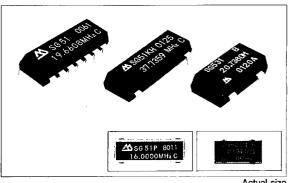
FULL SIZE DIP HIGH FREQUENCY CRYSTAL OSCILLATOR

G-51 series

HALF SIZE DIP HIGH FREQUENCY CRYSTAL OSCILLATOR

G-531 series



Actual size

■Specifications (characteristics)

Item Output frequency range		Symbol	SG-61/51K/51P/51E, SG-531/531P	SG-51T/51KT/51PT, SG-531T/531PT	SG-51KT/51PT, SG-531T/531PT	Remarks
		Ar this				
		fo	1.0250MHz to 26.0000MHz	26.0001MHz to 36.0000MHz	36.0001MHz to 50.3500MHz	
D	Max. supply voltage	V _{DD} -GND	-0.3V to +7.0V	-0.3V to +7.0V	-0.3V to +7.0V	
Power source voltage	Operating voltage	V _{DD}	5.0V±0.5V	5.0V±0.5V	5.0V ± 0.5V	
Temperature range	Storage temp.	T _{STG}	−55°C to +125°C	−55°C to +100°C	-55°C to +100°C	
remperature range	Operating temp.	Topr	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	
Soldering condition (lead part)		T _{sol}	Under 260°C within 10 sec.	Under 260°C within 10 sec.	Under 260°C within 10 sec.	Package less than 150°C
Frequency stability		△f/fo	$B:\pm 50$ ppm, $C:\pm 100$ ppm	B: ± 50ppm, C: ±100ppm	$B:\pm 50$ ppm, $C:\pm 100$ ppm	−10°C to +70°C
Current consumption		lop	25mA MAX.	35mA MAX.	50mA MAX.	No load condition
Duty		Tw/T	40% to 60% * (45% to 55% *1)	40% to 60% * * (45% to 55% * ₁)	40% to 60% * *	* : 1.4V or 1/2 V _{DD} level * * : 1.4V level
Output voltage		V _{OH}	V _{DD} -0.4V MIN.	V _{DD} -0.4V MIN.	2.4V MIN.	$I_{OH} = -400 \mu A$
		V _{OL}	0.4V MAX. *	0.4V MAX. *	0.4V MAX. * *	*:I _{OL} =16mA, * *:I _{OL} =8mA
Output load condition TTL (fan out) C-MOS		N	10 TTL MAX.	10 TTL (30pF) MAX.	5 TTL (15pF) MAX.	
		CL	50pF MAX.			
Output enable/standby input voltage		V _{tH}	2.0V MIN.	2.0V MIN.	2.0V MIN.	
		V _{IL}	0.8V MAX.	0.8V MAX. 0.8V MAX.		
Output disable current		l _{oe}	12mA MAX.	20mA MAX.	25mA MAX.	ÖE=GND
Standby current		I _{ST}	310μA MAX.			ST=GND
Output rise time t _{TLE}		t _{TLH}	8nsec. MAX.	10nsec. MAX.	6nsec. MAX.	Refer to output waveform
Output fall time t _{THL}		t _{THL}	8nsec. MAX.	8nsec. MAX.	6nsec, MAX.	chart (page 9)
Oscillation start time		tosc	4msec. MAX.	10msec. MAX.	10msec. MAX.	More than for 1mS until V _{DD} =0V→4.5V. Time at 4.5V to be 0sec.
Aging f		fa	±5ppm/year MAX.	±5ppm/year MAX.	±5ppm/year MAX.	Ta=25°C, V _{DD} =5V, first year
		S. R.	±20ppm MAX.	±20ppm MAX.	±20ррт МАХ.	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.

57E D

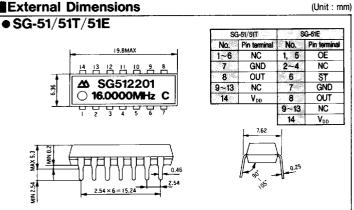
Note: Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

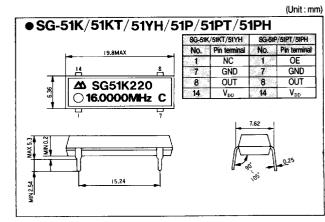
· External by-pass capacitor is recommended.

Frequency correspondence table

Frequency	I 1MHz	26MHz 50MHz
Model	∀	
SG-51/51K/51E,SG-531/531P		
SG-51T/51KT/51ET,SG-531T/531PT		(SG-51T: Up to 36MHz)
SG-51PH/51YH,SG-531PH/531YH		

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 and standby 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
- Possible with 386 CPU
- Use of C-MOS IC enables reduction of current consumption

Item Output frequency range		Symbol	SG-51PH/51YH,SG-531PH/531YH						
			Specifications	Remarks					
		fo	26.0001MHz to 66.6667MHz						
Power source Max.supply voltage V _{DD} -GND			-0.3V to +7.0V						
oltage Operating voltage V _{DD}		5.0V ±0.5V *2							
Temperature	Storage temperature	V_{STG}	−55°C to +100°C						
range Operating temperature T _{OPR}		-10°C to +70°C							
Soldering condition (lead part)		T _{sol}	Under 260°C within 10sec	Package less than 150°C					
Frequency stat	oility	∆f/fo	(B: ±50ppm)C ±100ppm	−10°C to+70°C. B type is possible up to 55MHz, please consult us.					
Current consun	nption	lop	35mA MAX.	No load condition Up to 45MHz : 21mA MAX.					
Duty		Tw/T	40% to 60%	1/2 V _{DD} level					
Output voltage		V _{on}	$V_{\rm nD}$ $-0.4V$ MIN.	$I_{0II} = -4\text{mA}$					
		V _{ol}	0.4V MAX.	$I_{\rm OL} = 4 \text{mA}$					
Output load	TL,	N							
condition(Fan c	out) C-MOS	CL	50pF MAX.						
Output enable/standby input voltage		V _{iH}	2.0V MIN.						
		V _{IL}	0.8V MAX.						
Output disable current I _{OE}			20mA MAX.	OE=GND. Up to 45MHz : 15mA MAX.					
Standby curren	t	I _{ST}							
		t _{TLH}	7nsec.MAX. ※2	Over 45MHz: 5nS. MAX. Refer to output waveform chart (page 9)					
		t _{thl}	7nsec.MAX. ※2						
Oscillation start time tosc		t _{osc}	10msec.MAX.	More than for 1mS until $V_{\rm DD}$ =0V \rightarrow 4.5V Time at 4.5V to be 0sec.					
Aging fa		±5ppm/year MAX.	Ta=25°C V _{DD} =5V, first year						
Shock resistance S.R.			±20; nm MAX.	Drop test of 3 times on a hard bo⊾id from 75cm height or excitation test with 3000G×0.3mS×1/2 sine wave in 3 directions in 3directions					

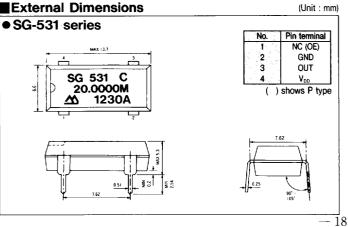
^{*1} It is possible depending on condition, reference data (page 22).

※2 AC characteristics of 386 CPU.

(V_{DD} =5V ± 0.25 V, Load : CL \leq 50pF, Ta=-10 to $\pm 70^{\circ}$ C, Refer to output waveform chart of 386 CPU)

Output frequency		26.001MHz to 36.000MHz		40.000MHz		45.000MHz to 50.000MHz		50.001MHz to 66.667MHz		Unit	Remarks
illem :	Symbol	Mim,	Max.	Max.	Min.	Mim.	Max.	Min.	Max.	Othe	nemarks
CLK high time	t2a	9		8		7	1	6.25		ns	2V level
CLK high time	t2b	5		5		4		4.5		ns	Under 45MHz : V _{ID} = 0.8V level Over 45MHz : 3.7V level
CLK low time	t3a	9	· · · · · · · · · · · · · · · · · · ·	8		7		6.25		ns	2V level
CLK low time	13b	7		6		5		4.5		ns	2v level
CLK fall time	t4		8		8		7		4	ns	Under 45MHz : V _{bb} = 0.8V to 0.8V Over 45MHz : 3.7V to 0.8V
CLK rise time	t5	-	9		9		7		4	ns	Under 45MHz : V _{bb} 0.8V to V _{bb} = 0.8V Over 45MHz : 0.8V to 3.7V

■External Dimensions



■Waveform Chart of 386 CPU

