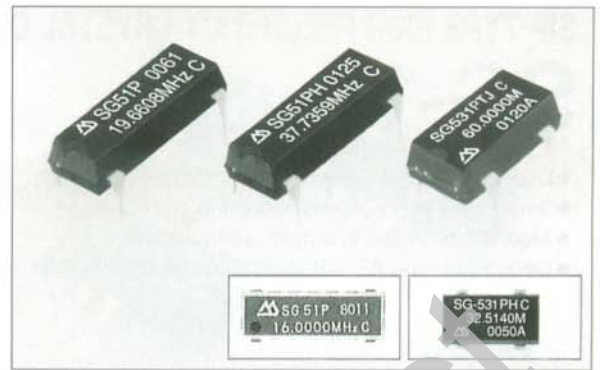


FULL SIZE DIP HIGH FREQUENCY CRYSTAL OSCILLATOR

# SG-51 series

HALF SIZE DIP HIGH FREQUENCY CRYSTAL OSCILLATOR

# SG-531 series



Actual size

### Specifications (characteristics)

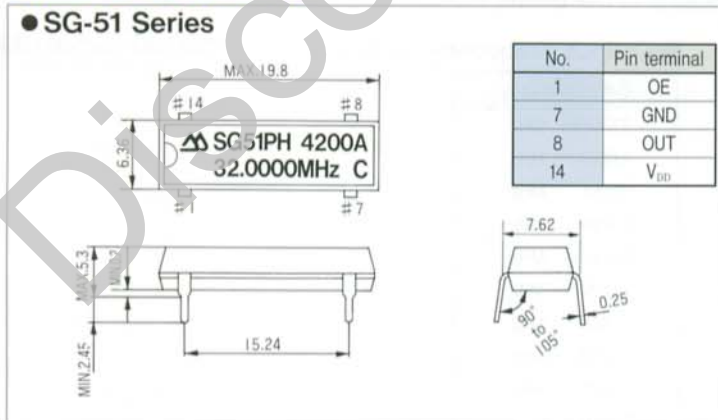
Item	Symbol	Specifications			Remarks
		SG-51P/531P	SG-51PTJ/531PTJ	SG-51PH/531PH	
Output frequency range	$f_o$	1.0250MHz to 26.0000MHz	26.0001MHz to 66.6667MHz		
Power source voltage	Max. supply voltage	$V_{DD}-GND$			-0.3V to +7.0V
	Operating voltage	$V_{DD}$			
Temperature range	Storage temp.	$T_{STG}$			-55°C to +125°C
	Operating temp.	$T_{OPR}$			-55°C to +100°C
Soldering condition (lead part)	$T_{SOL}$	Under 260°C within 10 sec.			-10°C to +70°C
frequency stability	$\Delta f/f_o$	Under 260°C within 10 sec. B : $\pm 50$ ppm C : $\pm 100$ ppm			Don't heat up the package more than 150°C -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 $\mu$ A			
	$V_{OL}$	0.4V MAX.			
Output load condition(fan out)	C-MOS	16mA	8mA	4mA	
	TTL	50pF MAX.	10TTL 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	$t_{OSC}$	4nsec. MAX.	10msec. MAX.		More than for 1ms until $V_{DD} = 0V \rightarrow 4.5V$ Time at 4.5V to be 0sec.
Aging	$f_a$	$\pm 5$ ppm/year MAX.			$T_a = 25^\circ C$ , $V_{DD} = 5V$ , first year
Shock resistance	S.R.	$\pm 20$ 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

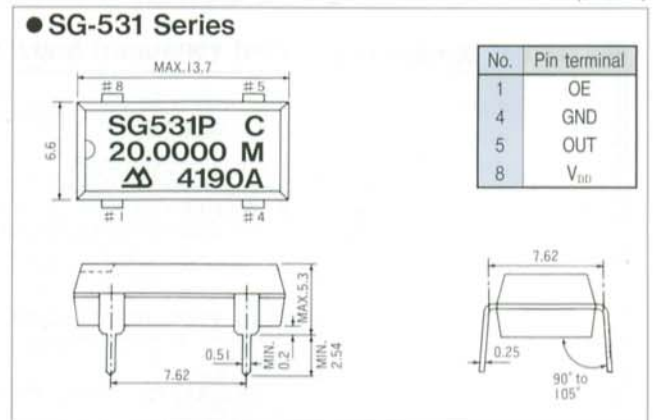
#### • SG-51 Series

(Unit:mm)



#### • SG-531 Series

(Unit:mm)



## ■ 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 : $\pm 100$ 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	$T_{THL}$	4nsec.		80% → 20% $V_{DD}$
Oscillation start up time	$t_{OSC}$	10msec. MAX.		Time at 2.7V to be Osec.
Aging	fa	$\pm 5$ ppm/year MAX.		$T_a=25^\circ C$ , first year
Shock resistance	S.R.	$\pm 20$ 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				—————	—————	