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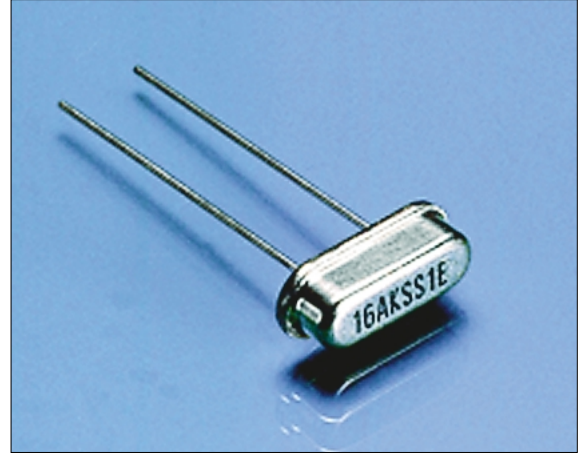
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HC-49/U-S

Miniature Quartz Crystal Unit for Microprocessor Model HC-49/U-S

■Features

- Height 3.5mm, the volume is compact at about one-fourth that of the former product (HC-49/U).
- A resistance weld completely sealed type.
- The frequency stability is good, the reliability is high.
- Multiple standard frequencies.
- Copes with high density mounting and is optimum for mass production models.



■Specifications

Type		HC-49/U-S	
Main application	AV·PC		Automotive engine control
Frequency Range	3.2~60MHz		4~20MHz
Standard Frequency	Table 1	Table 2	Table 3
Overtone Order	3.2~29MHz : Fundamental 29~60MHz : 3rd O.T.		Fundamental
Operating Temp. Range	-10~+70°C		-40~+125°C
Storage Temp. Range	-40~+85°C		-40~+150°C
Frequency Tolerance	at 25°C		$\pm 100 \times 10^{-6}$
	Over The Oper. Temp. Range		$\pm 200 \times 10^{-6}$ (referred to 25°C)
Load Capacitance	Table 1	Table 2	Table 3
Equivalent Series Resistance	Table 1	Table 2	Table 3
Shunt Capacitance	7.0pF MAX.		
Drive Level	0.3mW MAX.		
Shock	$\Delta F/F : \pm 10 \times 10^{-6}$ Three drops onto a hard wood board from the height of 20cm		Three drops onto a hard wood board from the height of 100cm
Vibration	$\Delta F/F : \pm 10 \times 10^{-6}$ 10~55Hz, amplitude 0.7~0.9mm, each to 3 directions, 30 minutes each		10~55Hz, amplitude 1.5mm, each to 3 directions, 6 hours each

■Table 1
Standard Frequencies

Frequency (MHz)	Load capacitance (pF)	Equivalent series resistance (Ω MAX.)
3.579545	Series/16	150
4.433619	Series/16	120
14.31818	Series/12	50
17.734476	Series/12	50

■Table 3
Standard Frequencies

Frequency (MHz)	Load capacitance (pF)	Equivalent series resistance (Ω MAX.)
4.000	12	200
5.000	12	200
6.000	12	120
8.000	12	90
10.000	12	90
12.000	12	70
16.000	12	50
18.000	12	50
20.000	12	50

■Table 2 Standard Frequencies

Frequency (MHz)	Load capacitance (pF)	Equivalent series resistance (Ω MAX.)	Frequency (MHz)	Load capacitance (pF)	Equivalent series resistance (Ω MAX.)
3.200	16	300	12.000	12	70
3.579545	16	150	12.288	12	70
3.6864	16	150	13.500	12	50
4.000	16	150	14.31818	12	50
4.194304	11.5	120	16.000	12	50
4.332	16	120	16.9344	12	50
4.433619	16	120	17.734476	12	50
4.500	14	120	20.000	12	50
4.9152	16	100	21.47727	12	50
6.000	16	90	24.000	12	50
6.144	16	90	24.576	12	50
7.2	10	90	27.000	12	50
7.3728	16	90	29.4912	12	150
8.000	16	90	32.000	12	150
8.4672	16	90	33.8688	12	150
9.8304	16	90	40.000	12	150
10.000	12	90	48.000	12	150
10.240	12	90	50.000	12	150
10.738635	12	90	54.000	12	150
11.000	12	90	60.000	12	150
11.0592	12	90			

■Outline

