

LVD HOT PLUGGING TEST RESULTS OVERVIEW

**PRELIMINARY HOT PLUGGING TEST
RESULTS HAVE BEEN ACQUIRED ON AN
LVD INTERFACE**

**ONE SAMPLE OF ONE TYPE OF LVD
RECEIVER WAS TESTED USING SPECIAL
LABORATORY TECHNIQUES**

**THIS IS CLEARLY NOT SUFFICIENT DATA
TO MAKE ANY CHANGES IN THE CASE 4
STATEMENTS FOR LVD**

**THE MAGNITUDE OF THE HOT PLUGGING
GLITCHES HAS BEEN ESTABLISHED FOR
FOUR SETS OF CONDITIONS**

**THESE RESULTS INDICATE THAT CASE 4
HOT PLUGGING MAY BE POSSIBLE
UNDER CERTAIN CONDITIONS**

LVD HOT PLUGGING TEST RESULTS

RECEIVER SUMMARY

**WHEN STARTING FROM A RELATIVELY
HIGH DIFFERENTIAL SIGNAL LEVEL
LARGE HOT PLUGGING GLITCHES WILL
NOT BE DETECTED**

**WHEN STARTING NEAR THE SWITCHING
POINT VERY SMALL GLITCHES GET
THROUGH**

**LONGER INPUT GLITCHES REQUIRE
LOWER AMPLITUDE THAN SHORT
GLITCHES TO BE DETECTED**

**WIRED-OR LINES WILL NEED TO
ACCOMMODATE DETECTED GLITCHES OF
A FEW ns DURATION**

**THE D. C. INPUT SWITCHING LEVELS MAY
NEED TO BE RE-EXAMINED (HOT-
PLUGGING OR NOT)**

LVD HOT PLUGGING TEST RESULTS

INPUT GLITCH LEVELS

FOUR CASES WERE EXAMINED:

25 pF HOT PLUGGING LOADS

(+ SIGNAL/GND) AT NOMINAL 0

COMMON MODE IN ALL CASES

RIBBON CABLE

ROUND CABLE

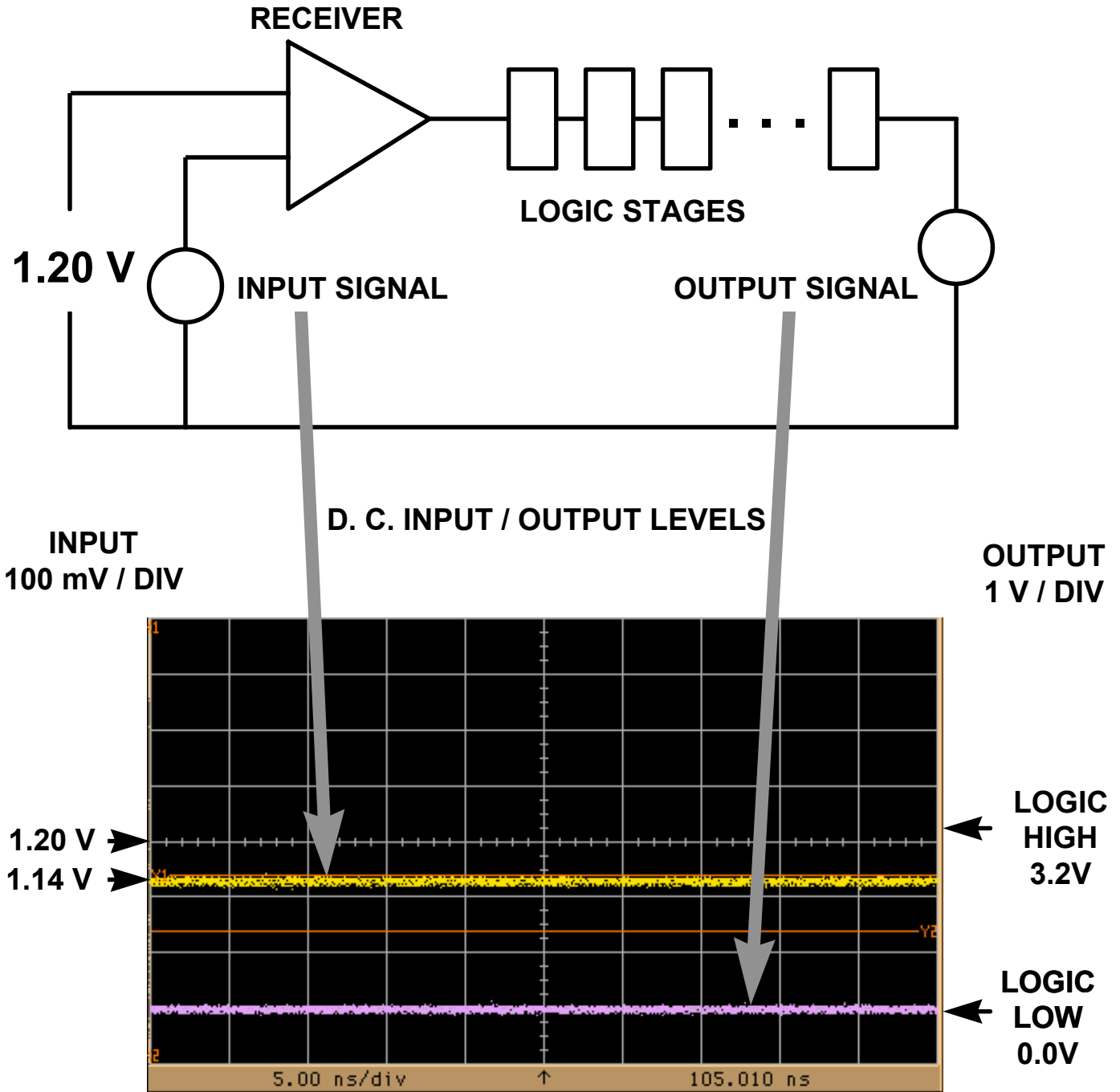
AT MATING CONNECTOR

**AT 8" AND 36" AWAY FROM MATING
CONNECTOR**

**THE HOT PLUGGING GLITCHES ARE
SIMILAR TO THOSE SHOWN FOR SINGLE
ENDED BACK IN 1991 (FEW HUNDRED mV
FOR A FEW ns**

**EFFECTS OF THE NUMBER OF DEVICES
ON THE BUS SEGMENT WERE SHOWN TO
BE NEGLIGIBLE**

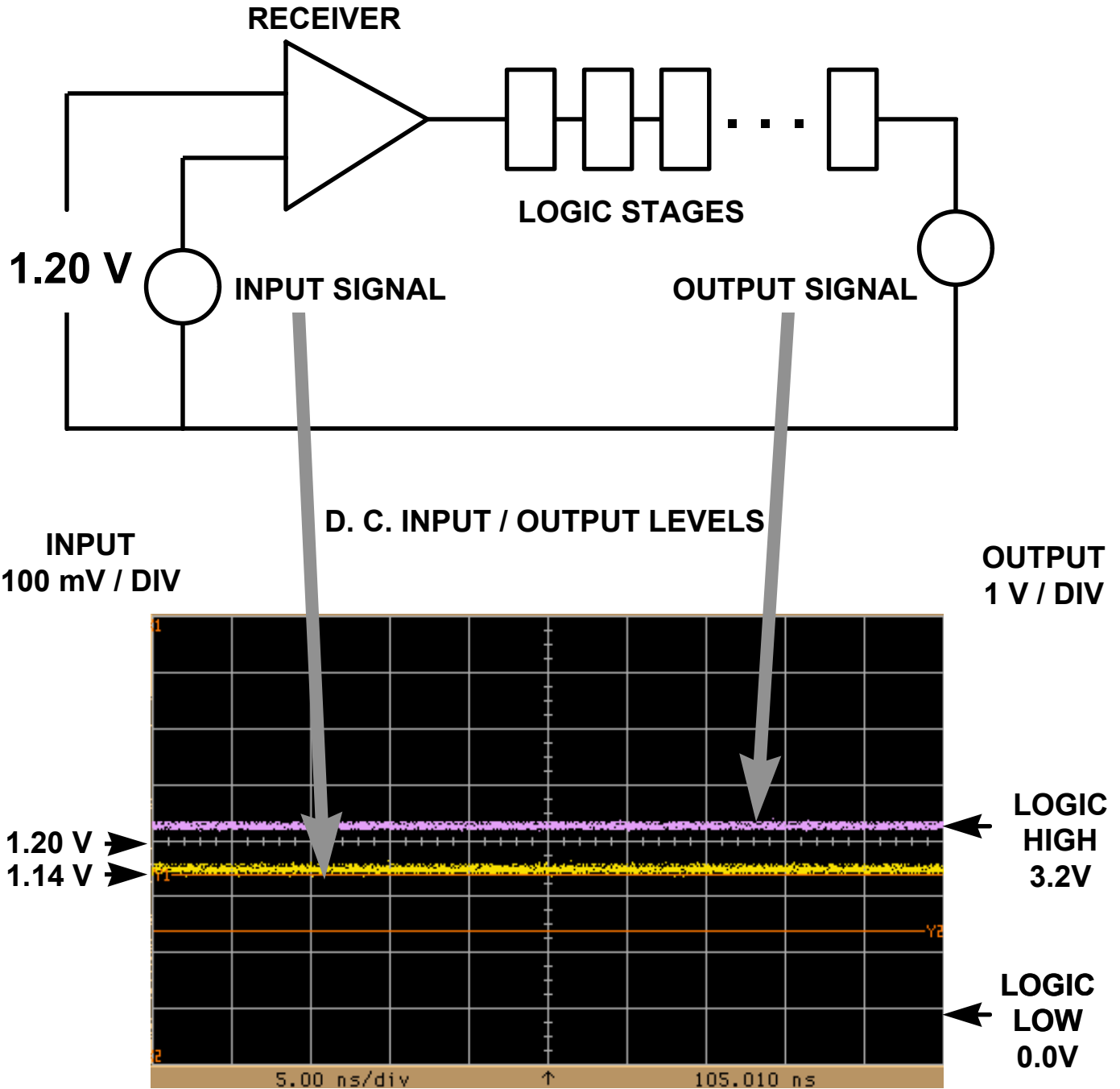
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.13V (10 mV BELOW THRESHOLD AT 1.14V)

LVDREC01

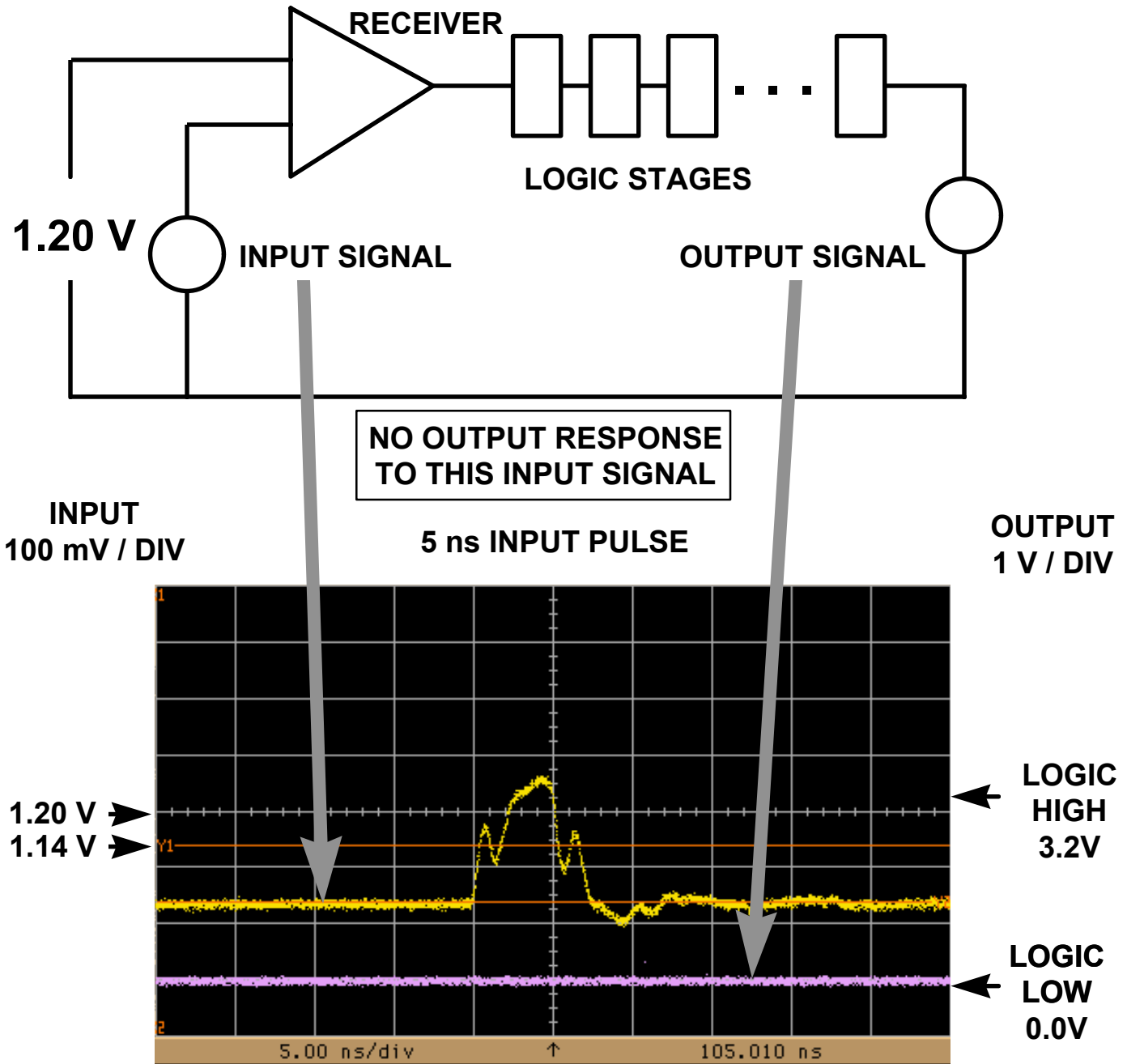
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.145V (5 mV ABOVE THRESHOLD AT 1.14V)

LVDREC03

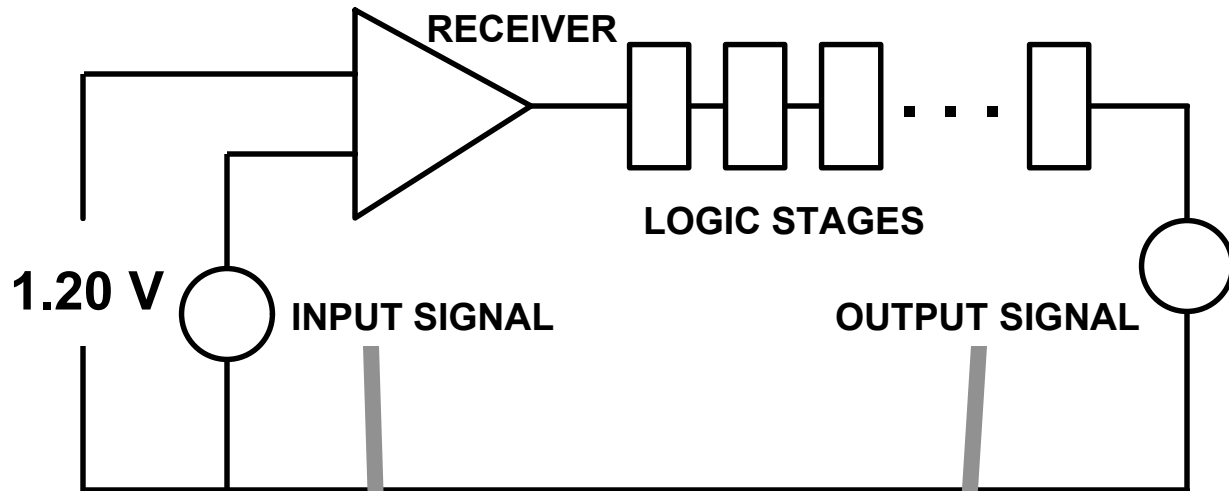
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.04V TO 1.23V (SET)
STARTS 100 mV BELOW THRESHOLD AND OVERSHOOTS
130 mV ABOVE THRESHOLD

LVDREC04

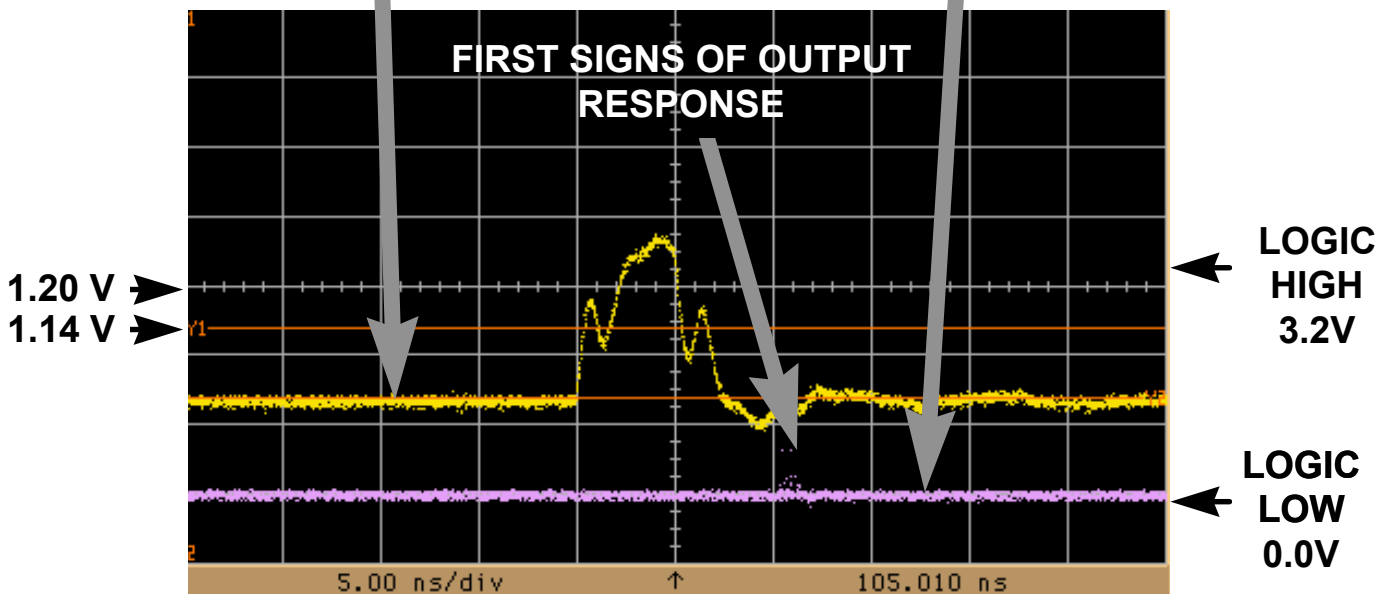
LVD HOT PLUGGING TEST RESULTS



INPUT
100 mV / DIV

5 ns INPUT PULSE

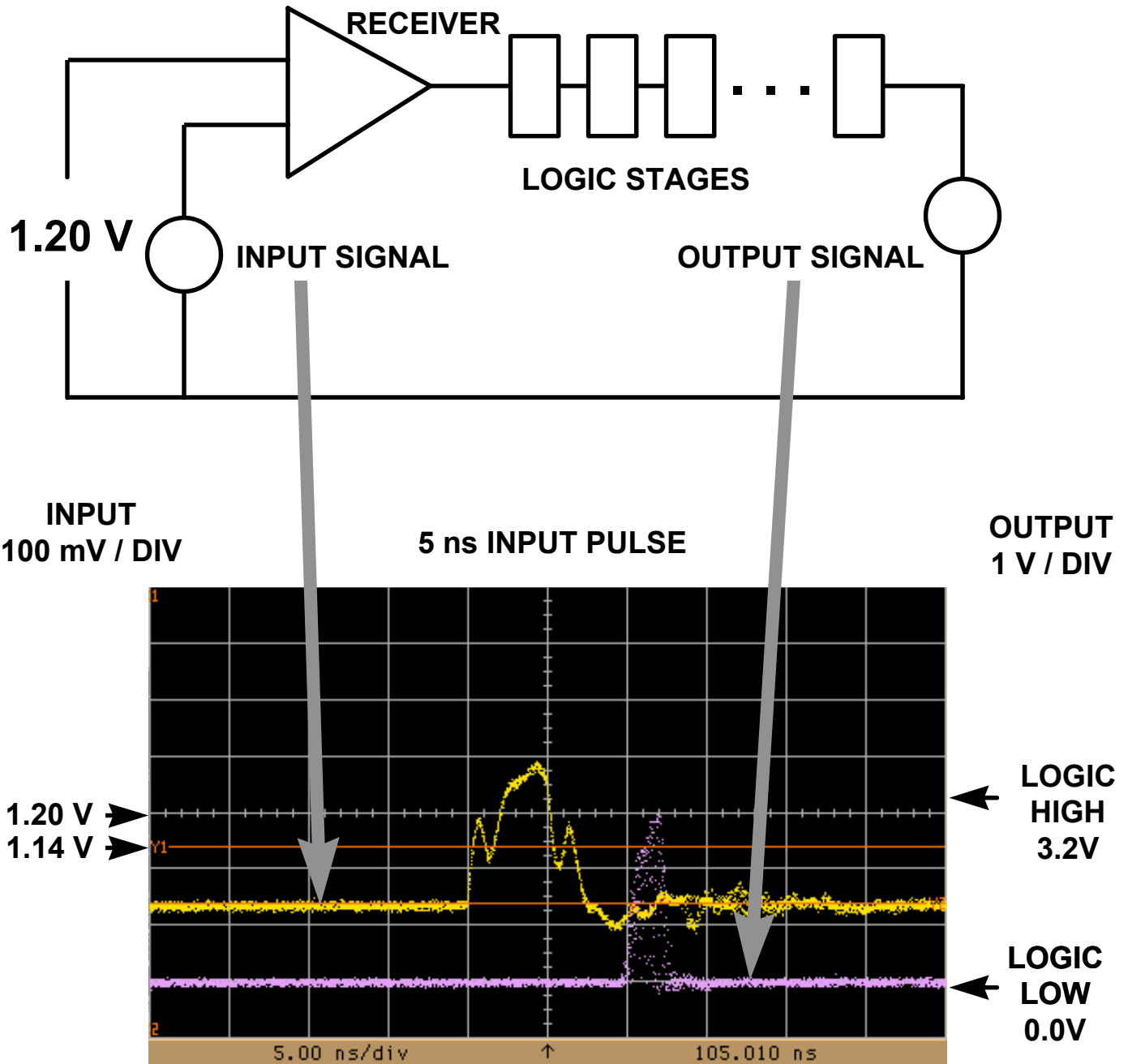
OUTPUT
1 V / DIV



INPUT SIGNAL AT 1.04V TO 1.24V (SET)
STARTS 100 mV BELOW THRESHOLD AND OVERSHOOTS
140 mV ABOVE THRESHOLD

LVDREC05

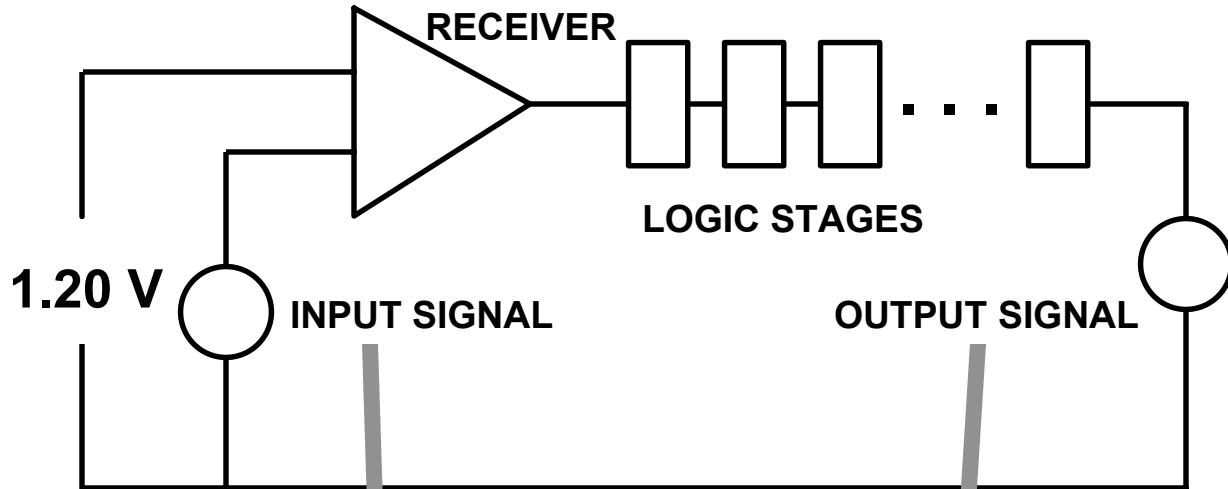
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.04V TO 1.25V (SET)
STARTS 100 mV BELOW THRESHOLD AND OVERSHOOTS
150 mV ABOVE THRESHOLD

LVDREC06

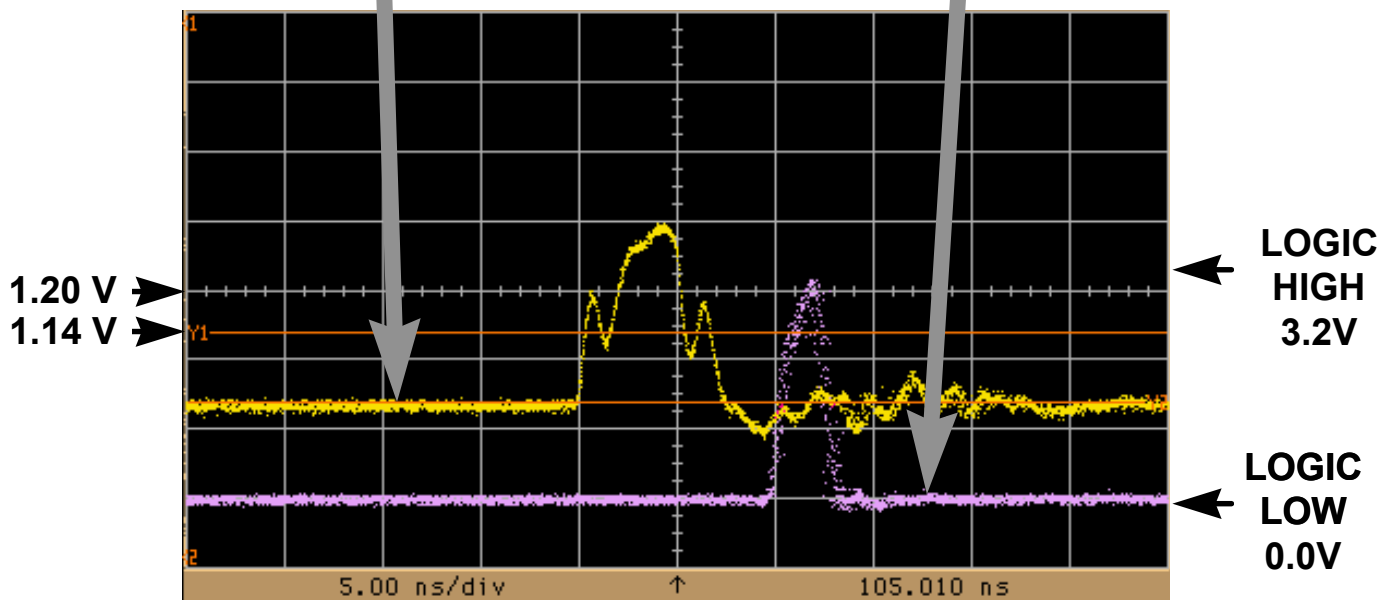
LVD HOT PLUGGING TEST RESULTS



INPUT
100 mV / DIV

5 ns INPUT PULSE

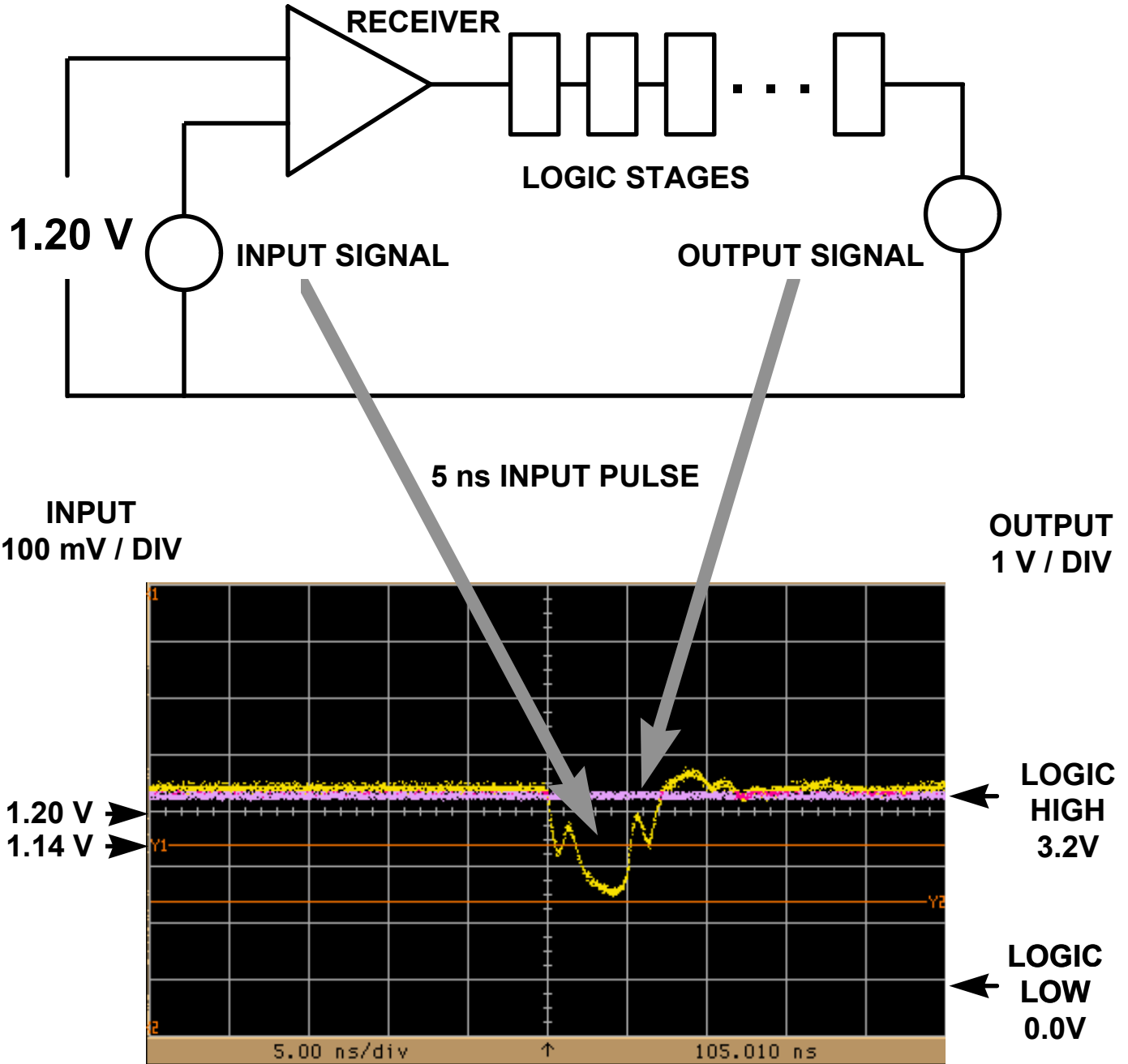
OUTPUT
1 V / DIV



INPUT SIGNAL AT 1.04V TO 1.26V (SET)
STARTS 100 mV BELOW THRESHOLD AND OVERSHOOTS
160 mV ABOVE THRESHOLD

LVDREC07

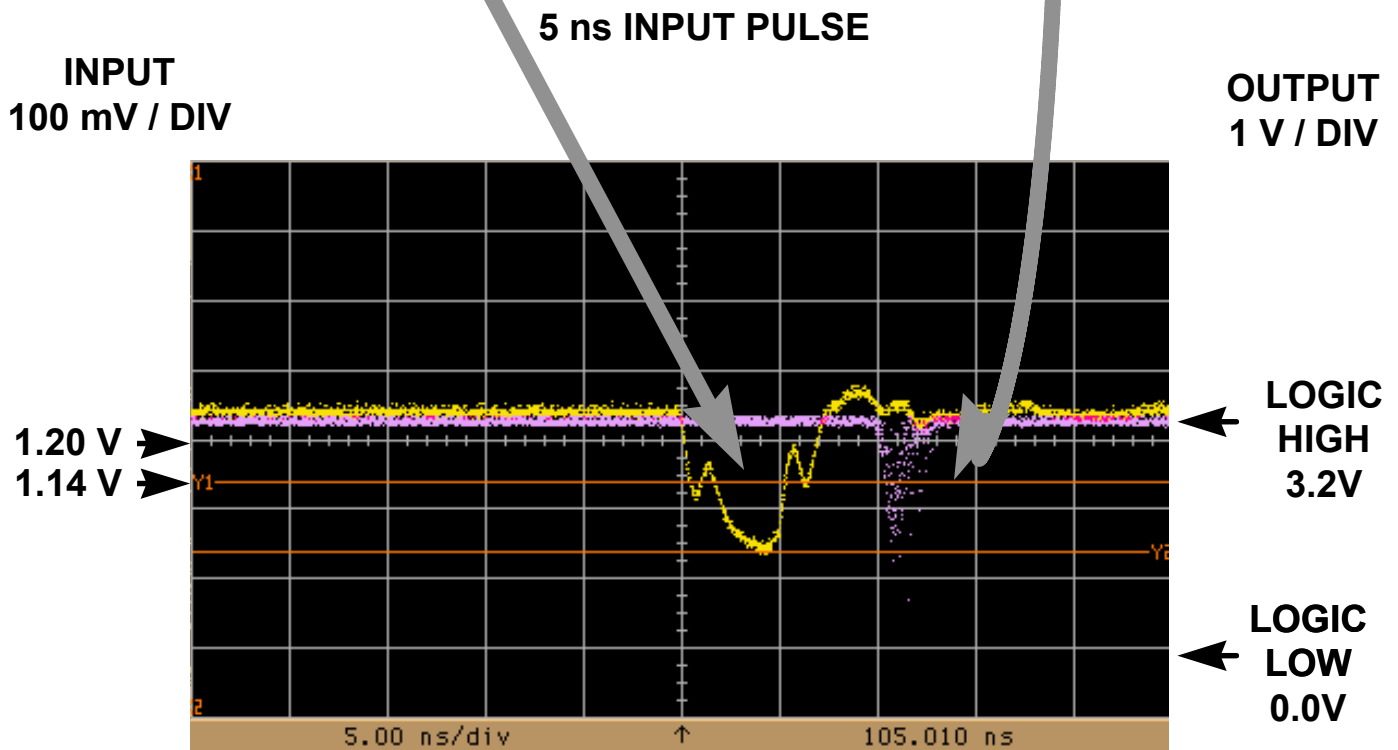
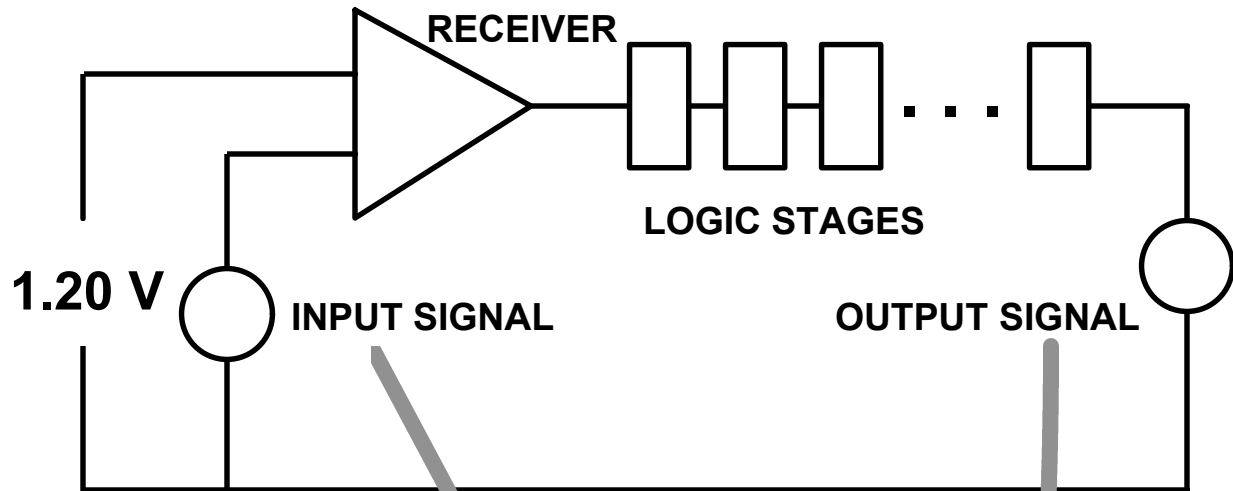
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.24V TO 1.08V (SET)
STARTS 100 mV ABOVE THRESHOLD AND OVERSHOOTS
90 mV BELOW THRESHOLD

LVDREC08

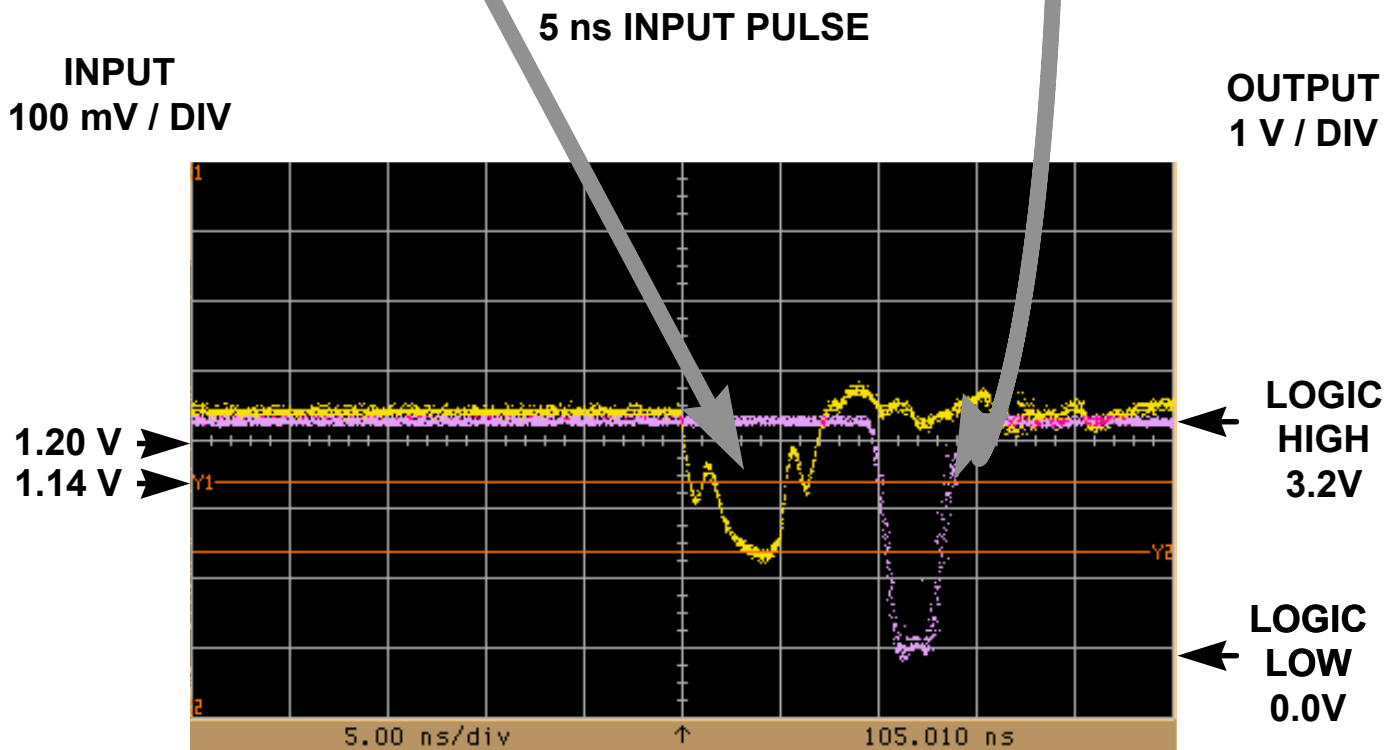
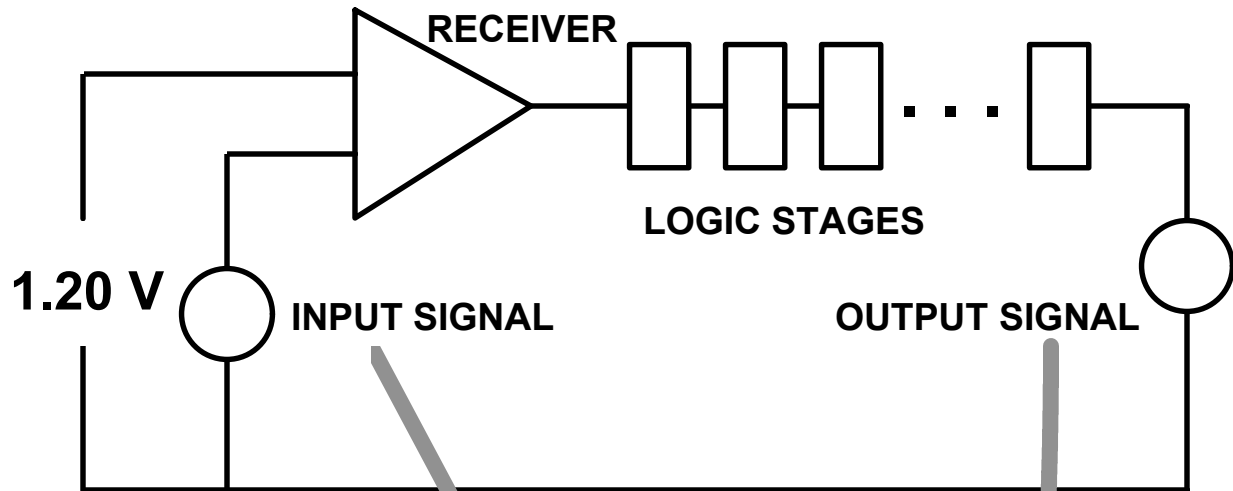
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.24V TO 1.07V (SET)
STARTS 100 mV ABOVE THRESHOLD AND OVERSHOOTS
100 mV BELOW THRESHOLD

LVDREC09

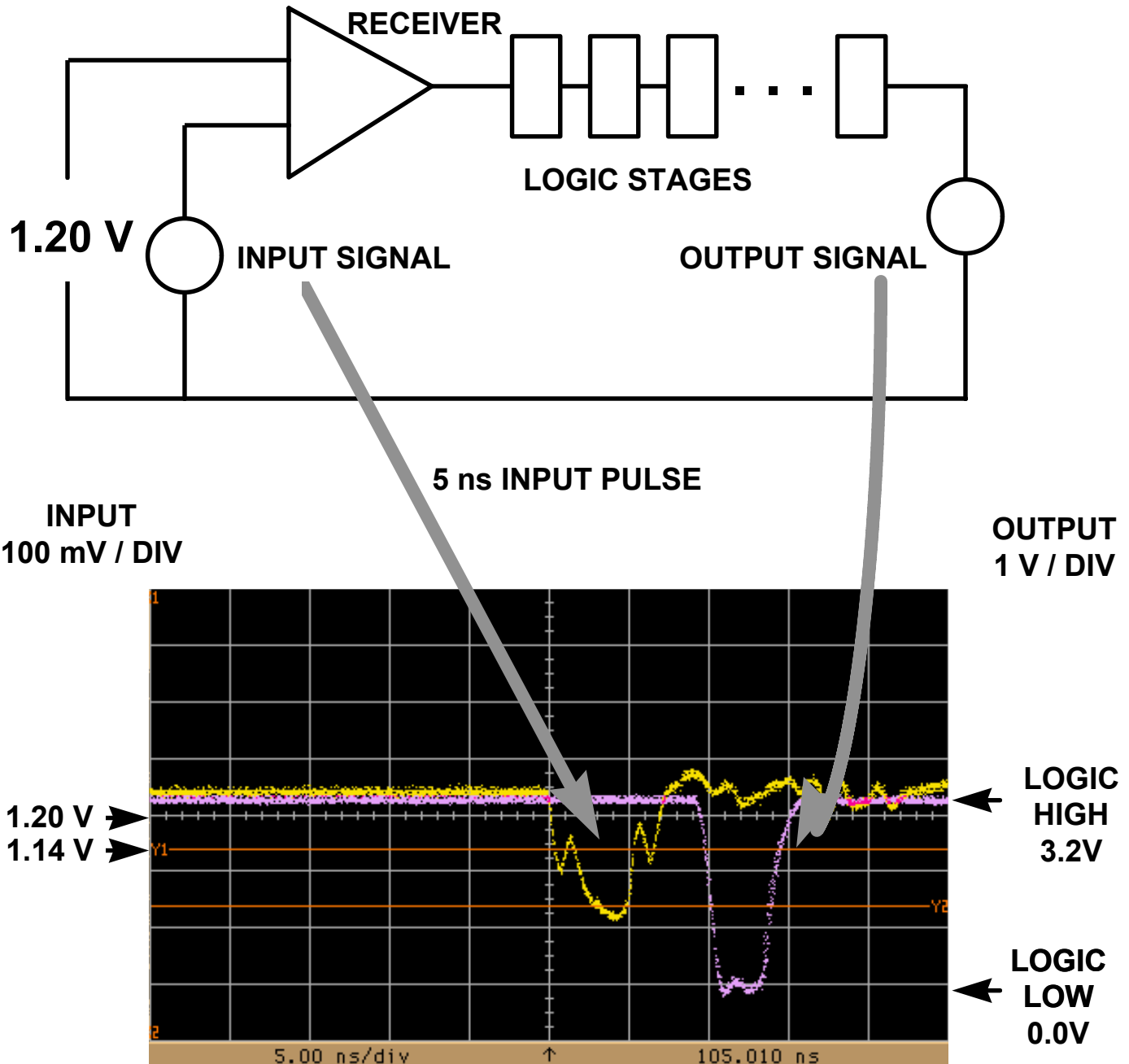
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.24V TO 1.06V (SET)
STARTS 100 mV ABOVE THRESHOLD AND OVERSHOOTS
110 mV BELOW THRESHOLD

LVDREC10

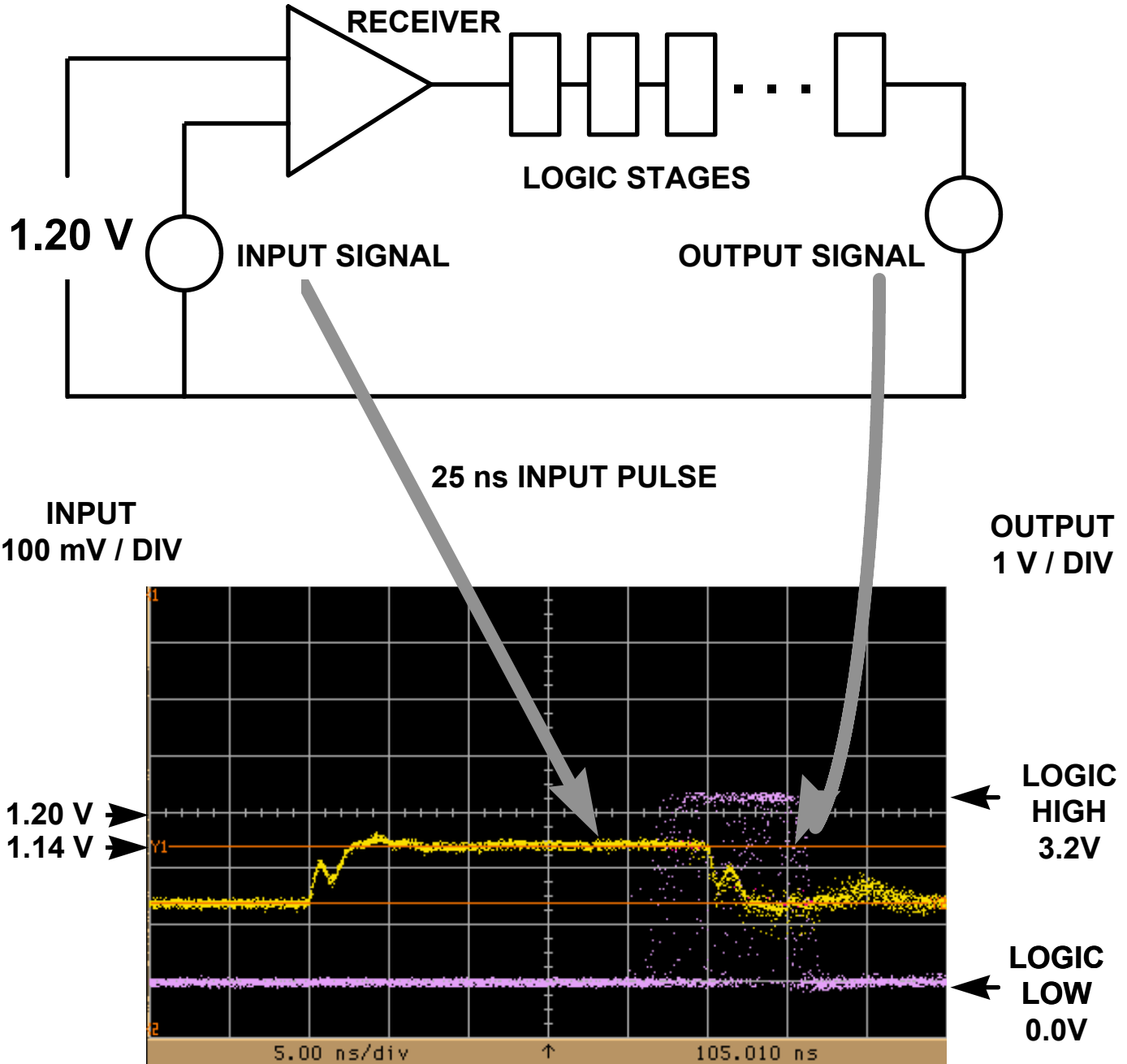
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.24V TO 1.05V (SET)
STARTS 100 mV ABOVE THRESHOLD AND OVERSHOOTS
120 mV BELOW THRESHOLD

LVDREC11

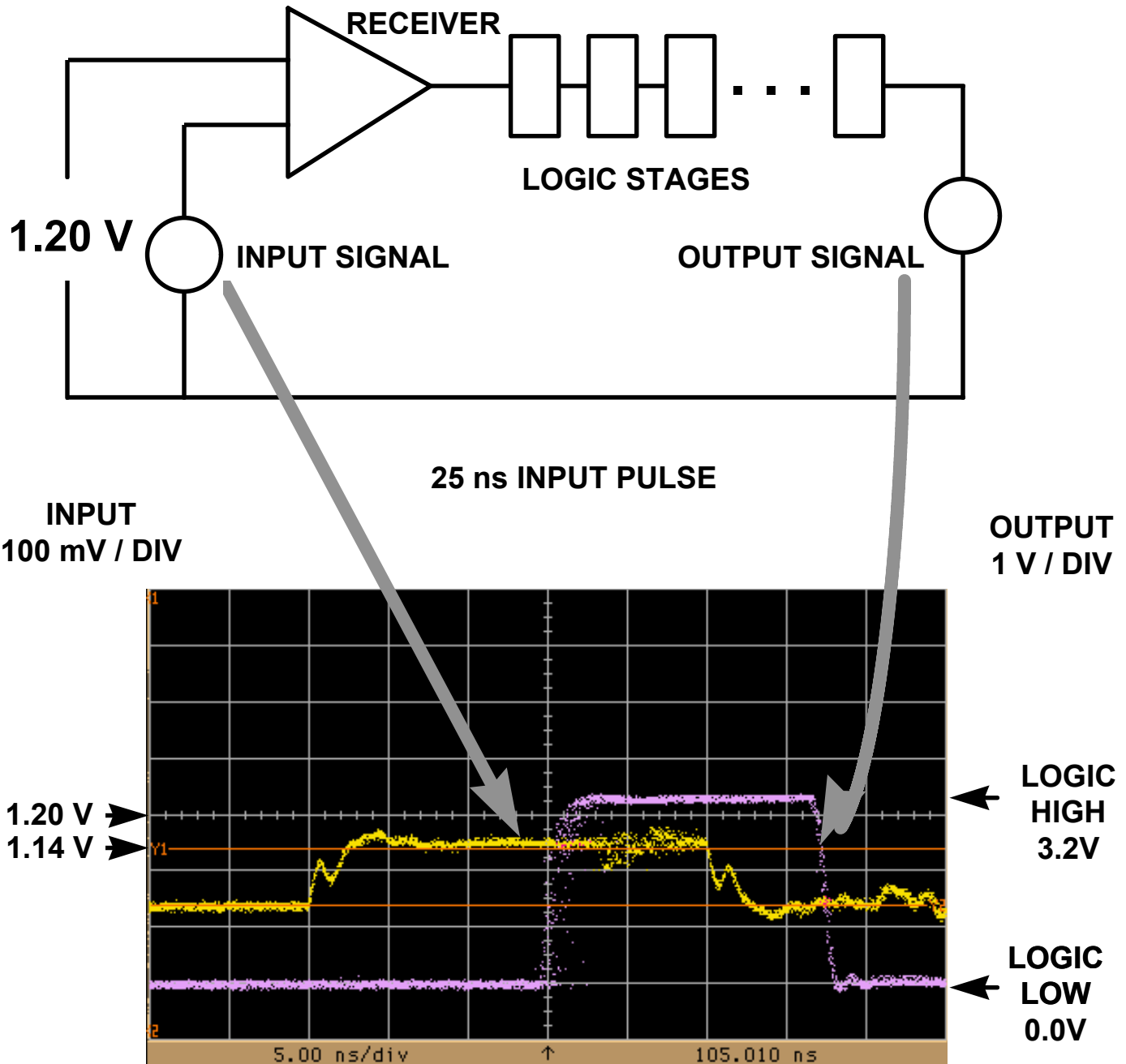
LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.04V TO 1.14V (SET)
STARTS 100 mV BELOW THRESHOLD AND OVERSHOOTS
ONLY SLIGHTLY ABOVE THRESHOLD

LVDREC12

LVD HOT PLUGGING TEST RESULTS



INPUT SIGNAL AT 1.04V TO 1.15V (SET)
STARTS 100 mV BELOW THRESHOLD AND OVERSHOOTS
30 mV ABOVE THRESHOLD

LVDREC12

HOT PLUGGING GLITCHES

**SOME ADDITIONAL DATA ON THE EFFECTS OF
STARTING VOLTAGE LEVELS:**

**STARTING 150 mV BELOW THRESHOLD
REQUIRES 240 mV ABOVE
FOR 5 ns OR 10 mV ABOVE FOR 10 ns**

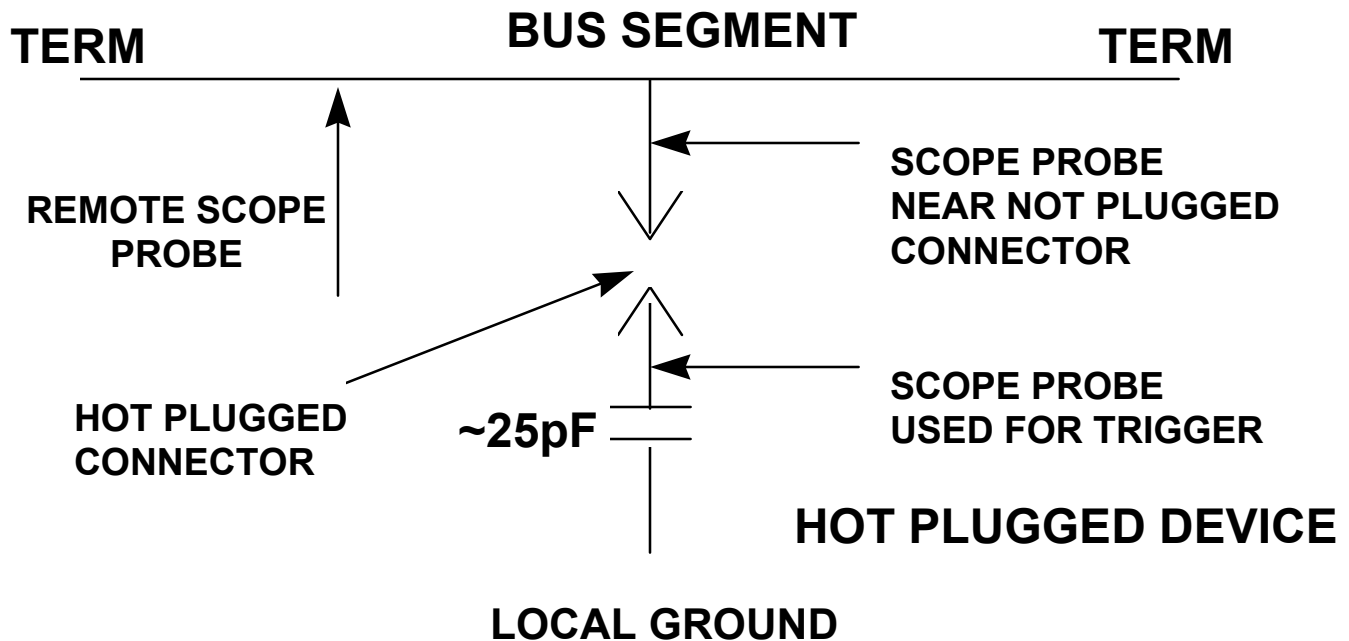
**STARTING 200 mV BELOW THRESHOLD
REQUIRES 800 mV ABOVE
FOR 5ns OR 20 mV ABOVE FOR 10 ns**

**STARTING 300 mV BELOW THRESHOLD
REQUIRES 1500 mV ABOVE
FOR 5 ns OR 40 mV ABOVE FOR 10 ns**

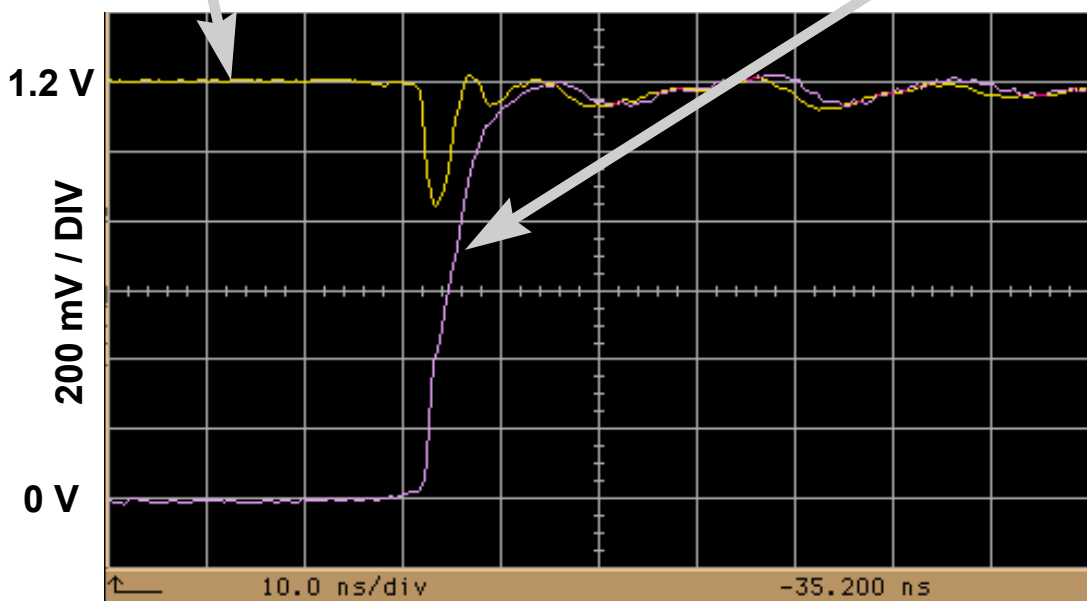
**THE THRESHOLD PULSE WIDTH SEEMS TO BE AROUND
7 ns WIDTH**

HOT PLUGGING GLITCHES T10/97-144R0

(RAPID TRANSIENT - WORST CASE)



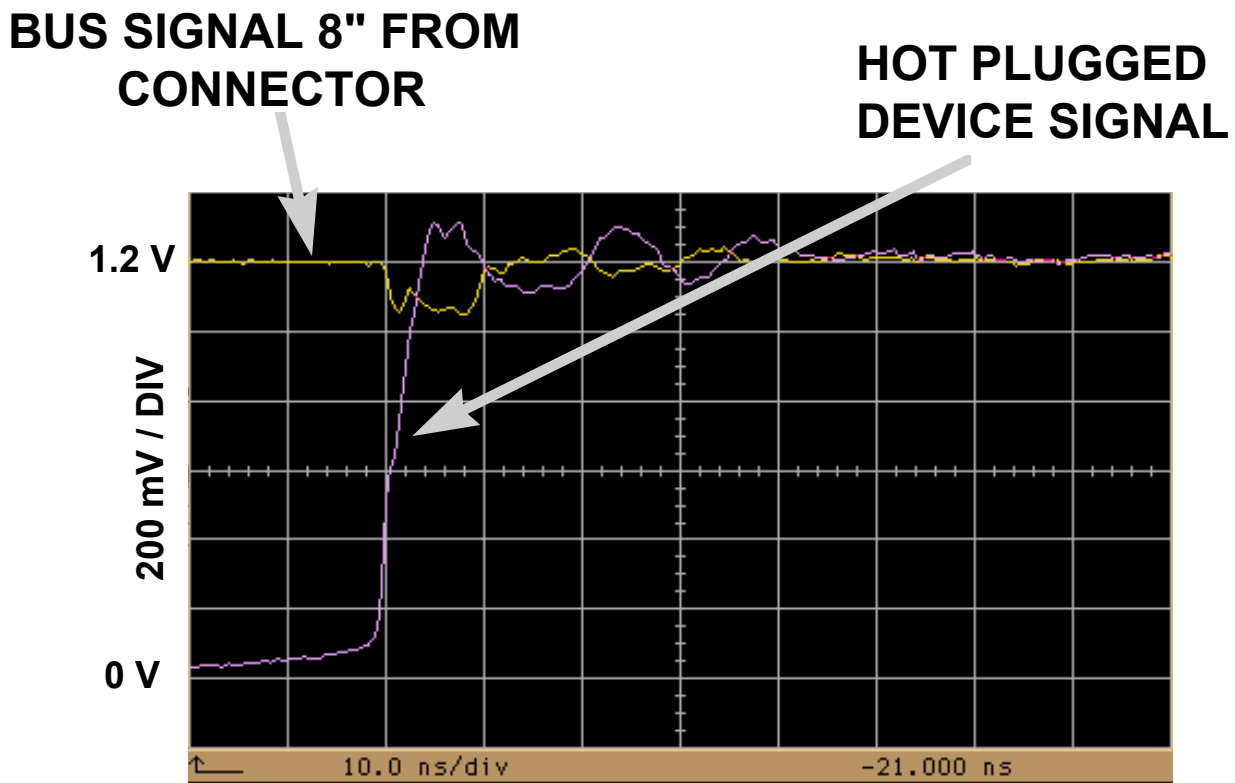
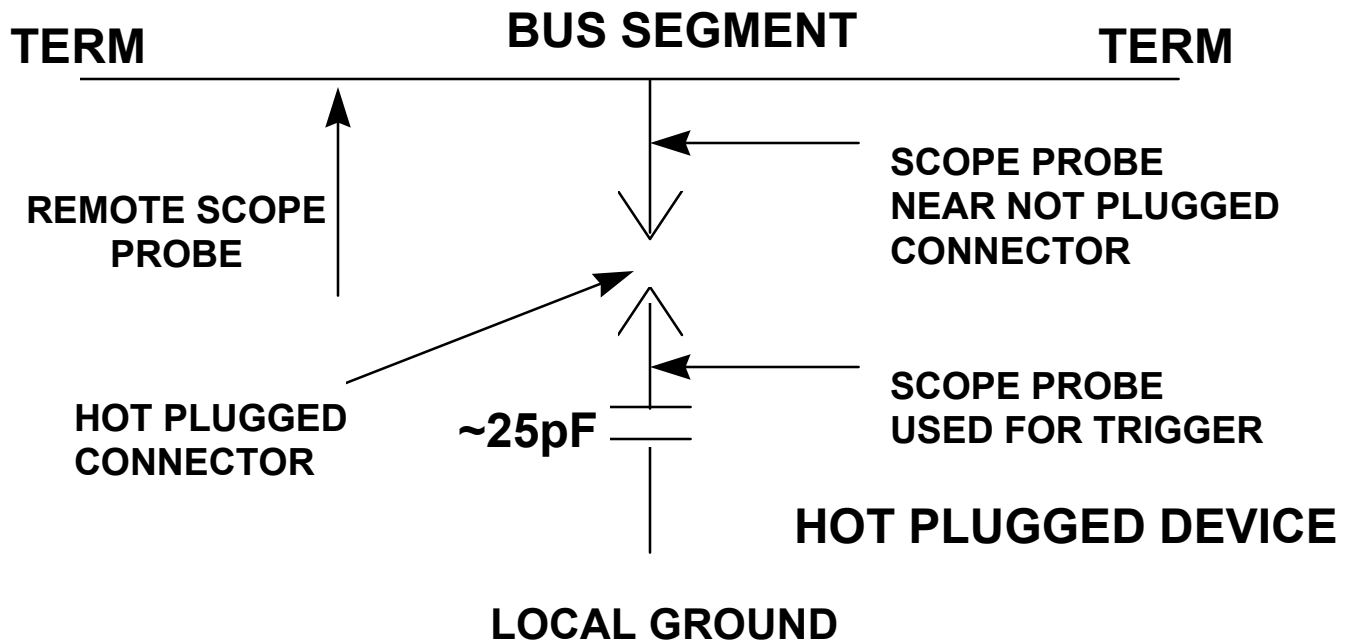
BUS SIGNAL NEAR CONNECTOR **HOT PLUGGED DEVICE SIGNAL**



RIBBON CABLE

LVDHOT03

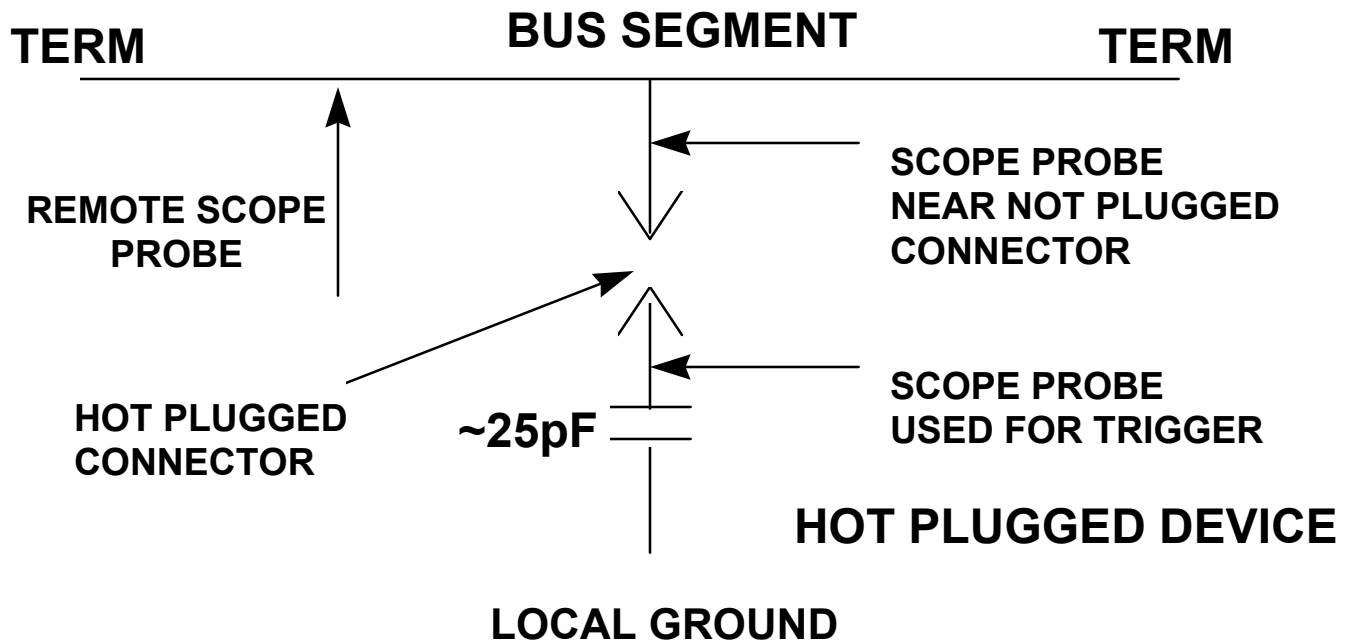
HOT PLUGGING GLITCHES T10/97-144R0



RIBBON CABLE

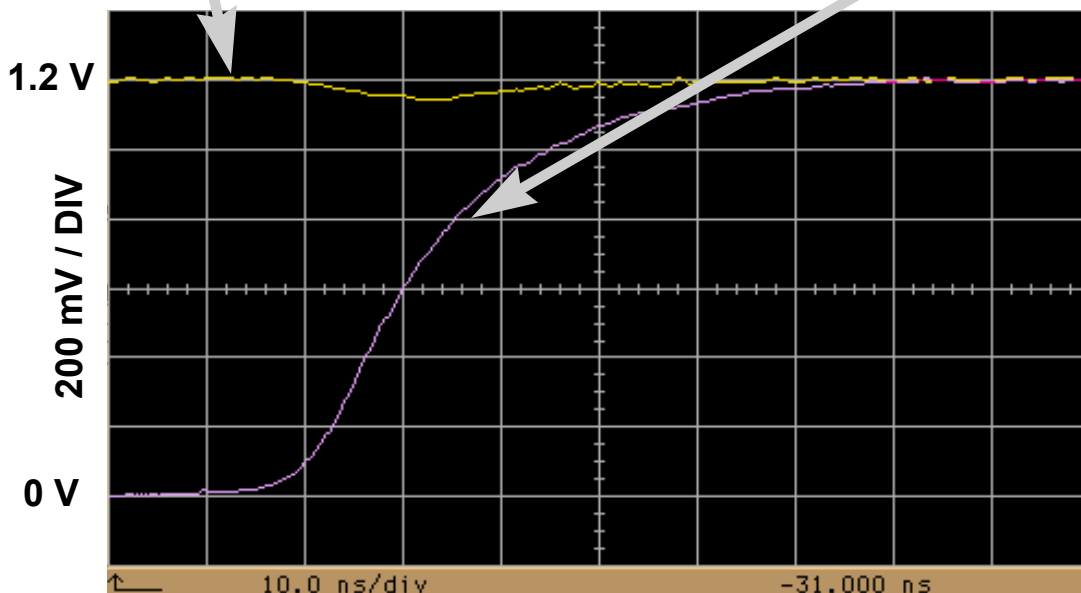
LVDHOT06

HOT PLUGGING GLITCHES (SEMI GRADUAL TRANSIENT) T10/97-144R0



BUS SIGNAL 8" FROM CONNECTOR

HOT PLUGGED DEVICE SIGNAL

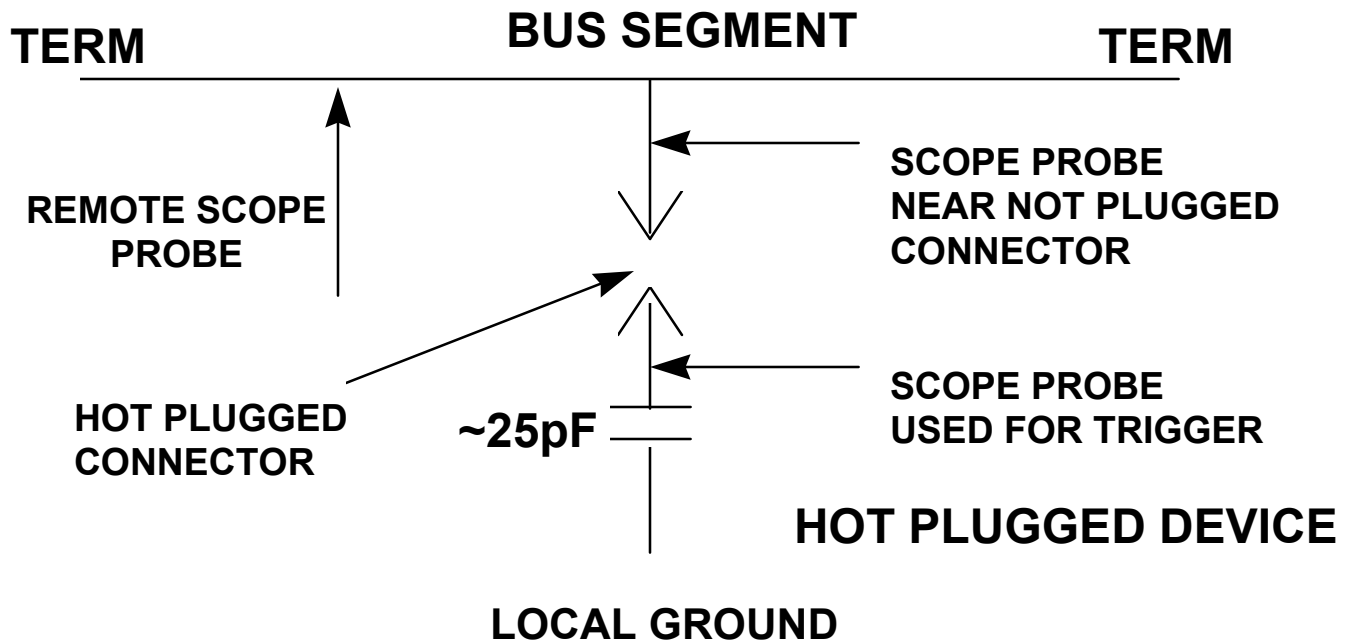


RIBBON CABLE

LVDHOT07

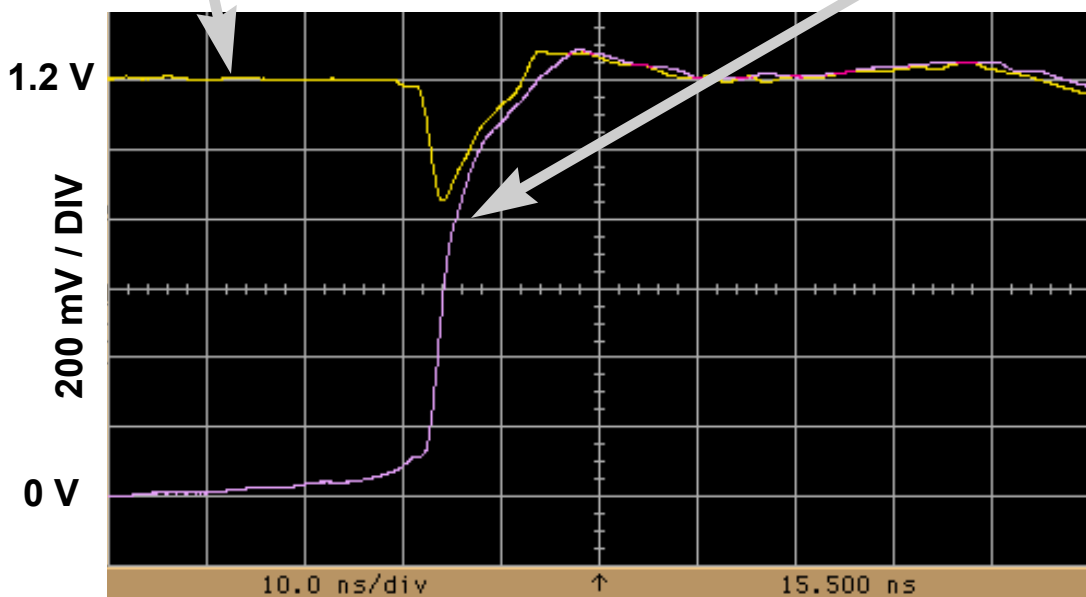
HOT PLUGGING GLITCHES (RAPID TRANSIENT)

T10/97-144R0



BUS SIGNAL NEAR CONNECTOR

HOT PLUGGED DEVICE SIGNAL

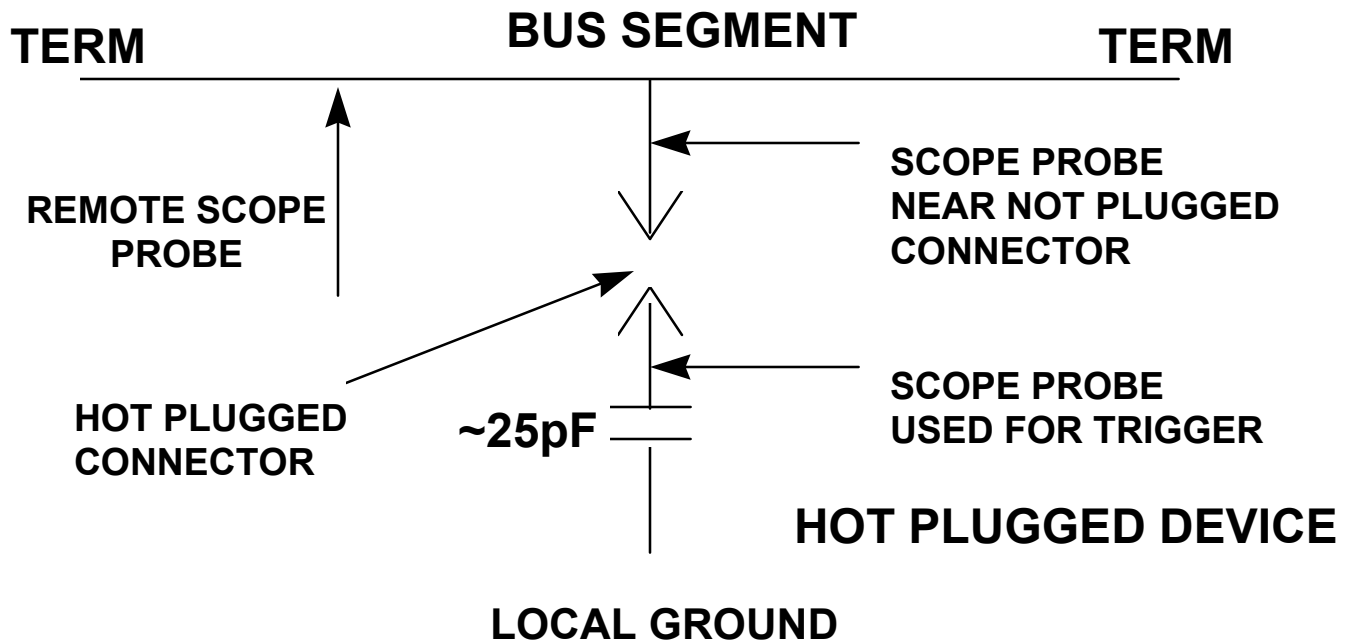


ROUND CABLE

LVDHOT10

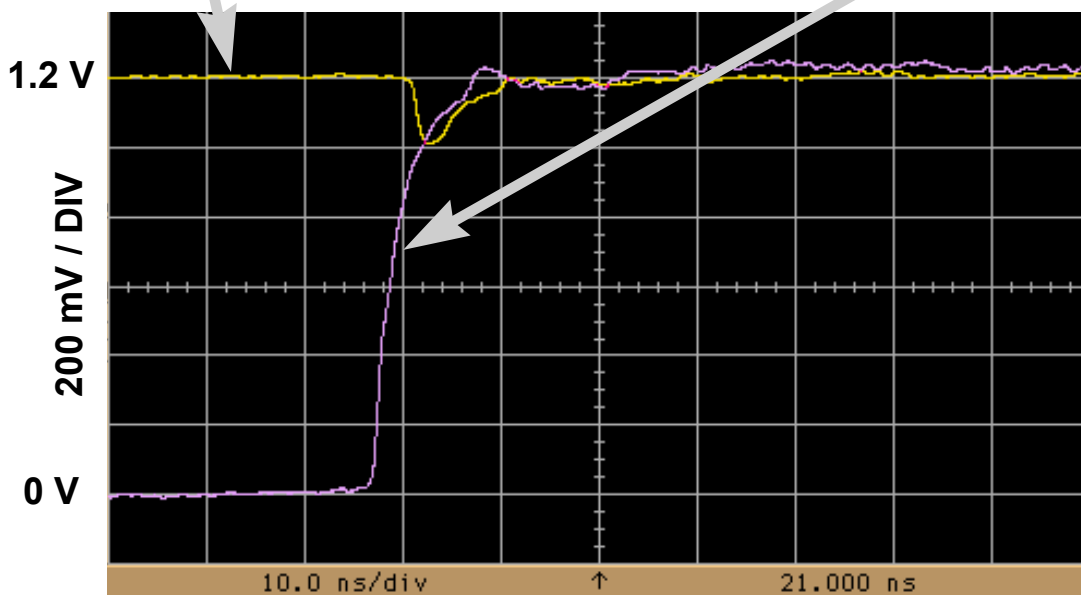
HOT PLUGGING GLITCHES (RAPID TRANSIENT)

T10/97-144R0



BUS SIGNAL 1 METER FROM CONNECTOR

HOT PLUGGED DEVICE SIGNAL



ROUND CABLE

LVDHOT11

LVD HOT PLUGGING TEST RESULTS

NEAR TERM FUTURE WORK PLANNED

**MORE SAMPLES OF LVD
RECEIVER**

BACKPLANE GLITCH MAGNITUDES

**MORE DIFFERENT STARTING
(BEFORE THE MATING EVENT)
DIFFERENTIAL VOLTAGE LEVELS**