



Quartz crystal SPK-HC-49/US

- Typical applications:
motherboard of computers, consumer electronics, CD-ROM, VTR, data communication, automotive electronics, modem, TV games
- Features:
low profile, bulk, offer fitted insulator, large range of frequencies, resistance weld
- Electrical specifications:

Frequency range, fundamental mode	3.2 MHz ~ 30 MHz
Frequency range, 3rd overtone mode	27 MHz ~ 70 MHz
Crystal cut	AT-CUT or 3rd AT-CUT
Load capacitance	Series or 8 to 50 PF
Calibration tolerance (at 25°C)	+/-10ppm ~ +/-50ppm
Frequency stability	+/-10ppm ~ +/-50ppm
Operating temperature range	0~50°C, -10~60°C, -20~70°C, -30~80°C, -40~85°C.
Shunt capacitance (Co)	7 pF maximum
Equivalent series resistance (E.S.R.)	see table 1
Aging (per year at +25°C)	+/-3 ppm
Drive level	0.05, 0.1, 0.2, 0.5, 1.0mW (to be specified by customer)
Insulation resistance	>500M Ω min/DC100V

Please consult for other specifications.

- **Table 1: Equivalent series resistance (ESR Ω)**

Frequency	E.S.R. max.	Frequency	E.S.R. max.
3.2 ~ 3.4 MHz	300	13.0 ~ 30.0 MHz	40
3.5 ~ 4.0 MHz	150	24.0 ~ 40.0 MHz	40
4.1 ~ 4.9 MHz	120	40.1 ~ 48.0 MHz	30
5.0 ~ 5.9 MHz	100	27.0 ~ 30.0 MHz (3rd)	150
6.0 ~ 8.9 MHz	80	30.1 ~ 50.0 MHz (3rd)	100
9.0 ~ 9.9 MHz	60	50.1 ~ 70.0 MHz (3rd)	80
10.0 ~ 12.9 MHz	50		