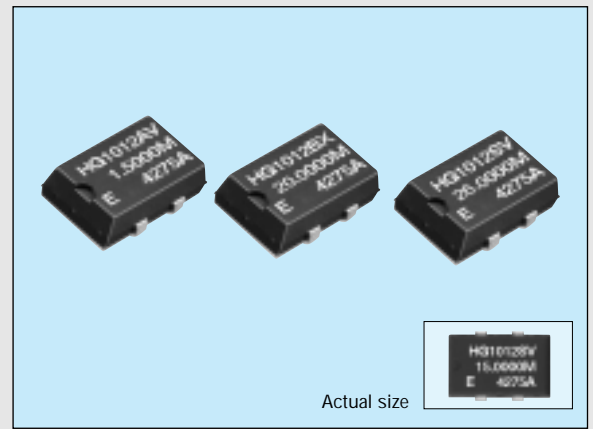


HIGH-STABILITY HIGH-FREQUENCY OSCILLATOR

# HG-1000/2000 series

- Cylindrical AT crystal unit built-in, thus assuring high reliability.
- Excellent shock resistance and heat resistance.
- Low current consumption.

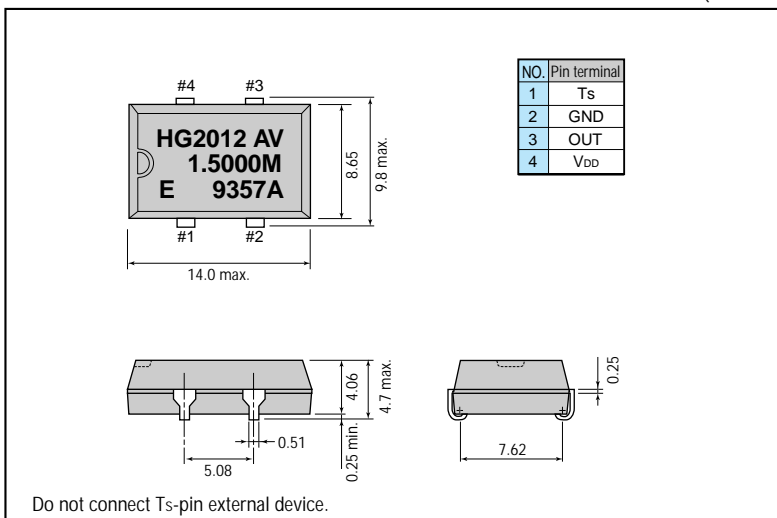


## Specifications (characteristics)

Item	Symbol	HG-1012JA	HG-2012JA	Remarks
		Specifications		
Output frequency range	$f_o$	1.5000 MHz to 28.63636 MHz		$V_{DD} = 4.75V$ to $5.25V$
Power source voltage	Max. supply voltage	$V_{DD-GND}$	-0.5V to +7.0V	
	Operating voltage	$V_{DD}$	$5.0V \pm 0.25V$	
Temperature range	Storage temperature	$T_{STG}$	-55°C to +125°C	
	Operable temperature	$T_{OPR}$	-40°C to +85°C	
Soldering condition	$T_{SOL}$	Under 260°C within 10 sec. x 2 times		
Frequency stability	$\Delta f/f_o$	AV: $\pm 20ppm$ , BV: $\pm 25ppm$	SV: $\pm 15ppm$ , AV: $\pm 20ppm$	$T_a = -20^\circ C$ to $+70^\circ C$
		BX: $\pm 25ppm$ , CX: $\pm 30ppm$	BX: $\pm 25ppm$	$T_a = -40^\circ C$ to $+85^\circ C$
Current consumption	$I_{OP}$	10mA max.		No load condition
Duty	$t_w/t$	40% to 60%		1/2 $V_{DD}$ level
High output voltage	$V_{OH}$	$V_{DD} - 0.4V$ min.		$I_{OH} = -0.8mA$
Low output voltage	$V_{OL}$	0.4V max.		$I_{OL} = 3.2mA$
Output load condition	$C_L$	15pF max.		
Output rise time	$t_{TLH}$	8ns max.		20%→80% $V_{DD}$ level
Output fall time	$t_{THL}$			80%→20% $V_{DD}$ level
Oscillation start up time	$t_{OSC}$	4ms max.		Time at 4.75V to be 0 sec.
Aging	$f_a$	$\pm 5ppm/year$ max.	$\pm 2ppm/year$ max.	$T_a = 25^\circ C$
Shock resistance	S.R.	$\pm 10ppm$ max.	$\pm 2ppm$ max.	Three drops on a hard wooden board from 75 cm or excitation test with 3000G x 0.3ms x 1/2sine wave in 3 directions

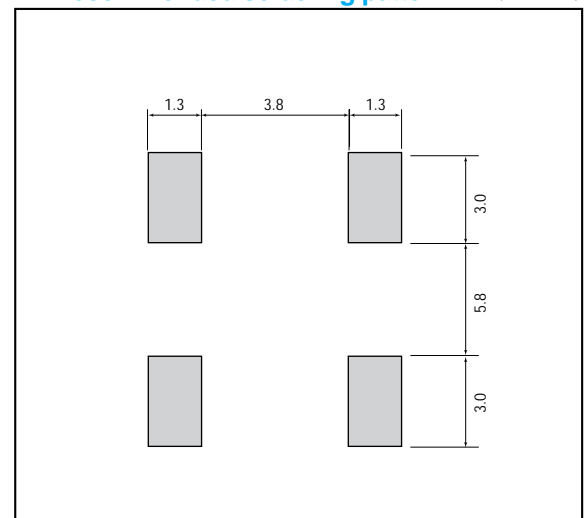
## External dimensions

(Unit: mm)



## Recommended soldering pattern

(Unit: mm)



# THE CRYSTALMASTER



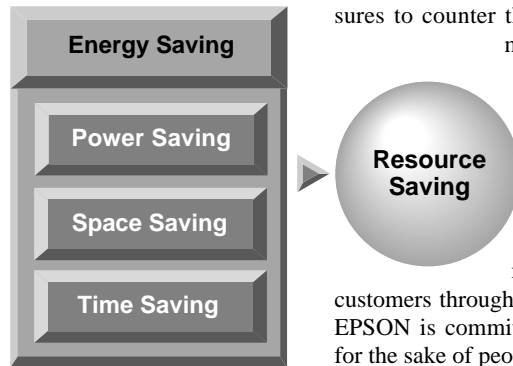
## ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.



Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter the greenhouse effect by reducing CO<sub>2</sub>, measures to preserve the global environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving technology developed by EPSON may appear insignificant, we seek to contribute to the development of energy-saving products by our customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.



**SEIKO EPSON CORP. QUARTZ DEVICE DIVISION acquired ISO9001 and ISO14001 certification by B.V.Q.I. (Bureau Veritas Quality International) .**

**ISO9001 in October, 1992.**

**ISO14001 in November, 1997.**

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