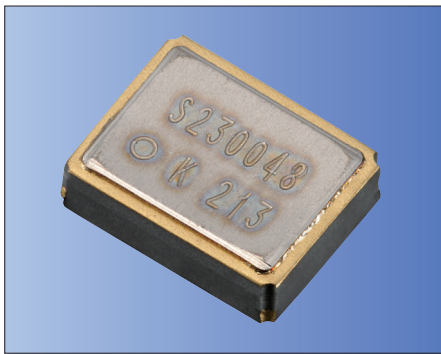




CMOS/ 3.0V Typ./ 3.2×2.5mm



AEC-Q200 RoHS Compliant

Features

- Miniature SMD type (3.2×2.5×1.0mm)
- 32.768kHz D-TCXO
- High frequency stability : $\pm 5.0 \times 10^{-6}$ / -40 to +85°C
- Low supply current : 1.5µA typ ($V_{DD}=3.0V$, Output at no load)
- Temperature compensated voltage Range : 2.0V to 5.5V
- Operating Temp. -40 to +105°C (option)

Applications

- High accuracy time references
- Microcontroller with built in RTC

How to Order

Frequency Tolerance (vs Temp.) : $\pm 3.8 \times 10^{-6}$ / -10°C to 60°C
KT3225T 32768 D G R □ □ T xx
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Frequency Tolerance (vs Temp.) : $\pm 5.0 \times 10^{-6}$ / -40°C to 85°C
KT3225T 32768 E A W □ □ T xx
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Series
- ② Output Frequency
- ③ Frequency Stability
- ④ Lower Temperature
- ⑤ Upper Temperature

	③	④	⑤
DGR	$\pm 3.8 \times 10^{-6}$	-10°C	+60°C
EAW	$\pm 5.0 \times 10^{-6}$	-40°C	+85°C

⑥ Supply Voltage ⑦ Initial Frequency Tolerance

30	3.0V	T	$\pm 3.0 \times 10^{-6}$
33	3.3V		
50	5.0V		

- ⑧ Individual Specification
- Packaging (Tape & Reel 3000 pcs./ reel)

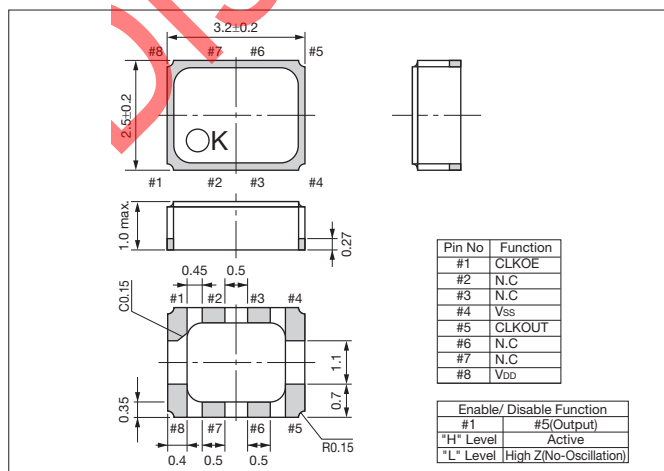
Specifications

Item	Symbol	Conditions	Specifications			Units
			Min.	Typ.	Max.	
Nominal Frequency	f_{nom}		—	32.768	—	kHz
Oscillation Output Voltage	V_{DD}		1.3	3.0	5.5	V
Temperature Compensated Voltage	V_{TEM}		2.0	3.0	5.5	V
Storage Temperature	T_{stg}		-40	+25	+85	°C
Operating Temperature	T_{use}		-40	+25	+85	°C
Initial Frequency Tolerance	—	$T_a=25 \pm 2^\circ C$	-3.0	—	+3.0	$\times 10^{-6}$
Frequency Stability vs Temp.	f_o-Tc	E: $T_a=-40$ to $+85^\circ C$	-5.0	—	+5.0	$\times 10^{-6}$
Frequency Stability vs Supply Voltage	df/f_o	$V_{DD}=2.0$ to $5.5V, T_a=25 \pm 2^\circ C$	-1.0	—	+1.0	$\times 10^{-6}/V$
Frequency Aging	f_{age}		-3.0	—	+3.0	$\times 10^{-6}$
Low Level Output Voltage	V_{OL}	$I_{OL}=\pm 1.0mA, V_{DD}=3V$	0.0	—	0.8	V
High Level Output Voltage	V_{OH}	$I_{OH}=-1.0mA, V_{DD}=3V$	2.2	—	3.0	V
Low Level Input Voltage	V_{IL}	CLKOE pin	0.0	—	$0.2 \times V_{DD}$	V
High Level Input Voltage	V_{IH}	CLKOE pin	$0.8 \times V_{DD}$	—	5.5	V
DUTY Ratio	Duty	$CL=15pF$	40	—	60	%
Rise Time	T_r	$20\%V_{DD}$ - $80\%V_{DD}, CL=15pF, V_{DD}=3V$	—	—	100	ns
Fall Time	T_f	$80\%V_{DD}$ - $20\%V_{DD}, CL=15pF, V_{DD}=3V$	—	—	100	ns
Start-up Time	t_{str}	$T_a=25^\circ C$	—	—	1.0	sec
		$T_a=-40$ to $85^\circ C$	—	—	3.0	sec
Power Supply Current1	I_{cc1}	$CLKOE=V_{ss}, V_{DD}=3V$	—	0.6	2.0	µA
Power Supply Current2	I_{cc2}	$CLKOE=V_{DD}, V_{DD}=3V$, Output at no load	—	1.5	4.0	µA
		$CLKOE=V_{DD}, V_{DD}=3V, CL=15pF$	—	2.7	5.5	µA
Output Load Condition	L_{CMOS}	CMOS Output	—	—	15.0	pF

* Please contact us for other specifications.

Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)

