

Product Name: ZX122VBMA-x – PCISIG M.2 NGFF passive breakout adapter module

Product Description: ZX122VBMA-x is PCISIG M.2 ( NGFF ) breakout adapter providing access to all PCISIG M.2 signals. It is designed to be placed in between Host and Target for real-time test and measurements. ZX122VBMA-x is breakout adapter designed for Test & Measurement , signal integrity , characterization , test and debug of any PCISIG M.2 design via onboard 0405 SMD shunt landing pads.

ZX122VBMA-x features:

- 1- Provides access to ALL PCISIG signals via onboard 0402 SMD shunt packages, ( 67 signals on single M.2 Key design ).
- 2- Each 0402 SMD shunt package may be cut and redirected to another signal ( onboard or offboard ) for test and debug.
- 3- Ideal breakout module for manufacturing / development loopback test.
- 4- Listed number adjacent to each 0402 SMD shunt package represents the PCISIG M.2 connector's pin number.
- 5- All traces are 50 Ohms impedance controlled with exceptional signal integrity & crosstalk.
- 6- Four layers PCB design, inner layers are GND planes with direct connection to GND stitching vias & top/bottom GND fills.
- 7- Accessible GND Exposed Copper, EP, enabling ease of access for test & measurement.
- 8- Mates with any Key ID : B or M on Host or Device / DUT. The ZX122VBMA-x may be used as M.2 key ID **conversion** as listed below:

- a) ZX122VBMA-B Converts Host M.2 Key ID “M” to Device M.2 Key ID “B”
- b) ZX122VBMA-M Converts Host M.2 Key ID “B” to Device M.2 Key ID “M”

9- Probing wire , ZX00BC2PH30, is offered to applications requiring scope probe interface. See ordering information

Electrical: Insertion loss > -1.6dB @6GHz  
Trace impedance: 50 Ω  
Operating Temperature: -65°C to +170°C  
M.2 Edge Connector type ( J1 ) : see Ordering INFO  
Mates with: see Ordering INFO  
Plating: Gold 100U  
M.2 Receptacle ( J2 ) :  
Key Type: see Ordering INFO  
Height: 0.16" (4.2mm ) – See Figure 4  
Spacer : 0.1" (2.54mm) – See Figure 4  
Plating: Gold 100U  
Current per pin: 0.5A ( maximum)  
Shunt:  
Package: 0402 SMD

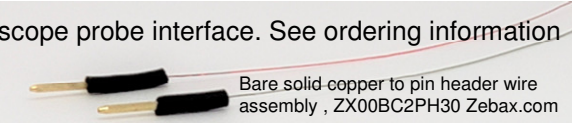
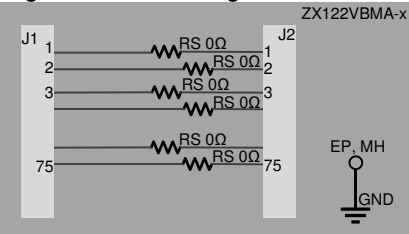
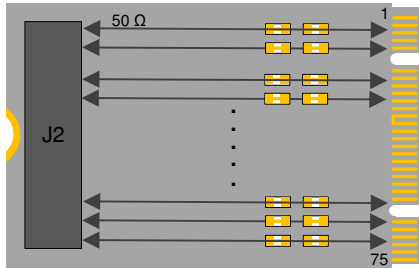


Figure 1 Circuit diagram



RS - Shunt 0 Ω resistor , 0402 SMD package  
50 Ω : All traces are designed 50 Ω trace impedance control  
J1 : M.2 edge connector  
J2 : M.2 receptacle connector  
GND – Inner GND planes as well as GND stitching vias are available at the Exposed Copper, EP, and the Mounting Hole, MH.

Figure 2 – ZX122VBMA-x block diagram



Shunt 0402 SMD package 0 Ω  
50 Ω : All traces are designed 50 Ω trace impedance control  
J2 : PCISIG M.2 receptacle connector – See Ordering Information for details

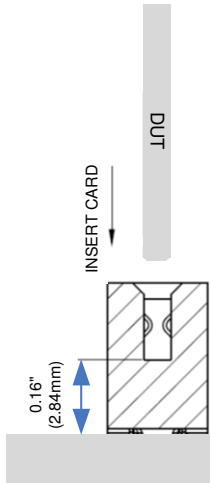
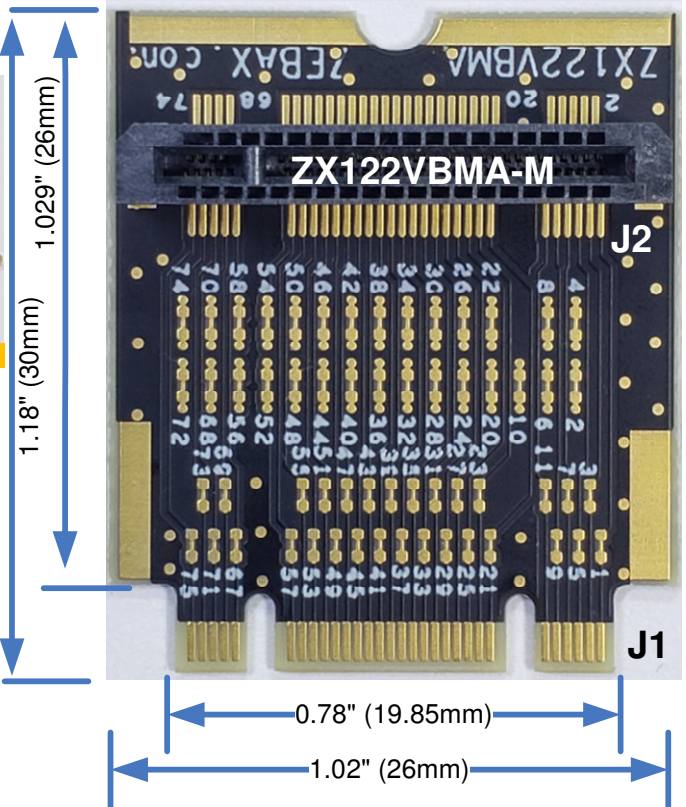
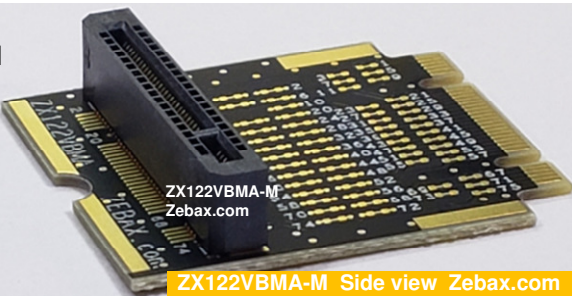


Figure 3 – ZX122VBMA-x typical application

Figure 4- 0402 SMD shunt – not scaled  
Typical signal connection: 0402 SMD Package  
Break signal path:

Application: Bringup, testing, emulation, development, modular design evaluations of PCISIG M.2 ( NGFF – Next Generation Form Factor ). Manufacturing - Development loopback test. M.2 PCISIG module design test characterization. M.2 key conversion DP WIFI GPS GYRO Compass BT FM sensor module Add-in Card DisplayPort SDIO WWAN PCIe-based SSD SATA-based PCIe / USB 3.1 SSIC Gen1-Based Socket 1 2 3. NGSFF NF1 EDSFF interface solution.

Mates with : Any standard M.2 Key ID M NGFF PCISIG connectors on host and device.

Ground Access : ZX122VM's exposed copper is the reference GND. The ZX122VBMA-x is 4 layers PCB design where the 2 inner layers are ground reference planes. The Ground stitching vias, the top / bottom ground fills & the inner ground planes are all interconnected, hence referred as “GND”.

For improved signal integrity, it is recommended to follow the below listed steps:

- 1- Ensure the Mounting Screw has full contact with ZX122VBMA-x exposed copper, GND.
- 2- Connect One of the exposed copper to system GND.

Compliance:

ISO2001 certified  
RoHs - Lead Free  
EU RoHS2  
UL E111594 document  
ELV- Vehicle Directive ( Directive 2000/EC)  
European Union Directive ( 203/11/EC )  
Halogen Free per IEC-61249-2.21 : 2003  
RoHs Directive 2011/65/EU  
WEEE Directive ( 2012/12/EU)

Certificate of Compliance for Radioactive substances  
Certificate of Compliance for Asbestos  
Certificate of Compliance for Ozone Depleting Substances, ODS  
Certificate REACH SVHC  
Certificate of Compliance RoHS\_EN\_CoC

Ordering Information:

Part number	J1 Key ID	J2 Key ID	Description
ZX122VBMA-M	M,B	Key M	PCISIG M.2 passive breakout adapter
ZX122VBMA-B	M,B	Key B	PCISIG M.2 passive breakout adapter

ZX00BC2PH30 30AWG Bare Copper wire to pin header wire assembly

ZX00BC2PH30 site page for viewing ZX00BC2PH30 wire assembly

Note ALL ZEBAX products are RoHS compliant and Lead Free unless otherwise indicated.

**ZEBAX TECHNOLOGIES**  
SANTA CRUZ, CA U.S.A (831) 222-0717  
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SPECIFIED DIMENSIONS ARE INCHES (MM). ROHS COMPLIANT		ASSEMBLY DRAWING ITEM: ZX122VBMA-x M.2 NGFF PCISIG	
DESCRIPTION: PCISIG M.2 NGFF passive breakout adapter module keys M and B		CHECKED: M. MARINA	REVISION: 1.0 SHEET: 1 OF 1
		DRAWN: SONYA	

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