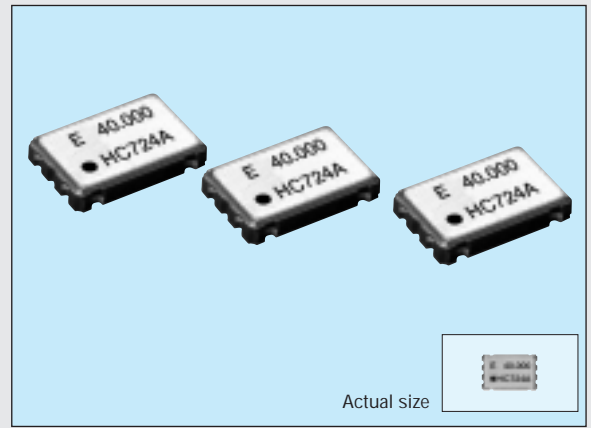


HIGH-FREQUENCY CRYSTAL OSCILLATOR

SG-710 series

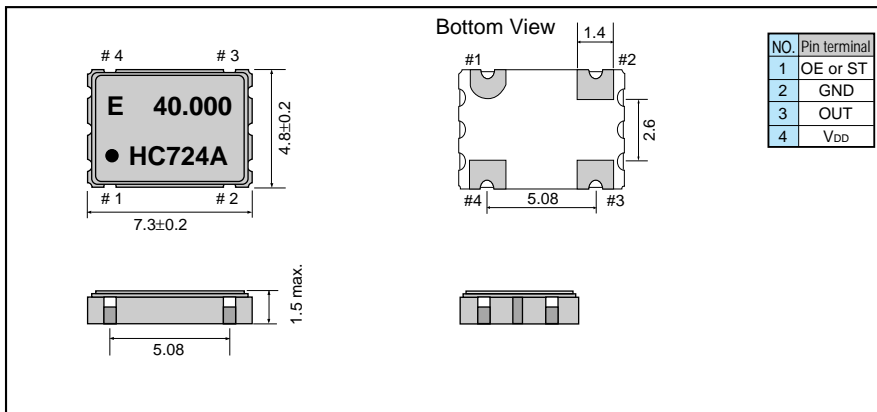
- Ceramic package with 1.5mm thickness.
- Excellent shock resistance and environmental capability.
- Low current consumption due to use of C-MOS technology.
- Low current consumption by output enabled function (OE) or standby function (ST).



Specifications (characteristics)

Item	Symbol	SG-710PTK	SG-710PHK	SG-710ECK	Remarks	
		Specifications				
Output frequency range	f_0	1.8000 MHz to 50.0000 MHz	1.8000 MHz to 80.0000 MHz	1.8000 MHz to 67.0000 MHz		
Power source voltage	Max. supply voltage	V_{DD-GND}	-0.5V to +7.0V			
	Operating voltage	V_{DD}	5.0V \pm 0.5V	3.3V \pm 0.3V		
Temperature range	Storage temperature	T_{STG}	-55°C to +120°C			
	Operating temperature	T_{OPR}	-10°C to +70°C (-40°C to +85°C)			
Soldering condition	T_{SOL}	Twice at under 260°C within 10 sec. or under 230°C within 3 min.				
Frequency stability	$\Delta f/f_0$	B: \pm 50ppm C: \pm 100ppm M: \pm 100ppm (-40°C to +85°C)				
Current consumption	I_{OP}	24mA max.	40mA max.	18mA max.	No load condition	
Output disable current	I_{OE}	12mA max.	16mA max.	—	OE=GND(PTK, PHK)	
Standby current	I_{ST}	—	—	10 μ A max.	ST=GND(ECK)	
Duty	t_w/t	—	45% to 55%	40% to 60%	C-MOS load: 1/2 V_{DD} level	
		45% to 55%	40% to 60%	—	TTL load: 1.4V level	
High output voltage	V_{OH}	2.4V min.	$V_{DD} - 0.5V$ min.	$0.9 \times V_{DD}$ min.	$I_{OH} = -16mA(PTK, PHK), -2mA(ECK)$	
Low output voltage	V_{OL}	0.4V max.	0.5V max.	$0.1 \times V_{DD}$ max.	$I_{OL} = 16mA(PTK, PHK), 2mA(ECK)$	
Output load condition (fan out)	TTL	N	10TTL max.	10TTL max.	—	
	C-MOS	C_L	(15pF max.)	50pF max.	15pF max.	
Output enable/disable input voltage	V_{IH}	2.0V min.	2.0V min.	$0.7 \times V_{DD}$ min.	OE terminal(PTK, PHK)	
	V_{IL}	0.8V max.	0.8V max.	$0.3 \times V_{DD}$ max.	ST terminal(ECK)	
Output rise time	C-MOS level	t_{TLH}	—	5ns max.	6ns max.	C-MOS load: 20% \rightarrow 80% V_{DD}
	TTL level		5ns max.	—	—	TTL load: 0.4V \rightarrow 2.4V
Output fall time	C-MOS level	t_{THL}	—	5ns max.	6ns max.	C-MOS load: 80% \rightarrow 20% V_{DD}
	TTL level		5ns max.	—	—	TTL load: 2.4V \rightarrow 0.4V
Oscillation start up time	t_{OSC}	—	10ms max.	—	Time at minimum operating voltage to be 0 sec.	
Aging	f_a	—	\pm 5ppm/year max.	—	$T_a = 25^\circ C, V_{DD} = 5.0V/3.3V(ECK)$	
Shock resistance	S.R.	—	\pm 10ppm max.	—	Three drops on a hard board from 75 cm or excitation test with 3000G x 0.3ms x 1/2sine wave in 3 directions	

External dimensions



Recommended soldering pattern (Unit: mm)

