

PAD	CONNECTION
1	Enable/Disable
2	Ground
3	Output
4	Supply

## Specifications

Parameters	Product	Option Codes
	GAO-3301	
Frequency:	32.768kHz	■
Frequency stability*:	±50ppm ±25ppm	□ ■ B A
Operating temperature range:	-20 to +70°C -40 to +85°C	□ ■ I
Storage temperature range:	-55 to +125°C	■
Supply voltage (V <sub>DD</sub> ):	Operable from +1.8 ~ +3.3V	■
Supply current (@ 15pF):	0.05mA typ, 0.08mA max (1.8V) 0.06mA typ, 0.10mA max (3.3V)	■ ■
Driving ability:	15pF CMOS	■
Logic levels:	'0' level = 10%V <sub>DD</sub> max '1' level = 90%V <sub>DD</sub> min	■ ■
Waveform symmetry:	45:55 @ 50%V <sub>DD</sub>	■
Rise / fall time:	2.8ns typ, 10ns max	■
Ageing:	±5ppm / year max	■

■ Standard. □ Optional - Please specify required code(s) when ordering

## Features

- ▶ Excellent temperature stability
- ▶ Low current consumption
- ▶ AT-cut resonator + dividing circuit
- ▶ Miniature ceramic package with metal lid
- ▶ Competitive pricing

## Ordering Information

Product name + option codes

eg: **GAO-3301/B** 1.8~3.3V, ±50ppm, -20+70°C

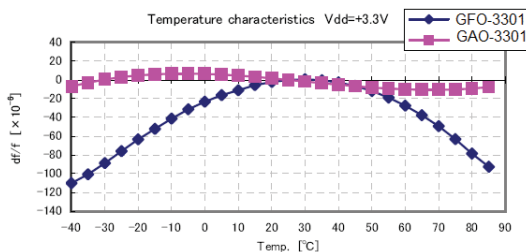
**GAO-3301/AI** 1.8~3.3V, ±25ppm, -40+85°C

\* Frequency stability is inclusive of calibration @ 25°C, operating temperature range, supply voltage change and load change.

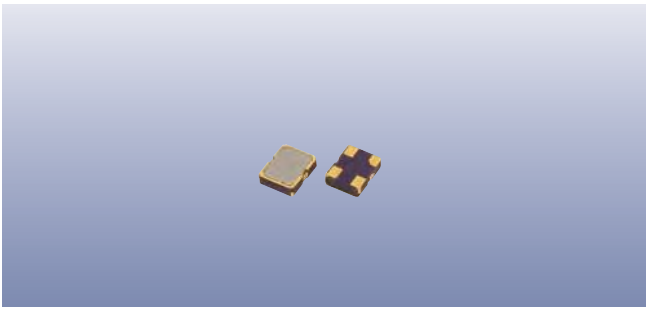
## Enable / Disable Function

Input (pad 1)	Output (pad 3)
Open	Enabled
'1' level (V <sub>IH</sub> = 70% V <sub>DD</sub> min)	Enabled
'0' level (V <sub>IL</sub> = 30% V <sub>DD</sub> max)	High Impedance

## Temperature Characteristics vs GFO-3301



- ◆ GAO-3301 offers good temp stability, but draws higher current
- ◆ GFO-3301 draws very low supply current, but looser stability



**Construction**

- ▮ Ceramic body with gold-plated pads
- ▮ Metal lid, seam sealed

**Composition**



This product is lead-free, and is fully compliant with the RoHS 2 directive 2011/65/EU



**Packaging & Handling**

Production quantities supplied on T&R, 1k or 3k pcs per reel. Small quantities may be supplied on tape (no reel), or in bulk.



◆ Static sensitive product. Observe proper handling precautions

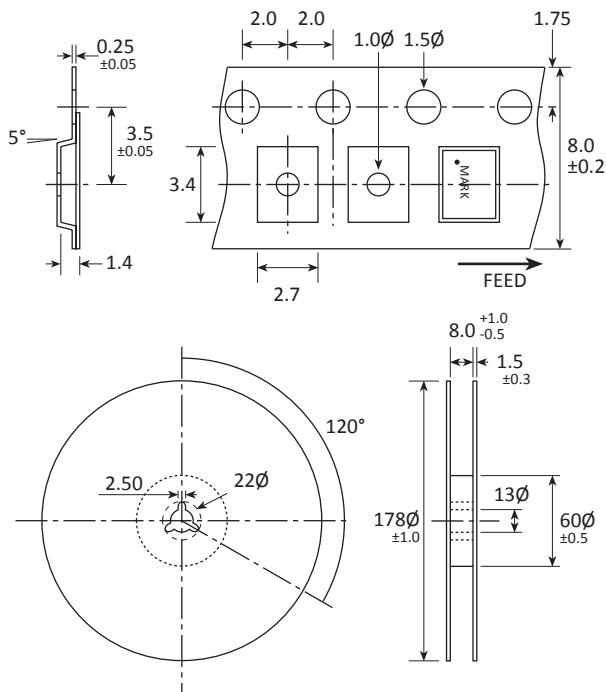
**Marking**

FREQUENCY	DC
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Marking type: Laser  
DC = Date code in YM, eg "CE" = May 2013

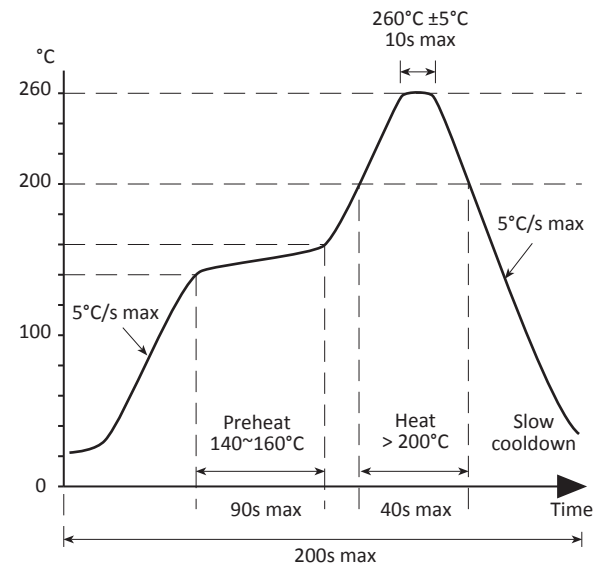
	A	B	C	D	E	F	G	H	J	K	L	M
Y	1	2	3	4	5	6	7	8	9	0		
M	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

**Tape & Reel Specification**



Not to scale. Dimensions in mm. Tolerances ±0.1mm unless otherwise stated.

**Soldering Profile**



Solder resistance: 260°C x 10 secs x 2.