

Instructions

Tektronix

P6138
10X 350 MHz Passive Probe
063-0835-00

**Please check for change information at the rear
of this manual.**

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Table with multiple rows and columns, containing technical specifications and data. The text is mirrored and difficult to read due to the scanning process.



P6138

Description

The P6138 is a compact, high-impedance, 10X-attenuating passive probe designed for use with Tektronix TDS 400 Series digitizing oscilloscopes. The P6138 has a 1.3-meter cable and is fully compatible with the Tektronix family of compact-size probe accessories.

Refer to your oscilloscope user manual for important operating information.

Safety

To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

This product meets the requirements of UL 1244.

Specifications

Refer to your oscilloscope user manual for a description of the conditions under which oscilloscope and probe specifications apply.

Table 1: Electrical Characteristics

Characteristic	Performance Requirement
Attenuation (system)	10X±1.0% at DC (probe installed on Tektronix TDS 400 Series digitizing oscilloscope)
Input Resistance (system)	10 MΩ±1.0%
Input Capacitance	10.0 pF±0.8 pF at 1 kHz
Compensation Range	12 pF to 18 pF
System Bandwidth (−3 dB)	350 MHz (probe installed on Tektronix TDS 460 digitizing oscilloscope) 150 MHz (probe installed on Tektronix TDS 420 digitizing oscilloscope)
Maximum Nondestructive Input Voltage	500 V (DC+peak AC) (See Figure 1 for voltage derating curve)

Table 2: Physical and Environmental Characteristics

Characteristic	Performance Requirement
Net Weight (including accessories)	<110 g (0.24 lbs)
Temperature Range ⁽¹⁾	
Operating	-15°C to +75°C (+5°F to +167°F)
Nonoperating	-62°C to +85°C (-80°F to +185°F)
Humidity ⁽¹⁾	

⁽¹⁾ Tek Standard 062-2847-00, class 3. Refer to MIL-E-16400F, paragraph 4.5.9 through 4.5.9.5.1, class 4.

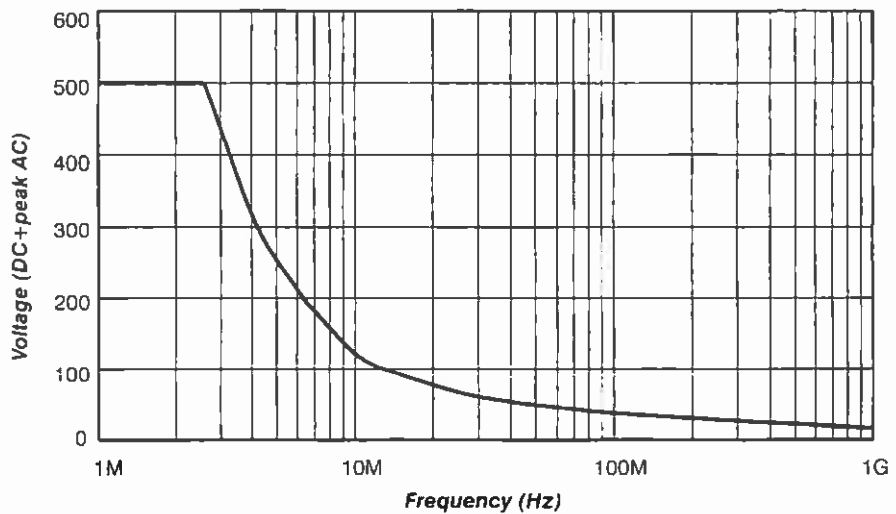


Figure 1: Derating Curve for Determining Maximum Input Voltage

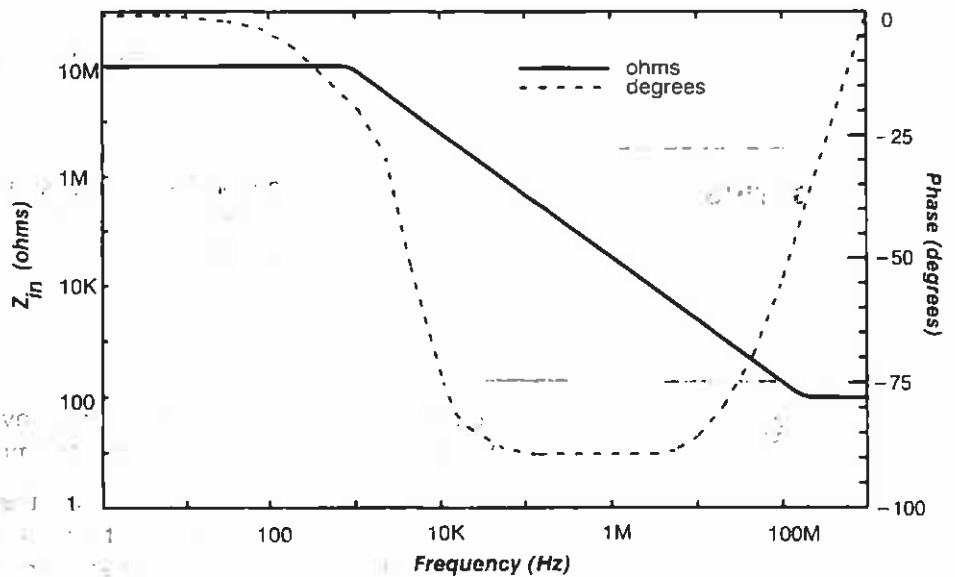


Figure 2: Input Impedance by Frequency

Probe Compensation

Because of variations in oscilloscope input characteristics, probe low-frequency (LF) compensation may need adjustment after moving the probe from one oscilloscope to another. Verify the low-frequency compensation before making critical rise time or amplitude measurements.

If a 1-kHz calibrated square wave displayed at 1 ms/division shows significant differences between the leading and trailing edges (see figures at left), perform the following steps to optimize low-frequency compensation.

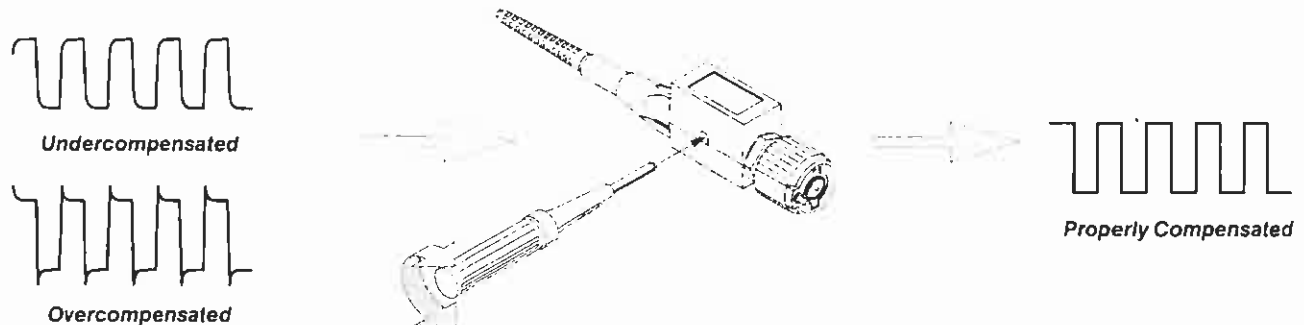


Figure 3: Probe Low Frequency Adjustment

- Step 1:** Connect the probe tip to the probe adjustment signal at the oscilloscope front panel.
- Step 2:** Press **AUTOSET** or otherwise adjust the oscilloscope so that it displays a meaningful waveform.
- Step 3:** Enable the 20 MHz bandwidth limit of the oscilloscope.
- Step 4:** Enable the high-resolution acquisition mode of the oscilloscope.
- Step 5:** Adjust the trimmer in the probe (accessible through the compensation box) until you see a flat-top square wave on the display.

Accessories

Refer to the Replaceable Parts List to identify the standard and optional accessories for your P6138 probe. Refer to your oscilloscope user manual for information about using the accessories, and for important operating information.

Cleaning

To prevent damage to probe materials, avoid using chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

Remove accumulated loose dust from the probe exterior using a soft cloth or small brush. Remaining dirt may be removed with a soft cloth dampened with a mild detergent and water solution, or isopropyl alcohol. Do not immerse the probe or use abrasive cleaners.

REPLACEABLE MECHANICAL PARTS

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

When ordering parts, include the following information in your order: part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

Change information, if any, is located at the rear of this manual.

ITEM NAME

In the parts list, an item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. For further item name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

FIGURE AND INDEX NUMBERS

Items in this section are referenced by figure and index numbers to the illustrations.

INDENTATION SYSTEM

This mechanical parts list is indented to indicate item relationships. Following is an example of the indentations system used in the description column.

```

1 2 3 4 5      Name & Description
Assembly and/or component
Attaching parts for assembly and/or component
      END ATTACHING PARTS
Detail part of assembly and/or component
Attaching parts for detail part
      END ATTACHING PARTS
Parts of detail part
Attaching parts for parts or detail part
      END ATTACHING PARTS

```

Attaching parts always appear in the same indentation as the item it mounts, while the detail parts are indented to the right. Indented items are part of, and included with, the next higher indentation.

Attaching parts must be purchased separately, unless otherwise specified.

ABBREVIATIONS

Abbreviations conform to American National Standard Y1.1.

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
0J260	COMTEK MANUFACTURING OF OREGON (METALS)	PO BOX 4200	BEAVERTON OR 97076-4200
24931	SPECIALTY CONNECTOR CO INC	2100 EARLYWOOD DR PO BOX 547	FRANKLIN IN 46131
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001

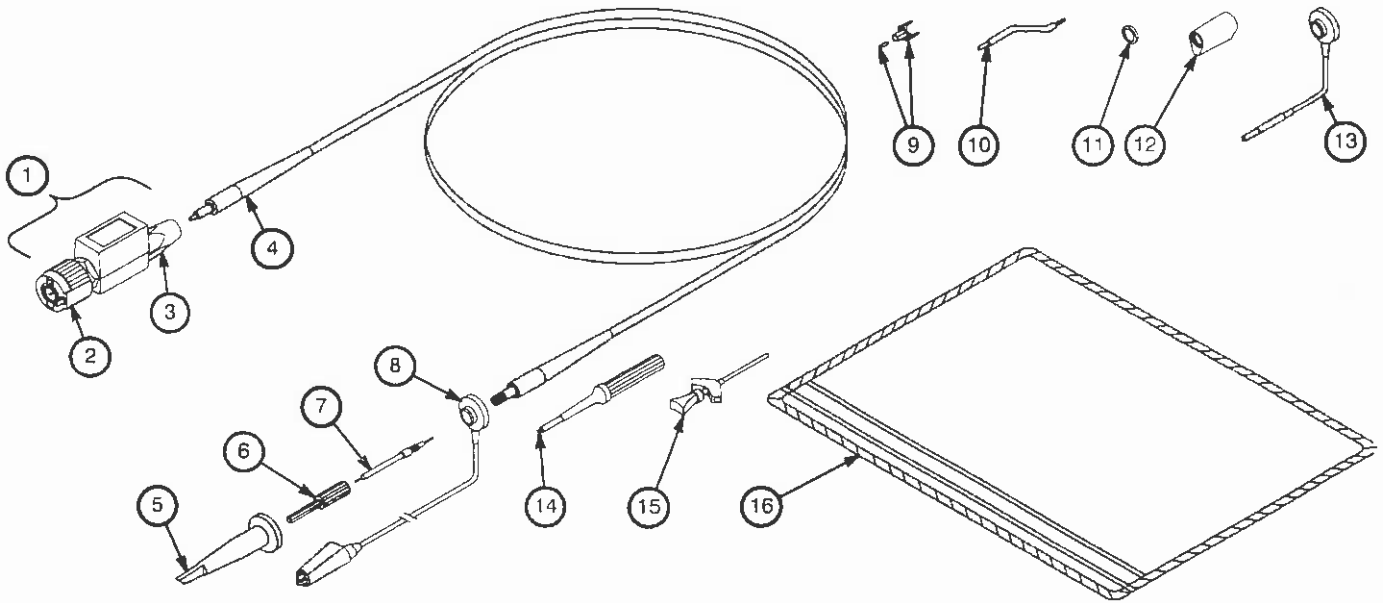


Figure 4: P6138 and Standard Accessories

Fig. & Index No.	Tektronix Part No.	Serial No. Effective - Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
4-				P6138.PROBE,PASSIVE:350MHZ 10X 1.3M		
-1	206-0439-00		1	.COMP BOX ASSY:1.3 METER	80009	206043900
-2	131-3219-00		1	..CONN,RCPT,ELEC:BNC,MALE	24931	28P266- 3
-3	200-3018-00		1	..COVER,CABLE NIP:COMP BOX	0J260	ORDER BY DESCRI
-4	174-0978-00		1	.CABLE ASSY,RF:65 OHM COAX PER FT,1.3M	80009	174097800
-5	013-0107-07		1	.TIP,PROBE:MINIATURE/COMPACT SIZE, .RETRACTABLE HOOK ASSY	80009	013010706
-6	204-1049-00		1	.BODY SHELL:TIP COVER	80009	204104900
-7	206-0392-00		1	.PROBE TIP ASSY:10X,10.3 PF,GRAY/BLUE	80009	206039200
-8	196-3305-00		1	.LEAD,ELECTRICAL:22 AWG.6.0 L W/CLIP	80009	196330500
STANDARD ACCESSORIES						
-9	-----		2	CONNECTOR,PROBE:W/SOCKET,DATA SHEET (SEE FIGURE 4-3)		
-10	195-4240-00		1	LEAD,ELECTRICAL:0.025 DIA,COPPER,2.3 L	80009	195424000
-11	-----		2	BAND,MARKER:0.371 DIA,BLACK,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,WHITE,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,SILVER GRAY,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,GRAY,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,YELLOW,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,ORANGE,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,RED,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,GREEN,PLASTIC		
	-----		2	BAND,MARKER:0.371 DIA,BLUE,PLASTIC (SEE FIGURE 4-15)		
-12	343-1003-01		1	COLLAR,GND:	80009	343100301
-13	196-3113-02		1	LEAD,ELECTRICAL:STRD 22 AWG.6.0 L,8N	80009	196311302
-14	003-1433-00		1	SCREWDRIVER:ADJUSTMENT TOOL,METAL TIP	80009	003143300
-15	206-0364-00		1	TIP,PROBE:MICROCKT TEST,0.05 CTR	80009	206036400
-16	-----		1	POUCH,ACCESSORY:		
	063-0835-00		1	DATA SHEET,TECHNICAL:INSTR,P6138		

P6138 Passive Probe

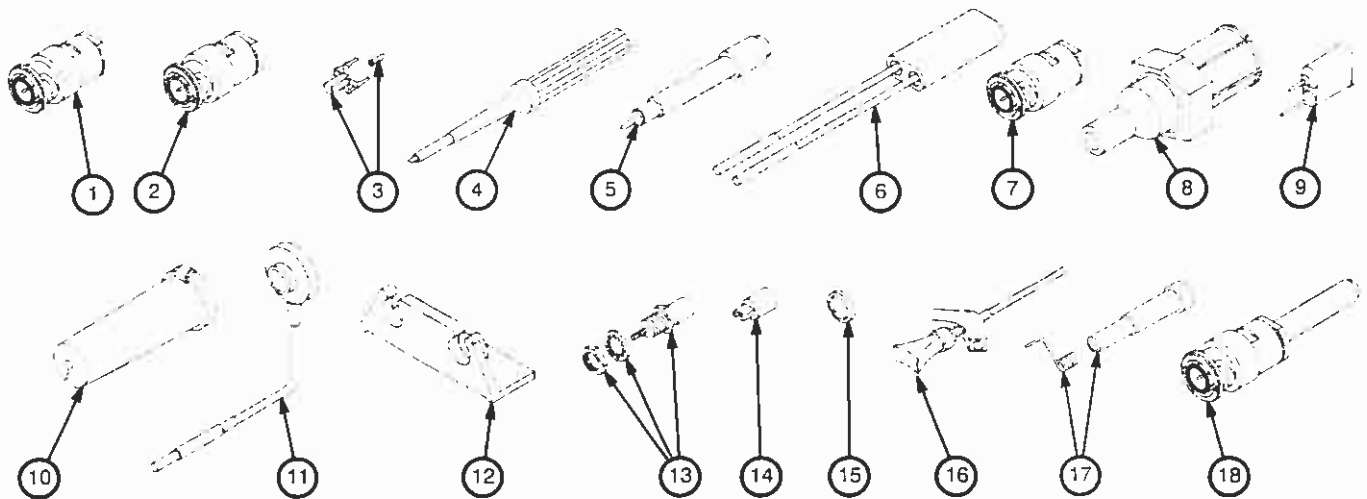


Figure 5: Optional Accessories

Fig. & Index No.	Tektronix Part No.	Serial No. Effective Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
5-				OPTIONAL ACCESSORIES		
-1	013-0226-00		1	CONNECTOR,BNC:BNC TO PROBE TIP ADAPTER	24931	28P264-2
-2	013-0227-00		1	CONNECTOR,BNC:50 OHM,BNC TO PROBE TIP ADAPTER	24931	28P312-1
-3	131-5031-00		1	CONNECTOR,PROBE:PKG OF 25,COMPACT	80009	131503100
-4	003-1433-01		1	SCREWDRIVER:ADJUSTMENT TOOL,PKG OF 5 METAL TIP	80009	003143301
-5	013-0202-02		1	ADAPTER,PROBE:SUBMINIATURE/COMPACT TO MINIATURE	80009	013020202
				NOTE, ITEMS 6 THRU 9 ARE USEABLE WHEN THE SUBMINIATURE/COMPACT TO MINIATURE PROBE TIP ADAPTER IS USED. (ITEM 5)		
-6	015-0325-00		1	ADAPTER,PROBE:PROBE TO CONNECTOR PINS	80009	015032500
-7	013-0084-01		1	ADAPTER,CONN:BNC TO PROBE	24931	28P156-1
-8	017-0088-00		1	CONN,PLUG,ELEC:50 OHM,GR	80009	017008800
-9	013-0085-00		1	TIP,PROBE:GROUNDING	80009	013008500
-10	352-0670-00		1	HOLDER,PROBE:ATTENUATOR TIPS (3)	80009	352067000
-11	196-3113-03		1	LEAD,ELECTRICAL:STRD,22 AWG,3.0 L.8-N	80009	196311303
-12	352-0351-00		1	HOLDER,PROBE:BLACK ABS	80009	352035100
-13	131-4210-00		1	ADPTR,PROBE TIP:COMPACT TIP SIZE,TEST JACK	24931	33JR186-1
-14	015-0201-07		1	TIP,PROBE:IC TEST,PKG OF 10	80009	015020107
-15	015-0201-08		1	TIP,PROBE:IC TEST,PKG OF 100	80009	015020108
-16	016-0633-00		1	MARKER SET,CA:2 EA VARIOUS COLORS	80009	016063300
-17	SMG50		1	SMT KLIPCHIP:20 ADAPTERS	80009	SMG50
-18	013-0254-00	9307	1	ADAPTER,CONN:BNC TO PROBE TIP, MALE	80009	013025400
	016-1077-00		1	ACCESSORY KIT:GND TIP CONTACT,PKG OF 2 EA OF 5 LENGTHS W/COVER SHELL	80009	016107700

