

**RoHS  
Compliant**

## HC-49/U

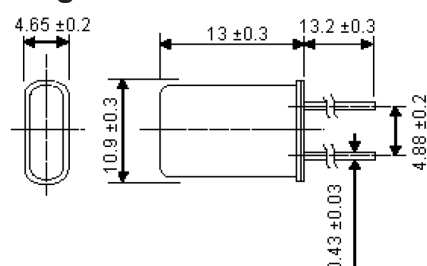


### Features and Applications

- General, industrial, microcontrollers
- Cost Effective
- Well established product
- Wide frequency range
- Superior resistance weld HC-49/U metal case

Supplied loose as standard. Taped product available to special order

### Diagram



Dimensions : Millimetres

### Specification Table

|                              |                                                |                   |                   |
|------------------------------|------------------------------------------------|-------------------|-------------------|
| Nominal Frequency Range      | 1.8 to 32 MHz                                  | 24 to 75 MHz      | 75 to 200 MHz     |
| Vibration Mode               | Fundamental (AT)                               | 3rd Overtone (AT) | 5th Overtone (AT) |
| Frequency Tolerance at 25°C  | ±20 or ±30ppm                                  |                   |                   |
| Temperature Stability        | ±30 or ±50ppm                                  |                   |                   |
| Operating Temperature Range  | -10°C to +60°C (Option : -20°C to +70°C)       |                   |                   |
| Storage Temperature Range    | -20°C to +70°C (Option : -30°C to +80°C)       |                   |                   |
| Load Capacitance             | 8 pF to 32 pF or series                        |                   |                   |
| Equivalent Series Resistance | See ESR table below                            |                   |                   |
| Shunt Capacitance            | 5pF maximum (≤18 MHz) or 7pF maximum (>18 MHz) |                   |                   |
| Drive Level                  | 200μW maximum (≤5 MHz) 100μW maximum (>5 MHz)  |                   |                   |
| Insulation Resistance        | 500MΩ minimum at 100V DC                       |                   |                   |
| Aging                        | ±5ppm per year                                 |                   |                   |

### ESR Table

| Case            | Vibration | HC 49U    |
|-----------------|-----------|-----------|
| Frequency       | Mode      | Ω Maximum |
| 1 - 1.8MHz      | F         | 3,000     |
| 1.8 - 2MHz      | F         | 500       |
| 2.01 - 2.399MHz | F         | 450       |
| 2.4 - 2.99MHz   | F         | 300       |
| 3 - 3.5MHz      | F         | 150       |

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## ESR Table

| Case           | Vibration | HC 49U    |
|----------------|-----------|-----------|
| Frequency      | Mode      | Ω Maximum |
| 3.5 - 3.99 MHz | F         | 90        |
| 4 - 4.99 MHz   | F         | 80        |
| 5 - 5.99 MHz   | F         | 70        |
| 6 - 6.99 MHz   | F         | 60        |
| 7 - 7.99 MHz   | F         | 50        |
| 8 - 9.99 MHz   | F         | 40        |
| 10 - 13.99 MHz | F         | 35        |
| 14 - 23.99 MHz | F         | 25        |
| 24 - 25 MHz    | F / 3     | 25 / 50   |
| 25 - 30 MHz    | F / 3     | 25 / 50   |
| 30 - 75 MHz    | 3         | 50        |
| 75 - 125 MHz   | 5         | 80        |
| 125 - 150 MHz  | 5         | 100       |
| 150 - 200 MHz  | 5         | 120       |

## Part Number Table

| Case  | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range<br>60 = -10 to +60<br>70 = -20 to +70 | Load Capacitance<br>pf<br>00 = Series | Vibration Mode<br>AT Cut<br>F = Fund<br>0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|-----------------------------|---------------------------------------------------------|---------------------------------------|------------------------------------------------------|-----------------|
| HC49U | 1.8432          | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1012        |
| HC49U | 2               | 50                        | 100                         | 60                                                      | 20                                    | ATF                                                  | XTL-1014        |
| HC49U | 2.4576          | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1017        |
| HC49U | 3.2768          | 20                        | 30                          | 60                                                      | 12                                    | ATF                                                  | XTL-1020        |
| HC49U | 3.579545        | 20                        | 50                          | 60                                                      | 20                                    | ATF                                                  | XTL-1021        |
| HC49U | 3.6864          | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1023        |
| HC49U | 3.6864          | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-1024        |
| HC49U | 4               | 20                        | 10                          | 70                                                      | 30                                    | ATF                                                  | XTL-1027        |
| HC49U | 4               | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1028        |
| HC49U | 4               | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-1029        |
| HC49U | 4.096           | 20                        | 20                          | 70                                                      | 30                                    | ATF                                                  | XTL-1031        |
| HC49U | 4.096           | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-1032        |
| HC49U | 4.194304        | 20                        | 30                          | 60                                                      | 12                                    | ATF                                                  | XTL-1033        |
| HC49U | 4.608           | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1037        |
| HC49U | 4.9152          | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1040        |

| Case  | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range<br>60 = -10 to +60<br>70 = -20 to +70 | Load Capacitance<br>pf<br>00 = Series | Vibration Mode<br>AT Cut<br>F = Fund<br>0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|-----------------------------|---------------------------------------------------------|---------------------------------------|------------------------------------------------------|-----------------|
| HC49U | 4.9152          | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-1041        |
| HC49U | 5               | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1043        |
| HC49U | 5.0688          | 20                        | 50                          | 60                                                      | 0                                     | ATF                                                  | XTL-1044        |
| HC49U | 6               | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1051        |
| HC49U | 6               | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-1053        |
| HC49U | 6.144           | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1055        |
| HC49U | 6.5536          | 20                        | 30                          | 60                                                      | 12                                    | ATF                                                  | XTL-1057        |
| HC49U | 7.3728          | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1059        |
| HC49U | 8               | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1062        |
| HC49U | 8               | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-1064        |
| HC49U | 10              | 20                        | 10                          | 70                                                      | 30                                    | ATF                                                  | XTL-1069        |
| HC49U | 10              | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1070        |
| HC49U | 11              | 20                        | 30                          | 60                                                      | 30                                    | ATF                                                  | XTL-1073        |
| HC49U | 11.0592         | 20                        | 30                          | 60                                                      | 20                                    | ATF                                                  | XTL-1074        |
| HC49U | 12              | 20                        | 30                          | 60                                                      | 30                                    | ATF                                                  | XTL-1079        |
| HC49U | 12.288          | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1081        |
| HC49U | 14.31818        | 20                        | 50                          | 60                                                      | 0                                     | ATF                                                  | XTL-1083        |
| HC49U | 14.7456         | 20                        | 30                          | 60                                                      | 30                                    | ATF                                                  | XTL-1087        |
| HC49U | 16              | 20                        | 30                          | 60                                                      | 30                                    | ATF                                                  | XTL-1089        |
| HC49U | 19.6608         | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1096        |
| HC49U | 20              | 20                        | 30                          | 60                                                      | 0                                     | ATF                                                  | XTL-1098        |
| HC49U | 22.1184         | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-1114        |
| HC49U | 24              | 20                        | 50                          | 60                                                      | 0                                     | ATF                                                  | XTL-1120        |
| HC49U | 32              | 20                        | 30                          | 60                                                      | 0                                     | ATF                                                  | XTL-1131        |

## HC-49/SM

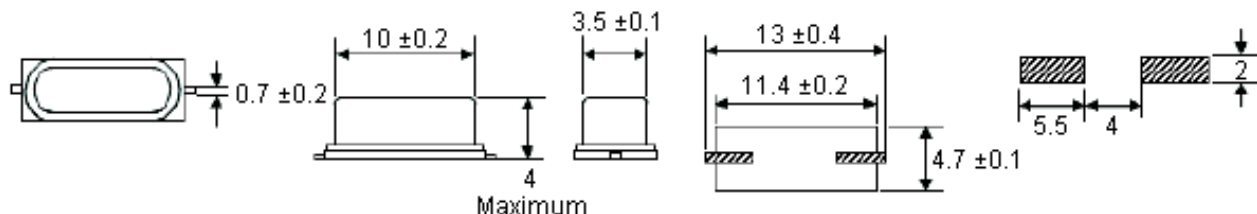


### Features and Applications

Designed for applications where board height is critical

- General, industrial, microcontrollers
- Cost effective
- Surface mount
- Low profile (4mm height)
- Superior resistance weld HC49/4SMX metal case
- Supplied taped and reeled

## Diagram



Dimensions : Millimetres

## Specification Table

|                              |                                                                         |                   |
|------------------------------|-------------------------------------------------------------------------|-------------------|
| Nominal Frequency Range      | 3.5 to 32 MHz                                                           | 24 to 70 MHz      |
| Vibration Mode               | Fundamental (AT)                                                        | 3rd Overtone (AT) |
| Frequency Tolerance at 25°C  | $\pm 20$ , $\pm 30$ or $\pm 50$ ppm (Options : $\pm 10$ , $\pm 15$ ppm) |                   |
| Temperature Stability        | $\pm 30$ or $\pm 50$ ppm                                                |                   |
| Operating Temperature Range  | 10°C to +60°C or -20°C to +70°C                                         |                   |
| Storage Temperature Range    | 20°C to +70°C or -30°C to +80°C                                         |                   |
| Load Capacitance             | 8pF to 33pF or series                                                   |                   |
| Equivalent Series Resistance | See ESR table below                                                     |                   |
| Shunt Capacitance            | 5pF maximum ( $\leq 18$ MHz) or 7pF maximum ( $> 18$ MHz)               |                   |
| Drive Level                  | 200µW maximum ( $\leq 5$ MHz) 100µW maximum ( $> 5$ MHz)                |                   |
| Insulation Resistance        | 500MΩ minimum at 100V DC                                                |                   |
| Aging                        | $\pm 5$ ppm per year                                                    |                   |

## ESR Table

| Case           | Vibration | HC 49U    |
|----------------|-----------|-----------|
| Frequency      | Mode      | Ω Maximum |
| 3.5 - 3.99 MHz | F         | 150       |
| 4 - 4.99 MHz   | F         | 120       |
| 5 - 5.99 MHz   | F         | 100       |
| 6 - 6.99 MHz   | F         | 80        |
| 7 - 7.99 MHz   | F         | 80        |
| 8 - 9.99 MHz   | F         | 70        |
| 10 - 13.99 MHz | F         | 50        |
| 14 - 23.99 MHz | F         | 40        |
| 24 - 25 MHz    | F / 3     | 40 / 80   |
| 25 - 30 MHz    | F / 3     | 40 / 80   |
| 30 - 70 MHz    | 3         | 80        |

## Part Number Table

| Case   | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range<br>60 = -10 to +60<br>70 = -20 to +70 | Load Capacitance pf<br>00 = Series | Vibration Mode<br>AT Cut<br>F = Fund<br>0.3 Overtone | Ant Part Number |
|--------|-----------------|---------------------------|-----------------------------|---------------------------------------------------------|------------------------------------|------------------------------------------------------|-----------------|
| HC49SM | 3.579545        | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5014        |
| HC49SM | 3.6864          | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5014        |
| HC49SM | 4               | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5021        |
| HC49SM | 4.9152          | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5025        |
| HC49SM | 6               | 30                        | 50                          | 60                                                      | 30                                 | ATF                                                  | XTL-5032        |
| HC49SM | 8               | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5038        |
| HC49SM | 10              | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5043        |
| HC49SM | 11.0592         | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5048        |
| HC49SM | 12              | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5050        |
| HC49SM | 16              | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5055        |
| HC49SM | 20              | 30                        | 50                          | 60                                                      | 16                                 | ATF                                                  | XTL-5062        |

## HC-49/S



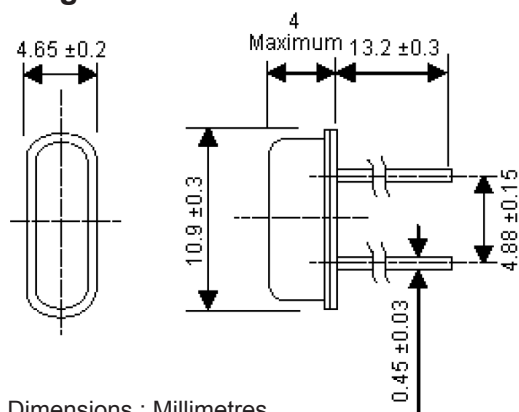
### Features and Applications

Designed for applications where board height space is critical

- General, industrial, microcontrollers
- Cost effective
- Surface mount
- Low profile (4mm height)
- Superior resistance weld HC49/4H metal case

Supplied loose as standard. Taped product available to special order

### Diagram



Dimensions : Millimetres

## Specification Table

|                              |                                                |                   |
|------------------------------|------------------------------------------------|-------------------|
| Nominal Frequency Range      | 3.5 to 32 MHz                                  | 24 to 70 MHz      |
| Vibration Mode               | Fundamental (AT)                               | 3rd Overtone (AT) |
| Frequency Tolerance at 25°C  | ±20, ±30 or ±50ppm (Options : ±10ppm, ±15ppm)  |                   |
| Temperature Stability        | ±30ppm or ±50ppm                               |                   |
| Operating Temperature Range  | -10°C to +60°C (Option : -20°C to +70°C)       |                   |
| Storage Temperature Range    | -20°C to +70°C (Option : -30°C to +80°C)       |                   |
| Load Capacitance             | 8 pF to 32 pF or series                        |                   |
| Equivalent Series Resistance | See ESR table below                            |                   |
| Shunt Capacitance            | 5pF maximum (≤18 MHz) or 7pF maximum (>18 MHz) |                   |
| Drive Level                  | 200μW maximum (≤5 MHz) 100μW maximum (>5 MHz)  |                   |
| Insulation Resistance        | 500MΩ minimum at 100V DC                       |                   |
| Aging                        | ±5ppm per year                                 |                   |

## ESR Table

| Case           | Vibration | HC 49U    |
|----------------|-----------|-----------|
| Frequency      | Mode      | Ω Maximum |
| 3.5 - 3.99 MHz | F         | 150       |
| 4 - 4.99 MHz   | F         | 120       |
| 5 - 5.99 MHz   | F         | 100       |
| 6 - 6.99 MHz   | F         | 80        |
| 7 - 7.99 MHz   | F         | 80        |
| 8 - 9.99 MHz   | F         | 70        |
| 10 - 13.99 MHz | F         | 50        |
| 14 - 23.99 MHz | F         | 40        |
| 24 - 25 MHz    | F / 3     | 40 / 80   |
| 25 - 30 MHz    | F / 3     | 40 / 80   |
| 30 - 70 MHz    | 3         | 80        |

## Part Number Table

| Case  | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range<br>60 = -10 to +60<br>70 = -20 to +70 | Load Capacitance<br>pf<br>00 = Series | Vibration Mode<br>AT Cut<br>F = Fund<br>0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|-----------------------------|---------------------------------------------------------|---------------------------------------|------------------------------------------------------|-----------------|
| HC49S | 3.579545        | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-3012        |
| HC49S | 3.6864          | 30                        | 50                          | 70                                                      | 30                                    | ATF                                                  | XTL-3015        |
| HC49S | 4               | 20                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-3018        |
| HC49S | 4.194304        | 30                        | 50                          | 60                                                      | 30                                    | ATF                                                  | XTL-3024        |

| Case  | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range<br>60 = -10 to +60<br>70 = -20 to +70 | Load Capacitance pf<br>00 = Series | Vibration Mode<br>AT Cut<br>F = Fund<br>0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|-----------------------------|---------------------------------------------------------|------------------------------------|------------------------------------------------------|-----------------|
| HC49S | 4.433619        | 30                        | 50                          | 60                                                      | 20                                 | ATF                                                  | XTL-3026        |
| HC49S | 4.9152          | 30                        | 50                          | 70                                                      | 30                                 | ATF                                                  | XTL-3028        |
| HC49S | 6               | 30                        | 50                          | 60                                                      | 30                                 | ATF                                                  | XTL-3035        |
| HC49S | 7.3728          | 15                        | 30                          | 60                                                      | 18                                 | ATF                                                  | XTL-3039        |
| HC49S | 7.68            | 30                        | 50                          | 60                                                      | 30                                 | ATF                                                  | XTL-3042        |
| HC49S | 8               | 30                        | 50                          | 70                                                      | 30                                 | ATF                                                  | XTL-3044        |
| HC49S | 9.8304          | 30                        | 50                          | 60                                                      | 30                                 | ATF                                                  | XTL-3048        |
| HC49S | 10              | 30                        | 50                          | 70                                                      | 30                                 | ATF                                                  | XTL-3052        |
| HC49S | 11.0592         | 30                        | 50                          | 70                                                      | 30                                 | ATF                                                  | XTL-3060        |
| HC49S | 12              | 30                        | 50                          | 70                                                      | 30                                 | ATF                                                  | XTL-3064        |
| HC49S | 16              | 30                        | 50                          | 70                                                      | 30                                 | ATF                                                  | XTL-3069        |
| HC49S | 18.432          | 30                        | 50                          | 60                                                      | 30                                 | ATF                                                  | XTL-3074        |
| HC49S | 20              | 30                        | 50                          | 70                                                      | 12                                 | ATF                                                  | XTL-3078        |
| HC49S | 24              | 50                        | 50                          | 60                                                      | 30                                 | ATF                                                  | XTL-3085        |

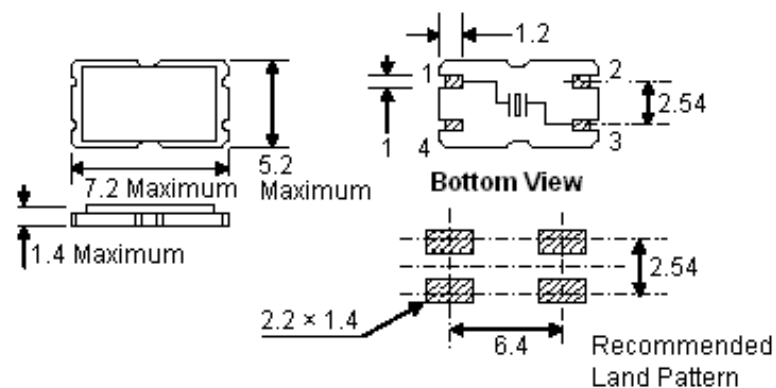
## DX-57



### Features and Applications

- Communication Equipment, PDA's, Wireless security systems
- Cost effective
- Surface mount
- Ultra thin ceramic package
- Height 1.4mm maximum
- Supplied taped and reeled

### Diagram



Dimensions : Millimetres

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Farnell.com/multicomp-pro  
Element14.com/multicomp-pro

## Specification Table

|                              |                          |                   |
|------------------------------|--------------------------|-------------------|
| Nominal Frequency Range      | 10 to 30 MHz             | 30 to 60 MHz      |
| Vibration Mode               | Fundamental (AT)         | 3rd Overtone (AT) |
| Frequency Tolerance at 25°C  | ±20, ±30 or ±50ppm       |                   |
| Temperature Stability        | ±30 or ±50ppm            |                   |
| Operating Temperature Range  | -20°C to +70°C           |                   |
| Storage Temperature Range    | -30°C to +80°C           |                   |
| Load Capacitance             | 8pF to 32pF or series    |                   |
| Equivalent Series Resistance | See ESR table below      |                   |
| Shunt Capacitance            | 7pF maximum              |                   |
| Drive Level                  | 100µW maximum            |                   |
| Insulation Resistance        | 500MΩ minimum at 100V DC |                   |
| Aging                        | ±5ppm per year           |                   |

## ESR Table

| Case           | Vibration | HC 49U    |
|----------------|-----------|-----------|
| Frequency      | Mode      | Ω Maximum |
| 10 - 13.99 MHz | F         | 60        |
| 14 - 30 MHz    | F         | 50        |
| 30 - 60 MHz    | 3         | 100       |

## Part Number Table

| Case | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range<br>60 = -10 to +60<br>70 = -20 to +70 | Load Capacitance<br>pf<br>00 = Series | Vibration Mode<br>AT Cut<br>F = Fund<br>0.3 Overtone | Ant Part Number |
|------|-----------------|---------------------------|-----------------------------|---------------------------------------------------------|---------------------------------------|------------------------------------------------------|-----------------|
| DX57 | 10              | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7024        |
| DX57 | 11.0592         | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7026        |
| DX57 | 12              | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7029        |
| DX57 | 18.432          | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7036        |
| DX57 | 19.6608         | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7040        |
| DX57 | 24              | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7047        |
| DX57 | 27              | 30                        | 50                          | 70                                                      | 20                                    | ATF                                                  | XTL-7052        |
| DX57 | 32              | 30                        | 50                          | 70                                                      | 20                                    | AT3                                                  | XTL-7056        |

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