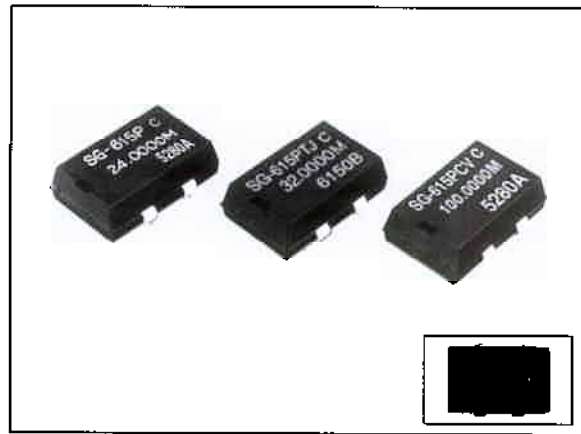


SMD TYPE HIGH FREQUENCY CRYSTAL OSCILLATOR

SG-615 series



Actual size

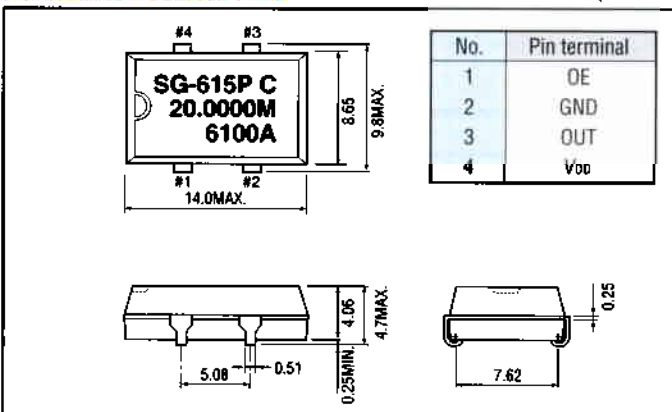
Specifications (Characteristics)

Item	Symbol	SG-615P	SG-615PTJ	SG-615PH	Remarks
		Specifications			
Output frequency range	f_0	1.0250MHz to 26.0000MHz	26.0001MHz to 66.6667MHz		
Power source voltage	MAX. supply voltage	$V_{DD}-GND$ -0.3V to +7.0V			
	Operating voltage	V_{DD} 5.0V±0.5V			
Temperature range	Storage temperature	T_{STG} -55°C to +125°C			Stored as bare product after unpacking
	Operating temperature	T_{OPR} -10°C to 70°C (-40°C to 85°C)			
Soldering condition	T_{SOL}	Twice at under 260°C within 10sec. or under 230°C within 3min.			
Frequency stability	$\Delta f/f_0$	B : ±50ppm C : ±100ppm			B type is possible up to 55MHz
Current consumption	I_{OP}	23mA MAX.	35mA MAX.		No load condition
Duty	C-MOS level	40% to 60%		40% to 60%	C-MOS load : 1/2 V_{DD} TTL load : 1.4V
	TTL level	45% to 55%		—	
Output voltage	V_{OH}	$V_{DD} - 0.4V$ MIN.	2.4V MIN.	$V_{DD} - 0.4V$ MIN.	
	(I_{OH})	-400µA		-4mA	
	V_{OL}	0.4V MAX.			
	(I_{OL})	16mA	8mA	4mA	
Output load condition (fan out)	C-MOS	CL	50pF MAX.	50pF MAX.	
	TTL	N	10TTL MAX.	5TTL MAX.	
Output enable/disable input voltage	V_{IH}	2.0V MIN.	3.5V MIN.	2.0V MIN.	$I_{IH}=1\mu A$ MAX. (OE= V_{DD}) $I_{IL}=100\mu A$ MIN. (OE=GND) $I_{IL}=500\mu A$ MIN. (OE=GND) PTJ OE=GND
	V_{IL}	0.8V MAX.	1.5V MAX.	0.8V MAX.	
Output disable current	I_{OE}	12mA MAX.	28mA MAX.	20mA MAX.	
Output rise time	C-MOS level	8nsec. MAX.	—	7nsec. MAX.	C-MOS load : 20%→80% V_{DD} TTL load : 0.4V→2.4V
	TTL level		5nsec. MAX.	—	
Output fall time	C-MOS level		—	7nsec. MAX.	C-MOS load : 80%→20% V_{DD} TTL load : 2.4V→0.4V
	TTL level		5nsec. MAX.	—	
Oscillation start up time	t_{OSC}	4msec. MAX.	10msec. MAX.		Time at 4.5V to be 0sec.
Aging	f_a	±5ppm/year MAX.			$T_a=25^\circ C$, $V_{DD}=5V$, first year
Shock resistance	S.R.	±20ppm MAX.			Drop test of 3 times on a hard board from 75cm height or excitation test with 3000G × 0.3ms × 1/2sine wave in 3 directions

Note: • Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.
• External by-pass capacitor is recommended.

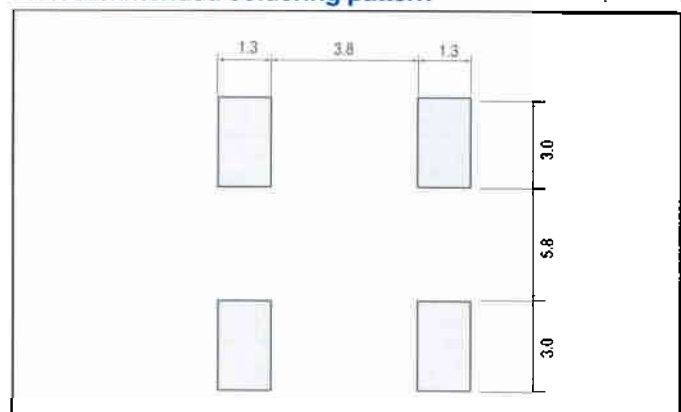
External Dimensions

(Unit : mm)



Recommended soldering pattern

(Unit : mm)



■ Features

- High density mounting type SMD.
- Designed for universal purpose with heat-resisting cylindrical type AT cut quartz crystal and allowing almost the same soldering temperature as SMD IC.
- Cylindrical type AT quartz crystal built-in, thus assuring high reliability.
- Provided with output enable function.
- Low current consumption.

■ Specifications (Characteristics)

Item	Symbol	SG-615 PCV		Remarks
		Specifications		
Output frequency range	f_0	40.0000MHz to 80.0000MHz		$V_{DD} = 2.7V$ to 5.5V
		40.0000MHz to 125.0000MHz		$V_{DD} = 4.5V$ to 5.5V
Power source voltage	MAX. supply voltage	V_{DD-GND}	-0.5V to +7.0V	
	Operating voltage	V_{DD}	2.7V to 5.5V	
Temperature range	Storage temperature	T_{STG}	-55°C to +125°C	Stored as bare product after unpacking
	Operating temperature	T_{OPR}	-10°C to +70°C	
Soldering condition	T_{SOL}	Twice at under 260°C within 10sec. or under 230°C within 3min.		
Frequency stability	$\Delta f/f_0$	C : ± 100 ppm		-10°C to +70°C, $V_{DD} = 2.7V$ to 5.5V
Current consumption	I_{OP}	50mA MAX.		No load condition
Duty	$T_{W/T}$	35% to 60%		1/2 V_{DD}
Output voltage	V_{OH}	$V_{DD} - 0.5V$		
	(I_{OH})	-16mA		
	V_{OL}	0.4V MAX.		
	(I_{OL})	16mA		
Output load condition (fan out)	CL	25pF MAX.		$V_{DD} = 4.5V$ to 5.5V
		15pF MAX.		$V_{DD} = 2.7V$ to 4.5V
Output enable/disable input voltage	V_{IH}	0.7 V_{DD} MIN.		
	V_{IL}	0.2 V_{DD} MAX.		
Output disable current	I_{OE}	27mA MAX.		OE=GND
Output rise time	T_{RHL}	4nsec.		20% → 80% V_{DD}
Output fall time	T_{THL}			80% → 20% V_{DD}
Oscillation start up time	t_{OSC}	10msec. MAX.		Time at 2.7V to be 0sec.
Aging	f_a	± 5 ppm/year MAX.		$T_a = 25^\circ C$, first year
Shock resistance	S.R.	± 20 ppm MAX.		Drop test of 3 times on a hard board from 75cm height or excitation test with 3000G × 0.3ms × 1/2sine wave in 3 directions

Note: • Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.
 • External by-pass capacitor is recommended.

■ Frequency table

Model	Frequency	1MHz	26MHz	40MHz	67MHz	125MHz
SG-615P		_____	_____	_____	_____	_____
SG-615PTJ			_____	_____	_____	
SG-615PH			_____	_____	_____	
SG-615PCV				_____	_____	_____