

**Product Name:** ZX230CP USB type C TPA-P TDR electrical test board breakout adapter for USB 3.1 electrical compliance

**Product Description:** USB Type C TPA-P TDR electrical test board breakout adapter supporting **USB Type C** connector Plug. **ZX230CP** TPA USB type C electrical test board tailored for signal jitter, eye diagram and full USB 3.1 electrical compliance test. ZX230CP is designed supporting SuperSpeed Gen1 ( 2.5GHz ) SuperSpeed Gen2 ( 5GHz ) and future 20Gbps ( **10GHz** ) bandwidth, Nyquist frequencies (  $IL_{fitatNq}$  ), electrical performance.

Requires minimum 8GHz scope ( 12GHz-16GHz scope is suggested ) for proper single ended and differential signal measurement - clock jitter, skew, eye diagram rise/fall time and electrical test measurements.

ZX230CP TPA-P TDR is offered with 8" (20cm) long semi-flexible cable assemblies with SMA Plug or Jack connectors interfacing directly to scope probe or other cable assemblies, Please see ordering Information. Cable replacement or longer 16" ( 40cm ) cable assemblies can be purchased, see "**Package Includes**". ZX230CP TPA-P TDR USB electrical test board is characterized using the supplied 8" (20cm) long cable assemblies. Tektronix DPO71604C scope using P7313SMA differential probes requires -P ( SMA Plug cable assembly). Keysight ( Agilent ) DSA164A Infiniium scope using N2800A probes + differential probe leads N5444A,

ZX230CP is shipped with cable assembly, ZXJS1173-230C, enabling full access to VBUS, GND, CC1, CC2, SBU1 and SBU2 signals. The cable assembly includes pin socket mating with any standard pin header ( 0.025" / 0.63mm SQ pin header ).

**Application:** Full USB 3.1 electrical compliance test board – Electrical measurement of Clock Jitter, eye diagram, single ended & differential ended signaling.

**Supported bandwidth:** Supporting SuperSpeed Gen1 ( 2.5GHz ) SuperSpeed Gen2 ( 5GHz ) and future 20Gbps ( 10GHz ) Nyquist frequencies, bandwidth.

**Mates with :** **USB Type C Socket ( receptacle )** connector.  
**SMA connectors** mates with standard SMA cable assembly , see ordering information  
**Wire assembly mates with** any 0.025" (0.63mm ) SQ post header length 0.23" ( 5.83mm )

**Test procedure:** [ZXAN-USB-C-Test-Procedure](#) application note provides USB test procedure.

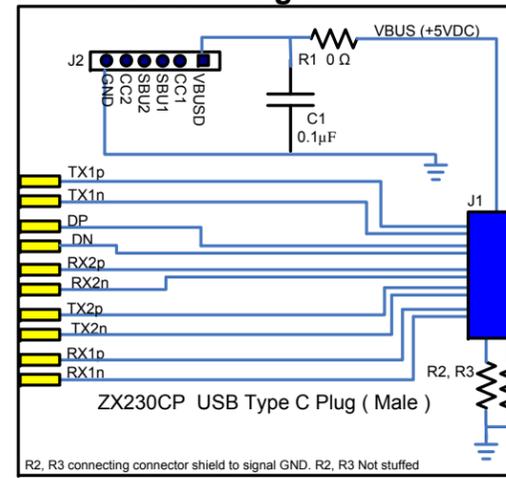
**Test Record:** coming soon

**Package includes:**

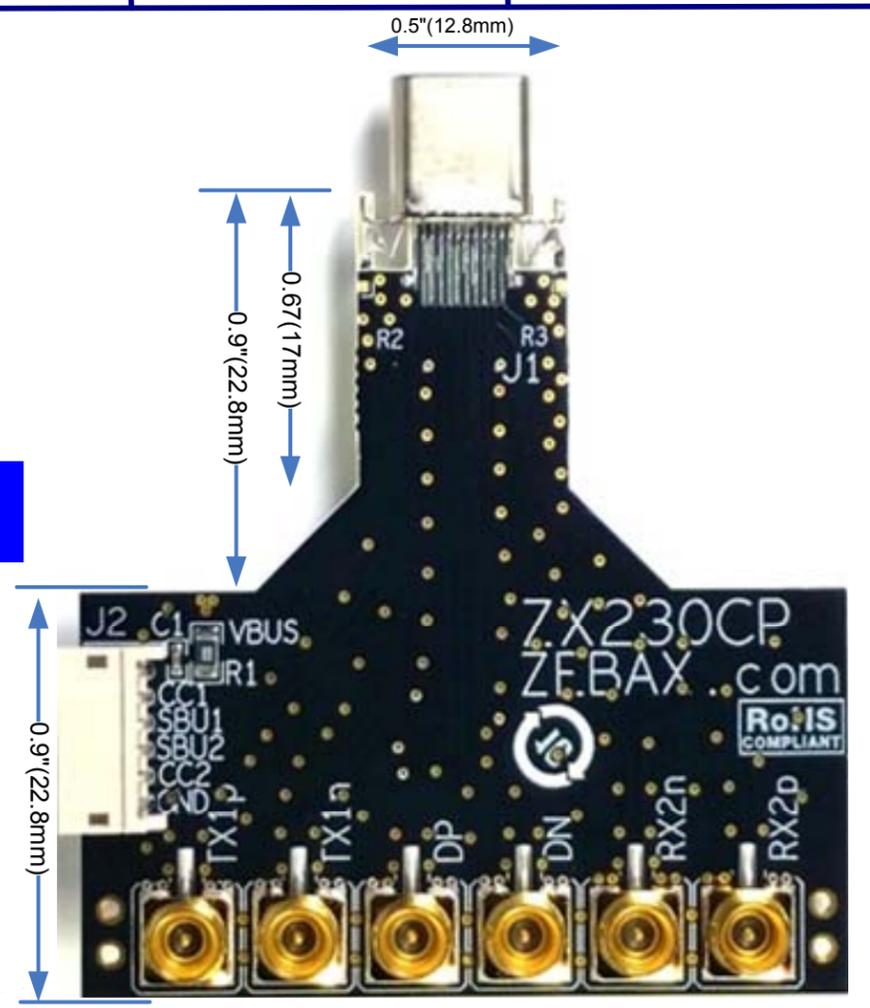
Item	Part number	Quantity	Description
1	ZX230CP	1	USB Type C TPA-P test module
2	ZX00010308R-US	1	Complete set (10pc ) of USB 8" (20cm) long coax cable assemblies, SMA Jack.
	or ZX00020308R-US	1	or SMA Plug – Please see ordering information.
3	ZXJS1173-230C	1	Wire assembly for accessing J2 signals, Note 1
4	ZX00WT-09NM	0	SMA Wrench Torque 5/16" (8mm)

**Notes:** 1- Supplied extension wire assembly enables to interface test equipment or 3<sup>rd</sup> party modules.

**Circuit Diagram**



**S-Parameter, Insertion loss:**  
See Page 2



**Ordering INFO:**  
Part Number  
ZX230CP-X options  
J : SMA Jack ( Standard )  
P : SMA Plug connector

**Note**  
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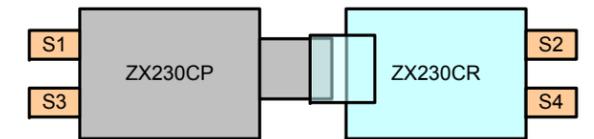
<b>ZEBAX TECHNOLOGIES</b> SANTA CRUZ, CA U.S.A ( 831 ) 2 2 2 - 0717 WWW.ZEBAX.COM		
SPECIFIED DIMENSIONS ARE INCHES (MM). ROHS COMPLIANT	<b>ASSEMBLY DRAWING</b>	
	<b>ITEM: ZX230CP</b>	
<b>DESCRIPTION: USB 3.1 Type C Plug TPA-P electrical test board breakout adapter Gen1 Gen2 10GHz</b>		
<b>CHECKED:</b> M. MARINA	<b>DRAWN:</b> SLAVIK	<b>REVISION: 1.0</b> SHEET 1 OF 2

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**Product Name:** ZX230CP USB type C TPA-P TDR electrical test board breakout adapter for USB 3.1 electrical compliance cont's

**S-Parameter, Insertion loss:** The following insertion loss measurements were obtained using Agilent NA with the following test case:

- 1- ZX230CP mating with ZX230CR at USB type C connector.
- 2- NT interfacing with the supplied SMA 8" cable assembly.



**Test network :** ZX230CP/CR Plug and Receptacle via the supplied SMA cable assembly

S12 : TX1+ / TX2+ / RX1+ / RX2+ / DP  
S34: TX1- / TX2- / RX1- / RX2- / DN

Signal Pairs	Insertion Loss at USB Gen1 Gne2 Nyquist frequencies (dB)				
	0.626GHz	1.25GHz	2.5GHz	5.0GHz (Gen2)	7.5Hz
RX1-P/N	-0.70	-0.88	-2.52	-4.63	-5.61
RX2-P/N	-0.60	-1.25	-1.17	-4.23	-3.70
TX1-P/N	-0.80	-1.25	-1.20	-4.19	-4.34
TX2-P/N	-1.10	-0.87	-2.63	-4.33	-5.85
DP/DN	-1.30	-1.44	-4.03	-6.65	-4.20

All values are dB

**S-Parameter files:** ZX230CX-CR-CP – It is .7z file. It consists of 5 .s4p files.

**SMA Cable Assembly** is semi-flexible coax cable with maximum bends of 35mm. Please do not over exert beyond the cable's tolerance.

**Pinouts:** USB Type C Plug, and J2 signal assignments listed below

USB Type C (Plug)

Labeled Coax	Connector		Labeled Coax
	Top	Bottom	
J2.6 GND	A1	B12	J2.6 GND
<b>TX1p</b>	A2	B11	<b>RX1p</b>
TX1n	A3	B10	RX1n
J2.6 VBUS	A4	B9	J2.6 VBUS
J2.2 CC1	A5	B8	J2.4 SBU2
<b>DP</b>	A6		
<b>DN</b>	A7		
J2.3 SBU1	A8	B5	J2.5 CC2-VCONN
J2.6 VBUS	A9	B4	J2.6 VBUS
RX2n	A10	B3	TX2n
<b>RX2p</b>	A11	B2	<b>TX2p</b>
J2.6 GND	A12	B1	J2.6 GND

J2.x signals are accessible on J2 connector

J2	
Pin	Function
1	VBUS
2	CC1
3	SBU1
4	SBU2
5	CC2-VCONN
6	GND

Complete set of USB 8" (20cm) long coax cable assemblies, SMA type Jack is shown – Part Number ZX00010308R-US  
Note: SMA end part of the cables are shown



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