

Quality&Precise



MAXWELLON[®] Flexline[®]

High Performance Phase
Stable Ultra-flex Test Cable

2023

Maxwellon

The cutting-edge technologies in wireless communication, autopilot, aerospace and defense call for higher frequency and wider band on cables. Meanwhile, with the test automation develops, test cable assemblies applied to automatic turntable and robotic arms are facing challenges on mobility, connectivity, repeatability, reliability and durability.

Flexline® cable adopts stranded silver plated copper center conductor, low-density PTFE dielectric, and PTFE intermediate stabilizing layer. Besides its excellent flexibility, from DC to 50GHz, it sustains nice mechanical phase and amplitude stability. The reliable connector design and advanced assembly processes also endow its excellent electrical performance and long service life. It is widely employed in 5G R&D, antenna far and near field, and mass production test etc.

■ Flexline® Series

Conventional Series

FLN18	Operating temperature -40~+85°C
FLN26	Light raw cable, armor optional
FLN50	PUR jacket, more flexible

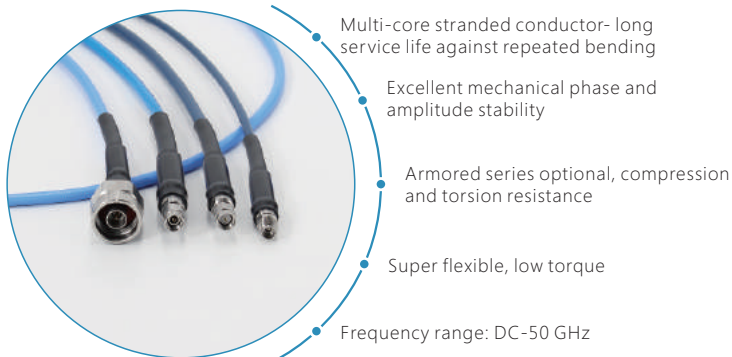
HT Series

FLN18F	Operating temperature -55~+125°C
FLN26F	Light raw cable, armor optional
FLN40F	FEP&PFA jacket – heat resistance

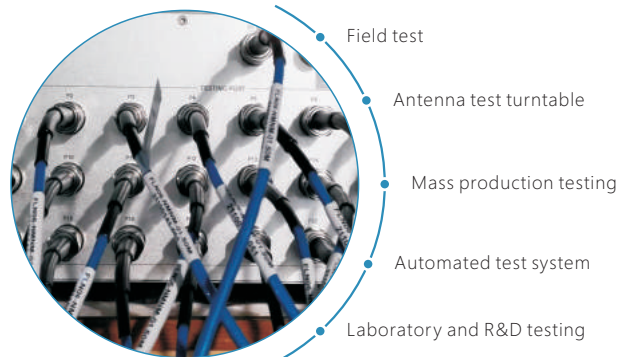
HT-A Series

FLA18F	Operating temperature -55~+125°C
FLA26F	Armored – compression resistance, torsion resistance, bending resistance
FLA40F	High temperature series standard armor

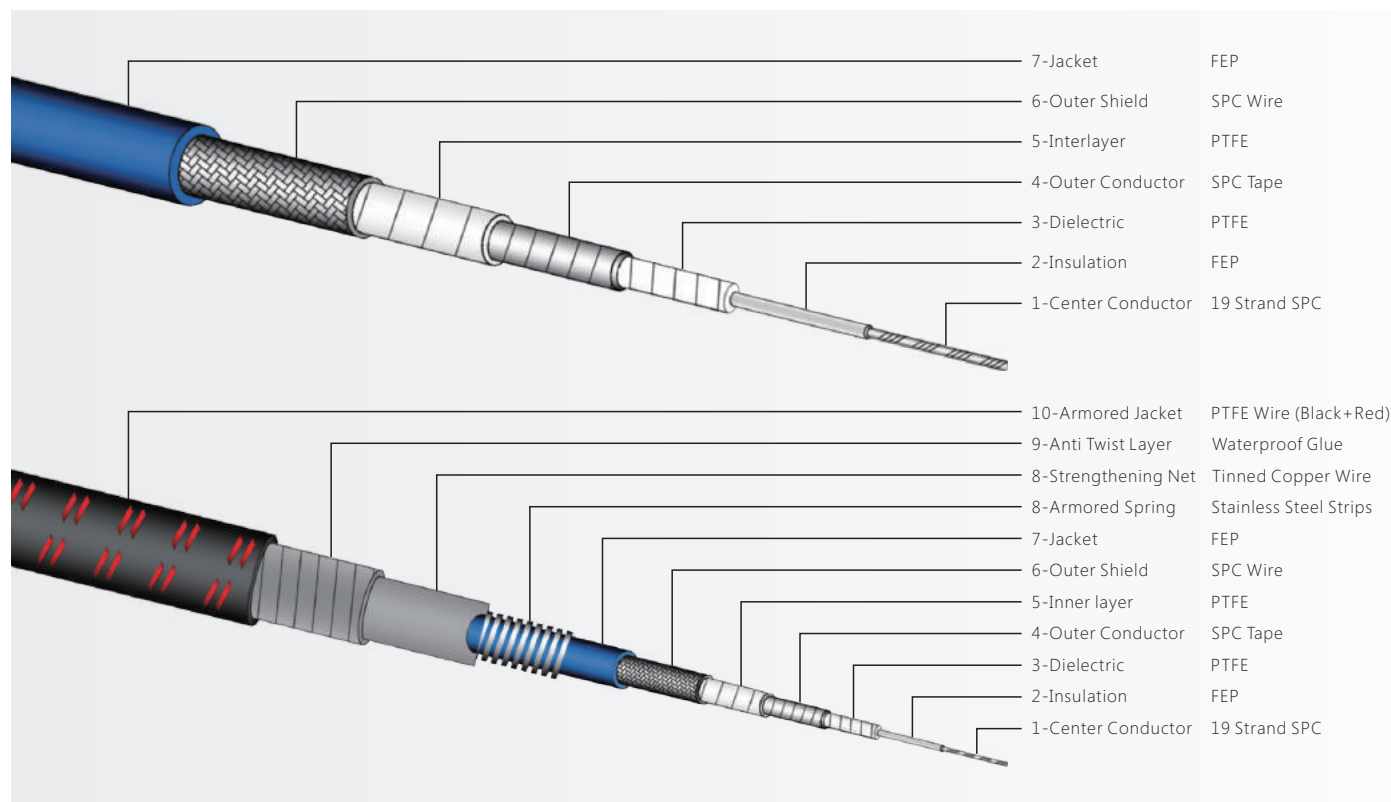
Product features



Product application



Flexline® Cable Construction



Flexline® Cable Specifications

Electrical Specifications

Flexline® Cable Type		FLN18	FLN18F	FLA18F	FLN26	FLN26F	FLA26F	FLN40F	FLA40F	FLN50
Operating Frequency (GHz)		26.5			26.5			40		50
Jacket		Blue PUR	Transparent FEP	Red+Black Armor	Blue PUR	Blue FEP	Red+Black Armor	Blue PFA	Red+Black Armor	Blue PUR
Typical VSWR		1.20			1.20			1.25		1.25
Maximum VSWR		1.30			1.30			1.35		1.35
Impedance (Ω)		50								
Insertion Loss (dB)		1.98@18GHz 2.52@26.5GHz			1.26@18GHz 1.54@26.5GHz			1.94@18GHz 3.07@40GHz		4.30@40GHz 4.90@50GHz
Typical Mechanical Phase (°)	DC-18GHz	±3			±3			±3		±3
	DC-26.5GHz	±5			±5			±5		±5
	DC-40GHz							±7		±7
	DC-50GHz									±8
Typical Mechanical Amplitude (dB)	DC-18GHz	±0.02			±0.02			±0.02		±0.02
	DC-26.5GHz	±0.04			±0.04			±0.04		±0.04
	DC-40GHz							±0.05		±0.05
	DC-50GHz									±0.06
Shielding Effectiveness (dB)		>90								
Velocity of Propagation		74%			83%			81%		74%

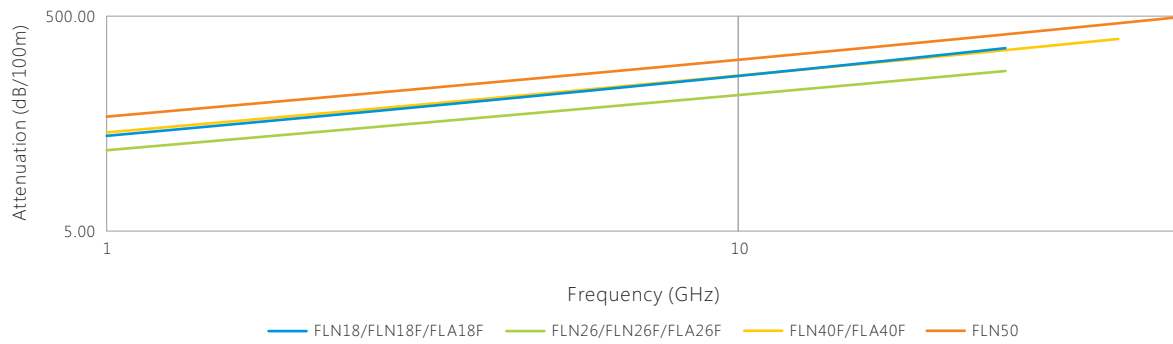
Mechanical Specifications

Outside Diameter of Cable (mm)	5.20	4.60	7.95	5.50	5.00	7.95	3.60	6.00	4.00
Minimum Bending Radius:Installation (mm)	16	18	40	20	20	40	18	30	16
Minimum Bending Radius:Repeated (mm)	50	50	80	50	50	80	36	60	36
Weight (g/m)	50	50	140	53	51	141	35	93	30
Flexible Life (cycle)	300000	300000	300000	300000	300000	300000	300000	300000	200000

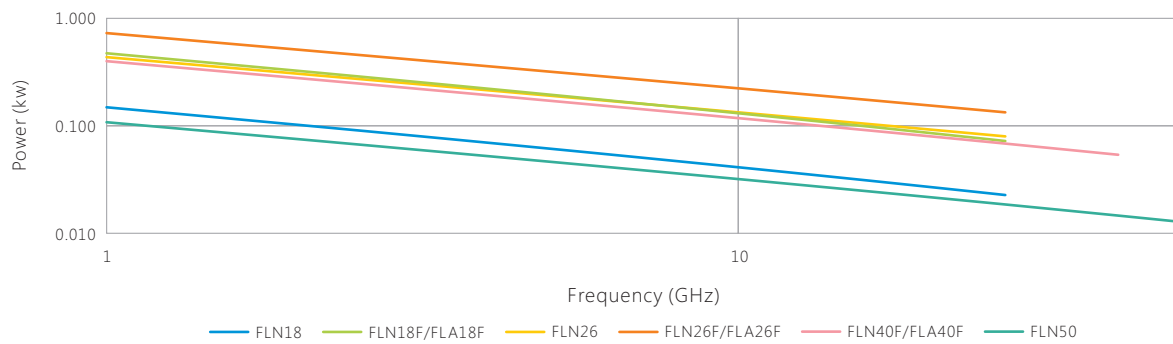
Environmental Specifications

Temperature Range (°C)	-40~+85	-55~+125	-55~+125	-40~+85	-55~+125	-55~+125	-55~+125	-55~+125	-40~+85
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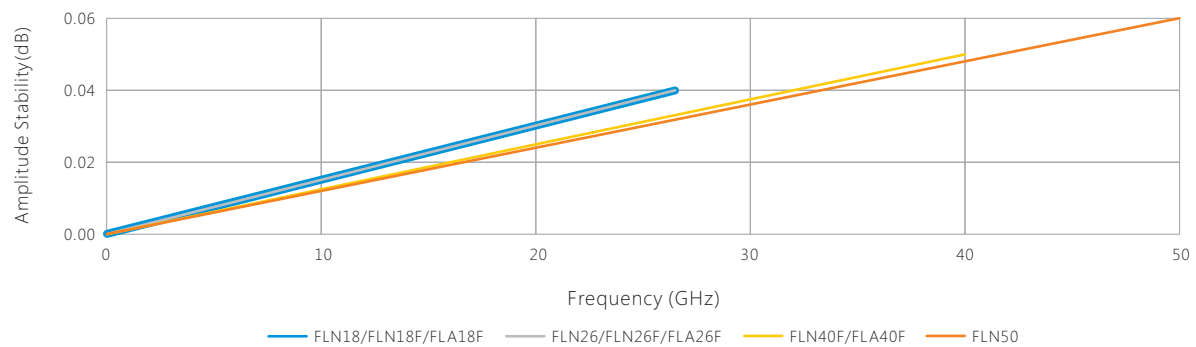
Frequency & Attenuation



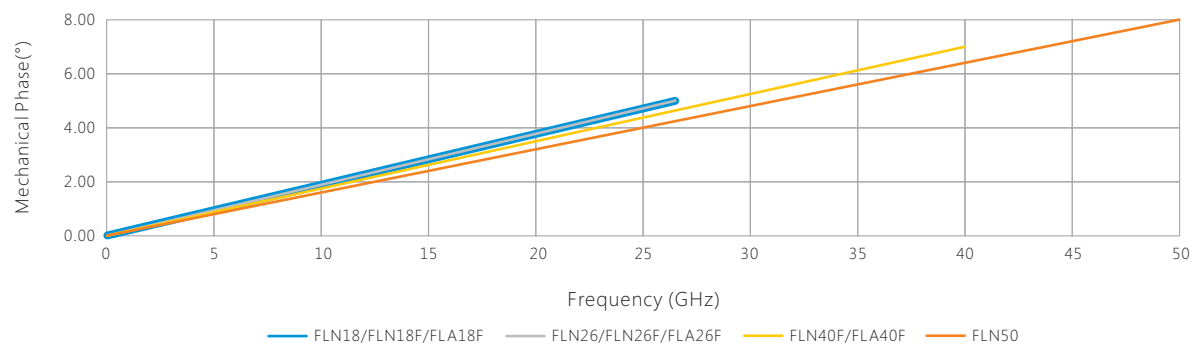
Frequency & Power



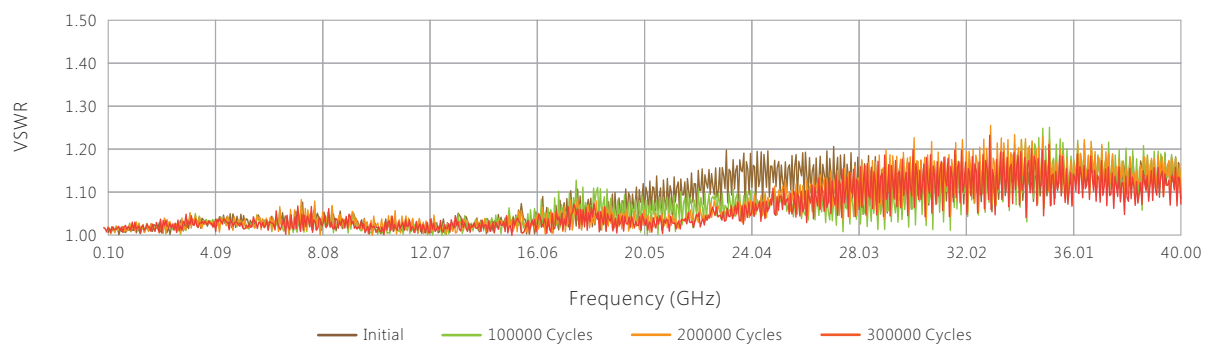
Typical Value of Mechanical Amplitude Stability



Typical Value of Mechanical Phase Stability



Bending test curve



Component Selection Information

F	L	1	2	3	4	-	5	6	7	8	9	10	-	11	12	13	14	15	16
Armour		Cable Type					Connector							Customized Length				Unit	

- Digit 1: A-Armored; non-Armored, without digit
- Digit 2-4: Cable type: Conventional Series (PUR)—18/26/40/50
HT Series (FEP&PFA)—18F/26F/40F
- Digit 5-7: Left connector, code as follows, three digits maximum, less than three digits are indented according to the actual code
- Digit 8-10: Right connector, code as follows, three digits maximum, less than three digits are indented according to the actual code
- Digit 11-14: Customized length. e.g.: 1-"01.00"
- Digit 15-16: Unit: M-meter/IN-inch/F-feet, less than two digits, indent by one
- For example: FLN18-SMSM-01.00M

Connector Selection

Flexline® Cable Type			Conventional Series			HT Series			HT-A Series		
			FLN18	FLN26	FLN50	FLN18F	FLN26F	FLN40F	FLA18F	FLA26F	FLA40F
Connector Code	Connector Type	Diameter Operating Frequency	5.20mm	5.50mm	4.00mm	4.60mm	5.00mm	3.60mm	7.95mm	7.95mm	6.00mm
24F	2.4mm Female	50.0GHz			●						
24M	2.4mm Male	50.0GHz			●						
29F	2.92mm Female	40.0GHz			●						
29M	2.92mm Male	40.0GHz			●			●			●
35M	3.5mm Male	26.5GHz	●	●		●	●		●	●	
SF	SMA Female	18.0GHz	●								
SM	SMA Male	18.0GHz	●	●		●	●	●	●	●	●
SMR	SMA Male Right Angle	18.0GHz	●								
NM	N Male	18.0GHz	●	●		●	●		●	●	

■ Flexline® Conventional Series Cable Assemblies-Fast Delivery of Standard Products

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10205	FLN18-35M35M-01.00M	FLN18	3.5mm Male	3.5mm Male	1.0m	26.5GHz	1.30	3.04dB
T-CA21-10206	FLN18-35M35M-01.50M	FLN18	3.5mm Male	3.5mm Male	1.5m	26.5GHz	1.30	4.30dB
T-CA21-10207	FLN18-35M35M-02.00M	FLN18	3.5mm Male	3.5mm Male	2.0m	26.5GHz	1.30	5.56dB

T-CA21-10208	FLN18-SMSM-01.00M	FLN18	SMA Male	SMA Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10209	FLN18-SMSM-01.50M	FLN18	SMA Male	SMA Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10210	FLN18-SMSM-02.00M	FLN18	SMA Male	SMA Male	2.0m	18GHz	1.30	4.39dB

T-CA21-10211	FLN18-NMNM-01.00M	FLN18	N Male	N Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10212	FLN18-NMNM-01.50M	FLN18	N Male	N Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10213	FLN18-NMNM-02.00M	FLN18	N Male	N Male	2.0m	18GHz	1.30	4.39dB

T-CA21-10214	FLN18-SMNM-01.00M	FLN18	SMA Male	N Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10215	FLN18-SMNM-01.50M	FLN18	SMA Male	N Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10216	FLN18-SMNM-02.00M	FLN18	SMA Male	N Male	2.0m	18GHz	1.30	4.39dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=1.137, K2=0.00253. The unit of "F" is GHz. The unit of "L" is meter.

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10217	FLN26-SMSM-01.00M	FLN26	SMA Male	SMA Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10218	FLN26-SMSM-01.50M	FLN26	SMA Male	SMA Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10219	FLN26-SMSM-02.00M	FLN26	SMA Male	SMA Male	2.0m	18GHz	1.30	2.94dB

T-CA21-10220	FLN26-NMNM-01.00M	FLN26	N Male	N Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10221	FLN26-NMNM-01.50M	FLN26	N Male	N Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10222	FLN26-NMNM-02.00M	FLN26	N Male	N Male	2.0m	18GHz	1.30	2.94dB

T-CA21-10223	FLN26-SMNM-01.00M	FLN26	SMA Male	N Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10224	FLN26-SMNM-01.50M	FLN26	SMA Male	N Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10225	FLN26-SMNM-02.00M	FLN26	SMA Male	N Male	2.0m	18GHz	1.30	2.94dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=0.8811, K2=0.000415. The unit of "F" is GHz. The unit of "L" is meter.

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10226	FLN50-24M24M-01.00M	FLN50	2.4mm Male	2.4mm Male	1.0m	50GHz	1.35	5.61dB
T-CA21-10227	FLN50-24M24M-01.50M	FLN50	2.4mm Male	2.4mm Male	1.5m	50GHz	1.35	8.06dB
T-CA21-10228	FLN50-24M24M-02.00M	FLN50	2.4mm Male	2.4mm Male	2.0m	50GHz	1.35	10.51dB

T-CA21-10229	FLN50-24M24F-01.00M	FLN50	2.4mm Male	2.4mm Female	1.0m	50GHz	1.35	5.61dB
T-CA21-10230	FLN50-24M24F-01.50M	FLN50	2.4mm Male	2.4mm Female	1.5m	50GHz	1.35	8.06dB
T-CA21-10231	FLN50-24M24F-02.00M	FLN50	2.4mm Male	2.4mm Female	2.0m	50GHz	1.35	10.51dB

T-CA21-10232	FLN50-29M29M-01.00M	FLN50	2.92mm Male	2.92mm Male	1.0m	40GHz	1.35	4.93dB
T-CA21-10233	FLN50-29M29M-01.50M	FLN50	2.92mm Male	2.92mm Male	1.5m	40GHz	1.35	7.08dB
T-CA21-10234	FLN50-29M29M-02.00M	FLN50	2.92mm Male	2.92mm Male	2.0m	40GHz	1.35	9.23dB

T-CA21-10235	FLN50-29M29F-01.00M	FLN50	2.92mm Male	2.92mm Female	1.0m	40GHz	1.35	4.93dB
T-CA21-10236	FLN50-29M29F-01.50M	FLN50	2.92mm Male	2.92mm Female	1.5m	40GHz	1.35	7.08dB
T-CA21-10237	FLN50-29M29F-02.00M	FLN50	2.92mm Male	2.92mm Female	2.0m	40GHz	1.35	9.23dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=1.7798616, K2=0.0018415. The unit of "F" is GHz. The unit of "L" is meter.



■ Flexline® HT Series Cable Assemblies-Fast Delivery of Standard Products

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10238	FLN18F-35M35M-01.00M	FLN18F	3.5mm Male	3.5mm Male	1.0m	26.5GHz	1.30	3.04dB
T-CA21-10239	FLN18F-35M35M-01.50M	FLN18F	3.5mm Male	3.5mm Male	1.5m	26.5GHz	1.30	4.30dB
T-CA21-10240	FLN18F-35M35M-02.00M	FLN18F	3.5mm Male	3.5mm Male	2.0m	26.5GHz	1.30	5.56dB

T-CA21-10241	FLN18F-SMSM-01.00M	FLN18F	SMA Male	SMA Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10242	FLN18F-SMSM-01.50M	FLN18F	SMA Male	SMA Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10243	FLN18F-SMSM-02.00M	FLN18F	SMA Male	SMA Male	2.0m	18GHz	1.30	4.39dB

T-CA21-10244	FLN18F-NMNM-01.00M	FLN18F	N Male	N Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10245	FLN18F-NMNM-01.50M	FLN18F	N Male	N Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10246	FLN18F-NMNM-02.00M	FLN18F	N Male	N Male	2.0m	18GHz	1.30	4.39dB

T-CA21-10247	FLN18F-SMNM-01.00M	FLN18F	SMA Male	N Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10248	FLN18F-SMNM-01.50M	FLN18F	SMA Male	N Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10249	FLN18F-SMNM-02.00M	FLN18F	SMA Male	N Male	2.0m	18GHz	1.30	4.39dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=1.137, K2=0.00253. The unit of "F" is GHz. The unit of "L" is meter.

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10250	FLN26F-35M35M-01.00M	FLN26F	3.5mm Male	3.5mm Male	1.0m	26.5GHz	1.30	2.06dB
T-CA21-10251	FLN26F-35M35M-01.50M	FLN26F	3.5mm Male	3.5mm Male	1.5m	26.5GHz	1.30	2.83dB
T-CA21-10252	FLN26F-35M35M-02.00M	FLN26F	3.5mm Male	3.5mm Male	2.0m	26.5GHz	1.30	3.60dB

T-CA21-10253	FLN26F-SMSM-01.00M	FLN26F	SMA Male	SMA Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10254	FLN26F-SMSM-01.50M	FLN26F	SMA Male	SMA Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10255	FLN26F-SMSM-02.00M	FLN26F	SMA Male	SMA Male	2.0m	18GHz	1.30	2.94dB

T-CA21-10256	FLN26F-NMNM-01.00M	FLN26F	N Male	N Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10257	FLN26F-NMNM-01.50M	FLN26F	N Male	N Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10258	FLN26F-NMNM-02.00M	FLN26F	N Male	N Male	2.0m	18GHz	1.30	2.94dB

T-CA21-10259	FLN26F-SMNM-01.00M	FLN26F	SMA Male	N Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10260	FLN26F-SMNM-01.50M	FLN26F	SMA Male	N Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10261	FLN26F-SMNM-02.00M	FLN26F	SMA Male	N Male	2.0m	18GHz	1.30	2.94dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=0.8811, K2=0.000415. The unit of "F" is GHz. The unit of "L" is meter.

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10262	FLN40F-29M29M-01.00M	FLN40F	2.92mm Male	2.92mm Male	1.0m	40GHz	1.35	3.70dB
T-CA21-10263	FLN40F-29M29M-01.50M	FLN40F	2.92mm Male	2.92mm Male	1.5m	40GHz	1.35	5.24dB
T-CA21-10264	FLN40F-29M29M-02.00M	FLN40F	2.92mm Male	2.92mm Male	2.0m	40GHz	1.35	6.77dB
T-CA21-10265	FLN40F-SMSM-01.00M	FLN40F	SMA Male	SMA Male	1.0m	18GHz	1.30	2.36dB
T-CA21-10266	FLN40F-SMSM-01.50M	FLN40F	SMA Male	SMA Male	1.5m	18GHz	1.30	3.33dB
T-CA21-10267	FLN40F-SMSM-02.00M	FLN40F	SMA Male	SMA Male	2.0m	18GHz	1.30	4.30dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=1.2657, K2=0.0013435. The unit of "F" is GHz. The unit of "L" is meter.



■ Flexline® HT-A Series Cable Assemblies-Fast Delivery of Standard Products

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10268	FLA18F-35M35M-01.00M	FLA18F	3.5mm Male	3.5mm Male	1.0m	26.5GHz	1.30	3.04dB
T-CA21-10269	FLA18F-35M35M-01.50M	FLA18F	3.5mm Male	3.5mm Male	1.5m	26.5GHz	1.30	4.30dB
T-CA21-10270	FLA18F-35M35M-02.00M	FLA18F	3.5mm Male	3.5mm Male	2.0m	26.5GHz	1.30	5.56dB

T-CA21-10271	FLA18F-SMSM-01.00M	FLA18F	SMA Male	SMA Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10272	FLA18F-SMSM-01.50M	FLA18F	SMA Male	SMA Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10273	FLA18F-SMSM-02.00M	FLA18F	SMA Male	SMA Male	2.0m	18GHz	1.30	4.39dB

T-CA21-10274	FLA18F-NMNM-01.00M	FLA18F	N Male	N Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10275	FLA18F-NMNM-01.50M	FLA18F	N Male	N Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10276	FLA18F-NMNM-02.00M	FLA18F	N Male	N Male	2.0m	18GHz	1.30	4.39dB

T-CA21-10277	FLA18F-SMNM-01.00M	FLA18F	SMA Male	N Male	1.0m	18GHz	1.30	2.41dB
T-CA21-10278	FLA18F-SMNM-01.50M	FLA18F	SMA Male	N Male	1.5m	18GHz	1.30	3.40dB
T-CA21-10279	FLA18F-SMNM-02.00M	FLA18F	SMA Male	N Male	2.0m	18GHz	1.30	4.39dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=1.137, K2=0.00253. The unit of "F" is GHz. The unit of "L" is meter.

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10280	FLA26F-35M35M-01.00M	FLA26F	3.5mm Male	3.5mm Male	1.0m	26.5GHz	1.30	2.06dB
T-CA21-10281	FLA26F-35M35M-01.50M	FLA26F	3.5mm Male	3.5mm Male	1.5m	26.5GHz	1.30	2.83dB
T-CA21-10282	FLA26F-35M35M-02.00M	FLA26F	3.5mm Male	3.5mm Male	2.0m	26.5GHz	1.30	3.60dB

T-CA21-10283	FLA26F-SMSM-01.00M	FLA26F	SMA Male	SMA Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10284	FLA26F-SMSM-01.50M	FLA26F	SMA Male	SMA Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10285	FLA26F-SMSM-02.00M	FLA26F	SMA Male	SMA Male	2.0m	18GHz	1.30	2.94dB

T-CA21-10286	FLA26F-NMNM-01.00M	FLA26F	N Male	N Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10287	FLA26F-NMNM-01.50M	FLA26F	N Male	N Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10288	FLA26F-NMNM-02.00M	FLA26F	N Male	N Male	2.0m	18GHz	1.30	2.94dB

T-CA21-10289	FLA26F-SMNM-01.00M	FLA26F	SMA Male	N Male	1.0m	18GHz	1.30	1.68dB
T-CA21-10290	FLA26F-SMNM-01.50M	FLA26F	SMA Male	N Male	1.5m	18GHz	1.30	2.31dB
T-CA21-10291	FLA26F-SMNM-02.00M	FLA26F	SMA Male	N Male	2.0m	18GHz	1.30	2.94dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=0.8811, K2=0.000415. The unit of "F" is GHz. The unit of "L" is meter.

Product Code	Products Designation	Cable Type	Connector A	Connector B	Length	Frequency	VSWR	Insertion Loss
T-CA21-10292	FLA40F-29M29M-01.00M	FLA40F	2.92mm Male	2.92mm Male	1.0m	40GHz	1.35	3.70dB
T-CA21-10293	FLA40F-29M29M-01.50M	FLA40F	2.92mm Male	2.92mm Male	1.5m	40GHz	1.35	5.24dB
T-CA21-10294	FLA40F-29M29M-02.00M	FLA40F	2.92mm Male	2.92mm Male	2.0m	40GHz	1.35	6.77dB

T-CA21-10295	FLA40F-SMSM-01.00M	FLA40F	SMA Male	SMA Male	1.0m	18GHz	1.30	2.36dB
T-CA21-10296	FLA40F-SMSM-01.50M	FLA40F	SMA Male	SMA Male	1.5m	18GHz	1.30	3.33dB
T-CA21-10297	FLA40F-SMSM-02.00M	FLA40F	SMA Male	SMA Male	2.0m	18GHz	1.30	4.30dB

Calculation formula of insertion loss: $\text{Insertion loss (dB)} = \frac{K1 \cdot \sqrt{1000F} + K2 \cdot 1000F}{100} \cdot L + 0.1 \cdot \sqrt{F}$, K1=1.2657, K2=0.0013435. The unit of "F" is GHz. The unit of "L" is meter.





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