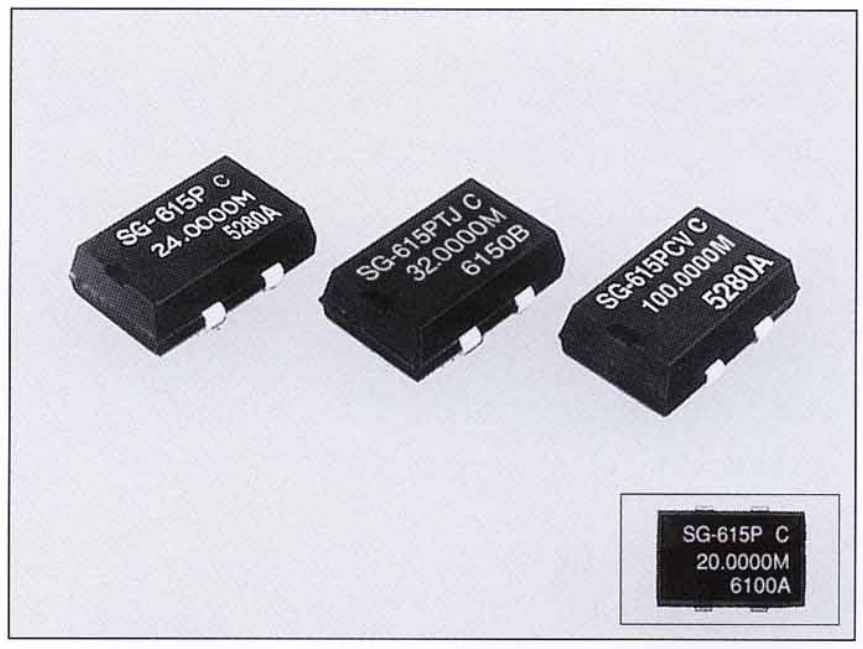
SMD TYPE HIGH FREQUENCY CRYSTAL OSCILLATOR

SG-615 series



Actual size

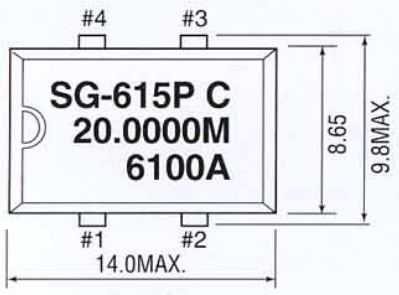
■Specifications (Characteristics)

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		△f/f_0	B : ±50ppm C : ±100ppm			B type is possible up to 55MHz
Current consumption		Iop	23mA MAX.	35mA MAX.		No load condition
Duty	C-MOS level	Tw/T	40% to 60%	—	40% to 60%	C-MOS load : 1/2V_{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}=1μA MAX.(OE=V_{DD})
		V_{IL}	0.8V MAX.	1.5V MAX.	0.8V MAX.	I_{IL}=-100μA MIN.(OE=GND) I_{IL}=-500μA 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}	8nsec. MAX.	—	7nsec. MAX.	C-MOS load : 20%→80% V_{DD}
	TTL level			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			5nsec. MAX.	—	TTL load : 2.4V→0.4V
Oscillation start up time		tosc	4msec. MAX.	10msec. MAX.		Time at 4.5V to be 0sec.
Aging		fa	±5ppm/year MAX.			Ta=25°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

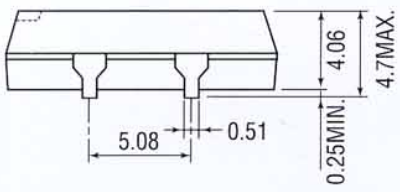
Note: • Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.
• External by-pass capacitor is recommended.

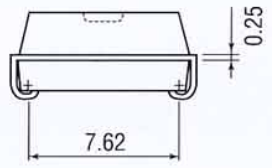
■External Dimensions

(Unit : mm)



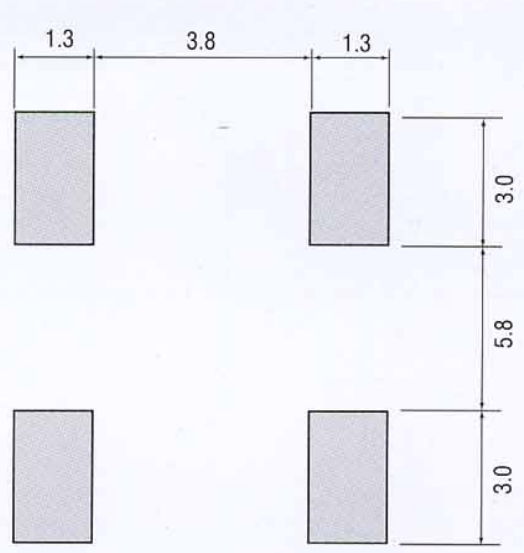
No.	Pin terminal
1	OE
2	GND
3	OUT
4	V_{DD}





■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 Specifications	Remarks
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		$\triangle f/f_0$	C : ±100ppm	-10°C to +70°C, V_{DD} :2.7V to 5.5V
Current consumption		Iop	50mA MAX.	No load condition
Duty		Tw/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		tosc	10msec.MAX.	Time at 2.7V to be 0sec.
Aging		fa	±5ppm/year MAX.	Ta=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			———	———	———