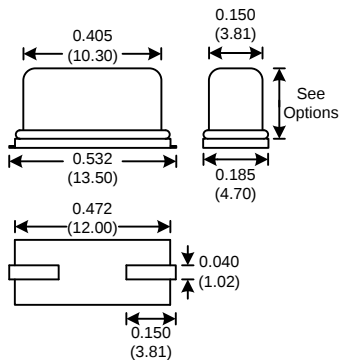




## CYSDxx Model

### Low Profile HC49S SMD Crystal



Dimensions inches (mm)  
All dimensions are maximum unless otherwise specified

| Resistance at series resonance |         |
|--------------------------------|---------|
| Freq. (MHz)                    | Max ESR |
| 3.579545 - 4.0                 | 150     |
| 4.1 - 4.9                      | 120     |
| 5.0 - 5.9                      | 100     |
| 6.0 - 11.9                     | 90      |
| 12.0 - 14.9                    | 70      |
| 15.0 - 30.0                    | 50      |
| 30.1 - 86.0                    | 100     |

Table 1



| Part number | Freq. (MHz) | CL     | Max ESR |
|-------------|-------------|--------|---------|
| CY3DMSMD    | 3.579545    | 18pF   | 150     |
| CY3JSMD     | 3.686400    | series | 150     |
| CY3JMSMD    | 3.686400    | 18pF   | 150     |
| CY3JNSMD    | 3.686400    | 20pF   | 150     |
| CY3ASMD     | 4.000       | series | 150     |
| CY3APSMD    | 4.000       | 20pF   | 150     |
| CY4ESMD     | 4.194304    | 12pF   | 120     |
| CY4DSMD     | 4.915200    | series | 120     |
| CY7ASMD     | 5.000       | series | 100     |
| CY7APSMD    | 5.000       | 20pF   | 100     |
| CY5BSMD     | 5.0688      | series | 100     |
| CY6BSMD     | 6.000       | series | 90      |
| CY6BPSMD    | 6.000       | 20pF   | 90      |
| CY8GSMD     | 8.000       | series | 90      |
| CY8GPSMD    | 8.000       | 20pF   | 90      |
| CY9BSMD     | 9.830400    | series | 90      |
| CY12ASMD    | 10.000      | series | 90      |
| CY11BSMD    | 11.059200   | series | 90      |
| CY11BPSMD   | 11.059200   | 20pF   | 90      |
| CY12BSMD    | 12.000      | series | 70      |
| CY12BPSMD   | 12.000      | 20pF   | 70      |
| CY14ASMD    | 14.318180   | series | 70      |
| CY14ACSM    | 14.318180   | 18pF   | 70      |
| CY14APSM    | 14.318180   | 20pF   | 70      |
| CY14BSMD    | 14.745600   | series | 70      |
| CY14BPSMD   | 14.745600   | 20pF   | 70      |
| CY15ASMD    | 15.000      | series | 50      |
| CY16BSMD    | 16.000      | series | 50      |
| CY16BPSMD   | 16.000      | 20pF   | 50      |
| CY19ASMD    | 18.000      | series | 50      |
| CY19BSMD    | 18.432      | series | 50      |
| CY19BPSMD   | 18.432      | 20pF   | 50      |
| CY20ASMD    | 19.660800   | series | 50      |
| CY20APSM    | 19.660800   | 20pF   | 50      |
| CY22ASMD    | 20.000      | series | 50      |
| CY22APSM    | 20.000      | 20pF   | 50      |
| CY24ASMD    | 24.000      | series | 50      |
| CY24APSM    | 24.000      | 20pF   | 50      |
| CY25ASMD    | 25.000      | series | 50      |

Frequency Range: 3.579545 MHz to 40 MHz (fund)  
27 MHz to 86 MHz (3<sup>rd</sup> O/T)  
Calibration Tolerance:  $\pm 50$ ppm (Standard p/n)  
(Option)  $\pm 10$ ppm to  $\pm 100$ ppm  
Frequency Stability:  $\pm 100$ ppm (Standard p/n)  
(Option)  $\pm 15$ ppm to  $\pm 100$ ppm  
Operating Temp. range: 0 to 70°C (Standard p/n)  
(Option) -20 to 70°C  
(Option) -40°C to 85°C

Storage Temp. range: -45°C to 90°C  
Shunt Capacitance: 7.0pF Max  
Drive level: 100uW Typical  
ESR: See table 1  
Aging: <3ppm 1<sup>st</sup> year Max  
Insulation Resistance: 500 Megaohms Min at 100Vdc

**\*\*Custom Designs Available\*\***

### Build Your Own P/N

CYSD X X X X X - Freq

| Frequency Tolerance at 25°C                                                                                                 | Frequency Stability over Temp Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Load Capacitance           | Options                      |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|-------------------------------|----------------------------|------------------------------|----------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------|
| 1 $\pm 10$ ppm<br>2 $\pm 15$ ppm<br>3 $\pm 20$ ppm<br>4 $\pm 25$ ppm<br>5 $\pm 30$ ppm<br>6 $\pm 50$ ppm<br>7 $\pm 100$ ppm | <table border="1"> <tr> <td>B <math>\pm 15</math> ppm (0 to 70°C)</td> <td>J <math>\pm 30</math>ppm (-20 to 70°C)</td> </tr> <tr> <td>C <math>\pm 20</math> ppm (0 to 70°C)</td> <td>K <math>\pm 50</math> ppm (-20 to 70°C)</td> </tr> <tr> <td>D <math>\pm 25</math> ppm (0 to 70°C)</td> <td>L <math>\pm 100</math> ppm (-20 to 70°C)</td> </tr> <tr> <td>E <math>\pm 30</math> ppm (0 to 70°C)</td> <td>M <math>\pm 20</math> ppm (-40 to 85°C)</td> </tr> <tr> <td>F <math>\pm 50</math> ppm (0 to 70°C)</td> <td>N <math>\pm 25</math> ppm (-40 to 85°C)</td> </tr> <tr> <td>G <math>\pm 100</math> ppm (0 to 70°C)</td> <td>O <math>\pm 30</math> ppm (-40 to 85°C)</td> </tr> <tr> <td>H <math>\pm 15</math> ppm (-20 to 70°C)</td> <td>P <math>\pm 50</math> ppm (-40 to 85°C)</td> </tr> <tr> <td>I <math>\pm 20</math> ppm (-20 to 70°C)</td> <td>Q <math>\pm 100</math> ppm (-40 to 85°C)</td> </tr> </table> | B $\pm 15$ ppm (0 to 70°C) | J $\pm 30$ ppm (-20 to 70°C) | C $\pm 20$ ppm (0 to 70°C) | K $\pm 50$ ppm (-20 to 70°C) | D $\pm 25$ ppm (0 to 70°C) | L $\pm 100$ ppm (-20 to 70°C) | E $\pm 30$ ppm (0 to 70°C) | M $\pm 20$ ppm (-40 to 85°C) | F $\pm 50$ ppm (0 to 70°C) | N $\pm 25$ ppm (-40 to 85°C) | G $\pm 100$ ppm (0 to 70°C) | O $\pm 30$ ppm (-40 to 85°C) | H $\pm 15$ ppm (-20 to 70°C) | P $\pm 50$ ppm (-40 to 85°C) | I $\pm 20$ ppm (-20 to 70°C) | Q $\pm 100$ ppm (-40 to 85°C) | 1 Series<br>2 14 pF<br>3 16 pF<br>4 18 pF<br>5 20 pF<br>6 22 pF<br>7 25 pF<br>8 32 pF | Can Height (Max)<br>A 3.0mm<br>B 4.0mm<br>C 5.0mm |
| B $\pm 15$ ppm (0 to 70°C)                                                                                                  | J $\pm 30$ ppm (-20 to 70°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| C $\pm 20$ ppm (0 to 70°C)                                                                                                  | K $\pm 50$ ppm (-20 to 70°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| D $\pm 25$ ppm (0 to 70°C)                                                                                                  | L $\pm 100$ ppm (-20 to 70°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| E $\pm 30$ ppm (0 to 70°C)                                                                                                  | M $\pm 20$ ppm (-40 to 85°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| F $\pm 50$ ppm (0 to 70°C)                                                                                                  | N $\pm 25$ ppm (-40 to 85°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| G $\pm 100$ ppm (0 to 70°C)                                                                                                 | O $\pm 30$ ppm (-40 to 85°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| H $\pm 15$ ppm (-20 to 70°C)                                                                                                | P $\pm 50$ ppm (-40 to 85°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |
| I $\pm 20$ ppm (-20 to 70°C)                                                                                                | Q $\pm 100$ ppm (-40 to 85°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                              |                            |                              |                            |                               |                            |                              |                            |                              |                             |                              |                              |                              |                              |                               |                                                                                       |                                                   |

| Mode                                                      |
|-----------------------------------------------------------|
| 1 Fundamental 3.579545-40 MHz<br>3 3rd Overtone 27-86 MHz |

Example:

CYSD4F51C-20.000 =  $\pm 25$ ppm at 25°C,  $\pm 50$ ppm 0 to 70°C, 20pF Load Cap, Fundamental, 5.0mm, 20.000 MHz

Specifications subject to change without notice.

TD-021006 Rev.F

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