

恒温振荡器 Oven Controlled Crystal Oscillator: KO2013T KO2013S

Feature 特征

- Available with HCMOS and True Sine Wave output 提供 HCMOS 和正弦波输出选择
- High performance AT or SC cut crystal for exceptional frequency accuracy 高性能 AT/SC 切晶片，频率精度高
- Standard voltage control enables precise frequency adjustment 内置标准压控功能
- Ultra-high frequency stability across a wide temperature range 宽温环境下，频率稳定性高
- Ideal for telecom, instrumentation, satellite, and other precision timing application 适用于通信，测试仪器，卫星等



General Specifications 规格参考

PARAMETER	性能参数	KO2013T			KO2013S	
Supply Voltage	工作电压	+3.3V±5%; +5.0V±5%; +12.0V±5%				
Output Waveform	输出波形	HCMOS			True Sine	
Frequency Range	频率范围	5~50MHz			5~160MHz	
Standard Frequency	通用频率	5, 10, 12.5, 20, 38.88, 80, 100MHz				
Output Load	输出负载	15pF (50pF max)			50Ω	
Output Logic	输出电平	High: ≥0.9Vdd Low: ≤0.1Vdd			5~9dBm	
Initial Calibration Tolerance	基准温度 初始精度	±50ppb~±500ppb				
Voltage Control	压控范围	0~3.3V(Vcon=1.65V); 0~5V(Vcon=2.5V) 或 固定				
Frequency Adjustment	频率调整	±2.0~5.0ppm(AT-cut); ±0.3~1.0ppm(SC-cut)				
EFC Linearity	非线性误差	正向±10% max.				
Power Dissipation	功耗	1.5W max at steady-state@25°C; 3.0W max at turn-on				
Frequency Stability 频率稳定性						
Operating Temperature Range	温度范围	-10~+60°C	-20~+70°C	-40~+85°C	-55~+105°C	
Frequency Stability	温度频差	±50~±200ppb	±100~±300ppb	±200~±500ppb	±300~±500ppb	
Load Change	负载变化	±5~±20ppb				
Voltage Change	电压变化	±5~±20ppb				
Warm-up Time	预热时间	5 minute max. within ±50ppb of its reference frequency.				
Aging	老化率	±5~±10ppb per day; ±200~±1000ppb per year				
Harmonic	谐波	-			<-30dBc	
Spurious	杂散抑制	-			<-70dBc	
Duty Cycle	占空比	45~55%			-	
Rise & Fall Time	上升下降时间	7 ns max.			-	
Phase Noise	相位噪声 (dBc/Hz)	-60 → -90	-80 → -110	-110 → -130	-120 → -140	-130 → -150
		1Hz	10Hz	100Hz	1KHz	>10KHz
Storage Temperature Range	储存温度范围	-55°C~+125°C				
Shock	冲击	2000 G's, 0.3ms ½sine				
Vibration	振动	10 to 2000 Hz/10G's				

NOTE: Please consult for other specifications 若有其它规格需求请告知

■ Outline Dimensions (Unit: mm) 外形尺寸

KO2013T
KO2013S

KOAN
20.000MHZ
OCJ04Y5

20.3±0.2

15.24±0.2

13.2±0.2

7.62±0.2

1

7

14

8

10.5

6.35max

Pin	Connection
#1	Voltage Control EFC/NC
#7	Ground/Case
#8	Output
#14	Supply Voltage

■ Part Number Guide 产品编号

<u>KO1409T</u>	-	<u>20.000</u>	-	<u>33</u>	-	<u>B</u>	-	<u>A2</u>	-	<u>NS</u>
↓		↓		↓		↓		↓		↓
型号	-	标称频率	-	工作电压	-	工作温度	-	温度频差	-	特殊要求

‘KO’:温补系列
‘2013’:封装尺寸
20.3x13.2mm/DIP
‘T’:输出波形 HCMOS

(In MHz)

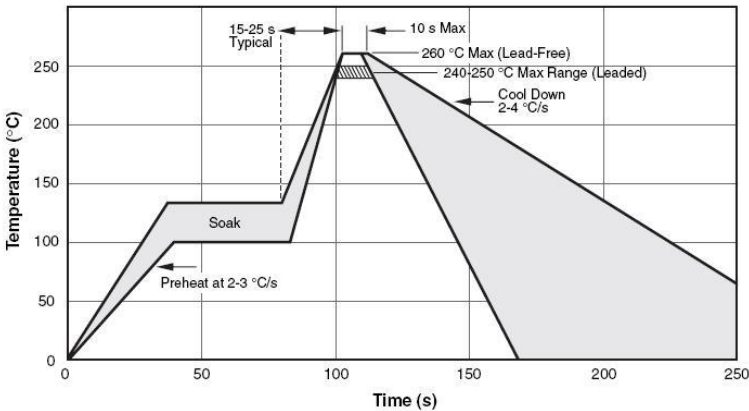
33=3.3V
50=5.0V
12=12.0V

A: -10~+60°C
B: -20~+70°C
C: -40~+85°C
E: -55~+105°C

A1 = ±0.1ppm = ±100ppb
A2 = ±0.2ppm = ±200ppb
A3 = ±0.3ppm = ±300ppb
B1 = ±0.01ppm = ±10ppb
B2 = ±0.02ppm = ±20ppb
B3 = ±0.03ppm = ±30ppb
B5 = ±0.05ppm = ±50ppb

‘NS’:特殊要求

■ Wave Solder Profile 波峰焊



Average Ramp-up Rate	升温速度	~200°C/Second
Heating Rate during preheat	预热速度	1~2°C/second typ.; 4°C/second max
Final Preheat Temperature Ts	最终预热温度	~130°C
Peak Temperature Tp	最高温度	260°C
Time within +0°C/-5°C of actual temperature tp	实际温度时间	10 seconds
Ramp-Down Rate	降温速度	5°C/second max

■ Revision 版本

版本 Rev.	修改页 Revise Page	修改内容 Revise Contents	日期 Date	修改人 Reviser
0	N/A	Initial issue	2021.01.22	JH