-RH-54-LLL-SMAJB283

■ MCG to SMA Plug Cable Assembly:



Range	Tolerance
50 < LLL < 100	± 2
100 < LLL < 200	± 3
300 < LLL < 300	± 5
300 < LLL < 500	± 10
500 < LLL < 1000	± 25
1000 < LLL	±60

LLL: Length in mm. e.g., LLL = 200 means 200mm; LLL = 073 means 73mm

Descriptions	Cable Material	Sunridge P/N
MCG to SMAP	#51, 1.48 mm OD	MCG-RH-51-LLL-SMAP801
MCG to SMAP Reverse Polarity (RP)	#51, 1.48 mm OD	MCG-RH-51-LLL-SMAP881
MCG to SMAP	#54, 1.33 mm OD	MCG-RH-54-LLL-SMAP205
MCG to SMAP Reverse Polarity (RP)	#54, 1.33 mm OD	MCG-RH-54-LLL-SMAP281

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(dimension: mm)



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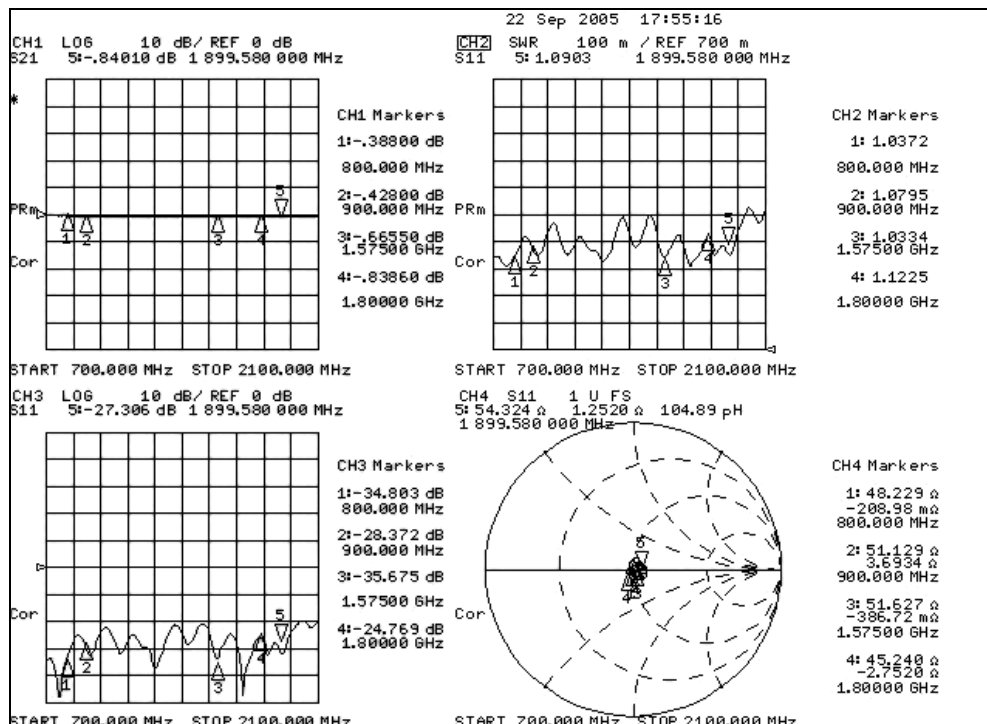
Cable Selection Guide

Cable Designation Code			#51	#54	#53
Inner conductor	No. and Dia.	(No./mm)	7/0.102	7/0.102	7/0.08
	Material	—	Silver plated copper wire	Silver plated copper wire	Silver plated copper wire
	Total Dia.	(mm)	0.305	0.305	0.24
Dielectric	Material	—	FEP	FEP	FEP
	Total Dia.	(mm)	0.84	0.88	0.66
Outer conductor	Material	—	7/0.102	7/0.102	7/0.08
	Dia. of wire	(mm)	Tinned copper wire	Tinned copper wire	Tinned copper wire
	Total Dia.	(mm)	1.24	1.13	1.12 (double shield)
Jacket	Material	—	FTFE	FEP	FEP
	Nominal thickness	(mm)	0.12	0.1	0.1
Overall Dia.		(mm)	1.48	1.33	1.32
Nominal impedance		(Ohm)	50	50	50
Voltage rating		Vrms Max.	300	300	300
Nominal static capacitance		(pF/m)	95	96	95
Insertion loss		dB/m at 1GHz	1.5	1.61	2.11
		dB/m at 2GHz	2.2	2.33	3.04
		dB/m at 2.4GHz	2.8	2.58	3.35
		dB/m at 3GHz	3.3	2.92	3.77
		dB/m at 5GHz	3.7	4.10	4.98
		dB/m at 6GHz	4.2	4.31	5.50

(data as provided by material suppliers, for reference only)

Performance Measurement Reference:

(Test sample: MCG dual head cable assy, 200mm; Test instrument: Agilent 8753ES network analyzer.)



MCG-DH-51-200

Length: 200mm
Cable Code: #51
Overall Diameter: 1.48mm
Inner Conductor: 0.31mm Dia.
Dielectric: 0.84 Dia.
Outer Conductor: 1.24mm Dia
Jacket: 1.48mm Dia.



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(dimension: mm)

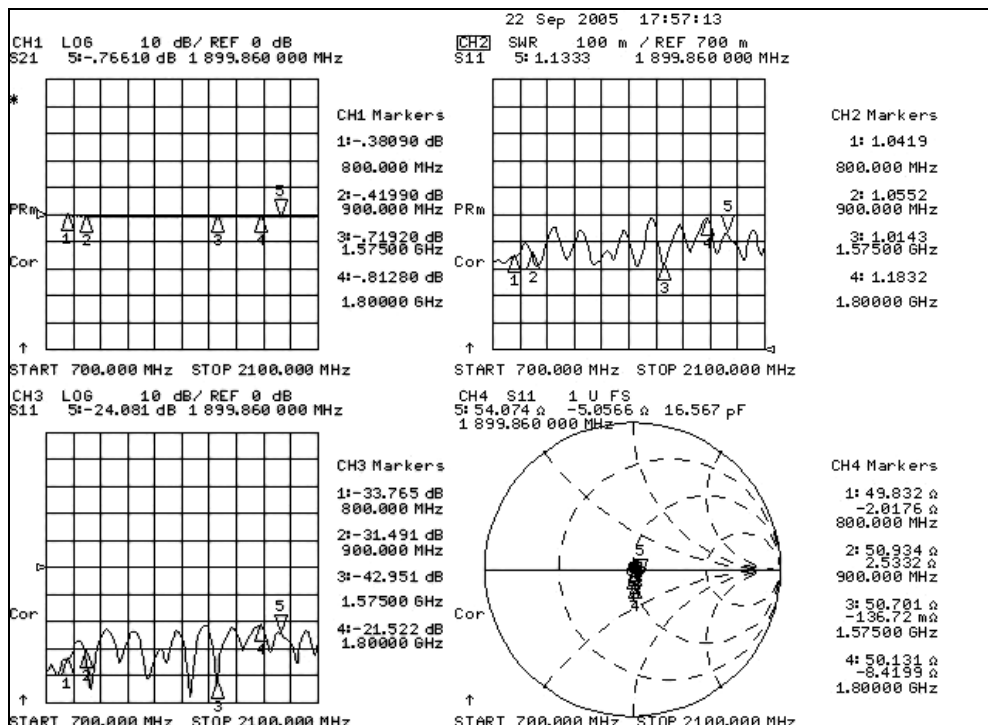
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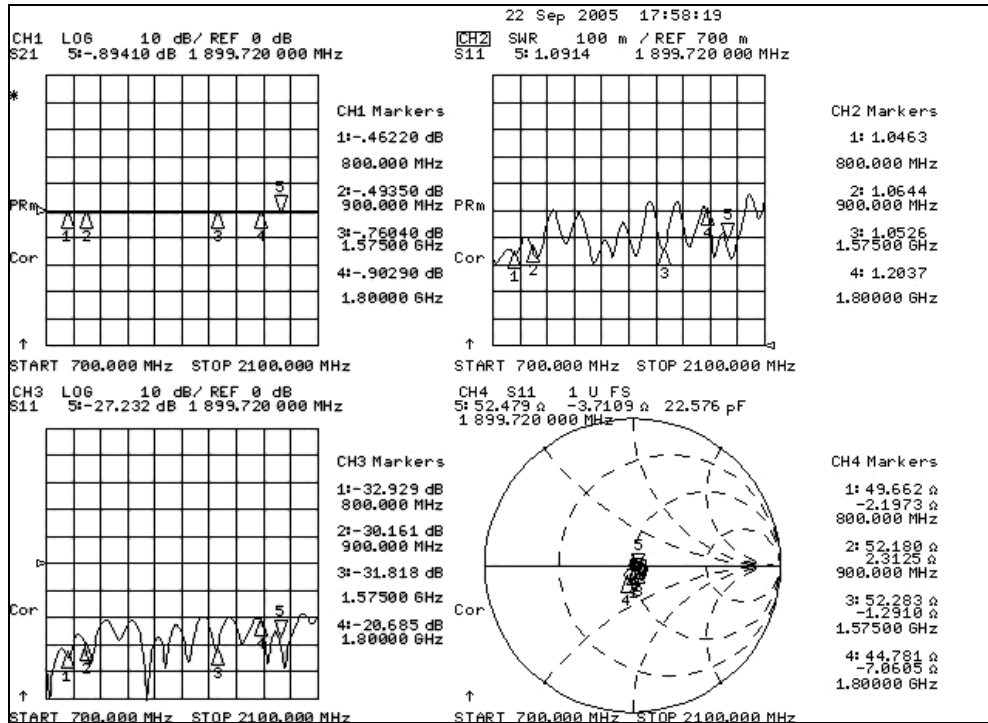
Performance Measurement Reference:

(Test sample: MCG dual head cable assy, 200mm; Test instrument: Agilent 8753ES network analyzer.)



MCG-DH-54-200

Length: 200mm
Cable Code: #54
Overall Diameter: 1.33mm
Inner Conductor: 0.31mm Dia.
Dielectric: 0.88 Dia.
Outer Conductor: 1.13mm Dia.
Jacket: 1.33mm Dia.



MCG-DH-53-200

Length: 200mm
Cable Code: #53
Overall Diameter: 1.32mm
Inner Conductor: 0.24mm Dia.
Dielectric: 0.66 Dia.
Outer Conductor (double braid):
1.12mm
Jacket: 1.32mm Dia.