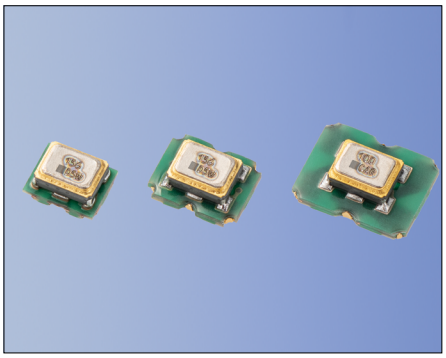
Clock Oscillators for Automotive
Clock MC-F Series (HCSL)

HCSL, 2.0×1.6 / 2.5×2.0 / 3.2×2.5mm



AEC-Q100/ 200 RoHS Compliant
*AEC-Q100 qualified (Option)
PSL: R4Y MSL1

Features

- Output Frequency: 100/125/156.25MHz
- HCSL output
- Supply voltage V_{CC}=3.3V, 2.5V
- Low Jitter
- Heat resistant up to +125° C

Applications

- Automotive (Radar / Camera / Navigation / Sensor / Mirror / Head light)

Table 1

Freq. Tol. Code	Freq. Tol. × 10^{-6}	Operating Temperature Range (° C)	Note
0	± 50	−10 to +70	For additional stability, please contact us.
F	± 100	−40 to +85	
G	± 50	−40 to +85	
6	± 50	−40 to +105	
7	± 100	−40 to +105	
X	± 100	−40 to +125	

How to Order

MC □□□□ F 100.000 H □ □ K 00
① ② ③ ④ ⑤ ⑥ ⑦

①Series

MC2016F	2016 Size	MC2520F	2520 Size
MC3225F	3225 Size		

②Output Frequency（100.000：100MHz）
③Output Type（H：HCSL）
④Supply Voltage

2	2.5V	3	3.3V

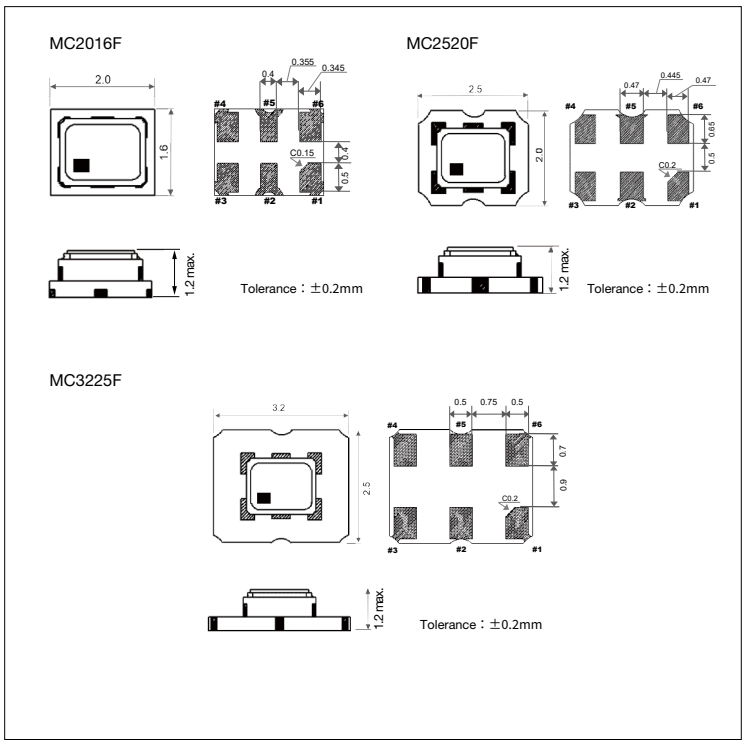
⑤ Frequency Tolerance (See Table 1)
⑥Symmetry/ INH Function
⑦Individual Specification
(STD Specification is “00”.)

Packaging Tape & Reel

MC3225F/ MC2520F/ MC2016F	2000 pcs./ reel

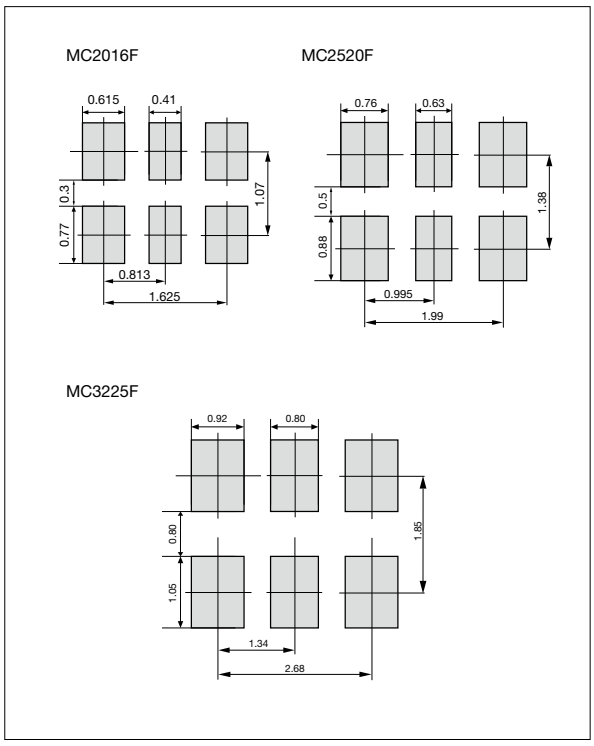
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)



Pad Connections	
#1	Stand-by Function
#2	NC
#3	Case GND
#4	Output
#5	Complementary Output
#6	Vcc

Stand-by Function	
Pad1	Pad4 / Pad5
Open	Active
"H" Level	Active
"L" Level	No-Oscillation

HCSL, 2.0×1.6 / 2.5×2.0 / 3.2×2.5mm

Specifications

Item	Symbol	Conditions		Specifications	Units
Output Frequency Range	fo			100/125/156.25	MHz
Frequency Tolerance	f_tol	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25° C), Shock and vibration		See Table 1	$\times 10^{-6}$
Storage Temperature Range	T_stg			−55 to +125	° C
Operating Temperature Range	T_use			See Table 1	° C
Max. Supply Voltage	—			−0.3 ～ +4.0	V
Supply Voltage	Vcc	@+2.5V		+2.375 to +2.625	V
		@+3.3V		+3.135 to +3.465	
Current Consumption	Icc			46 max.	mA
Stand-by Current	I_std			30 max.	µA
Symmetry	SYM	50ohm @Cross Point output swing		50±5	%
Rise/ Fall Tim (20% Vcc to 80% Vcc)	Tr/ Tf	50ohm/+0.175V to +0.525V		0.6 max.	ns
Low Level Output Voltage	VOL			−0.15 to +0.15	V
High Level Output Voltage	VOH			+0.60 to +0.90	V
Output Load	—	HCSL Output		50	ohm
Low Level Input Voltage	VIL			30% Vcc max.	V
High Level Input Voltage	VIH			70% Vcc min.	V
Disable Time	t_dis			200 max.	ns
Enable Time	t_ena			10 max.	ms
Start-up Time	t_str	@Minimum operating voltage to be 0 sec.		10 max.	ms
Deterministic Jitter[Note1]	DJ	DJ pk-pk		2 max.	ps
1Sigma Jitter[Note1]	JSigma			4 max.	ps
Peak to Peak Jitter[Note1]	JPK-PK			30 max.	ps
Phase Jitter	—	BW: 12kHz to 20MHz @+3.3V , 25degC	@100MHz	0.15 max.	ps
			@125MHz	0.15 max.	ps
			@156.25MHz	0.10 max.	ps

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

Note1: Jitter is measured with the Time Interval Analyzer “Wavecrest SIA-3000”