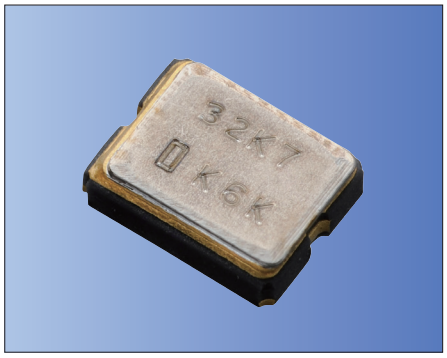
kHz Range Crystal Oscillators
Clock Oscillators Surface Mount Type
KC2520M Series(32.768kHz)

KYOCERA

CMOS/ 1.8V to 5.0V/ 2.5×2.0mm for Automotive



AEC-Q100/ 200 RoHS Compliant

Features

- Miniature ceramic package
  2.5 (L) ×2.0 (W) ×0.7 (H) mm (Typ.)
- Highly reliable with seam welding
- CMOS output
- Supply voltage 1.8/ 2.5/ 3.3/ 5.0V
  Wide operating voltage range 1.6 to 5.5V
- Low current consumption

Applications

- Car accessory

How to Order

KC2520M 32K7680 C M 3 E 00
① ② ③ ④ ⑤ ⑥ ⑦

① Series
② Output Frequency (32.768kHz)
③ Output Type (CMOS)
④ Supply Voltage (1.8V, 2.5V, 3.3V, 5.0V Compatible)
⑤ Frequency Tolerance (See Specifications)
⑥ Symmetry/ INH Function (45/ 55%)
⑦ Individual Specification
(STD Specification is "00")

Packaging (Tape & Reel 2000 pcs./ reel)

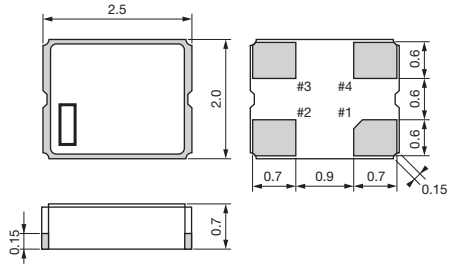
Specifications

Item	Symbol	Conditions	Specifications Min.	Specifications Max.	Units
Output Frequency Range	fo		32.768		kHz
Frequency Tolerance	f_tol	Initial (25°C), Stability (−40 to 125°C), Voltage change	−90	+90	×10⁻⁶
		Aging (@1year)	−3	+3	
		Other (load change, shock and vibration)	−4	+4	
Storage Temperature Range	T_stg		−55	+125	°C
Operating Temperature Range	T_use		−40	+125	°C
Max. Supply Voltage	—		−0.3	+7.0	V
Supply Voltage	Vcc		+1.6	+5.5	V
Current Consumption (Maximum Loaded/ 1.6≤Vcc≤2.0V)	Icc		—	150	μA
Current Consumption (Maximum Loaded/ 2.0<Vcc≤2.8V)			—	158	
Current Consumption (Maximum Loaded/ 2.8≤Vcc≤3.63V)			—	163	
Current Consumption (Maximum Loaded/ 3.63≤Vcc≤5.5V)			—	175	
Stand-by Current	I_std		—	10	μA
Symmetry	SYM	@50% Vcc	45	55	%
Rise/ Fall Time (10% Vcc to 90% Vcc Maximum Loaded)	Tr/ Tf		—	50	ns
Low Level Output Voltage	VOL	IOL=0.8mA	—	10% Vcc	V
High Level Output Voltage	VOH	IOH=−0.8mA	90% Vcc	—	
Output Load	L_CMOS	CMOS Output	—	15	pF
Low Level Input Voltage	VIL		—	30% Vcc	V
High Level Input Voltage	VIH		70% Vcc	—	
Disable Time	t_dis		—	100	ns
Enable Time	t_ena		—	2	ms
Start-up Time	t_str	@Minimum operating voltage to be 0 sec.	—	5	ms

Note: All electrical characteristics are defined at the maximum load and operating temperature range.

Dimensions

(Unit: mm)



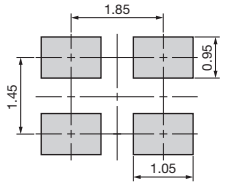
Plating: Ni+Au
Tolerance: ±0.1

Pad Connections	
#1	INH
#2	Case GND
#3	Output
#4	Vcc

INH Function	
Pad1	Pad3 (Output)
Open	Active
"H" Level	Active
"L" Level	High Z (No-Oscillation)

Recommended Land Pattern

(Unit: mm)



Note: A capacitor of value 0.01μF between Vcc and GND is recommended.

As of February 2019