



kHz Range Crystal Devices

Digital Temperature Compensated Crystal Oscillator

Surface Mount Type DTCXO KT3225T Series



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 : $\pm 5.0 \times 10^{-6}$ / -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)
- AEC-Q200 qualified

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)

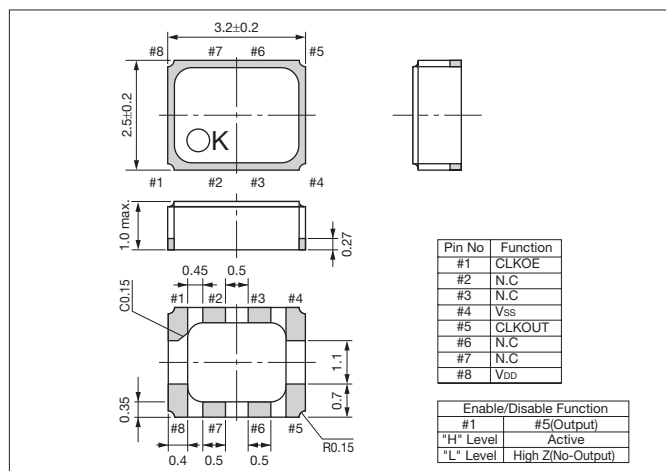
Specifications

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.	$fo-Tc$	$E : T_a = -40 \text{ to } +85^\circ C$	-5.0	—	+5.0	$\times 10^{-6}$
Frequency Stability vs Supply Voltage	df/fo	$V_{DD} = 2.0 \text{ to } 5.5V, T_a = 25 \pm 2^\circ C$	-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}	$I_{OL} = +1.0mA, V_{DD} = 3V$	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	$20\%V_{DD} \rightarrow 80\%V_{DD}, CL = 15pF, V_{DD} = 3V$	—	—	100	ns
Fall Time	t_f	$80\%V_{DD} \rightarrow 20\%V_{DD}, CL = 15pF, V_{DD} = 3V$	—	—	100	ns
Start-up Time	t_{str}	$T_a = 25^\circ C$	—	—	1.0	sec
		$T_a = -40 \text{ to } 85^\circ C$	—	—	3.0	sec
Power Supply Current1	I_{cc1}	CLKOE = Vss, $V_{DD} = 3V$	—	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.

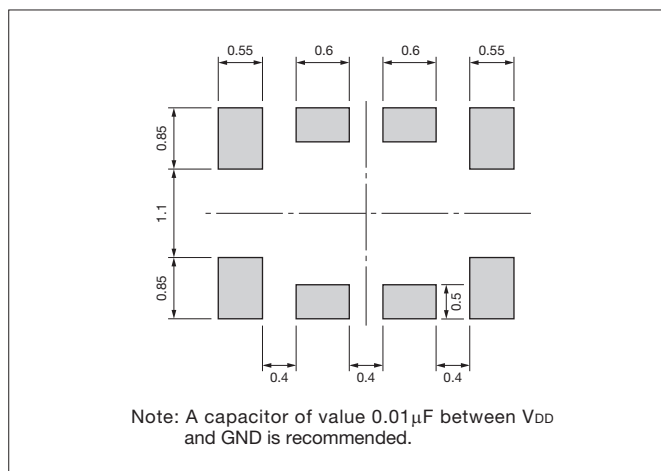
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Kyocera AVX:](#)

[KT3225T32768EAW30TAA](#) [KT3225T32768EAW33TAA](#)