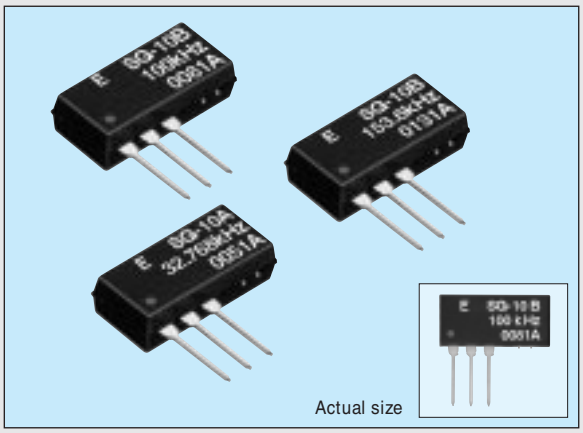
SIP LOW/MEDIUM-FREQUENCY CRYSTAL OSCILLATOR

SG-10

Products number (please refer to page 1)

Q3110000xxxxx00

- Low current consumption.
- Small suited to high-density mounting.
- Mountable on a standard printed circuit board.
- Cylindrical low/medium-frequency crystal unit builtin, thus assuring high reliability.



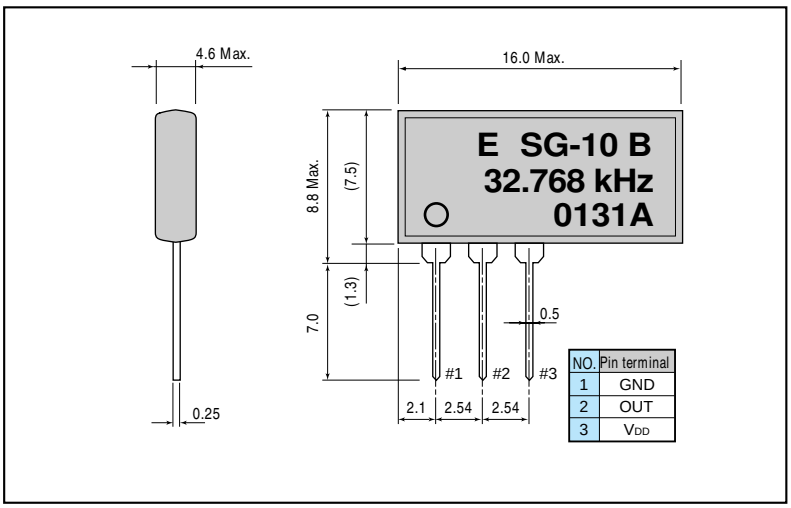
Specifications (characteristics)

Item		Symbol	Specifications	Remarks
Output frequency range		f_0	10.0000 Hz to 153.6000 kHz	For output frequency, see the table below
Power source voltage	Max. supply voltage	V_{DD}-GND	-0.3 V to +7.0 V	
	Operating voltage	V_{DD}	4.5 V to 5.5 V	
Temperature range	Storage temperature	T_{STG}	-55 °C to +125 °C	Stored as bare product after unpacking
	Operating temperature	T_{OPR}	-10 °C to +70 °C	
Frequency tolerance		$\Delta f/f_0$	A: ±10 x 10^{-6} B: ±50 x 10^{-6}	V_{DD}=5 V Ta=+25 °C
Frequency temperature characteristics			+10 x 10^{-6} / -120 x 10^{-6}	-10 °C to +70 °C, taking Ta=+25 °C as the reference
Frequency voltage characteristics			±10 x 10^{-6} Max.	
Current consumption		I_{OP}	0.5 mA Max..	No load condition
Duty		t_W/t	40 % to 60 % (except for cases of 1/3 and 1/5 divided frequency.)	1/2 V_{DD} or 1.4 V level
Output voltage		V_{OH}	V_{DD} -1.0 V Min.	I_{OH}= -40 µA
		V_{OL}	0.4 V Max.	I_{OL}=1.6 mA
Output load condition (fan out)		N/C_L	1 TTL Max./15 pF Max.	TTL load/C-MOS load
Output rise time		t_{TLH}	60 ns Max.	
Output fall time		t_{THL}	50 ns Max.	
Oscillation start up time		t_{OSC}	1 s Max.	For more than 1 ms until V_{DD}=0 V→4.5 V. Time at 4.5 V to be 0 s
Aging		fa	±5 x 10^{-6}/year Max.	Ta=+25 °C ±3 °C, V_{DD}=5 V, first year
Shock resistance		S.R.	±5 x 10^{-6} Max.	Three drops on a hard board from 750 mm or excitation test with 29400 m/s² x 0.3 ms x 1/2 sine wave in 3 directions

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

External dimensions

(Unit: mm)



Output frequency table

Oscillation source	32.768 kHz,60.000 kHz, 96.000 kHz, 100.000 kHz, 153.600 kHz
Divided frequency output (calculation method)	Oscillation source frequency x (any arbitrary one of 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/12) x (any arbitrary one of 1/1, 1/10, 1/100, 1/1000). Over 10.0 Hz range.

For frequencies other than the above, please consult us. (Min. order lot 10000 pcs.)

Output frequency example

Oscillation source	32.768 kHz , 60.000 kHz , 96.000 kHz, 100.000 kHz ,153.600 kHz
Divided frequency	10.000 Hz, 50.000 Hz, 100.000 Hz, 1.000 kHz, 4.800 kHz , 9.600 kHz, 19.200 kHz , 38.400 kHz, 50.000 kHz , 76.800 kHz