

## Resonator

# Piezoelectric Resonator (4 to 23.9 MHz)

## FAR Family (C4 series N type)

### ■ DESCRIPTION

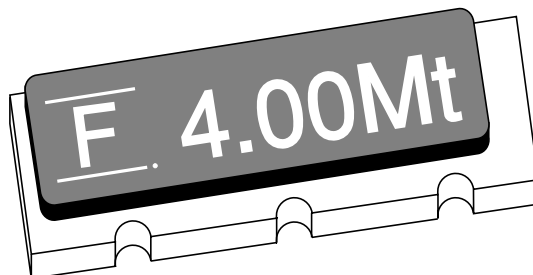
Fujitsu resonators C4 series (N type) feature originally developed single crystals with a high electro-mechanical coefficient (LiNbO<sub>3</sub>: lithium niobate), the result is very compact packaging.

C4 series (N type) with built-in capacitors for exclusive use in microcomputer clocks, and this series is ultra low profile CHIP type device for surface-mount (SMT).

### ■ FEATURES

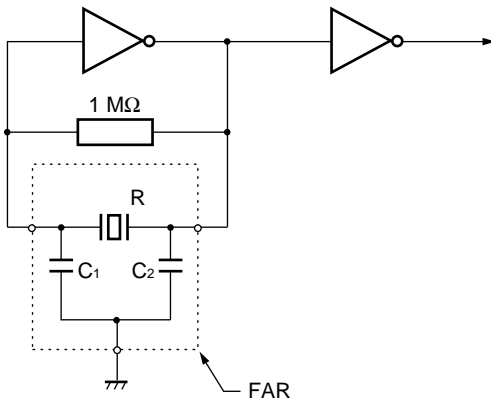
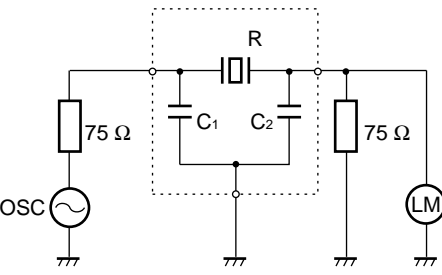
- Ultra low profile H = 1.6 mm
- Direct oscillation in 4 to 23.9 MHz frequency.
- Suitable for the source of microcomputer clock
- Emboss-typed pack for automatic mounting
- Superior shock and vibration resistance, preventing damage during automatic mounting

### ■ PACKAGE



# FAR Family (C4 series N type)

## STANDARD CHARACTERISTICS

Parameter	Series	C4 series (N type)	Remarks
Material		Lithium Niobate (LiNbO <sub>3</sub> )	
Frequency		4 to 17 MHz      17.1 to 23.9 MHz	
Standard frequency		See "Standard Frequency."	
Initial frequency deviation		±0.3% (K) ±0.5% (M) ±1.0% (L)	±1.0% (L) When a frequency of more than 17.1 MHz, only L deviation type can be made.
Temperature characteristic (-20°C to +60°C)		±0.5%	
Capacity of built-in capacitor		20±8 pF (standard)	10±4 pF, 30±8 pF are also available. Capacity is specified by Fujitsu, considering matching data with applied IC (mainly microcomputer).
Aging stability		Within ±0.1%	
Operating temperature		-30°C to +85°C	
Storage temperature		-40°C to +100°C	
Standard measuring circuit		<ul style="list-style-type: none"> <li>Resonant frequency</li> </ul>  <ul style="list-style-type: none"> <li>Less than 4 MHz to 10 MHz IC: 1/6MB84069B×2</li> <li>10 MHz to 20.0 MHz IC: 1/6MC74HC04×2</li> <li>20.1 MHz to 23.9 MHz IC: 1/6MC74HCU04×2</li> <li>V<sub>cc</sub>: 5 V DC</li> <li>R: Resonator</li> <li>C<sub>1</sub>, C<sub>2</sub>: Loading capacitors (built-in)</li> </ul> <ul style="list-style-type: none"> <li>Serial resonant resistance</li> </ul>  <ul style="list-style-type: none"> <li>R: Resonator</li> <li>Measuring instrument: Network analyzer</li> </ul>	

# FAR Family (C4 series N type)

## ■ STANDARD FREQUENCY

Standard frequency (kHz)	Package size	Resonant resistance
4,000 4,194 4,915	N	300 Ω max. (Symbol: 0)
6,000 6,144 7,373 8,000 8,388 9,830 10,000 11,059 12,000 12,288 14,746 16,000 16,934 19,661 20,000	N	75 Ω max. (Symbol: 2)

- Notes:**
- Fujitsu can also develop applicable device in addition to standard devices if its oscillation frequency is from 4 to 23.9 MHz.
  - Resonant resistance of the part other than standard, Fujitsu should specify its resonant resistance according to applied frequency. (See “• Frequency and standard resonant resistance.”)
  - Frequency and standard resonant resistance

Frequency	Standard resonant resistance
4.00 to 5.99 MHz	300 Ω max. (Symbol: 0)
6.00 to 23.99 MHz	75 Ω max. (Symbol: 2)

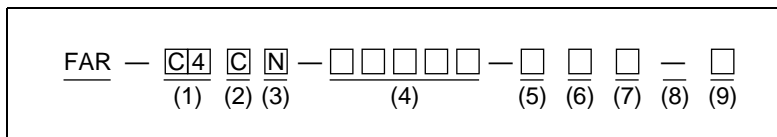
**Note:** Resonant resistance of custom designed part should be specified considering matching condition with applicable IC by Fujitsu.

## ■ NOTES ON USE

- Handle carefully
- Solder under the following conditions.  
5 seconds max. at 230°C (PCB)  
Recommended preheating is 150°C for one minute in order not to apply extreme heat to the resonator.
- Avoid extreme fluctuations in temperature.
- There is no specific direction in resonator mounting.
- Oscillation data should be examined when used in oscillation circuit with micon or other ICs.
- This is for reflow solder, not for flow solder.

# FAR Family (C4 series N type)

## ■ PART NUMBERING SYSTEM



(1) Series

Series	Single crystal	Capacitor
C4	LiNbO <sub>3</sub>	With built-in capacitor

(2) Package Type

Specification	Type
C	CHIP

(3) Package Type

Specification	Size
N	8.0 × 3.2 × 1.6

(4) Frequency

(Example) Unit: kHz (Specify in five digits.)

Frequency	Specification
7.373 MHz	07373

See “■ Standard Frequency”.

(5) Initial Frequency Deviation

Specification	Deviation
K	±0.3%
M	±0.5%
L	±1.0%

(6) Built-in Capacitor

Specification	Capacitance
0	20±8 pF
1	10±4 pF
2	30±8 pF

(7) Resonant Resistance

Specification	Resonant resistance
0	300 Ω max.
2	75 Ω max.

# FAR Family (C4 series N type)

## (8) User-specific Special Symbols

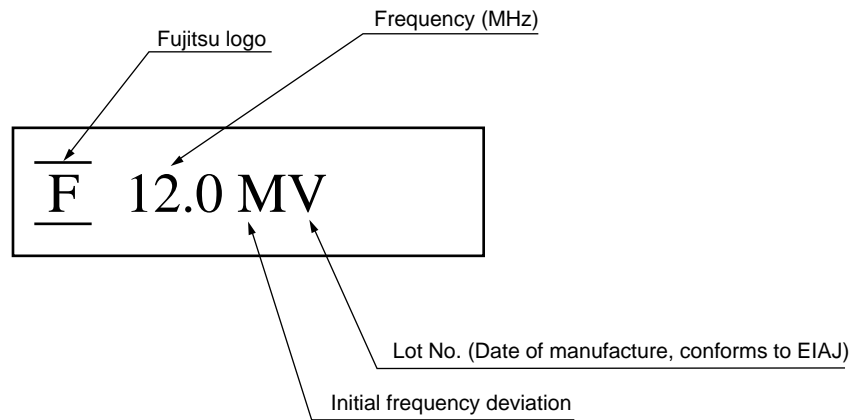
<b>Specification</b>	<b>Description</b>
Name	No specifications, no taping specification
—	No specifications, with taping specification
A to Z	Serial number for custom design

## (9) Resonant Resistance

<b>Specification</b>	<b>Description</b>
R	16 mm wide emboss tape coiled 3,000 times

# FAR Family (C4 series N type)

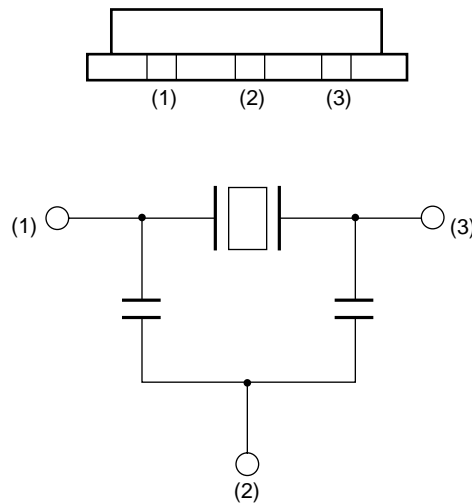
## MARKING



**Note:** The marking color varies with the capacitance of the built-in capacitor.

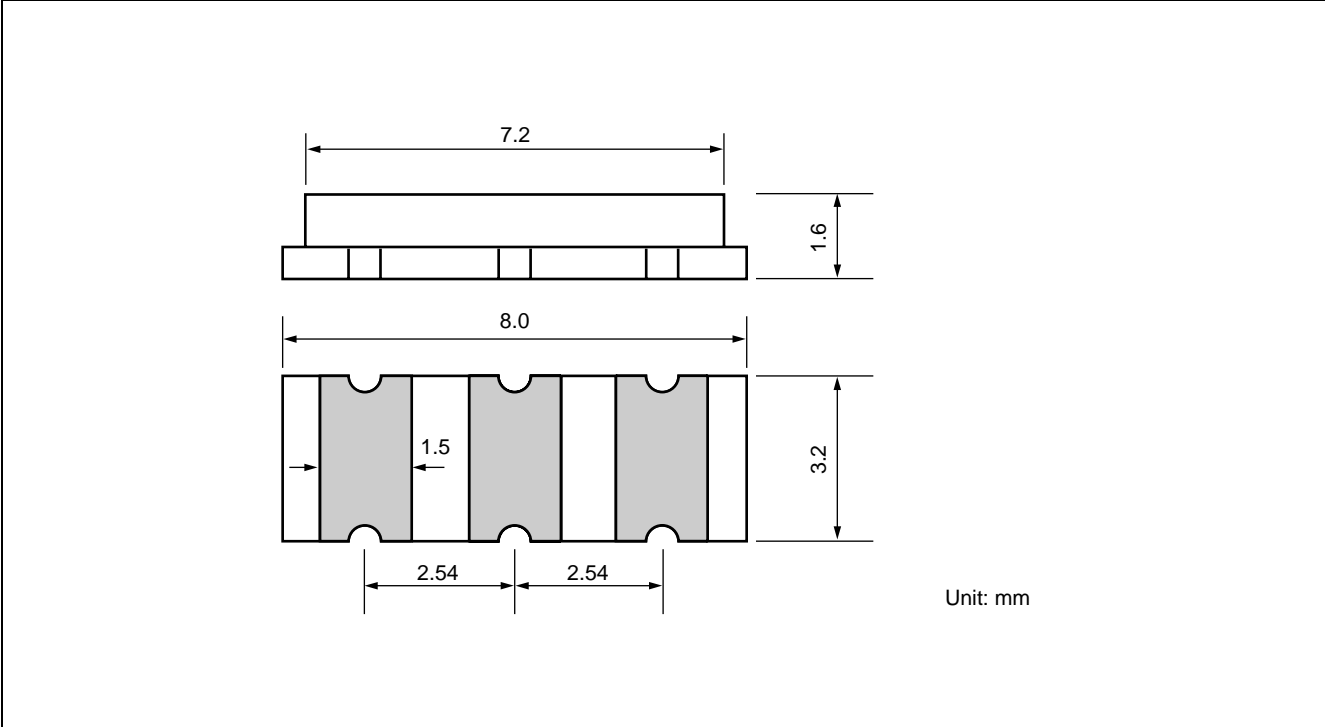
Capacitance	Marking color
10 pF	Yellow
20 pF	White
30 pF	Gray

## PIN ASSIGNMENT



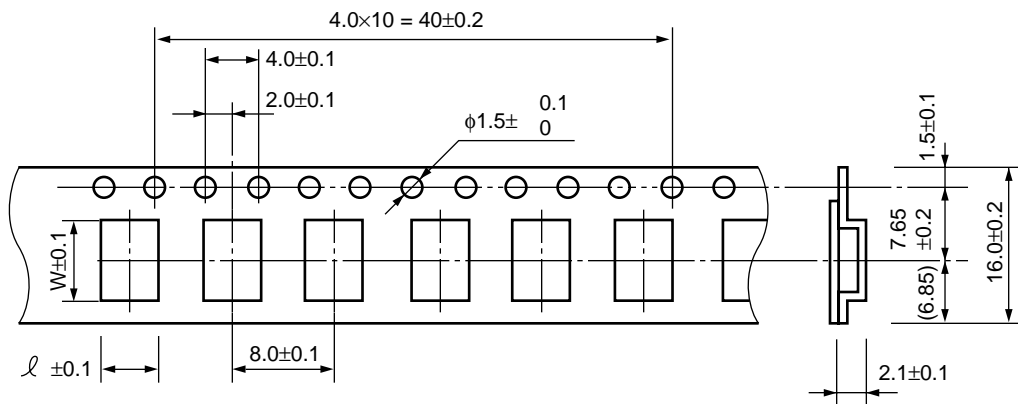
# FAR Family (C4 series N type)

## ■ DIMENSIONS



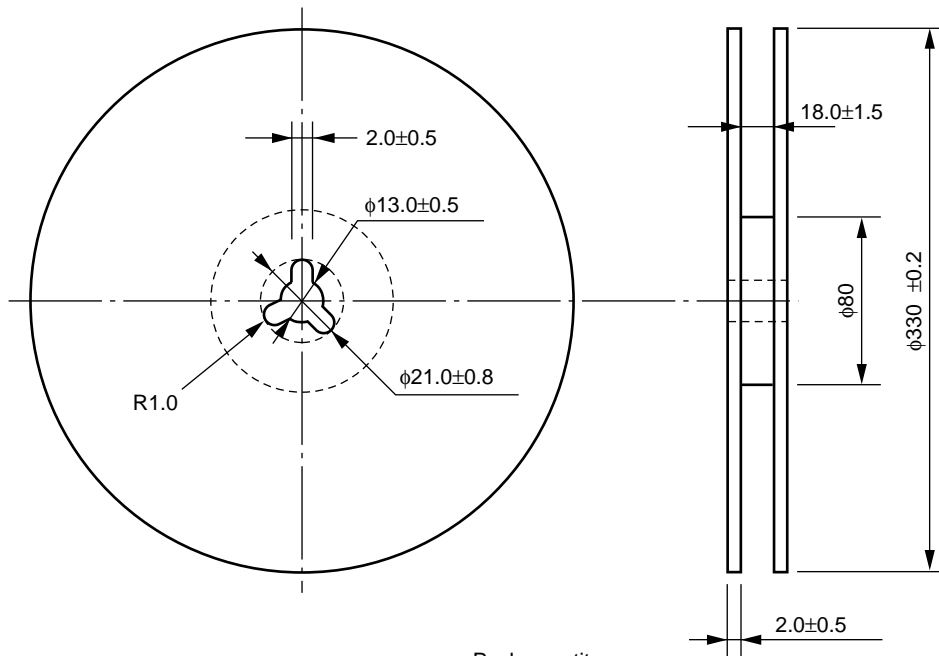
# FAR Family (C4 series N type)

## ■ TAPING FORM AND DIMENSIONS



$l$	W
3.7	8.5

Reel form



Pack quantity

Quantity
3,000

Unit: mm



# FAR Family (C4 series N type)

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