



Kalibrier-Zertifikat

Calibration Certificate

MUSTER

Gegenstand
Object Oszilloskop

Hersteller
Manufacturer TEKTRONIX

Typ
Type description TDS3052B

Serien Nr.
Serial no. 12345

Inventar Nr.
Inventory no. ---

Prüfmittel Nr.
Test equipment no. ---

Equipment Nr.
Equipment no. 12345678

Standort
Location ---

Auftraggeber
Customer Mustermann GmbH

Kunden Nr.
Customer ID no. DE-12345 Musterhausen

Auftrags Nr.
Order no. 1234567

654321

Datum der Kalibrierung
Date of calibration 20.07.2017

Datum der empfohlenen Rekalibrierung
Date of the recommended re-calibration 20.07.2018

Konformitätsaussage Conformity

- Messwert(e) innerhalb der zulässigen Abweichung¹⁾. Measured value(s) within the allowed deviation¹⁾.
- Messwert(e) außerhalb der zulässigen Abweichung¹⁾. Measured value(s) beyond the allowed deviation¹⁾.

¹⁾ Die Messunsicherheit wurde nach GUM mit dem Erweiterungsfaktor k=2 berechnet und enthält die Unsicherheit des Verfahrens sowie die Unsicherheit des Prüflings. Die Konformitätsaussage erfolgte nach DIN EN ISO 14253-1 gemäß der Kalibrieranweisung QSA - TIS 7.5-02.

¹⁾ The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system. The statement of conformity was made according to DIN EN ISO 14253-1 according to calibration instruction QSA - TIS 7.5-02.

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V 4.52 / DE

Stempel Seal



Fachverantwortlicher Supervisor

Max Mustermann

Max Mustermann

Bearbeiter Technician

Martina Musterfrau

Martina Musterfrau



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Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)
Firmwarestand: firmware version:							
v.3.35							
Eingangswiderstand Input resistance							
CH.1							
	50.000 Ohm		50.00 Ohm	±0.5 Ohm	0%	pass	784 · 10 ⁻⁶
	1.0004 MOhm		1.000 MOhm	±0.01 MOhm	4%	pass	967 · 10 ⁻⁶
CH.2							
	49.970 Ohm		50.00 Ohm	±0.5 Ohm	6%	pass	784 · 10 ⁻⁶
	1.0008 MOhm		1.000 MOhm	±0.01 MOhm	8%	pass	967 · 10 ⁻⁶
Messbedingung measured condition							
100mV/Div							
Vertikalablenkung Vertical deflection							
CH.1							
into 50Ohm							
1.6 V	1.2000 V	200 mV/Div	1.192 V	±0.024 V	33%	pass	3.5 · 10 ⁻³
into 1MOhm							
8 mV	6.0000 mV	1 mV/Div	5.960 mV	±0.12 mV	33%	pass	3.5 · 10 ⁻³
16 mV	12.000 mV	2 mV/Div	11.96 mV	±0.24 mV	15%	pass	3.5 · 10 ⁻³
40 mV	30.000 mV	5 mV/Div	30.06 mV	±0.6 mV	11%	pass	3.5 · 10 ⁻³
80 mV	60.000 mV	10 mV/Div	59.60 mV	±1.2 mV	33%	pass	3.5 · 10 ⁻³
160 mV	120.00 mV	20 mV/Div	119.6 mV	±2.4 mV	17%	pass	3.5 · 10 ⁻³
400 mV	300.00 mV	50 mV/Div	300.6 mV	±6 mV	10%	pass	3.5 · 10 ⁻³
800 mV	600.00 mV	100 mV/Div	597.4 mV	±12 mV	21%	pass	3.5 · 10 ⁻³
1.6 V	1.2000 V	200 mV/Div	1.196 V	±0.024 V	17%	pass	3.5 · 10 ⁻³
4 V	3.0000 V	500 mV/Div	2.991 V	±0.06 V	15%	pass	3.5 · 10 ⁻³
8 V	6.0000 V	1 V/Div	5.960 V	±0.12 V	33%	pass	3.5 · 10 ⁻³
16 V	12.000 V	2 V/Div	12.00 V	±0.24 V	0%	pass	3.5 · 10 ⁻³
40 V	30.000 V	5 V/Div	30.07 V	±0.6 V	11%	pass	3.5 · 10 ⁻³
80 V	60.000 V	10 V/Div	59.40 V	±1.2 V	50%	pass	3.5 · 10 ⁻³
CH.2							



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into 500Ohm							
1.6 V	1.2000 V	200 mV/Div	1.201 V	±0.024 V	6%	pass	3.5 · 10 ⁻³
into 1M0hm							
8 mV	6.0000 mV	1 mV/Div	6.000 mV	±0.12 mV	0%	pass	3.5 · 10 ⁻³
16 mV	12.000 mV	2 mV/Div	12.03 mV	±0.24 mV	13%	pass	3.5 · 10 ⁻³
40 mV	30.000 mV	5 mV/Div	30.00 mV	±0.6 mV	0%	pass	3.5 · 10 ⁻³
80 mV	60.000 mV	10 mV/Div	59.90 mV	±1.2 mV	8%	pass	3.5 · 10 ⁻³
160 mV	120.00 mV	20 mV/Div	120.4 mV	±2.4 mV	16%	pass	3.5 · 10 ⁻³
400 mV	300.00 mV	50 mV/Div	300.0 mV	±6 mV	0%	pass	3.5 · 10 ⁻³
800 mV	600.00 mV	100 mV/Div	600.4 mV	±12 mV	4%	pass	3.5 · 10 ⁻³
1.6 V	1.2000 V	200 mV/Div	1.200 V	±0.024 V	0%	pass	3.5 · 10 ⁻³
4 V	3.0000 V	500 mV/Div	3.000 V	±0.06 V	0%	pass	3.5 · 10 ⁻³
8 V	6.0000 V	1 V/Div	5.997 V	±0.12 V	2%	pass	3.5 · 10 ⁻³
16 V	12.000 V	2 V/Div	12.04 V	±0.24 V	16%	pass	3.5 · 10 ⁻³
40 V	30.000 V	5 V/Div	30.00 V	±0.6 V	0%	pass	3.5 · 10 ⁻³
80 V	60.000 V	10 V/Div	59.91 V	±1.2 V	8%	pass	3.5 · 10 ⁻³
Messfunktion measurement function							
Type Ampl							
Messbedingung measured condition							
Coupling DC							
POS = -3 ; OFFS = 0 ; t = 400µs ; f = 1kHz							
1 mV/Div -> 5 mV/Div: (BW Limit f = 20 MHz)							
10 mV/Div -> 10 V/Div: (BW Full f = 500 MHz)							
Averaging = 64							
Horizontalablenkung Horizontal deflection							
Funktionstest Function test							
1 ms	1.0000 ms		1.000 ms	±0.002 ms	0%	pass	577 · 10 ⁻⁶
Messfunktion measurement function							
Type Period							
Messbedingung measured condition							
t = 1ms							
Averaging = 128							
Zeitbasis Timebase							



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	10.000000000 MHz		9.99993900 MHz	±0.0005 MHz	12%	pass	1.0 · 10 ⁻⁶
Messverfahren measuring procedure							
Unterabtastung Undersampling							
Messbedingung measured condition							
t= 20ms							
Vertikalablenkung Vertical deflection							
	600.0 mV	@1kHz	600 mV	±23 mV	0%	pass	3.6 · 10 ⁻³
Cursordeckung cursor cover							
-							
Horizontalablenkung Horizontal deflection							
	8.0000 ms		8.000 ms	±0.005 ms	0%	pass	72 · 10 ⁻⁶
Cursordeckung cursor cover							
-							
Messfunktion measurement function							
Delta Curs							
Anstiegszeit Risetime							
CH.1							
	0.648ns <= 0.7ns	MU = 45*E-3				pass	
CH.2							
	0.673ns <= 0.7ns	MU = 45*E-3				pass	
Messfunktion measurement function							
Type Rise (10-90%)							
Messbedingung measured condition							
250mV @ 1MHz ; Trig Source Ext							
Scale: 50mV/Div							
Frequenzgang Frequency Response							
CH.1							



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Referenzspannung reference voltage						
= 0.419 Vrms @50 kHz						
	0.000 dB	500 kHz	0.01 dB	±3 dB		pass 0.20 dB
	0.000 dB	1 MHz	0.04 dB	±3 dB		pass 0.20 dB
	0.000 dB	5 MHz	0.05 dB	±3 dB		pass 0.20 dB
	0.000 dB	20 MHz	0.03 dB	±3 dB		pass 0.20 dB
	0.000 dB	50 MHz	0.09 dB	±3 dB		pass 0.20 dB
	0.000 dB	100 MHz	0.23 dB	±3 dB		pass 0.20 dB
	0.000 dB	150 MHz	0.40 dB	±3 dB		pass 0.20 dB
	0.000 dB	200 MHz	0.46 dB	±3 dB		pass 0.20 dB
	0.000 dB	250 MHz	0.29 dB	±3 dB		pass 0.20 dB
	0.000 dB	300 MHz	0.13 dB	±3 dB		pass 0.20 dB
	0.000 dB	350 MHz	-0.22 dB	±3 dB		pass 0.40 dB
	0.000 dB	400 MHz	-0.74 dB	±3 dB		pass 0.40 dB
	0.000 dB	500 MHz	-1.47 dB	±3 dB		pass 0.40 dB
CH.2						
Referenzspannung reference voltage						
= 0.421 Vrms @50 kHz						
	0.000 dB	500 kHz	0.01 dB	±3 dB		pass 0.20 dB
	0.000 dB	1 MHz	0.04 dB	±3 dB		pass 0.20 dB
	0.000 dB	5 MHz	0.05 dB	±3 dB		pass 0.20 dB
	0.000 dB	20 MHz	0.01 dB	±3 dB		pass 0.20 dB
	0.000 dB	50 MHz	0.04 dB	±3 dB		pass 0.20 dB
	0.000 dB	100 MHz	0.09 dB	±3 dB		pass 0.20 dB
	0.000 dB	150 MHz	0.17 dB	±3 dB		pass 0.20 dB
	0.000 dB	200 MHz	0.12 dB	±3 dB		pass 0.20 dB
	0.000 dB	250 MHz	-0.10 dB	±3 dB		pass 0.20 dB
	0.000 dB	300 MHz	-0.37 dB	±3 dB		pass 0.20 dB
	0.000 dB	350 MHz	-0.63 dB	±3 dB		pass 0.40 dB
	0.000 dB	400 MHz	-1.08 dB	±3 dB		pass 0.40 dB
	0.000 dB	500 MHz	-1.86 dB	±3 dB		pass 0.40 dB
Messfunktion measurement function						
Type RMS						
Messbedingung measured condition						
Coupling DC						
Scale: 200mV/Div						



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Tastkopf Abgleich	Probe compensation						
Funktionstest	Function test						
	5.000 V	@1kHz	4.96 V	±0.5 V	8%	pass	4.7 · 10 ⁻³
Messfunktion	measurement function						
Type Ampl							
	1.00000 kHz		1.0040 kHz	±0.05 kHz	8%	pass	2.9 · 10 ⁻³
Messfunktion	measurement function						
Type Freq							

zulässige Abweichung gemäß Herstellerangabe
allowed deviation in accordance with manufacturer

Die dimensionslosen Anteile der Messunsicherheit U sind als relative Messunsicherheiten e bezogen auf den Messwert zu verstehen (U = e * MW).

The non-dimensional fractions of the measuring uncertainty U are relative values e in relation to the indicated value (U = e * i.v.).