

# AC Current Probes

CT-1 • CT-2 • CT-6

## ★ Features and Benefits

- High Bandwidth
- Ultra-Low Inductance
- Very Small Form Factor
- Characterize Current Waveforms up to <200 pSec Rise Times
- Very Low Loading of Circuit Under Test
- Fits Into Dense, Closely-Spaced Circuit Designs

## Ⓐ Applications

- Data Storage Read Channel Design
- Silicon Characterization
- High-Frequency Analog Design
- ESD Testing



CT-6 Current Probe

### CT-6 Current Probe – New!

The CT-6 is the newest addition to the Tektronix portfolio of high-frequency current probes. It is designed to meet the needs of high-speed circuit design and test applications which require ultra high bandwidth, low inductance and extremely small form factor. The CT-6 provides up to 2 GHz bandwidth when used with high-bandwidth oscilloscopes such as the Tektronix TDS794D oscilloscope, or with other compatible 50  $\Omega$  input measuring instruments. Low inductance (<3 nH) assures that the loading effect of the CT-6 on the circuit-under-test will be negligible, which is especially important for today's low-amplitude, high-speed circuit designs such as disk drive read/write preamplifiers. The probe is a closed-circuit design which will accept un-insulated wire sized up to 20 gauge. This product is exempt from CE mark by virtue of its 30V voltage limit.



CT-1/CT-2 Current Probes with P6041 BNC Probe Cable.

### CT-1/CT-2 Current Probes

The CT-1 and CT-2 Current Probes are designed for permanent or semi-permanent in-circuit installation. Each probe consists of a current transformer and an interconnecting cable. The current transformers have a small hole through which a current carrying conductor is passed during circuit assembly.

The P6041 Probe Cable provides the connection between the CT-1 and CT-2 Current Transformers and a BNC oscilloscope input. A 50  $\Omega$  termination is required to terminate the cable when connected to a high impedance (1 M  $\Omega$ ) oscilloscope input. One probe cable can be used to monitor several current transformers that have been wired into a circuit.

### Characteristics

#### MINIATURE CONSTRUCTION

The CT-1 and CT-2 detachable cable design enables one or more probes to be located on circuit boards or in other limited space areas.

The CT-6 offers the smallest form factor available, for measurement on ever-shrinking circuit boards and components. It is designed for temporary installation and does not incorporate removable cables, as the CT-1 and CT-2 do.

#### HIGH SENSITIVITY

The CT-1 and CT-6 provide an output of 5 mV for each milliamp of input current when terminated in 50  $\Omega$ .

The CT-2 provides 1 mV per milliamp when terminated in 50  $\Omega$ .

#### TYPICAL SYSTEMS

The CT-1, CT-2 and CT-6 high frequency current transformers are dynamic (i.e., non-DC) current measuring devices. They are typically used in conjunction with compatible high bandwidth oscilloscopes and other instruments to observe and/or record high frequency current waveforms. The CT-1, CT-2, and CT-6 normally operate directly into 50  $\Omega$  scopes and other measuring device inputs.

The CT-1 or CT-2 can be used with 1 M  $\Omega$  input systems; use the P6041 probe cable, and terminate the output with a 50  $\Omega$  feed-through termination (see Optional Accessories).

In all cases, the CT-1, CT-2 and CT-6 must work into 50  $\Omega$  to obtain specified performance and sensitivity.

See Tektronix on the World Wide Web:  
<http://www.tektronix.com>

CE CT-6 is CE Exempt

ISO 9001 Tektronix measurement products  
are manufactured in ISO  
registered facilities.

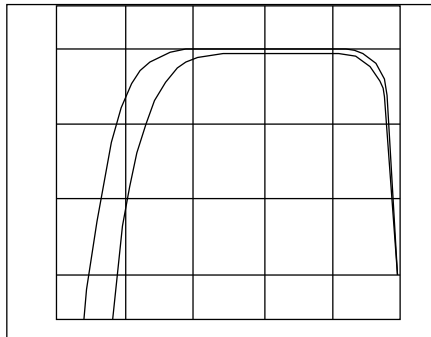
# AC Current Probes

## CT-1 • CT-2 • CT-6

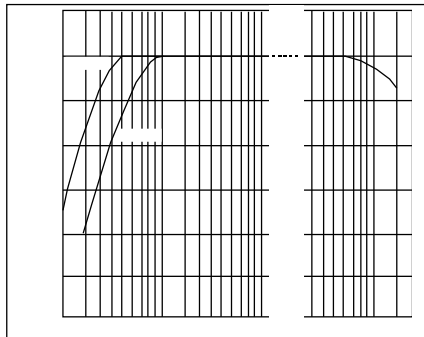
### CHARACTERISTICS

#### CT-1, CT-2, & CT-6 CHARACTERISTICS

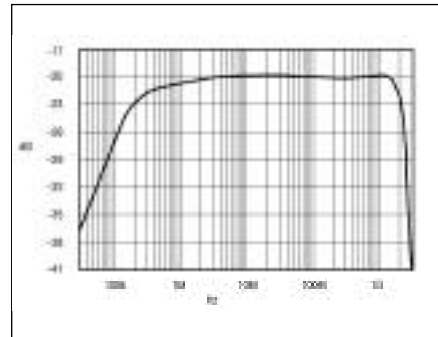
Parameter		CT-1	CT-2	CT-6
Bandwidth (typical)		25 kHz to 1 GHz	1.2 kHz to 200 MHz	250 kHz to 2 GHz
Risetime		350 p Sec	500 p Sec	200 p Sec
Sensitivity (into 50 $\Omega$ )		5 mV/mA	1 mV/mA	5 mV/mA
Accuracy		$\pm 3\%$	$\pm 3\%$	$\pm 3\%$
Magnetizing Inductance		6 microHenries	7 microHenries	1 microHenry
Leakage Inductance		2.4 nH	1 nH	1.5 nH
Insertion Impedance:	@ 10 MHz	< 1	0.1	1.1
	@ 100 MHz	2	0.5	1.3
	@ 1 GHz	–	–	11.9
Max. bare wire size		#14 wire 1.78 mm (0.070")	#16 wire 1.32 mm (0.052")	#20 wire 0.8 mm (0.032")
Max. bare wire voltage: * (< 3.25% duty factor)	RMS	175 V RMS CAT 1	175 V RMS CAT 1	30 V RMS CAT 1
	Peak	1000 V *	1000 V *	30 V
	DC	175 V	175 V	30 V
Max. peak pulse current		12 A	36 A	6 A
Max. continuous current (RMS)		450 mA	2.5 A	120 mA
Amp – Second Product		1 x 10 <sup>-6</sup> A*Sec	50 x 10 <sup>-6</sup> A*Sec	0.25 x 10 <sup>-6</sup> A*Sec
L/R Time Constant (droop)		> 6.35 $\mu$ sec	> 160 $\mu$ sec	0.4 $\mu$ sec
Propagation Delay		3.25 nSec	6.1 nSec	5.2 nSec



CT-1 Typical Frequency Response.



CT-2 Typical Frequency Response.



CT-6 Typical Frequency Response.

### ORDERING INFORMATION

**CT-1**  
High Frequency Current Probe

**CT-2**  
High Frequency Current Probe

**CT-6**  
High Frequency Current Probe

**CT-1 OR CT-2 RECOMMENDED ACCESSORIES**  
Feed-through 50  $\Omega$  termination – Order 011-0049-01.

**CT-6 OPTIONS**  
Opt. D1 – Calibration data report.  
Opt. C3 – Three years calibration service.  
Opt. D3 – Three years calibration data reports.  
Opt. R3 – Three years repair service.

**CT-6 STANDARD ACCESSORIES**  
SMA to BNC Adapter – Order 015-0572-00.  
User Manual – Order 071-0453-00.  
Color Cable Marker Bands  
Probe Holder – Order 015-0682-00  
Certificate of Traceable Calibration  
**WARRANTY**  
One Year

#### For further information, contact Tektronix:

World Wide Web: <http://www.tektronix.com>; ASEAN Countries (65) 356-3900; Australia & New Zealand 61 (2) 888-7066; Austria, Eastern Europe, & Middle East +43 2236 8092 0; Belgium +32 (2) 715.89.70; Brazil and South America 55 (11) 3741-8360; Canada 1 (800) 661-5625; Denmark +45 (44) 850 700; Finland +358 (9) 4783 400; France & North Africa +33 1 69 86 81 81; Germany +49 (221) 94 77 400; Hong Kong (852) 2585-6688; India (91) 80-2275577; Italy +39 (2) 25086 501; Japan (Sony/Tektronix Corporation) 81 (3) 3448-3111; Mexico, Central America, & Caribbean 52 (5) 666-6333; The Netherlands +31 23 56 95555; Norway +47 22 07 07 00; People's Republic of China 86 (10) 6235 1230; Republic of Korea 82 (2) 528-5299; South Africa (27 11)651-5222; Spain & Portugal +34 (1) 372 6000; Sweden +46 (8) 629 6503; Switzerland +41 (41) 729 36 40; Taiwan 886 (2) 2722-9622; United Kingdom & Eire +44(0)1628 403400; USA 1 (800) 426-2200.  
From other areas, contact: Tektronix, Inc. Export Sales, P.O. Box 500, M/S 50-255, Beaverton, Oregon 97077-0001, USA 1 (503) 627-6877.

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