

## Low Profile SMD Type Crystal Units



### FEATURES

- Low cost
- Industry standard
- Wide frequency range
- Excellent aging
- Surface mount
- Compliant to RoHS directive 2002/95/EC


**RoHS  
COMPLIANT**

This part is a miniature AT cut strip crystal unit packaged for surface mounting.

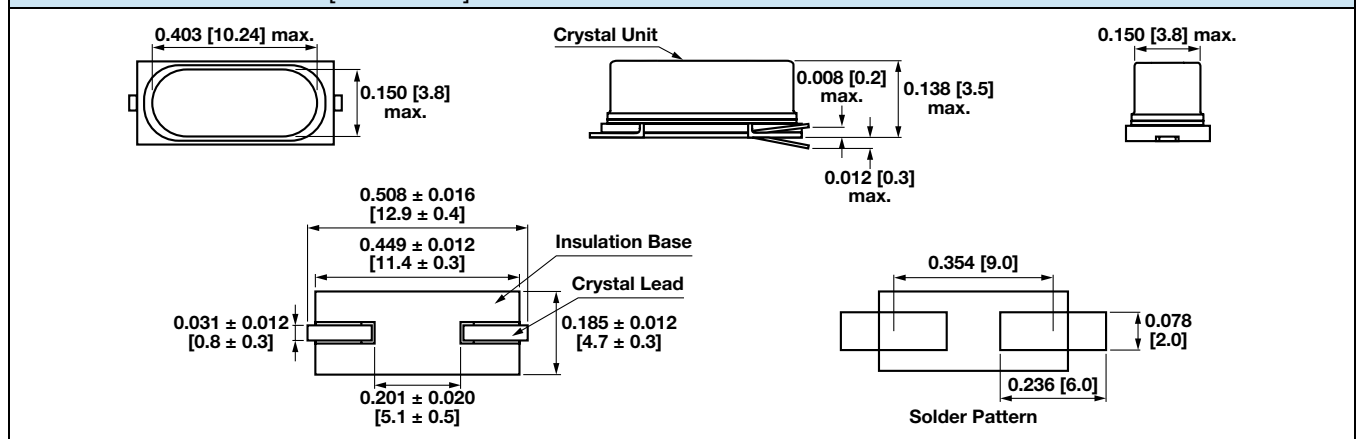
### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Frequency range	$F_0$		MHz	3.200	-	66.000
Frequency tolerance	$\Delta F/F_0$	at 25 °C	ppm	$\pm 10$	$\pm 30$	$\pm 50$
Temperature stability	$T_C$	ref. to 25 °C	ppm	$\pm 10$	$\pm 30$	$\pm 50$
Operating temperature range	$T_{OPR}$		°C	- 20	-	+ 70
Storage temperature range	$T_{STG}$		°C	- 40	-	+ 85
Shunt capacitance	$C_0$		pF	-	-	7
Load capacitance	$C_L$	customer specified	pF	10	-	series
Insulation resistance	$I_R$	100 V <sub>DC</sub>	M $\Omega$	500	-	-
Drive level	$D_L$		$\mu$ W	-	100	500
Aging	$F_a$	at 25 °C, per year	ppm	- 5	-	+ 5

### EQUIVALENT SERIES RESISTANCE (ESR) AND MODE OF VIBRATION (MODE)

FREQUENCY RANGE (MHz)	MAX. ESR ( $\Omega$ )	MODE	FREQUENCY RANGE (MHz)	MAX. ESR ( $\Omega$ )	MODE
3.200 to 4.499	150	fundamental/AT	9.000 to 9.999	60	fundamental/AT
4.500 to 5.999	120	fundamental/AT	10.000 to 12.999	50	fundamental/AT
6.000 to 6.999	100	fundamental/AT	13.000 to 29.999	40	fundamental/AT
7.000 to 7.999	90	fundamental/AT	30.000 to 66.000	80	3 <sup>rd</sup> overtone
8.000 to 8.999	80	fundamental/AT			

### DIMENSIONS in inches [millimeters]





ORDERING INFORMATION				
<b>XT49ML</b>	<b>R</b>	<b>-20</b>	<b>20M</b>	<b>e2</b>
MODEL	OTR blank = standard R = - 40 °C to + 85 °C	LOAD blank = series -20 = 20 pF -30 = 30 pF -32 = 32 pF	FREQUENCY/MHz	JEDEC LEAD (Pb)-FREE STANDARD

GLOBAL PART NUMBER												
X	T	9	M	L	2	0	A	N	A	2	0	M
MODEL					LOAD		PACKAGE CODE	OPTION		FREQUENCY		

GLOBAL PART NUMBERING												
X	T	9	S	2	0	A	N	A	4	0	M	
<b>MODEL NUMBER</b>				<b>LOAD CAPACITANCE</b>		<b>PACKAGE CODE</b>		<b>OPTIONS</b>		<b>FREQUENCY</b>		
XT9U = XT49U XT9S = XT49S XT9SL = XT49SL XT9M = XT49M XT9ML = XT49ML XTU1 = XTUM1				18 = 18 pF 20 = 20 pF NL = series to be specified by customer		<b>Tape and reel</b> G = RF5 (XT9U, XT9S, XT9SL) H = RF7 (XT9M, XT9ML)  <b>Bulk</b> A = B04 (all models)		NA = no additional options RR = extended temperature of - 40 °C to + 85 °C Contact factory for all other options		4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency		
Example: XT49S-20 40M												
X	T	2	6	T	T	A	3	2	K	7	6	8
<b>MODEL NUMBER</b>				<b>OPERATING TEMPERATURE (OTR)</b>		<b>PACKAGE CODE</b>		<b>FREQUENCY</b>				
XT26T = XT26T XT38T = XT38T				T = - 10 °C to + 60 °C		<b>Bulk</b> A = B04 (all models)		32K768 = 32.768 kHz K is used as decimal place holder in frequency				
Example: XT26T 32.768K												
X	T	5	7	2	0	A	4	0	M			
<b>MODEL NUMBER</b>				<b>LOAD CAPACITANCE</b>		<b>PACKAGE CODE</b>		<b>FREQUENCY</b>				
XT57 = XT57C XT46 = XT46C XT36 = XT36C				18 = 18 pF 20 = 20 pF NL = series to be specified by customer		<b>Tape and reel</b> H = RF7  <b>Bulk</b> A = B04 (all models)		4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency				
Example: XT57C-20 40M												



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