CRYSTAL OSCILLATOR **SPREAD SPECTRUM**

SG-9001LB/CA/JC series

•Frequency range •Supply voltage 10 MHz to 166 MHz

3.3 V

 Function Thickness

Output enable(OE) 1.15 mm Typ.(SG-9001LB) 1.40 mm Typ.(SG-9001CA)

Range of spreading percentage is selectable by program (Center or Down spread, 6 Values)



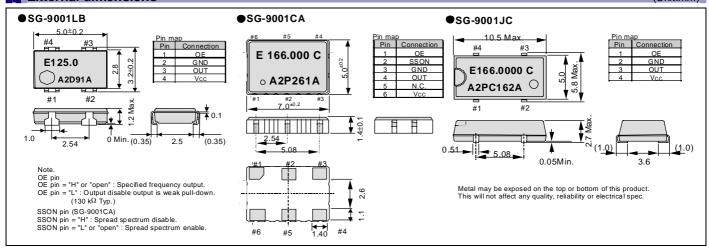
Specifications (characteristics)

ltem		Symbol	Specifications		Remarks		
Output frequency range		4.	10.000 MHz to 166.000 MHz	SG-9001JC,CA	Please contact us for inquiries regarding		
		to —	10.000 MHz to 135.000 MHz	SG-9001LB	available frequencies.		
Supply voltage		Vcc	3.3 V±0.3 V				
Temperature range	Storage	Tota	-55 °C to +100 °C	SG-9001JC	Store as bare product after unpacking.		
	temperature	T_stg	-40 °C to +125 °C	SG-9001LB,CA	Store as bare product after unpacking.		
	Operating temperature	T_use	-20 °C to +70 °C				
Current consumption		lcc	30 mA Max.	No load condition,	No load condition, $f_o = 166 \text{ MHz}$		
Disable current		I_dis	20 mA Max.	OE=GND, fo = 166	OE=GND, fo = 166 MHz		
Symmetry		SYM	45 % to 55 %	CMOS load: 50 %	CMOS load: 50 % Vcc level, L_CMOS=15 pF		
High output voltage		Voн	Vcc-0.4 V Min.	loн=-8 mA	Ioh=-8 mA		
Low output voltage		Vol	0.4 V Max.	loL= 8 mA	loL= 8 mA		
Output load condition		L_CMOS	15 pF Max.				
Output enable / disable		ViH	70 % Vcc Min.	OE terminal			
input voltage		VIL	30 % Vcc Max.	OE terminal	_		
Rise time / Fall time		t _r / t _f	2.7 ns Max.	20 % Vcc to 80 %	Vcc level, L_CMOS=15 pF.		
Start-up time		t_str	10 ms Max.	Time at minimum s	supply voltage to be 0 s		
Frequency aging		f aging	$\pm 5 \times 10^{-6}$ / year Max.	+25 °C, First year			

Spread Spectrum Specifications

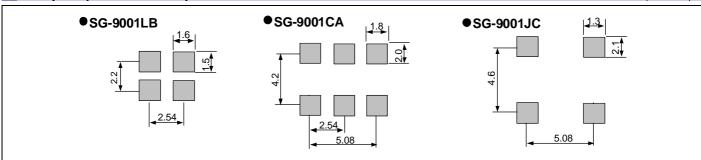
Center Spread	Code	C02P	C05P	C07P	C10P	C15P	C20P
Center Spread	Percentage	±0.25 %	±0.5 %	±0.75 %	±1.0 %	±1.5 %	±2.0 %
Down Carood	Code	D05P	D10P	D15P	D20P	D30P	D40P
Down Spread	Percentage	-0.5 %	-1.0 %	-1.5 %	-2.0 %	-3.0 %	-4.0 %

External dimensions (Unit:mm)



Footprint (Recommended)

(Unit:mm)



"QMEMS" EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a "3D (three device) strategy" designed to drive both horizontal and vertical growth. We will to grow our three device categories of "Timing Devices", "Sensing Devices" and "Optical Devices", and expand vertical growth through a combination of products from these categories

A Quartz MEMS is any high added value quartz device that exploits the characteristics of quartz crystal material but that is produced using MEMS (micro-electro-mechanical system) processing technology.

Market needs are advancing faster than previously imagined toward smaller, more stable crystal products, but we will stay ahead of the curve by rolling out products that exceed market speed and quality requirements. We want to further accelerate the 3D strategy by QMEMS.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications and where various types of terminals can transfer information almost immediately via LAN and WAN on a global scale. Epson Toyocom Corporation addresses every single aspect within a network environment. The new corporation offers "Digital Convergence" solutions to problems arising with products for consumer use, such as, core network systems and automotive systems.



PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Epson Toyocom, all environmental initiatives operate under the Plan-Do-Check-Action(PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer and global deforestation

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification. In the future, new group companies will be expected to acquire the certification around the third year of operations.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Epson Toyocom made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

QS-9000 is an enhanced standard for quality assurance systems formulated by leading U.S. automobile manufacturers based on the international ISO 9000 series.

ISO/TS 16949 is a global standard based on QS-9000, a severe standard corresponding to the requirements from the automobile industry.

► Explanation of the mark that are using it for the catalog

Ph	▶ Pb free. ▶ Complies with EU RoHS directive.	
Rolls	► Pb free terminal designed. Contains Pb in products exempted by RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.) Complies with EU RoHS directive.	
For Automotive	▶ The products have been designed for high reliability applications such as Automotive.	

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- In this new crystal master for Epson Toyocom, product codes and markings will remain as previously identified prior to the merger.

 Due to the on-going strategy of gradual unification of part numbers, please review product codes and markings, as they will change during the course of the coming months.

We apologize for the inconvenience, but we will eventually have a unified part numbering system for Epson Toyocom that will be user friendly.