

Surface-Mount Crystal



FEATURES

- Size: 2.0 x 1.2 x 0.6 (mm)
- Ultra small SMD package
- Tuning fork crystal
- Frequency: 32.768 kHz
- Tape and reel packaging
- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912



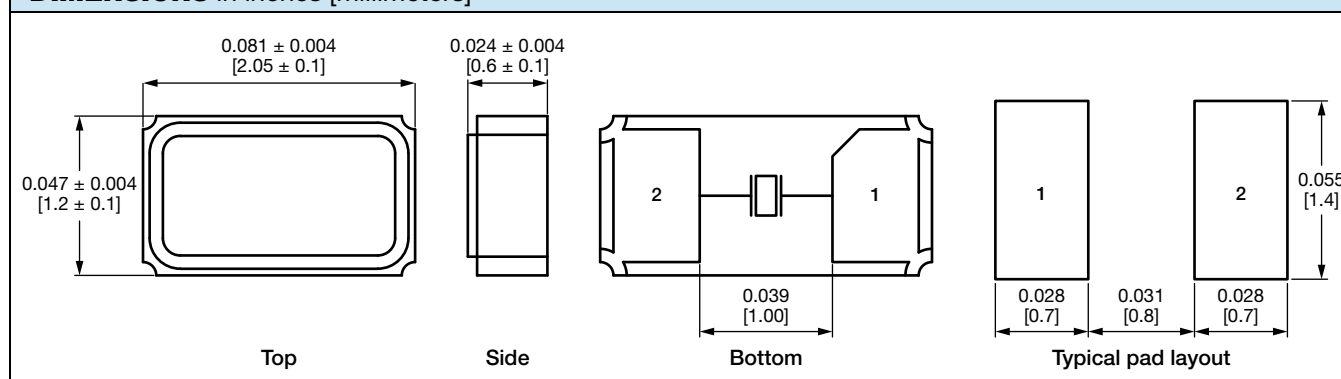
RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

The XT21 series is an ultra miniature package crystal with dimensions 2.0 mm x 1.5 mm x 0.6 mm. It is primarily used in miniature applications such as mobile communications, gaming, bluetooth, wearable health products, portable test equipment, and size limited products.

STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Frequency range	F_O		kHz	-	32.768	-
Frequency tolerance	$\Delta F/F_O$	At 25 °C	ppm	-	± 20	-
Turnover temperature			°C	-	25 ± 5	-
Temperature coefficient			ppm/°C ²	-	-0.036 ± 0.005	-
Operating temperature range	T_{OPR}	Standard	°C	0	-	+70
		Optional	°C	-40	-	+85
Storage temperature range	T_{STG}		°C	-55	-	+125
Shunt capacitance	C_0		pF	-	-	1.5
Load capacitance	C_L	Customer specified	pF	-	7, 9, or 12.5	-
Insulation resistance	I_R	100 V _{DC}	MΩ	500	-	-
Equivalent series resistance	ESR		kΩ	-	-	80
Drive level	D_L		μW	-	-	0.5
Aging	F_a	At 25 °C, per year	ppm	-3	-	+3

DIMENSIONS in inches [millimeters]





PART NUMBER CONFIGURATIONS (to be used on all New Designs)

X	T	2	1	0	9	H	G	R	X	X	3	2	K	7	6	E
Crystal		Package / Size		Load. Cap.		Pack Code	Freq. Tolerance	Operating Temp.		Options	Frequency					Lead (PB)-free
		21		09 = std. SE = series		H = tape and reel	G = ± 30 ppm E = ± 25 ppm H = ± 20 ppm I = ± 15 ppm J = ± 10 ppm	S = -10 °C to +70 °C R = -40 °C to +85 °C		X = no options Contact factory for available options	Use "K" as decimal place holder Frequency must be five digits - complete with "0" at the end					E = lead (Pb)-free

PART MARKING

Line 1:	V250 (frequency)
Line 2:	YWWA (date code / factory)



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.