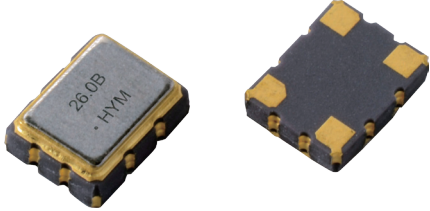


CRYSTAL OSCILLATOR

VC-TCXO/ TCXO

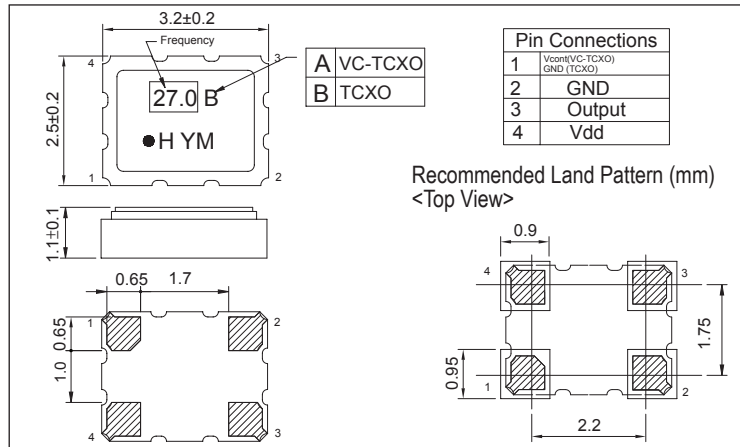
HSA321S/HSB321S Series



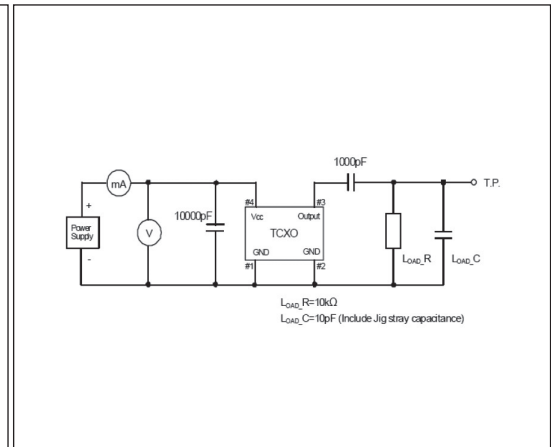
Features:

- High precision and high reliability at wide range of operating temperature (± 0.5 ppm \sim ± 2.0 ppm/ $-30^{\circ}\text{C} \sim 85^{\circ}\text{C}$).
- Low voltage operation (1.8 V \sim 3.3 V.)
- Voltage Control Function available.
- Applications for GPS, Femtocell, RF module, smartphone and wireless communications.

Dimension (mm):



Measurement Circuit:



Standard Specification:

ITEM	TYPE	VC-TCXO	TCXO
		HSA321S	HSB321S
Frequency Range		13 ~ 52MHz	
Supply Voltage		1.8 ~ 3.3 V	
Current Consumption		+2.0mA max.	
Harmonics		- 5 dBc Max.	
Output Level		0.8 Vp-p min	
Output Load		10K Ω // 10pF	
Frequency Stability	Tolerance	± 2.0 ppm max. (After 2 times reflow)	
	vs Temperature	± 0.5 ppm max. / $-30 \sim +85^{\circ}\text{C}$	
		± 2.0 ppm max. / $-30 \sim +85^{\circ}\text{C}$	
	vs Slope	± 0.2 ppm/ $^{\circ}\text{C}$ max. ($-30 \sim +85^{\circ}\text{C}$)	
	vs Supply Voltage	± 0.2 ppm max. (vdd \pm 5%)	
	vs Load Variation	± 0.2 ppm max. (10K Ω /10pF \pm 10%)	
	vs Aging	+/- 1ppm. / year	
Frequency Control	Control sensitivity	$\pm 9.0 \sim \pm 15$ ppm / Vcont=+1.4V \pm 1V@Vdd=2.8V	-
	Start Up	5.0 ms max.	
Phase Noise	offset 1kHz	- 130 dBc / Hz	

*Packing Unit: 3,000pcs/Reel.