

Temperature Conditioned SMA Male to SMA Female Bulkhead Low Loss Cable Using PE-P160LL Coax



RF Cable Assemblies Technical Data Sheet

PE3M0181

Configuration

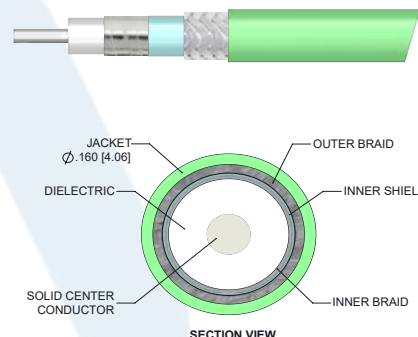
- Connector 1: PE45440 (SMA Male)
- Connector 2: PE45441 (SMA Female Bulkhead)
- Cable: PE-P160LL

Features

- Max Frequency 18 GHz
- 82.5% Phase Velocity
- Triple Shielded
- FEP Jacket
- Thermally Pre-Conditioned Cable
- Captivated Stainless Steel Connectors
- Expanded PTFE dielectric
- J-STD-Soldering
- Lot Traceability
- Test Report
- Ship same day

Applications

- General Purpose
- Laboratory Use
- High Reliability
- Extreme Temperatures
- Military Electronics
- Avionics
- IFF
- SATCOM
- ECM



Description

Pasternack's temperature conditioned low loss cable assemblies are part of our full line of reliable RF components available for shipment same day. These commercial-off-the-shelf (COTS), RF / microwave cable assemblies are designed and processed with high reliability in mind. Captivated stainless steel cable assembly connectors and thermally pre-conditioned triple-shielded coaxial cable are assembled using J-STD soldering processes and WHMA-A-620 workmanship criteria. The combination of stable materials, processing and acceptance testing work together to create a dependable cable assembly for applications where performance over time is important or the cost of failure is high. Each finished COTS temperature conditioned low loss cable assembly is traceable to its component lots and a test report is available for every lot produced.

Our highly reliable low loss conditioned RF cable assembly datasheet specifications and drawing with dimensions are shown below in this PDF. Pasternack's broad catalog of RF, microwave and millimeter wave cable assemblies allow designers to configure and customize their signal connections however they like. Whether the need is to provide reliable stable connections or fielding dependable RF cables, Pasternack has the right cable assemblies for the job. Pasternack can also expertly build your custom cable assemblies for you and ship them same day.

Referenced Specifications

IPC/WHMA-A-620
MIL-STD-348

IPC J-STD-001
IPC J-STD-006

Requirements and Acceptance for Cable and Wire Harness Assemblies
Radio Frequency Connector Interfaces for MIL-DTL-3643, MIL-DTL-3650, MIL-DTL-3655, MIL-DTL-25516, MIL-PRF-31031, MIL-PRF-39012, MIL-PRF-49142, MIL-PRF...
Requirements for Soldered Electrical and Electronic Assemblies
Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Temperature Conditioned SMA Male to SMA Female Bulkhead Low Loss Cable Using PE-P160LL Coax PE3M0181](#)



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SAE AS5942
SAE AS23053

Marking of Electrical Insulating Materials
Insulation Sleeving, Electrical, Heat Shrinkable, General Specifications For

Material Specifications

Component	Specification
Cable	PE-P160LL in accordance with PE-P160LL datasheet
Connector 1	PE45440 in accordance with MIL-STD-348
Connector 2	PE45441 in accordance with MIL-STD-348
Heat Shrink 1	SUMITUBE W3B2(4X) SIZE 12/3 in accordance with SAE AS23053 (AS APPLICABLE)
Heat Shrink 2	SUMITUBE W3B2(4X) SIZE 12/3 in accordance with SAE AS23053 (AS APPLICABLE)
Heat Shrink 3	M23053/4-303-0 in accordance with SAE AS23053
Heat Shrink 4	M23053/4-303-0 in accordance with SAE AS23053
Solder	SN63 in accordance with J-STD-006

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		18	GHz
VSWR			1.37:1	
Velocity of Propagation		82.5		%
Capacitance		25 [82.02]		pF/ft [pF/m]
Dielectric Withstanding Voltage (AC)			1,000	Vrms

Specifications by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency	1	2	4.5	9	18	GHz
Insertion Loss (Max.)	0.11	0.16	0.24	0.35	0.51	dB/ft
	0.36	0.52	0.79	1.15	1.67	dB/m

Electrical Specification Notes:

Insertion Loss does not include the loss of the connectors. Insertion Loss is estimated as $0.04 \cdot \sqrt{\text{FGHz}}$ dB per connector.

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Mechanical Specifications

Cable Assembly

Description	Minimum	Typical	Maximum	Units
Cable Outer Diameter	0.155	0.16	0.165	in
Weight			0.1 [45.36]	lbs [g]

Cable Characteristics

Description	Specification
Cable Type	PE-P160LL
Impedance	50 Ohms
Inner Conductor Type	Solid
Inner Conductor Material and Plating	Copper, Silver
Dielectric Type	Expanded PTFE Tape
Number of Shields	3
Shield Layer 1	Silver Plated Copper
Shield Layer 2	Aluminum Polyester
Shield Layer 3	Silver Plated Copper Wire
Jacket Material	FEP

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Connector Characteristics

Description	Connector 1	Connector 2
Type	SMA Male	SMA Female Bulkhead
Specification	MIL-STD-348	MIL-STD-348
Impedance	50 Ohms	50 Ohms
Contact Material and Plating	Beryllium Copper, Gold over Nickel	Beryllium Copper, Gold over Nickel
Contact Plating Specification	50 µin minimum	50 µin minimum
Dielectric Type	PTFE	PTFE
Outer Conductor Material and Plating		Passivated Stainless Steel
Outer Conductor Plating Specification		SAE-AMS-2700
Body Material and Plating	Passivated Stainless Steel	Passivated Stainless Steel
Body Plating Specification	SAE-AMS-2700	SAE-AMS-2700
Coupling Nut Material and Plating	Passivated Stainless Steel	
Coupling Nut Plating Specification	SAE-AMS-2700	
Hex Size	5/16 inch	
Seal Gasket Material	Silicone Rubber	
Contact Gage Specification	0.000 in min	0.000 to 0.010 in
Insulator Gage Specification	0.000 in min	0.000 in min

Mechanical Specification Notes:

Environmental Specifications

Description	Specification
Temperature Operating Range	-55 to +125 deg C

Compliance Certifications (see [product page](#) for current document)

Process Specifications

Process	Specification
Cable Preconditioning	5 cycles, -55 °C to +125°C, 20 minute dwells
Soldering	in accordance with J-STD-001, class 3
Marking	shall meet the adherence requirements of SAE AS5942
Workmanship	shall be in accordance with IPC/WHMA-A-620, class 3

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Tests and Inspections

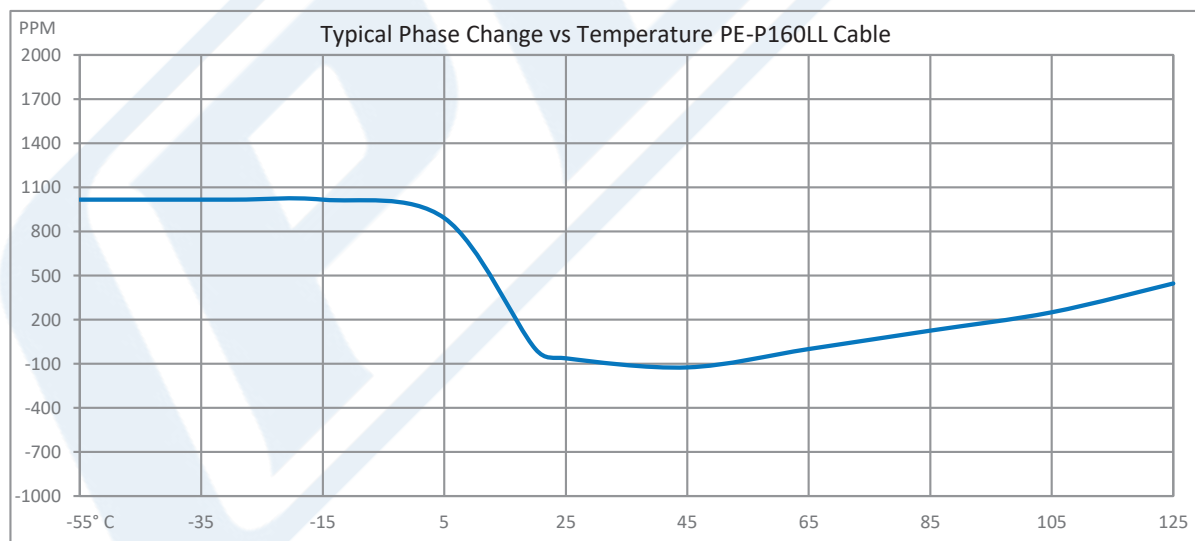
Description	Sampling
Connector Gaging (pin and insulator position)	100%
Insertion Loss	100%
VSWR	100%
Dielectric Withstanding Voltage (DWV)	100%
Visual - workmanship, configuration and marking	100%
Length	C=0, 1.5 AQL
Mass	C=0, 1.5 AQL

Plotted and Other Data

Notes:

- Values at 25°C, sea level.

Typical Performance Data



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How to Order

Part Number Configuration:

PE3M0181

- **xx**

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Unit of Measure:
cm = Centimeters
<blank> = Inches
Length
Base Number

Example: PE3M0181-12 = 12 inches long cable
PE3M0181-100cm = 100 cm long cable

Cable Assembly Length Tolerances:

Imperial English		Metric	
"L" ≤ 1 ft	+0.5 in / -0 in	"L" ≤ 0.3 m	+12.5 mm / -0 mm
1 ft < "L" ≤ 5 ft	+1 in / -0 in	0.3 m < "L" ≤ 1.5 m	+25 mm / -0 mm
5 ft < "L" ≤ 10 ft	+2 in / -0 in	1.5 m < "L" ≤ 3 m	+50 mm / -0 mm
10 ft < "L" ≤ 25 ft	+3 in / -0 in	3 m < "L" ≤ 7.5 m	+75 mm / -0 mm
25 ft < "L"	+2%"L" / -0%"L"	7.5 m < "L"	+2%"L" / -0%"L"

* Cable Length = "L"

Temperature Conditioned SMA Male to SMA Female Bulkhead Low Loss Cable Using PE-P160LL Coax from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Temperature Conditioned SMA Male to SMA Female Bulkhead Low Loss Cable Using PE-P160LL Coax PE3M0181](https://www.pasternack.com/temperature-conditioned-sma-male-sma-female-pe-p160ll-cable-assembly-pe3m0181-p.aspx)

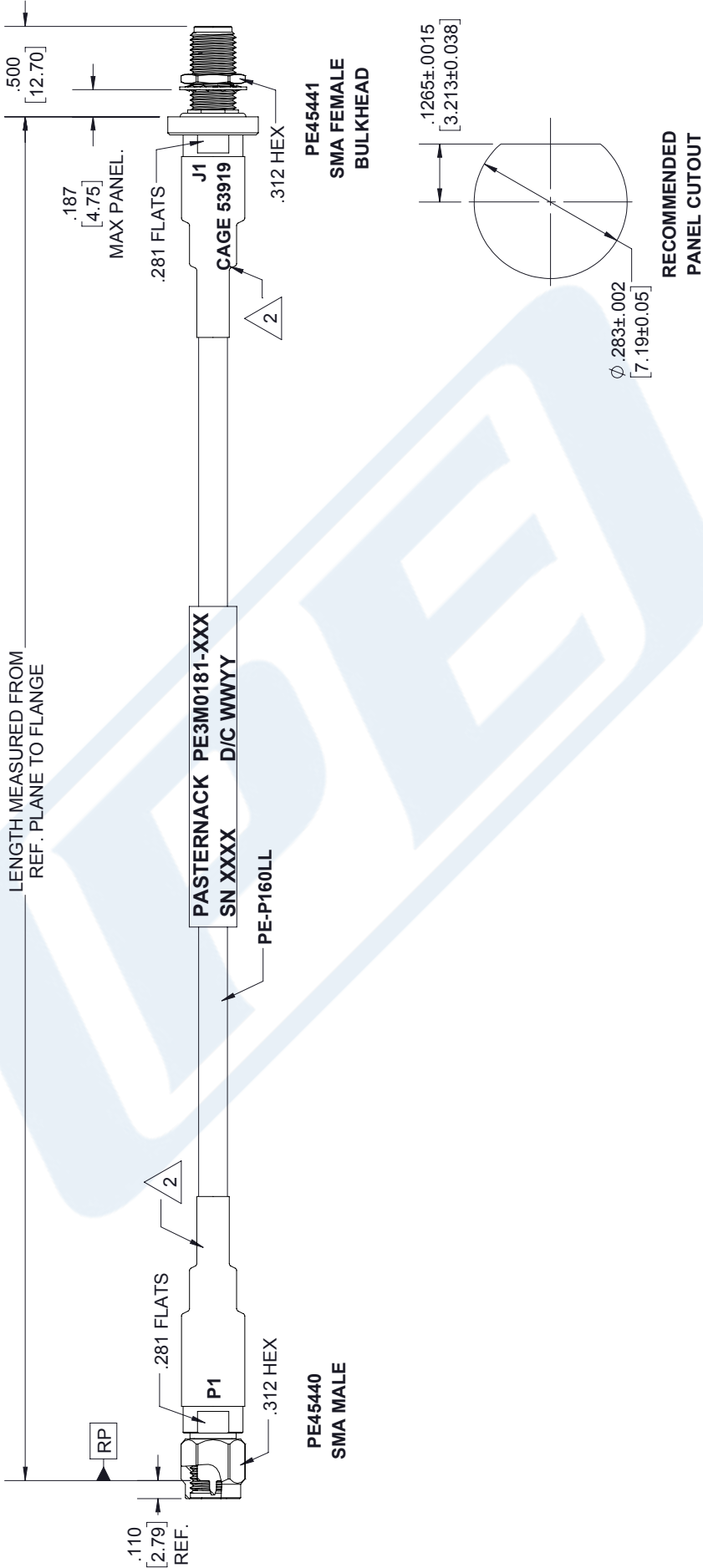
URL: <https://www.pasternack.com/temperature-conditioned-sma-male-sma-female-pe-p160ll-cable-assembly-pe3m0181-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

PE3M0181 CAD Drawing

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Low Loss Cable Using PE-P160LL Coax

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	01/29/19	J. Garcia



NOTES:

1. ALL BLACK HEAT SHRINK WITH WHITE MARKINGS.
2. TOP LAYER: SUMITUBE W3B2 (4X) - SIZE 12/3
BOTTOM LAYER: M23053/4-303-0.

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS			
TOLERANCES:			
X±.2	[5.08]	FRACTIONS	± 1/32
.XX±.01	[.25]	ANGLES ± 1°	
.XXX±.005	[.13]	ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.	
THIRD-ANGLE PROJECTION			

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SIZE	CAGE	DRAWN BY	PART NUMBER
A	53919	J.YOU	PE3M0181
SCALE			REV
N/A			A

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