



CMOS/ 3.0V Typ./ 3.2×2.5mm



RoHS Compliant

Features

- Miniature SMD type (3.2×2.5×1.0mm)
- 32.768kHz D-TCXO
- High frequency stability : ±5.0×10⁻⁶/ -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)
- AEC-Q200 qualified

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

Frequency Tolerance (vs Temp.) : ±5.0×10⁻⁶/ -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	±3.8×10 ⁻⁶	-10°C	+60°C
EAW	±5.0×10 ⁻⁶	-40°C	+85°C

- ⑥ Supply Voltage
- ⑦ Initial Frequency Tolerance

30	3.0V	T	±3.0×10 ⁻⁶
33	3.3V		
50	5.0V		

- ⑧ Individual Specification

Packaging (Tape & Reel 3000 pcs./ reel)

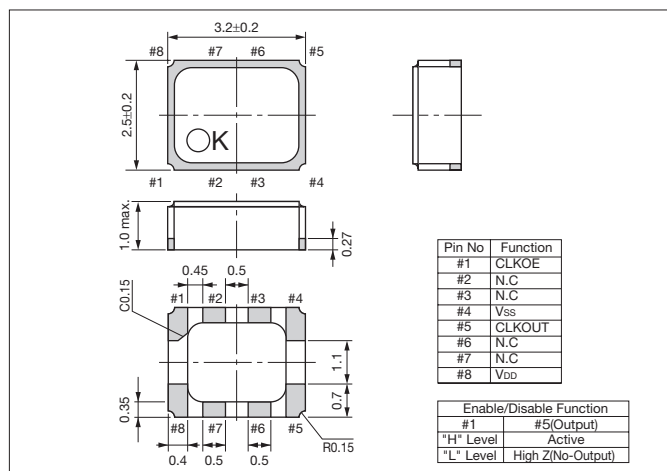
Specifications

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	—	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 _{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)

