

# GT-Cut Crystal Oscillator

**ASEGT**

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x 0.85 mm

RoHS/RoHS II Compliant

MSL Level = 1

## Features

- High operating temperature 200°C max
- Low height 0.85 mm max
- Tri-state function
- Low current consumption
- Suitable for RoHS reflow

## Applications

- High temperature sensors and controllers
- Down-hole Oil and Gas Exploration and Guidance
- Geo-thermal Energy Generation
- Engine Sensor and Control
- Pressure sensing and industrial instrumentation

## Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Unit	Notes
Frequency Range	1		150	MHz	
Operating Temperature	-40		+200	°C	See options
Storage Temperature	-40		+200	°C	See options
Overall Frequency Stability (1)	-50		+50	ppm	See options
Supply Voltage (Vdd)	-10%	1.8	+10%	V	
	-10%	2.5	+10%	V	
	-10%	3.3	+10%	V	
Supply Current (Idd)			15	mA	No load
Symmetry @ 1/2Vdd	45	50	55	%	
Rise and Fall Time (Tr/Tf)		1.5	5.0	ns	10% Vdd to 90% Vdd
Output Load			15	pF	CMOS
Output Voltage (VOH)	0.9* Vdd			V	
Output Voltage (VOL)			0.1* Vdd	V	
Standby Current			150	µA	No load
Tri-state function (Stand-by)	"1" (VIH ≥ 0.7*Vdd) or Open: Oscillation; "0" (VIL < 0.3*Vdd) : No oscillation/Hi Z				
Aging at 25°C (first year)	-3		+3	ppm	
Start-up Time			10	ms	

Note 1: Overall frequency stability includes initial frequency tolerance @25°C ± 3°C and stability over the operating temperature range.

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## Options and Part Identification

ASEGT  -  MHz -   -

### Supply Voltage (Vdd)

Blank: 3.3V ±10%

2: 2.5V ±10%

3: 1.8V ±10%

### Packaging

Blank: Bulk

T: 1000pcs/Reel

T3: 3000pcs/Reel

### Frequency in MHz

e.g. 24.576MHz

14.31818MHz

26.000MHz

100.000MHz

### Operating Temp.

K: -40°C ~ +125°C

G: -40°C ~ +200°C

### Overall Freq. Stability

C: ±50ppm

Q: ±100ppm

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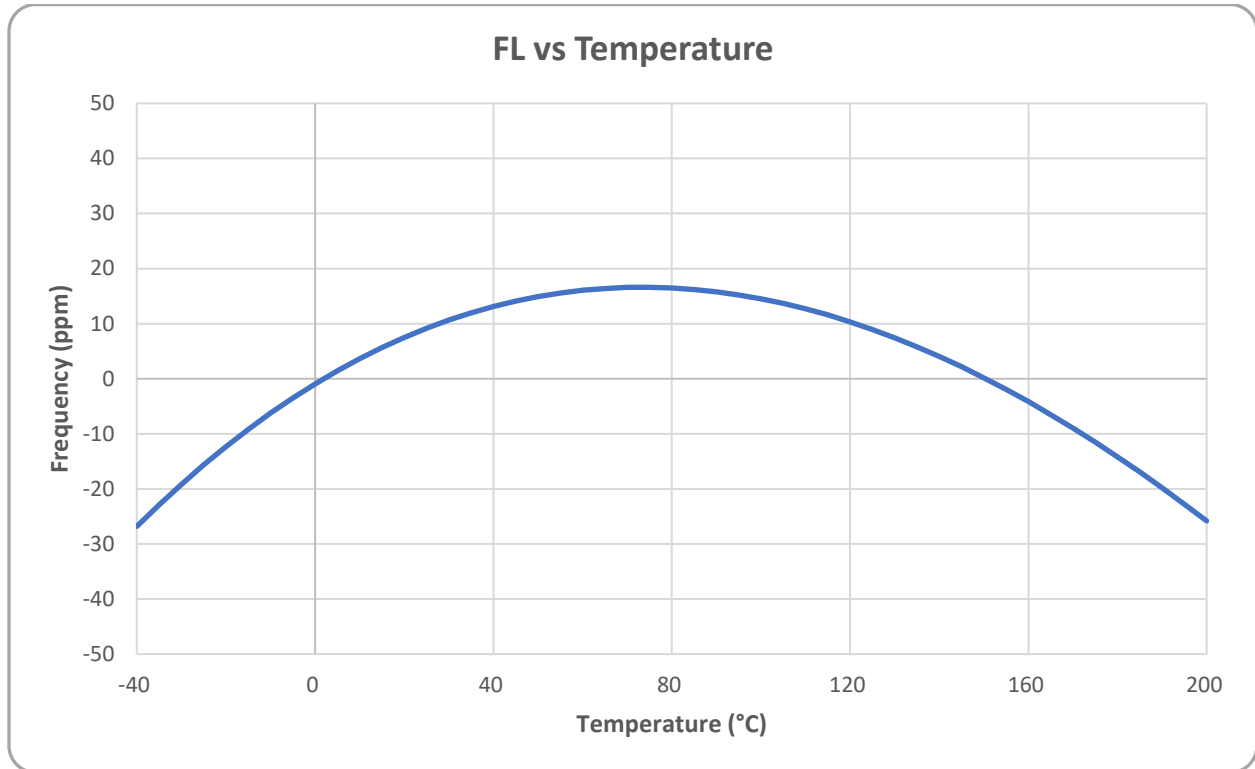


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## Frequency vs Temperature characteristics (Typical, unnormalized)



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## Reflow Profile [JEDEC J-STD-020]

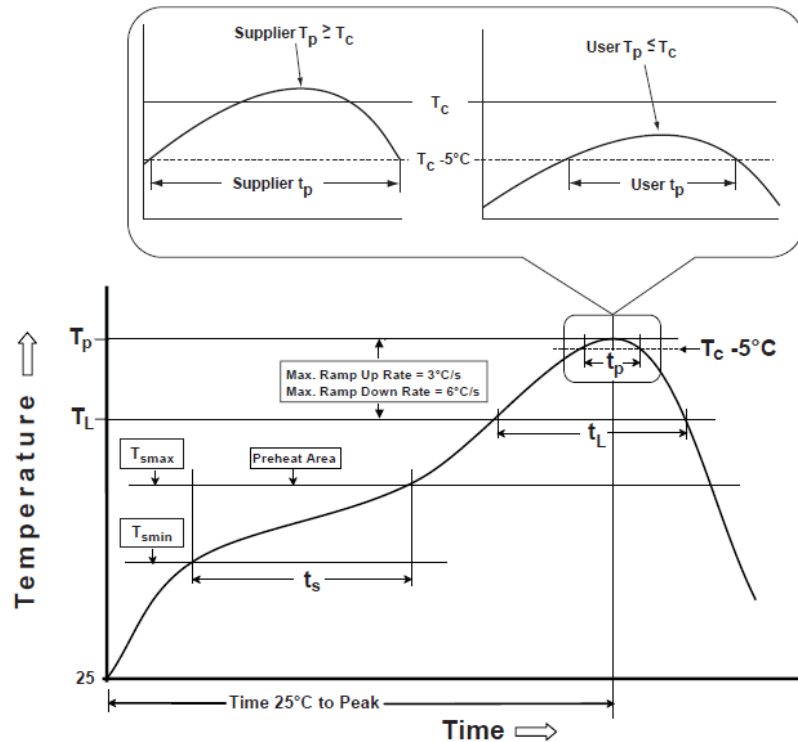


Table 1

### SnPb Eutectic Process

#### Classification Temperatures ( $T_c$ )

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq 350$
<2.5 mm	235 °C	220 °C
$\geq 2.5$ mm	220 °C	220 °C

Table 2

### Pb-Free Process

#### Classification Temperatures ( $T_c$ )

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350-2000	Volume $\text{mm}^3$ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
$> 2.5$ mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum ( $T_{smin}$ )	100°C	150°C
Temperature maximum ( $T_{smax}$ )	150°C	200°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate ( $T_{smax}$ to $T_p$ )	3°C/sec. max	3°C/sec. max
Liquidous temperature ( $T_L$ )	183°C	217°C
Time at liquidous ( $t_L$ )	60 - 150 sec.	60 - 150 sec.
Peak package body temperature ( $T_p$ )*	see Table 1	see Table 2
Time ( $t_p$ )** within 5°C of the specified classification temperature ( $T_c$ )	20 sec.	30 sec.
Ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

\*Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\*Tolerance for time at peak profile temperature ( $t_p$ ) is defined as supplier minimum and a user maximum.

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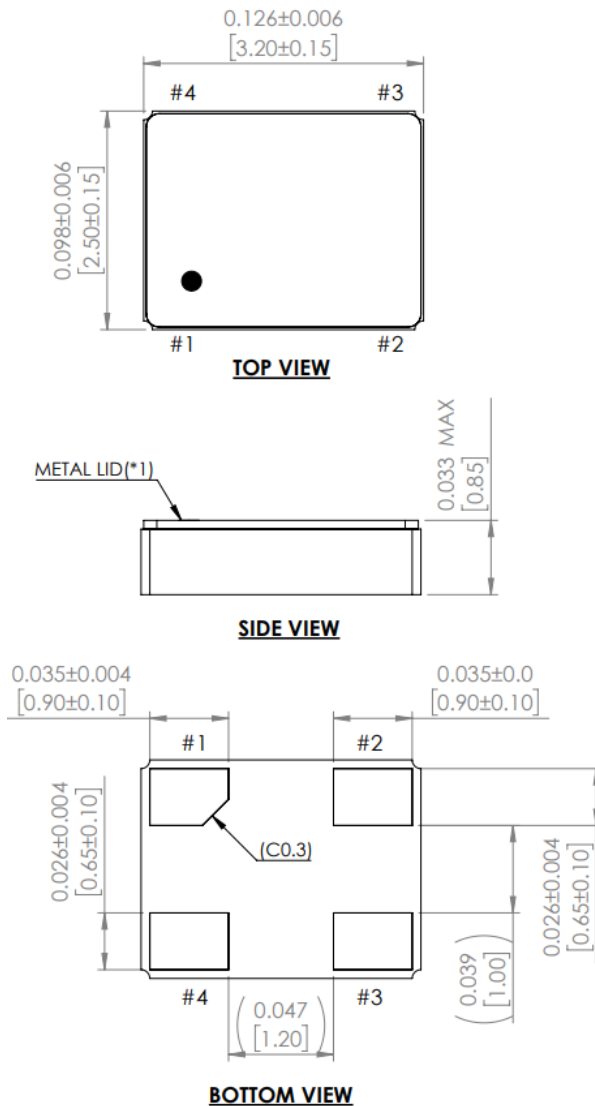
ESD Sensitive



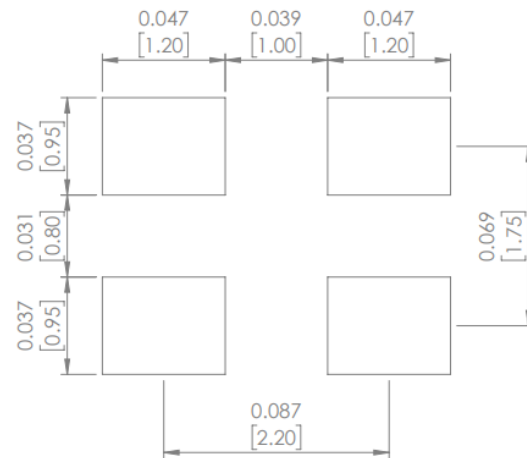
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## Mechanical Dimensions



### Recommended Land Pattern



Pin	Function
1	Tri-State (STBY)
2	GND
3	Output
4	Vdd

**Note 1:** Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

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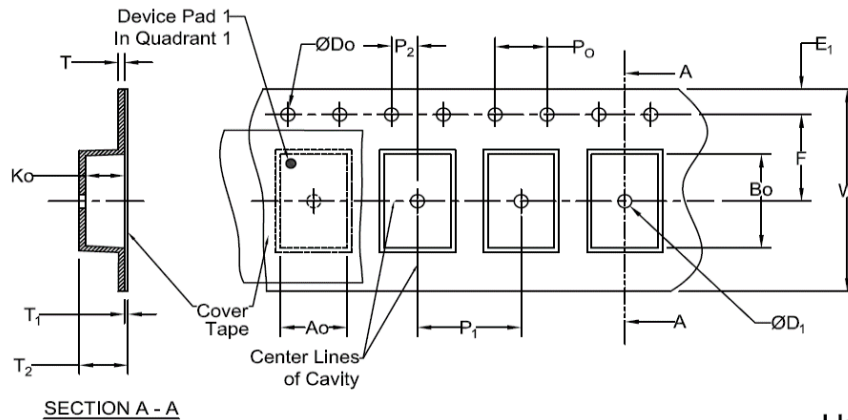
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## Packaging

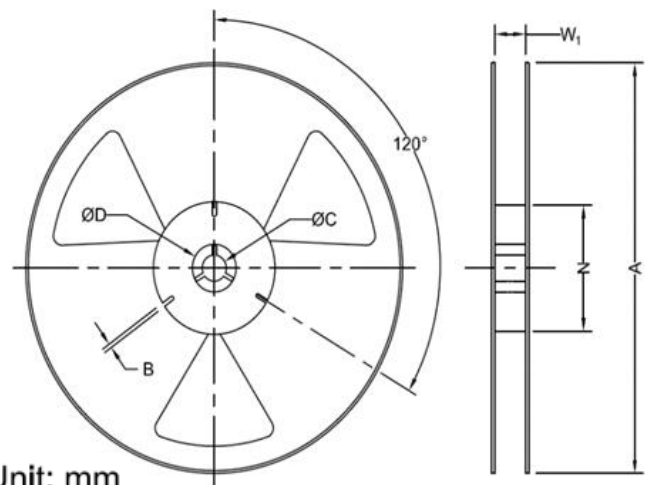
T: 1,000pcs/reel  
T3: 3,000pcs/reel



Unit: mm

Tape Specifications (mm)						
Ao	Bo	Do	D <sub>1</sub> (Min)	E <sub>1</sub>	F	Ko
*	*	1.5+0.1/-0.0	1.0	1.75±0.1	3.5±0.05	*
P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	T (Max)	T <sub>1</sub> (Max)	T <sub>2</sub> (Max)	W (Max)
4.0±0.1	2.0±0.05	4.0±0.1	0.6	0.1	2.5	8.3

Tape Specifications (mm)		
A (Nom)	B (Min)	C (Min)
178	1.5	13.0+0.5/-0.2
D (Min)	N (Min)	*W <sub>1</sub>
20.2	50	8.4+1.5/-0.0



Unit: mm

\*Note: Compliant to EIA-481

**ATTENTION:** Abracon LLC's products are Commercial-Off-The-Shelf (COTS), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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REVISED: 02-27-24

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