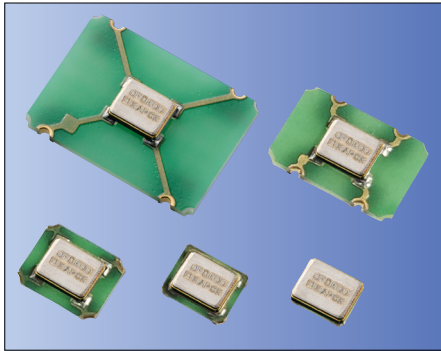




CMOS/ 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm for Automotive



AEC-Q100/200 RoHS Compliant

Features

- CMOS output
- Wide Supply Voltage
 - 1.6 to 3.63V
- Low current consumption
- Low Phase Noise

Applications

- Car accessories / ADAS / Clock for sleep

Table 1

Freq. Tol. Code	× 10 ⁻⁶	Operating Temperature Range (°C)	Note
2	± 25	-40 to +85	Standard specifications
3	± 90	-40 to +125	

How to Order

MC2520K 32K7680 C 1 □ A SH
 ① ② ③ ④ ⑤ ⑥ ⑦

- ①Series
- ②Output Frequency (32.768kHz)
- ③Output Type (C: CMOS)
- ④Supply Voltage

1	1.8V/ 2.5V/ 3.3V compatible
---	-----------------------------

- ⑤Frequency Tolerance (See Table 1)
- ⑥Symmetry/ INH Function

A	45/ 55%
---	---------

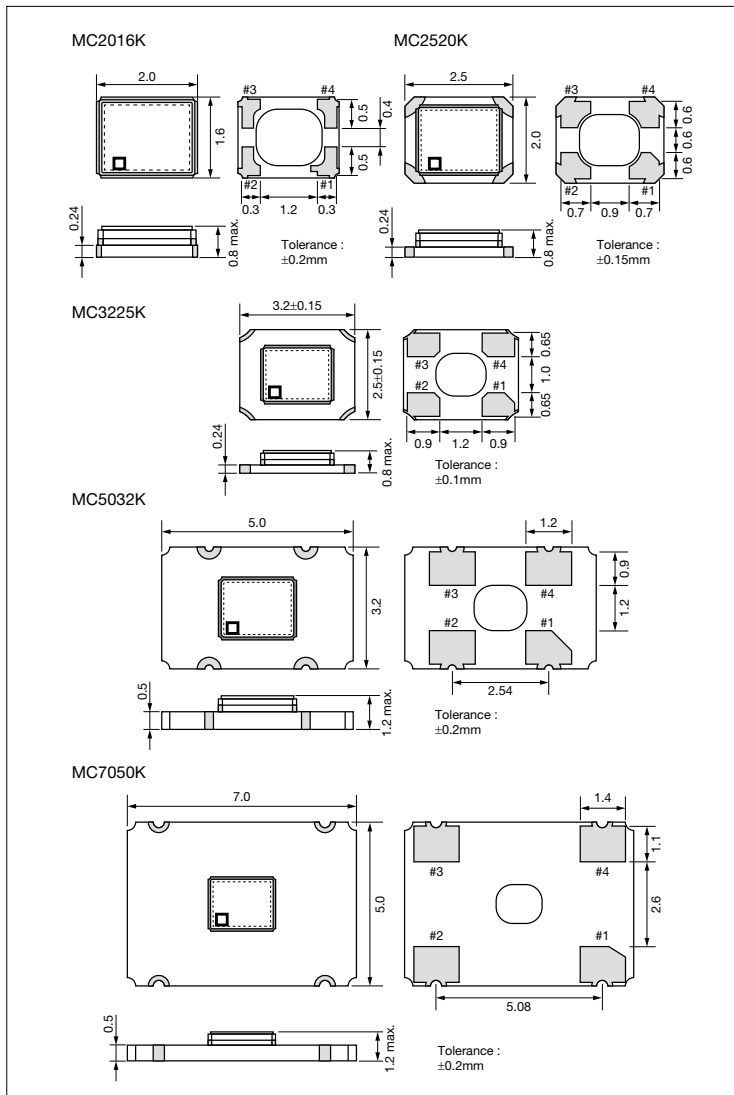
- ⑦Individual Specification (STD Specification is "SH".)

Packaging Tape & Reel

MC7050K/ MC5032K	1000 pcs./ reel
MC3225K/ MC2520K/ MC2016K	2000 pcs./ reel

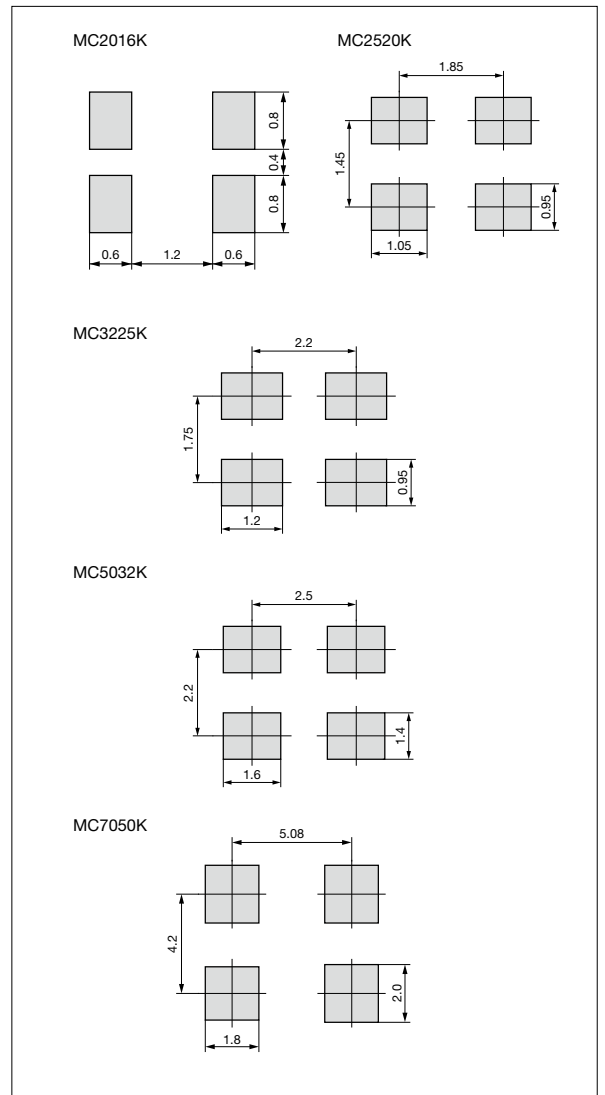
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)





CMOS/ 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm for Automotive

Specifications

Item	Symbol	Conditions	Min.	Max.	Unit	
Output Frequency	F _o		32.768		kHz	
Frequency Tolerance	F _{tol}	Initial tolerance, Operating temperature range, Rated power supply voltage change (V _{cc} ±10%)	Temp.: -40 to +85°C	-25	+25	×10 ⁻⁶
			Temp.: -40 to +125°C	-90	+90	
	F _{aging}	Aging (@1 year),	-3	+3		
	F _{oth}	Others (Load change, Shock and vibration)	-4	+4		
Storage Temperature Range	T _{stg}		-55	+150	°C	
Operating Temperature Range	T _{use}		-40	+85	°C	
			-40	+125		
Max. Supply Voltage	—		-0.3	+4.5	V	
Supply Voltage	V _{cc}		+1.60	+3.63	V	
Current Consumption (No Load)	I _{cc}	1.6≤V _{cc} ≤2.0V	—	28	μA	
		2.0<V _{cc} ≤2.8V	—	29		
		2.8<V _{cc} ≤3.63V	—	30		
Stand-by Current	I _{std}		—	5	μA	
Symmetry	SYM	@50% V _{cc}	45	55	%	
Rise/ Fall Time (10% V _{CC} to 90% V _{CC} Output Level)	Tr/ Tf		—	50	ns	
Low Level Output Voltage	V _{OL}	I _{OL} = 1mA	—	10% V _{cc}	V	
High Level Output Voltage	V _{OH}	I _{OH} = -1mA	90% V _{cc}	—	V	
Output Load	L _{CMOS}		15		pF	
Low Level Input Voltage	V _{IL}		—	30% V _{cc}	V	
High Level Input Voltage	V _{IH}		70% V _{cc}	—	V	
Disable Time	t _{dis}		—	100	ns	
Enable Time	t _{ena}		—	2	ms	
Start-up Time	t _{sta}	@Minimum operating voltage to be 0 sec.	—	5	ms	

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

Pad Connections	
#1	Stand-by Function
#2	Case GND
#3	Output
#4	V _{cc}

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