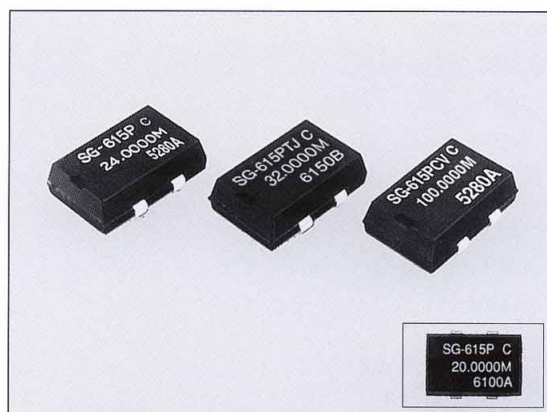


SMD TYPE HIGH FREQUENCY CRYSTAL OSCILLATOR

SG-615 series



Actual size

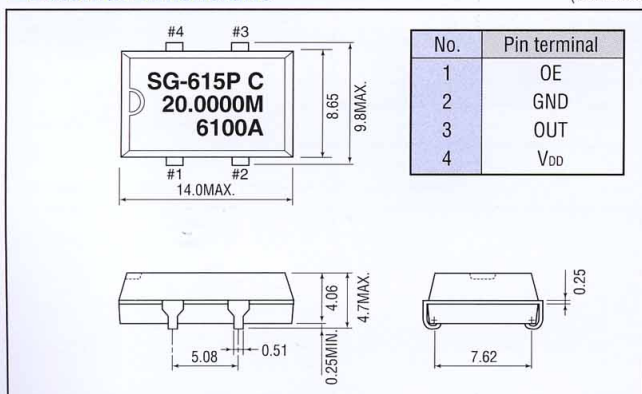
Specifications (Characteristics)

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	$T_{W/T}$	40% to 60%	—	40% to 60%	C-MOS load : 1/2 V_{DD}
	TTL level		45% to 55%		—	TTL load : 1.4V
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})	
	V_{IL}	0.8V MAX.	1.5V MAX.	0.8V MAX.	$I_{IL}=-100\mu A$ MIN. (OE=GND) $I_{IL}=-500\mu A$ MIN. (OE=GND) PTJ	
Output disable current	I_{OE}	12mA MAX.	28mA MAX.	20mA MAX.	OE=GND	
Output rise time	C-MOS level	T_{TLH}	—	7nsec. MAX.	C-MOS load : 20%→80% V_{DD}	
	TTL level		8nsec. MAX.	5nsec. MAX.	—	TTL load : 0.4V→2.4V
Output fall time	C-MOS level	T_{THL}	—	7nsec. MAX.	C-MOS load : 80%→20% V_{DD}	
	TTL level		8nsec. MAX.	5nsec. MAX.	—	TTL load : 2.4V→0.4V
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.

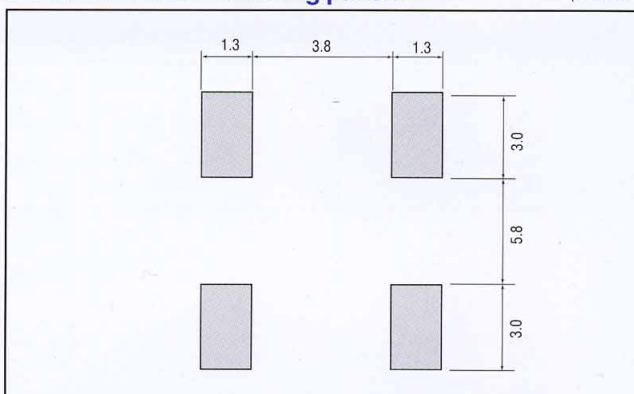
External Dimensions

(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	Δf/f ₀	C : ±100ppm		-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}	0.7V _{DD} MIN.		
	V _{IL}	0.2V _{DD} MAX.		
Output disable current	I _{OE}	27mA MAX.		OE=GND
Output rise time	T _{TLH}	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	±5ppm/year MAX.		T _a =25°C, 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.

■ Frequency table

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