

# CRYSTAL UNITS

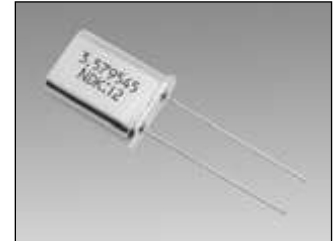
## For Microprocessor

### CRYSTAL UNITS / NR-18

These crystal units are intended for use as reference clocks in microprocessors or the like.

#### ■ Features

- With a variety of standard frequencies available, these crystal units can be used for various applications.
- Taping type and gull-wing type are available for automatic mounting.



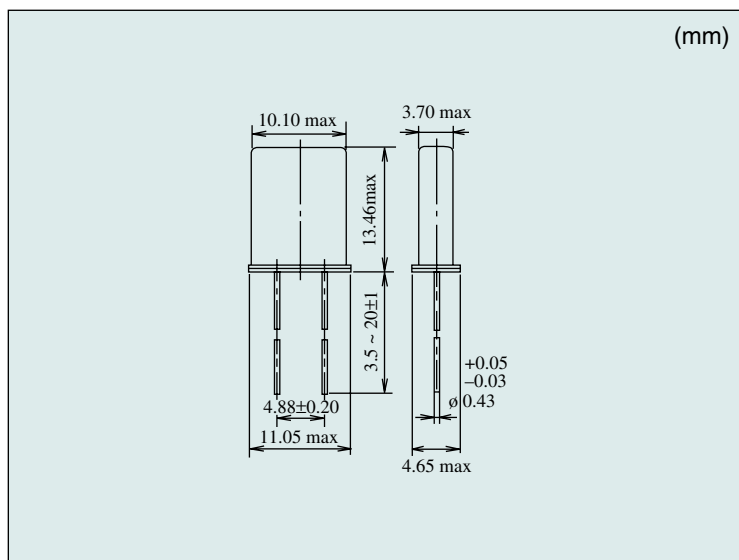
#### ■ Specification

Item	Type	NR-18	
Frequency Range		3 ~ 30 MHz	22 ~ 75.875 MHz
Overtone		Fundamental	3rd overtone
Frequency Tolerance (25±3°C)		± 50 × 10 <sup>-6</sup>	
Temperature Characteristics (in reference to +25°C)		± 50 × 10 <sup>-6</sup>	
Operating Temperature Range		-10 ~ +60°C	
Equivalent Series Resistance		※ See Table	
Drive Level		50 μW (1000 μW max)	500 μW (1000 μW max)
Standard Load Capacitance		16pF	Series
Operable Temperature Range		-40 ~ +85°C	

#### Typical Frequency (MHz)

Fundamental	3.579545	3.6864	4.0	4.332	4.433619	4.9152	6.0
	7.15909	8.0	8.192	10.0	11.0592	12.0	13.104
	14.31818	16.0	17.734475	18.432	20.0	24.576	27.0
	28.63636	33.8688	36.864	43.55	51.925	59.28333	61.3

#### ■ Dimensions



※ Table Nominal Frequency and Equivalent Series Resistance (Ω)

Overtone	Frequency Range (MHz)	Equivalent Series Resistance (Ω)
Fundamental	3.0 ~ 3.2	200 max
	3.2 ~ 3.5	150 max
	3.5 ~ 4.6	100 max
	4.6 ~ 4.9	80 max
	4.9 ~ 5.1	70 max
	5.1 ~ 5.7	50 max
	5.7 ~ 6.0	45 max
	6.0 ~ 8.0	40 max
	8.0 ~ 9.0	35 max
	9.0 ~ 10.0	30 max
10.0 ~ 30.0	25 max	
3rd overtone	22.0 ~ 76.0	40 max