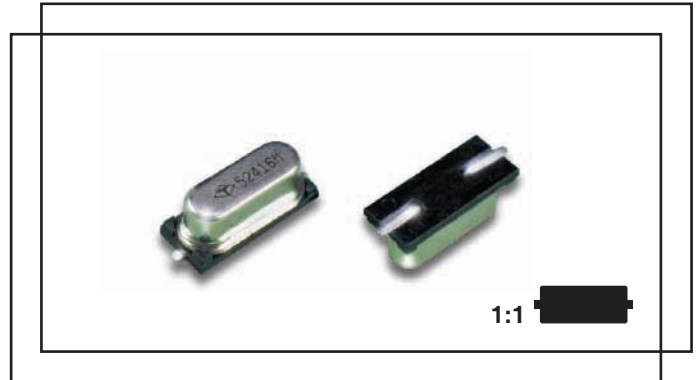


## XP / XJ smd crystal (3.50 ~ 90)MHz

- # low profile package
- # AT and BT cut
- # low cost
- # standard and custom frequencies
- # RoHS compliant



### Electrical specification

**Case style**
**Frequency range**
**Adjustment tolerance**
**Temperature tolerance**
**Operating temperature**
**Storage temperature**
**Load**
**Shunt capacitance  $C_0$** 
**Drive level**
**Q factor**
**Ageing**
**Insulation resistance**

XP: height 2.35mm, XJ: height 3.60mm  
 (3.50 ~ 90.0)MHz, fundamental to 32.0MHz  
 from  $\pm 5$ ppm at +25°C, frequency dependent  
 from  $\pm 5$ ppm, frequency and temperature range dependent  
 (-10 +60)°C ~ (-40 +85)°C  
 (-40 +85)°C  
 customer specified  
 7.0pF max.  
 10 $\mu$ W ~ 5milli.W  
 80,000 typical  
 $\pm 5$ ppm first year max.  
 500Meg. ohm min. at+100Vd.c.

### Ordering information

The XP and XJ type of smd crystals may be specified within their available frequency range together with load capacitance, adjustment tolerance, temperature tolerance and temperature range with each parameter coded as follows ....

**Example .... XJ crystal, 10.00MHz, load 20pF,  $\pm 20$ ppm at +25°C,  $\pm 50$ ppm(-10 +60)°C**

**TFC PART NUMBER .... XJ 10.00M H C G I**

'XJ' .... crystal series: XJ standard size (XP also available)

'10.00M' .... frequency: 10.00M = 10.00MHz, frequency range from (3.50 ~ 90)MHz

'H' .... load capacitance: H = 20pF

'C' .... adjustment tolerance at +25°C: C =  $\pm 20$ ppm

'G' .... temperature tolerance: G =  $\pm 50$ ppm

'I' .... temperature range: I = (-10 +60)°C

**Load capacitance .... C: 10pF, D: 12pF, E: 15pF, G: 18pF, H: 20pF, I: 30pF, J: 32pF, S: series**

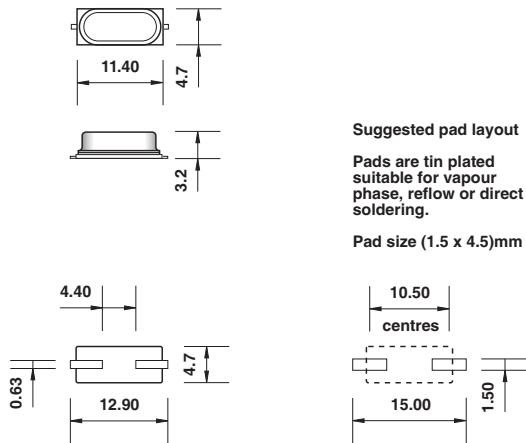
**Adjustment tolerance .... A:  $\pm 5$ ppm, B:  $\pm 10$ ppm, C:  $\pm 20$ ppm, E:  $\pm 30$ ppm, G:  $\pm 50$ ppm, H:  $\pm 100$ ppm, P:  $\pm 15$ ppm**

**Temperature tolerance .... A:  $\pm 5$ ppm, B:  $\pm 10$ ppm, C:  $\pm 20$ ppm, E:  $\pm 30$ ppm, G:  $\pm 50$ ppm, H:  $\pm 100$ ppm, P:  $\pm 15$ ppm**

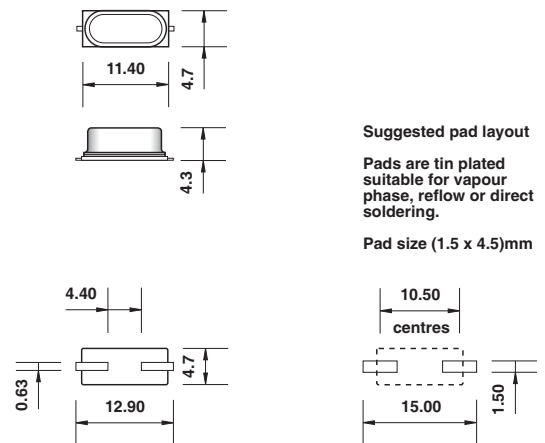
**Temperature range .... B: (0 +55)°C, I: (-10 +60)°C, C: (-20 +70)°C, L: (-40 +85)°C**

## XP / XJ smd crystal

### XP dimensions(mm)



### XJ dimensions(mm)



### ESR - equivalent series resistance

frequency range(MHz)	cut/mode	esr(Ω)
(3.50 ~ 4.0)	AT1	<140
(4.0 ~ 5.0)	AT1	<120
(5.0 ~ 6.0)	AT1	<80
(6.0 ~ 7.0)	AT1	<70
(7.0 ~ 9.0)	AT1	<45
(9.0 ~ 13.0)	AT1	<40
(13.0 ~ 16.0)	AT1	<35
(16.0 ~ 20.0)	AT1	<30
(20.0 ~ 24.0)	AT1	<25
(24.0 ~ 32.0)	AT3	<120
(32.0 ~ 80.0)	AT3	<80
(24.0 ~ 40.0)	BT1	<30