

MIPI MicroSD Trace Cable v4.2

for connecting Traced Devices to trace box

DATASHEET

Version 1.2, 30 Aug 2010

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1. DOCUMENT INFORMATION

1.1. Document history

<i>Version</i>	<i>Date</i>	<i>Comment</i>
1.0	June 02, 2010	First draft
1.1	June 18, 2010	Updated for public release
1.2	Aug 30, 2010	Fixed X2 pins numbering on Figure 1

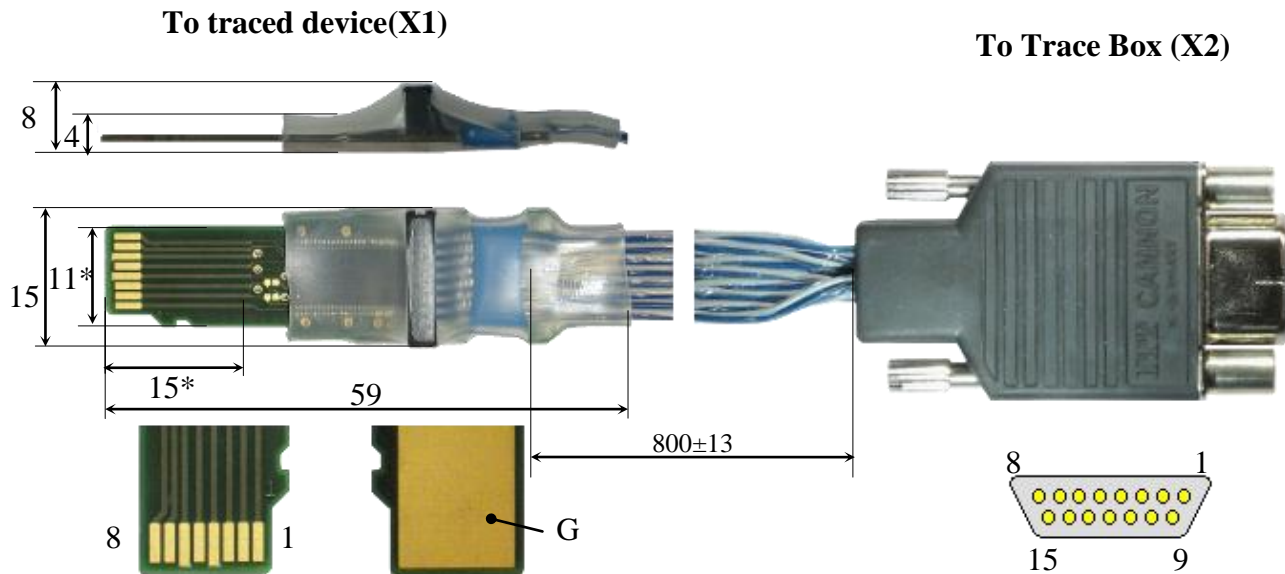
1.2. Terminology and abbreviations

<i>Abbreviation</i>	<i>Description</i>
ESD	Electrostatic Discharge Voltage
LVDS	Low Voltage differential signaling

2. OVERVIEW

The MicroSD Trace Cable v4.2 is designed for trace box, for instance Fido, for tracing devices that provide microSD tracing socket.

The MicroSD Trace Cable v4.2 feeds target Trace Interface signals to trace box. To transfer trace signals over significantly long cable, the trace signals are converted beforehand from the LVCMOS levels to the LVDS signals on the cable PCB.



* Standard microSD card dimensions are 15x11 mm

Figure 1. MicroSD Cable v4.4 overview

3. CABLE CONNECTORS

MicroSD Trace Cable v4.2 provides two connectors:

- Traced device connector. MicroSD layout, see Table 1.
- Trace Box connector. ITT Cannon part MDSM 15SC. For pin mappings, see Table 2.

Table 1. Traced device connector (X1)

<i>Pin</i>	<i>Direction</i>	<i>Symbol</i>	<i>Comment</i>
1	Input	TRC_DATA2	Trace Data bit 2, to trace box connector
2	Input	TRC_DATA3	Trace Data bit 3, to trace box connector
3	Output	TRC_EXT	Return channel, to trace box connector
4	Input	VREF_TRACE	Trace Interface Reference voltage, to trace box connector through voltage follower.
5	Input	TRC_CLK	Trace clock, to trace box connector
6		GND	Ground (0V)
7	Input	TRC_DATA0	Trace Data bit 0, to trace box connector
8	Input	TRC_DATA1	Trace Data bit 1, to trace box connector
G		GND	Ground (0V)

Table 2. Trace Box Connector (X2)

<i>Pin</i>	<i>Direction</i>	<i>Level</i>	<i>Symbol</i>	<i>Description</i>	<i>Respective trace signal (Table 1)</i>
1	Output	LVDS	TRC_CLK_P	Trace clock, positive	TRC_CLK
2	Output	LVDS	TRC_CLK_N	Trace clock, negative	
3	Output	LVDS	TRC_D0_P	Trace data, bit 0, positive	TRC_DATA0
4	Output	LVDS	TRC_D0_N	Trace data, bit 0, negative	
5	Output	LVDS	TRC_D1_P	Trace data, bit 1, positive	TRC_DATA1
6	Output	LVDS	TRC_D1_N	Trace data, bit 1, negative	
7	Output	LVDS	TRC_D2_P	Trace data, bit 2, positive	TRC_DATA2
8	Output	LVDS	TRC_D2_N	Trace data, bit 2, negative	
9	Input	DC	VCC	+3.3V cable supply voltage	
10	Output	DC	VREF_BUF	Buffered Trace Reference voltage	VREF_TRACE
11	Input	LVDS	TRC_Q_P	Return channel, positive	TRC_EXT
12	Input	LVDS	TRC_Q_N	Return channel, negative	
13	Output	LVDS	TRC_D3_P	Trace data, bit 3, positive	TRC_DATA3
14	Output	LVDS	TRC_D3_N	Trace data, bit 3, negative	
15		DC	GND	Ground	GND

4. ELECTRICAL CHARACTERISTICS

The absolute maximum ratings are presented in Table 3. They are stress ratings only and the device functional operation at these or any other conditions beyond those listed in Table 4 are not implied. Stresses beyond those listed in Table 3 might cause permanent damage to the device. Exposure to the absolute maximum ratings conditions for extended periods of time might affect the device reliability. All the voltages in Table 3 and Table 4 are relative to the MIPI Cable ground voltage.

Table 3. Absolute maximum ratings

<i>Description</i>	<i>Min</i>	<i>Max</i>
Input voltage, Trace Interface signals	-0.5 V	+4.6 V
Input voltage, VREF_TRACE	-1.6 V	+10 V
ESD, Human body model	-	+/-7500 V
ESD, Machine model	-	+/-400 V
Storage temperature	-65 °C	+150 °C

Table 4. DC characteristics

<i>Description</i>	<i>Con- nector</i>	<i>Symbol</i>	<i>Unit</i>	<i>Min</i>	<i>Max</i>	
Input voltage, VREF_TRACE	X1	Vref	V	1.1	3.3	
Input voltage, Trace signals, Low		Vil	V	0	Vref/2-0.3	
Input voltage, Trace signals, High		Vih	V	Vref/2+0.3	3.3	
Input resistance, VREF_TRACE		Rrefi	KOhm	90		
Input current, Trace signals		Iin	µA		±20	
Input capacitance, Trace signals		Cin	pF		10	
Output voltage, TRC_EXT, Low (Note 1)	X2	Vol	V	0	0.26*Vref	
Output voltage, TRC_EXT, High (Note 2)		Voh	V	0.74*Vref	1.02*Vref	
Output differential voltage, Trace signals		Vod	mV	250	450	
Output short circuit current, VREF_BUF		Irefs	mA	20		
Supply voltage VCC		Vcc	V	3.0	3.6	
Operation temperature		-	T	°C	-40	+75

Note 1. Output current, TRC_EXT, Low:

I_{ol} = 2 mA @ VREF_TRACE = 1.1...1.3 V;

I_{ol} = 4 mA @ VREF_TRACE = 1.4...1.6 V;

I_{ol} = 6 mA @ VREF_TRACE = 1.65...2.7 V;

I_{ol} = 12 mA @ VREF_TRACE = >2.7 V.

Note 2. Output current, TRC_EXT, High:

I_{ol} = -2 mA @ VREF_TRACE = 1.1...1.3 V;

I_{ol} = -4 mA @ VREF_TRACE = 1.4...1.6 V;

I_{ol} = -6 mA @ VREF_TRACE = 1.65...2.7 V;

I_{ol} = -12 mA @ VREF_TRACE = >2.7 V.