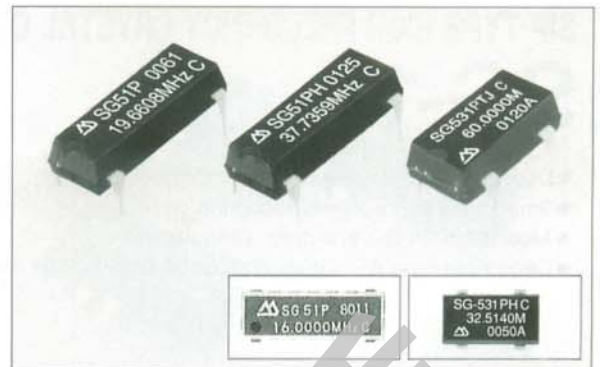


FULL SIZE DIP HIGH FREQUENCY CRYSTAL OSCILLATOR

SG-51 series

HALF SIZE DIP HIGH FREQUENCY CRYSTAL OSCILLATOR

SG-531 series



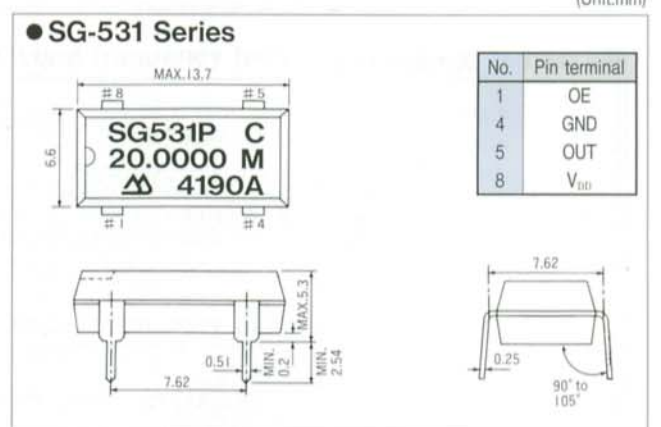
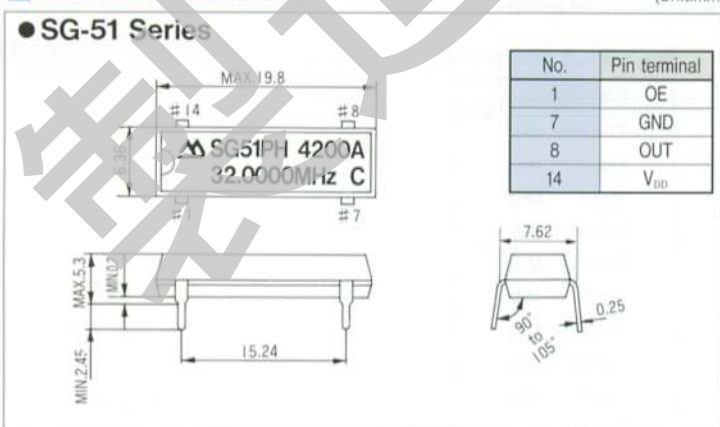
Actual size

Specifications (characteristics)

Item	Symbol	Specifications			Remarks
		SG-51P/531P	SG-51PTJ/531PTJ	SG-51PH/531PH	
Output frequency range	f_o	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}			
Temperature range	Storage temp.	-55°C to +125°C			-55°C to +100°C
	Operating temp.				-10°C to +70°C
Soldering condition (lead part)	T_{SOL}	Under 260°C within 10 sec.			Don't heat up the package more than 150°C
frequency stability	$\Delta f/f_o$	B : ± 50 ppm C : ± 100 ppm			-10°C to +70°C B Type is possible up to 55.0MHz
Current consumption	I_{OP}	23mA MAX.	35mA MAX.		No load condition
Duty	C-MOS level	40% to 60%	40% to 60%		1.2 V_{DD} level
	TTL level	45% to 55%			1.4V level
Output voltage	V_{OH}	$V_{DD}-0.4V$ MIN.	2.4V MIN.	$V_{DD}-0.4V$ MIN.	
	(I_{OH})	-400 μ A			
	V_{OL}	0.4V MAX.			
Output load condition(fan out)	C-MOS	16mA	8mA	4mA	
	TTL	50pF MAX.	50pF 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.	
Output disable current	I_{OF}	12mA MAX.	28mA MAX.	20mA MAX.	OE = GND
Output rise time	C-MOS level	8nsec. MAX.	5nsec. MAX.	7nsec. MAX.	C-MOS load : 20% \rightarrow 80% V_{DD}
	TTL level				
Output fall time	C-MOS level	8nsec. MAX.	5nsec. MAX.	7nsec. MAX.	C-MOS load : 80% \rightarrow 20% V_{DD}
	TTL level				
Oscillation start up time	t_{OSC}	4msec. MAX.	10msec. MAX.		More than for 1ms until $V_{DD} = 0V \rightarrow 4.5V$ Time at 4.5V to be 0sec.
Aging	f_d	± 5 ppm/year MAX.			$T_a = 25^\circ C$, $V_{DD} = 5V$, 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 \times 0.3ms \times 1/2 sine 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



■ Features

SG-51 series

- Pin compatible with full size metal can
- Packaged in plastic 14 pin DIP
- Auto insertable
- Provided with output enable functions

SG-531 series

- Pin compatible with half size metal can
- Provided with output enable function

Common

- Cylindrical type AT cut quartz crystal built-in, thus assuring high reliability
- Use of C-MOS IC enables reduction of current consumption

■ Specifications (characteristics)

Item	Symbol	Specifications		Remarks
		SG-531PCV		
Output frequency range	f_0	40.0001MHz to 80.0000MHz		$V_{DD}=2.7V$ to 5.5V
		40.0001MHz 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 temp.	T_{STG}	-55°C to +125°C	
	Operating temp.	T_{OPR}	-10°C to +70°C	
Soldering condition (lead part)	T_{SOL}	Under 260°C within 10sec		Don't heat up package more than 150°C
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} (I_{OH})	$V_{DD}-0.5V$ -16mA		
	V_{OL} (I_{OL})	0.4V MAX. 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_{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 Osec.
Aging	Δf_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 × 1/2 sine wave in 3 directions in 3directions

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-51P, SG-531P		—————				
SG-51PTJ, SG-531PTJ			—————			
SG-51PH, SG-531PH			—————			
SG-531PCV				—————		