

# 32.768kHz SMD LOW PROFILE CRYSTAL

ABS13

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RoHS/RoHS II compliant.  
Pb in high temperature solder

(exempt 7(a) per RoHS II 2011/65/EU Annex)

6.9 x 1.4 x 1.3 mm

Moisture Sensitivity Level: Level 1

## FEATURES:

- Low frequency
- Plastic package with embedded heat resistant crystal in cylinder package
- Extended temperature -40°C to +85°C for industrial applications
- Suitable to RoHS compliant reflow

## APPLICATIONS:

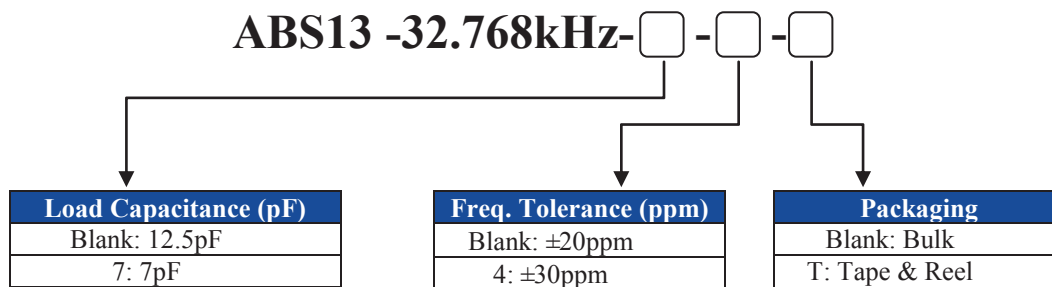
- Commercial & Industrial applications
- Wireless communications
- PDA and Palm Pilots

## STANDARD SPECIFICATIONS:

Parameters	Minimum	Typical	Maximum	Units	Notes
Nominal Frequency	-----	32.768	-----	kHz	
Operating Temperature	-40	-----	+85	°C	
Turnover Temperature	+20	+25	+30	°C	
Storage Temperature	-55	-----	+125	°C	
Frequency Tolerance @+25°C	-20	-----	+20	ppm	See options
Frequency Coefficient (β)	-0.040	-0.034	-0.028	ppm/T <sup>2</sup>	
Equivalent series resistance (R1)	-----	-----	65	kΩ	
Load capacitance (CL)	-----	12.5	-----	pF	See options
Drive Level	-----	-----	1	μW	
Aging	-3	-----	+3	ppm	@25°C±3°C First year
Insulation Resistance	500	-----	-----	MΩ	@ 100Vdc ± 15V

## OPTIONS AND PART IDENTIFICATION:

(Left blank if standard)



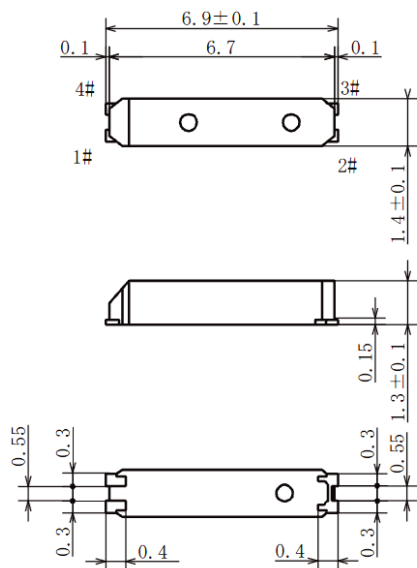
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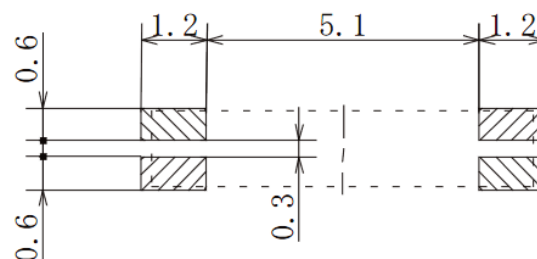
6.9 x 1.4 x 1.3 mm

## OUTLINE DRAWING:



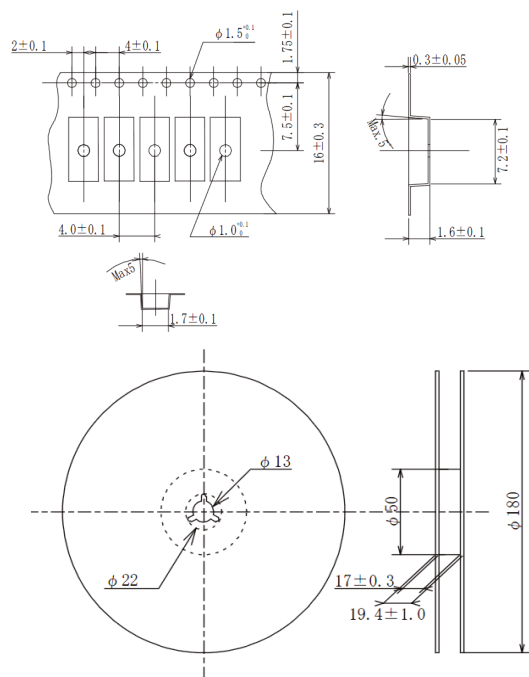
Do not connect to external with #2 and #3.

## Recommended Land Pattern



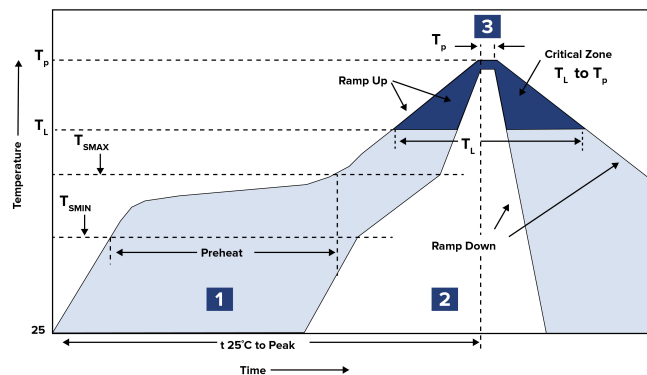
**Dimensions: mm**

**TAPE & REEL:** T = Tape and reel 3,000pcs/reel



Dimensions: mm

## REFLOW PROFILE



Zone	Description	Temperature	Times
1	Preheat	$T_{\text{SMIN}} \sim T_{\text{SMAX}}$ 170 °C ~ 190 °C	60 ~ 120 sec.
2	Reflow	$T_{\text{L}}$ 230 °C	55 sec. MAX
3	Peak Heat	$T_{\text{P}}$ 260 °C	10 sec. MAX

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