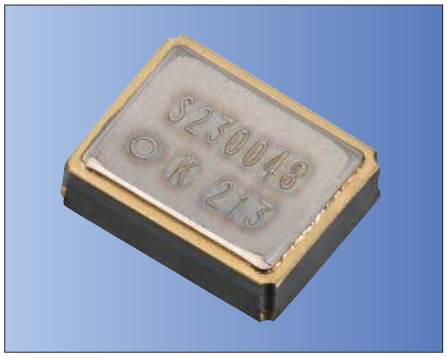
KYOCERA

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 : ±5.0x10^{-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.) : ±3.8×10^{-6}/ –10°C to 60°C

KT3225T ① 32768 ② D ③ G ④ R ⑤ □□ ⑥ T ⑦ xx ⑧

Frequency Tolerance (vs Temp.) : ±5.0×10^{-6}/ –40°C to 85°C

KT3225T ① 32768 ② E ③ A ④ W ⑤ □□ ⑥ T ⑦ xx ⑧

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

	③	④	⑤
DGR	±3.8×10^{-6}	–10°C	+60°C
EAW	±5.0×10^{-6}	–40°C	+85°C

⑥ Supply Voltage

30	3.0V
33	3.3V
50	5.0V

⑦ Initial Frequency Tolerance

T	±3.0×10^{-6}

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

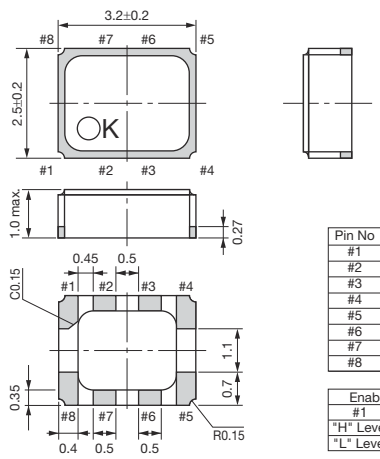
Specifications

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		Ta=25±2°C	–3.0	—	+3.0	×10^{-6}
Frequency Stability vs Temp.	fo-Tc	E : Ta=–40 to +85°C	–5.0	—	+5.0	×10^{-6}
Frequency Stability vs Supply Voltage	df/ fo	V_{DD}=2.0 to 5.5V, Ta=25±2°C	–1.0	—	+1.0	×10^{-6}/ V
Frequency Aging	f_age		–3.0	—	+3.0	×10^{-6}
Low Level Output Voltage	V_{OL}	I_{OL}=+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×V_{DD}	V
High Level Input Voltage	V_{IH}	CLKOE pin	0.8×V_{DD}	—	5.5	V
DUTY Ratio	Duty	CL=15pF	40	—	60	%
Rise Time	Tr	20%V_{DD}☒80%V_{DD}, CL=15pF, V_{DD}=3V	—	—	100	ns
Fall Time	Tf	80%V_{DD}☒20%V_{DD}, CL=15pF, V_{DD}=3V	—	—	100	ns
Start-up Time	t_str	Ta=25°C	—	—	1.0	sec
		Ta=–40 to 85°C	—	—	3.0	sec
Power Supply Current1	I_{CC}1	CLKOE=V_{SS}, V_{DD}=3V	—	0.6	2.0	μA
Power Supply Current2	I_{CC}2	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)

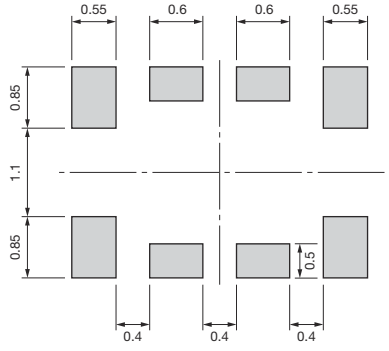


Pin No	Function
#1	CLKOE
#2	N.C
#3	N.C
#4	V_{SS}
#5	CLKOUT
#6	N.C
#7	N.C
#8	V_{DD}

Enable/ Disable Function	
#1	#5(Output)
"H" Level	Active
"L" Level	High Z(No-Oscillation)

Recommended Land Pattern

(Unit: mm)



Note: A capacitor of value 0.01μF between V_{DD} and GND is recommended.