

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



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
- AEC-Q100/ 200 qualified

### 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%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 2000 pcs./ reel)

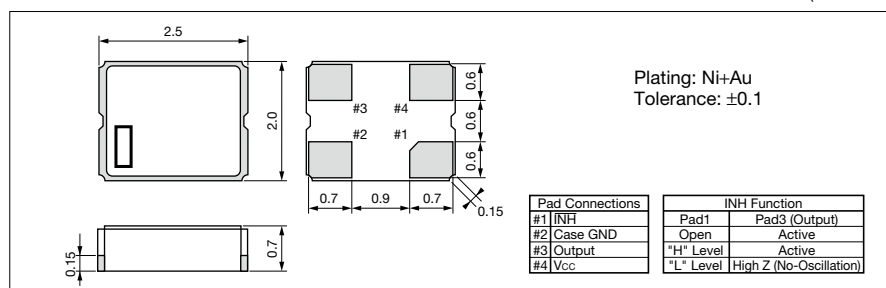
### Specifications

Item	Symbol	Conditions	Specifications		Units
			Min.	Max.	
Output Frequency Range	f <sub>o</sub>		32.768		kHz
Frequency Tolerance	f <sub>tol</sub>	Initial (25°C), Stability (-40 to 125°C), Voltage change	-90	+90	×10 <sup>-6</sup>
		Aging (@1year)	-3	+3	
		Other (load change, shock and vibration)	-4	+4	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>		-40	+125	°C
Max. Supply Voltage	—		-0.3	+7.0	V
Supply Voltage	V <sub>CC</sub>		+1.6	+5.5	V
Current Consumption (Maximum Loaded/ 1.6 ≤ V <sub>CC</sub> ≤ 2.0V)	I <sub>CC</sub>		—	150	μA
Current Consumption (Maximum Loaded/ 2.0 < V <sub>CC</sub> ≤ 2.8V)		—	158		
Current Consumption (Maximum Loaded/ 2.8 ≤ V <sub>CC</sub> ≤ 3.63V)		—	163		
Current Consumption (Maximum Loaded/ 3.63 ≤ V <sub>CC</sub> ≤ 5.5V)		—	175		
Stand-by Current	I <sub>std</sub>		—	10	μA
Symmetry	SYM	@50% V <sub>CC</sub>	45	55	%
Rise/ Fall Time (10% V <sub>CC</sub> to 90% V <sub>CC</sub> Maximum Loaded)	t <sub>r</sub> / t <sub>f</sub>		—	50	ns
Low Level Output Voltage	V <sub>OL</sub>	I <sub>OL</sub> = 0.8mA	—	10% V <sub>CC</sub>	V
High Level Output Voltage	V <sub>OH</sub>	I <sub>OH</sub> = -0.8mA	90% V <sub>CC</sub>	—	V
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF
Low Level Input Voltage	V <sub>IL</sub>		—	30% V <sub>CC</sub>	V
High Level Input Voltage	V <sub>IH</sub>		70% V <sub>CC</sub>	—	V
Disable Time	t <sub>dis</sub>		—	100	ns
Enable Time	t <sub>ena</sub>		—	2	ms
Start-up Time	t <sub>str</sub>	@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)



### Recommended Land Pattern

(Unit: mm)

