

TFT™ Low PIM Coaxial Cables

ISO 9001 Certified

Flexible, Low PIM, Plenum Rated Jumper Cable Assemblies

- -160 dBc PIM for optimal system performance
- UL listed, type CMP (plenum) UL file #E-170516
- Flat Braid outer conductor construction for optimal flexibility
- Durable FEP outer jacket is suitable For both indoor and outdoor use

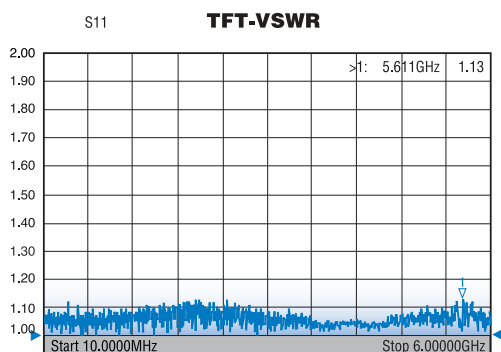
**Major
Carrier
Approved!**



TFT-401 (0.265") & TFT-402 (0.160") 50 Ohm low PIM cable assemblies

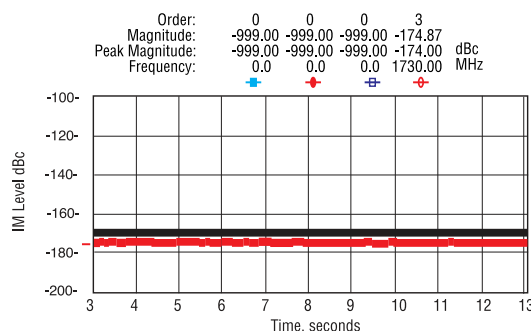
- Available in any required connector configuration and length
- Large selection of standard configurations for quick delivery
- Check inventory at [StockCheck](#) on our website
- Available connector interfaces: SMA, N, 7-16 DIN, 4.1/9.5, 4.3/10.0 DIN
- 100% tested for static and dynamic PIM, VSWR and inserion loss
- Marker band includes Serial Number PIM, VSWR & IL test data which is retained and accessible on the Times website
- 10 year warranty

Typical VSWR

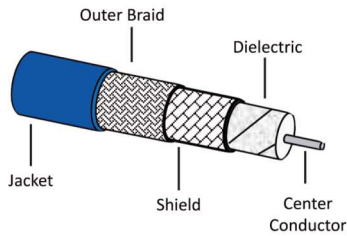


TFT401NMNM5.0M

Dynamic PIM Test Results



TFT™ Low PIM Coaxial Cables



Cable Construction

Center Conductor: Silver plated copper
Dielectric: Taped PTFE
Shield: Silver plated flat braid
Outer Braid: Silver plated copper
Jacket: Blue FEP

Connectors

Low PIM connectors are available with interfaces of N, SMA, 7-16 DIN, 4.1/9.5 mini DIN and 4.3/10.0 mini DIN. Please consult Times Microwave Systems with your requirements.

Cable Assemblies

TFT™ cable assemblies of standard configuration are available in stock, and are factory tested for dynamic and static PIM, IL and VSWR. In addition, Times Microwave Systems also provides customized TFT™ cable assemblies according to the special requirements.

- **Jumpers available in any length with most popular connector combinations.**
- **iBwave VEX files available at www.iBwave.com**

Physical Specifications		TFT-401		TFT-402			
AA Drawing Number:		AA-11410		AA-11408			
Dimensions:		in	(mm)	in	(mm)		
Center Conductor:		0.0641	1.628	0.037	0.93		
Dielectric:		0.208	5.28	0.113	2.87		
Shield:		0.218	5.53	0.121	3.07		
Outer Braid:		0.240	6.09	0.138	3.51		
Jacket:		0.265	6.73	0.160	4.06		
Mechanical Specifications							
Bend Radius:		0.75	19.05	0.75	19.05		
Weight:		78 lbs/1000 ft		31 lbs/1000 ft			
Operating Temperature Range °C/°F		-55 to +150° C		-55 to +150° C			
Electrical Specifications							
Velocity of Propagation: %		72%		76%			
Impedance: Ohms		50 Ohms		50 Ohms			
Capacitance: pF/ft (pF/m)		28.2 pF/ft		26.7 pF/ft			
Shielding Effectiveness: dB		-80 dB		-80 dB			
Nominal Attenuation: dB/100 ft (100m) (Power kW)							
	450 MHz	4.8	(15.8)	0.95	7.4	(24.2)	0.45
	700 MHz	6.1	(22.2)	0.75	9.2	(30.3)	0.36
	850 MHz	6.8	(22.2)	0.68	10.2	(33.5)	0.33
	1900 MHz	10.5	(34.4)	0.44	15.4	(50.4)	0.22
	2100 MHz	11.1	(36.3)	0.41	16.2	(53.1)	0.21
	2300 MHz	11.6	(38.2)	0.39	16.9	(55.6)	0.20
	2400 MHz	11.9	(39.1)	0.38	17.3	(56.8)	0.19
	4900 MHz	17.9	(58.7)	0.25	25.0	(82.1)	0.13
	5800 MHz	19.7	(64.7)	0.25	27.3	(89.6)	0.12
N Male Straight		TC-TFT401-NM-LP (3190-2943BLK)		TC-TFT402-NM-LP (3190-2943BLK)			
N Male Right Angle		TC-TFT401-NM-RA-LP (3190-3057BLK)		TC-TFT402-NM-RA-LP (3190-3015BLK)			
N Female		TC-TFT401-NF-LP (3190-3060BLK)		TC-TFT402-NF-LP (3190-3004BLK)			
N Female Bulkhead				TC-TFT402-NF-BH-LP (3190-3013BLK)			
7-16 DIN Male Straight		TC-TFT401-716M-LP (3190-2944BLK)		TC-TFT402-716M-LP (3190-2942BLK)			
7-16 DIN Male Right Angle		TC-TFT401-716M-RA-LP (3190-3058BLK)		TC-TFT402-716M-RA-LP (3190-2967BLK)			
7-16 DIN Female Straight				TC-TFT402-716F-LP (3190-3003BLK)			
SMA Male Straight		TC-TFT401SM-LP (3190-2941BLK)		TC-TFT402-SM-LP (3190-2903BLK)			
SMA Male Right Angle		TC-TFT401-SM-RA-LP (3190-3059BLK)		TC-TFT402SM-RA-LP (3190-3059BLK)			
4.1/9.5 mini DIN Male Straight		TC-TFT401-4195M-LP 3190-3008BLK		TC-TFT402-4195M-LP (3190-3009BLK)			
4.1/9.5 mini DIN Male Right Angle		TC-TFT401-4195M-RA-LP (3190-6127BLK)					
4.1/9.5 mini DIN Female		TC-TFT401-4195MF-LP (3190-6126BLK)		TC-TFT402-4195F-LP (3190-6184BLK)			
4.3/10.0 DIN Male Straight		TC-TFT401-4310M-LP (3190-6171BLK)		TC-TFT405-4310M-LP (3190-6125BLK)			
4.3/10.0 DIN Male Right Angle		TC-TFT401 4310M-RS-LP (3190-6172BLK)		TC-TFT402-4310M-RA-LP (3190-6173BLK)			
4.1/9.5 mini DIN Female				TC-TFT402-4310F-LP (3190-6195)			
4.1/9.5 mini DIN Female Bulkhead				TC-TFT402-4310F-BH-LP (3190-6196BLK)			

TFT™ Low PIM Coaxial Cables

Smart Part Number Key for TFT Low PIM Jumpers

Cable Size
401 = TFT401
402 = TFT402

Length (2 or 3 Characters)
(YY.Y or Y.Y)

Feet: 0.5 increments only
Meters: 0.5 increments only

TFTXXXYYYYXX.YY

F = Feet M = Meters

ex. TFT401NMNM2.0M
(N Male to N Male right angle, 2 meters)

Electrical:

- Insertion Loss should not exceed
(1.1 x published attenuation + 2 x 0.15dB)
- VSWR
Maximum of 1.25:1 up to 2 GHz
Maximum of 1.35:1 up to 6 GHz

PIM: (measured using two +43 dBm carriers)

- IM₃: < -160dBc (static and dynamic)
- IM₃: SMA's < -155dBc (static and dynamic)
- IM₃: QMA's < -140dBc (static only)

Connector Codes (2 or 3 Characters)

DF =	7/16 DIN Female
DFB =	7/16 DIN Female bulkhead
DM =	7/16 DIN Male
DMR =	7/16 DIN Male right angle
NF =	N Female
NFB =	N Female bulkhead
NM =	N Male
NMR =	N Male right angle
SM =	SMA Male
SMR =	SMA Male right angle
41M =	4.1/9.5 mini DIN Male
41R =	4.1/9.5 mini DIN Male right angle
43M =	4.3/10.0 DIN Male
43F =	4.3/10.0 DIN Female

First Connector
↓
Second Connector

**Many assembly configurations are available from stock.
Refer to the on-line [StockCheck](#) for specific configurations.**

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About TIMES MICROWAVE SYSTEMS

Times Microwave Systems, was founded in 1948 as the Times Wire and Cable Company. Today, the company specializes in the design and manufacture of high performance flexible, semi-flexible and semi-rigid coaxial cable, connectors and cable assemblies. With over 60 years of leadership in the design, development, and manufacture of coaxial products for defense microwave systems, Times Microwave Systems is the acknowledged leader, offering high tech solutions for today's most demanding applications.

Cable assemblies from Times Microwave Systems are used as interconnects for microwave transmitters, receivers, and antennas on airframes, missiles, ships, satellites, and ground based communications systems, and as leads for test and instrumentation applications.

As a highly specialized and technically focused company, Times Microwave Systems has been able to continually meet the challenges of specialty engineered transmission lines for both the military and commercial applications, drawing upon our:

- Thousands of unique cable and connector designs
- Exceptional RF and microwave design capability
- Precise material and process controls
- Unique in-house testing capabilities including RF shielding/leakage, vibration, moisture/vapor sealing, phase noise and flammability
- Years of MIL-T-81490, MIL-C-87104, and MIL-PRF-39012 experience
- ISO 9001 Certification
- AS-9100 Certification

In 2010, Times Microwave Systems introduced its Times-Protect™ line of lightning and surge protection solutions to address the challenging needs of wireless systems in the 21st century.

With over 60 years of Times Microwave Systems aerospace cable and connector technology experience and unparalleled design expertise, Times Microwave Systems' staff of Field Applications Engineers can help to provide the right solution for your interconnect applications.



World Headquarters: 358 Hall Avenue, Wallingford, CT 06492 • Tel: 203-949-8400, 1-800-867-2629 Fax: 203-949-8423

International Sales: +1 203-949-8503 • +1 800-867-2629

China Sales: TMC Building 4, No. 318 Yuanshan Road, Xinzhuang Industrial Park, Shanghai, China 201108 Tel: 86-21-5176-1209 Fax: 86-21-64424098

www.timesmicrowave.com

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