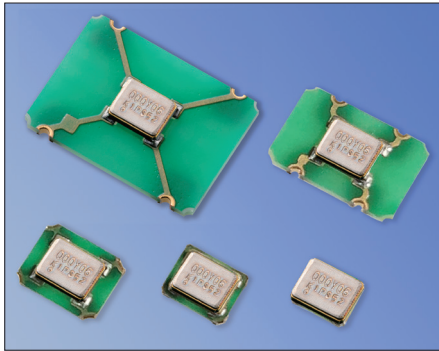




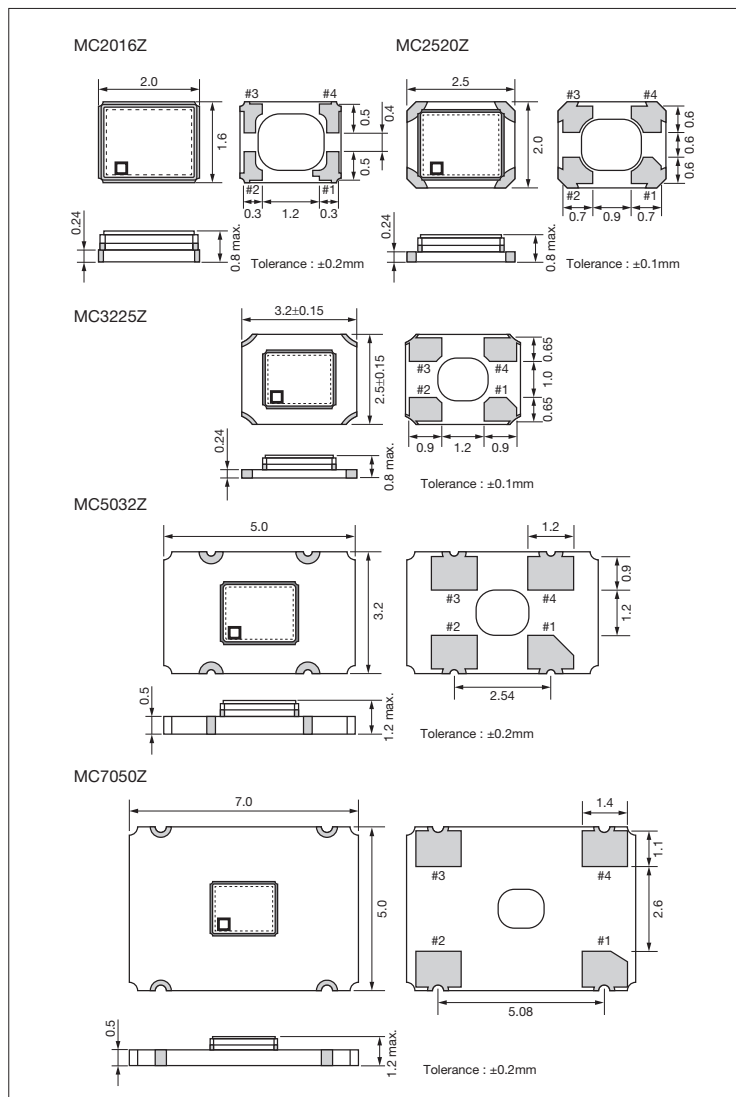
CMOS/ 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm for Automotive



AEC-Q100/ 200 RoHS Compliant

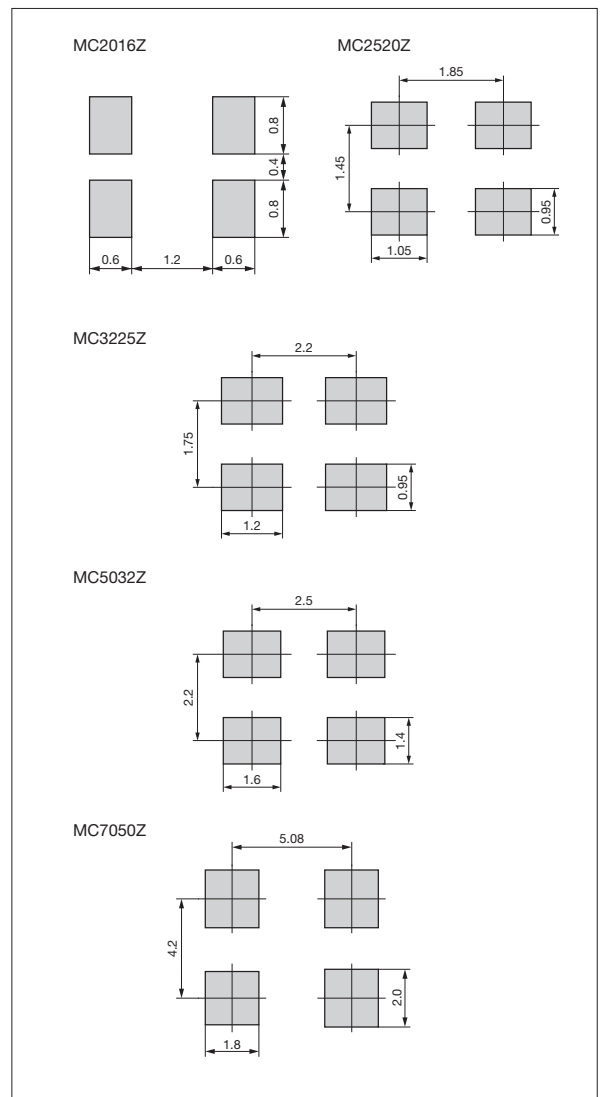
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)



Crystal Oscillators

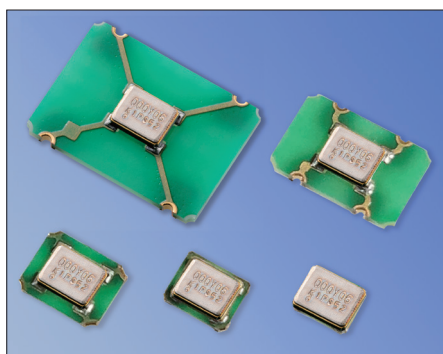


Pad Connections	
#1	INH
#2	Case GND
#3	Output
#4	Vcc

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



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

- Frequency Range 24 to 72 MHz
- CMOS Output
- Low Jitter
- Heat resistant up to +125°C

### Applications

- Automotive (Radar, Camera, Network)

Table 7

Freq. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
G	$\pm 50$	-40 to +85	For additional stability, please contact us.
H	$\pm 30$		
J	$\pm 25$		
K	$\pm 20$		
L	$\pm 15$	-40 to +105	
6	$\pm 50$		
5	$\pm 30$		
4	$\pm 20$	-40 to +125	
X	$\pm 100$		
Z	$\pm 50$		

### How to Order

MC□□□□Z 25.0000 C 1 □ Y SH  
① ② ③ ④ ⑤ ⑥ ⑦

#### ①Series

MC2016Z	2016 Size	MC2520Z	2520 Size
MC3225Z	3225 Size	MC5032Z	5032 Size
MC7050Z	7050 Size		

②Output Frequency (25.0000 : 25MHz)

③Output Type (C : CMOS)

④Supply Voltage

(1 : 1.8V/ 2.5V/ 3.3V Compatible)

⑤Frequency Tolerance (See Table 7)

⑥Symmetry/ INH Function

Y	STD/ Low Jitter 45/ 55%
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⑦Individual Specification

(STD Specification is "SH".)

#### Packaging Tape&Reel

MC7050Z/ MC5032Z	1000 pcs./ reel
MC3225Z/ MC2520Z/ MC2016Z	2000 pcs./ reel

## Specifications

Item	Symbol	Conditions	Min.	Max.	Unit	
Output Frequency Range	fo		24	72	MHz	
Frequency Tolerance	f <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	See Table 7			
Storage Temperature Range	T <sub>stg</sub>		-55	150	°C	
Operating Temperature Range	T <sub>use</sub>		See Table 7			
Max. Supply Voltage	—		-0.3	4.5	V	
Supply Voltage	V <sub>cc</sub>	Code:④ : 1	1.71	1.89	V	
		Code:④ : 2	2.25	2.75		
		Code:④ : 3	2.97	3.63		
Current Consumption (Noload/ 1.71≤V <sub>cc</sub> ≤1.89)	I <sub>cc</sub>	24≤fo<30MHz	—	2.7	mA	
		30≤fo<50MHz	—	3.3		
		50≤fo≤60MHz	—	3.7		
		60<fo<72MHz	—	4		
Current Consumption (Noload/ 2.25<V <sub>cc</sub> ≤2.75)	I <sub>cc</sub>	24≤fo<30MHz	—	3.5		
		30≤fo<50MHz	—	4		
		50≤fo≤60MHz	—	4.3		
		60<fo<72MHz	—	4.8		
Current Consumption (Noload/ 2.97<V <sub>cc</sub> ≤3.63)	I <sub>cc</sub>	24≤fo<30MHz	—	4		
		30≤fo<50MHz	—	5		
		50≤fo≤60MHz	—	5.5		
		60<fo<72MHz	—	6		
Stand-by Current	I <sub>std</sub>		—	5	μA	
Symmetry	SYM	@50% V <sub>cc</sub>			%	
		24≤fo≤40MHz	40	55		
		40<fo≤72MHz	45	55		
Rise/ Fall Time (20% to 80% Output Level)	Tr/ Tf	Loaded/ 1.71≤V <sub>cc</sub> ≤1.89	—	4	ns	
		Loaded/ 2.25≤V <sub>cc</sub> ≤2.75	—	3.2		
		Loaded/ 2.97≤V <sub>cc</sub> ≤3.63	—	2.7		
Low Level Output Voltage	V <sub>OL</sub>	I <sub>OL</sub> = 4mA	—	10% V <sub>cc</sub>	V	
High Level Output Voltage	V <sub>OH</sub>	I <sub>OH</sub> = -4mA	90% V <sub>cc</sub>	—	V	
Output Load (CMOS)	L <sub>CMOS</sub>		—	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>		—	200	ns	
Enable Time	t <sub>ena</sub>		—	5	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	5	ms	
1 Sigma Jitter	J <sub>Sigma</sub>	Measured with Wavecrest SIA-3000	—	5	ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		—	50		
Phase Jitter	—	@50MHz V <sub>cc</sub> = 3.3V	BW : 12kHz to 20MHz		1	ps

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

