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TECHNOLOGY GROUP

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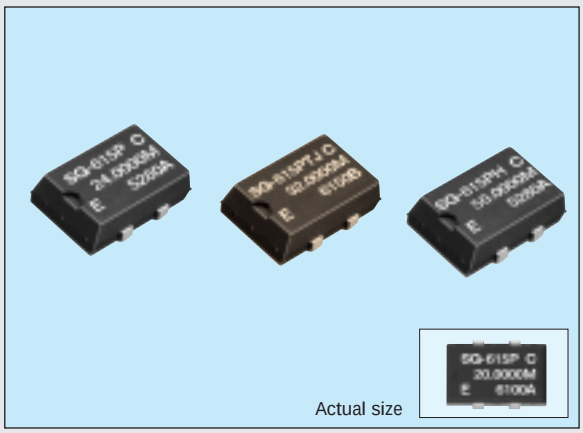
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SOJ HIGH-FREQUENCY CRYSTAL OSCILLATOR

SG-615 series

- High-density mounting-type SMD.
- A general-purpose SMD with heat-resisting cylindrical AT-cut crystal unit and allowing almost the same soldering temperature as SMD IC.
- Cylindrical AT crystal unit builtin, thus assuring high reliability.
- Provided with output enable function.
- Low current consumption.



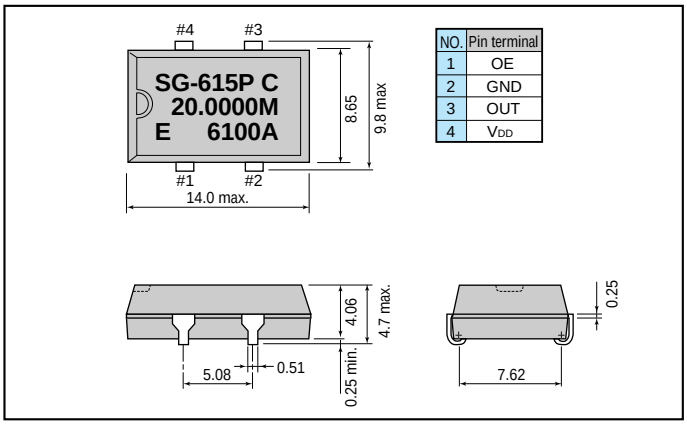
Specifications (characteristics)

Item		Symbol	SG-615P	SG-615PTJ	SG-615PH	Remarks
			Specifications			
Output frequency range		f_0	1.0250 MHz to 26.0000 MHz	26.0001 MHz to 66.6667 MHz		
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}	-20˚C to 70˚C (-40˚C to 85˚C)			55MHz max.(-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: ±50ppm C: ±100ppm			B type is possible up to 55 MHz
Current consumption		Iop	23mA max.	35mA max.		No load condition
Duty	C-MOS level	t_w/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	C_L	50pF max.	—	50pF max.	
	TTL	N	10TTL max.	5TTL max.	—	C_L≤15pF
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}	8ns max.	—	7ns max.	C-MOS load: 20%→80% V_{DD}
	TTL level			5ns max.	—	TTL load: 0.4V→2.4V
Output fall time	C-MOS level	t_{THL}		—	7ns max.	C-MOS load: 80%→20% V_{DD}
	TTL level			5ns max.	—	TTL load: 2.4V→0.4V
Oscillation start up time		t_{OSC}	4ms max.	10ms max.		Time at 4.5V to be 0 sec.
Aging		fa	±5ppm/year max.			Ta= 25˚C, V_{DD} = 5V, first year
Shock resistance		S.R.	±20ppm 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

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.

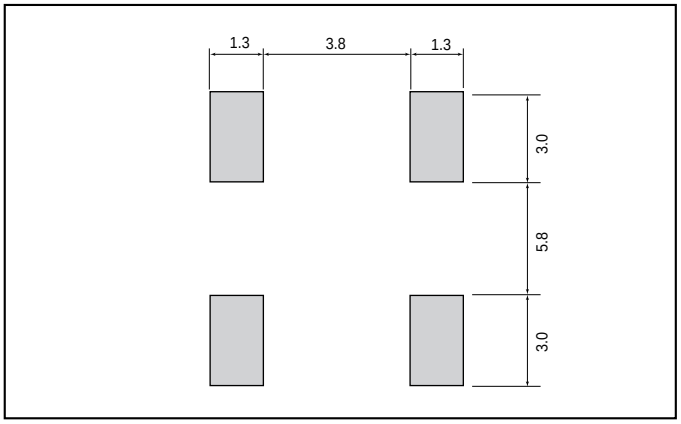
External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)



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