Clock Oscillators for Automotive Clock MC-F Series (LVDS)
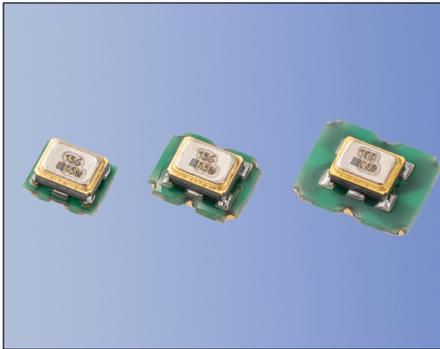
KYOCERA AVX

LVDS, 2.0×1.6 / 2.5×2.0 / 3.2×2.5mm

AEC-Q100/ 200 RoHS Compliant
PSL: R4Y MSL1

Features
- Output Frequency: 100/125/156.25MHz
- LVDS 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.		Operating Temperature Range (°C)	Note
Code	× 10⁻⁶		
0	± 50	−10 to +70	
F	± 100	−40 to +85	For additional stabillity, please contact us.
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 L ☐ ☐ K 00
① ② ③④⑤⑥⑦

①Series

MC2016F	2016 Size	MC2520F	2520 Size
MC3225F	3225 Size		

②Output Frequency（100.000：100MHz）
③Output Type（L：LVDS）
④Supply Voltage

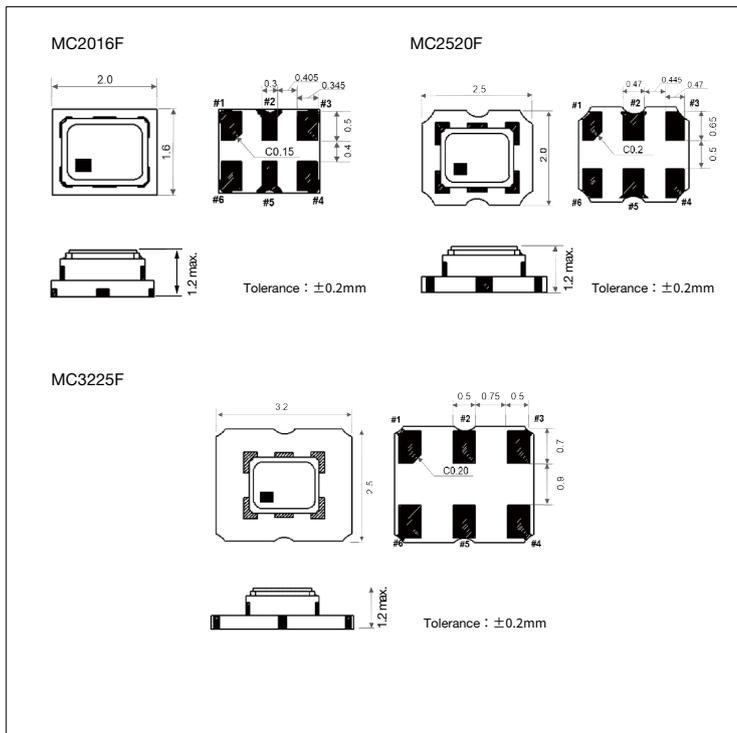| 2	2.5V	3	3.3V

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)

MC2016F

2.0
1.6
1.2 max.
Tolerance：±0.2mm
0.3 0.405 0.345
#1 #2 #3
0.5
C0.15 0.4
#6 #5 #4

MC2520F

2.5
2.0
1.2 max.
Tolerance：±0.2mm
0.47 0.445 0.47
#1 #2 #3
0.65
C0.2 0.5
#6 #5 #4

MC3225F

3.2
2.5
1.2 max.
Tolerance：±0.2mm
0.5 0.75 0.5
#1 #2 #3
0.7
C0.20 0.9
#6 #5 #4

Recommended Land Pattern (Unit: mm)

MC2016F

0.615 0.41
0.3
0.77
0.813
1.625
1.07

MC2520F

0.76 0.63
0.5
0.88
0.995
1.99
1.38

MC3225F

0.92 0.80
0.80
1.05
1.34
2.68
1.85

Clock Oscillators
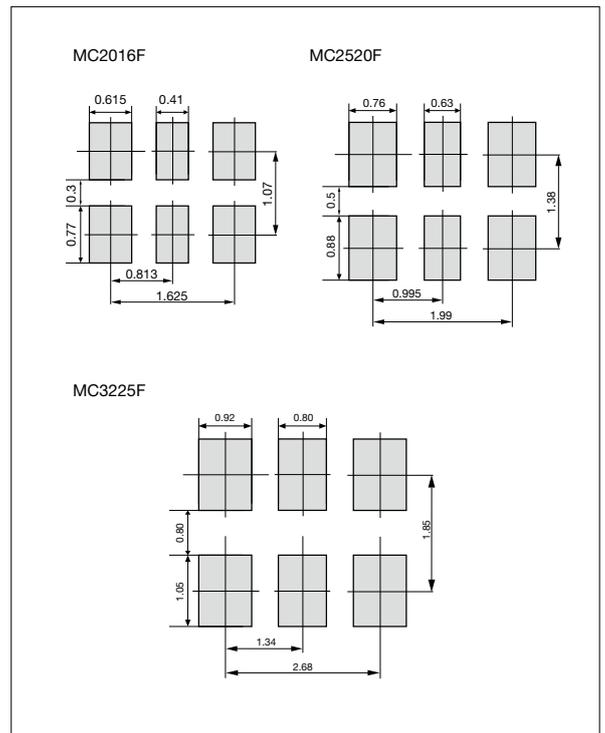
Pad Connections

#1	Stand-by Function
#2	NC
#3	Case GND
#4	Output
#5	Complementary Output
#6	V_{CC}

Stand-by Function

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

As of October 2024

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

LVDS, 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	×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 to +4.0	V
Supply Voltage	Vcc	@+2.5V	+2.375 to +2.625	V
		@+3.3V	+3.135 to +3.465	
Current Consumption	Icc		24 max.	mA
Stand-by Current	I_std		30 max.	µA
Symmetry	SYM	100ohm @50% Vopp	50±5	%
Rise/ Fall Tim (20% Vcc to 80% Vcc)	Tr/ Tf	100ohm	0.3 max.	ns
Low Level Output Voltage	VOL		0.9 min. Typ.:1.1	V
High Level Output Voltage	VOH		1.6 max. Typ.:1.43	V
Diffrential Output Voltage	VOD		247 to 454 Typ.:330	mV
Diffrential Output Voltage Error	dVOD	dVOD =│VOD1 - VOD2│	50 max.	
Offset Voltage	VOs		1.125 to 1.375 Typ.:1.25	V
Offset Voltage Error	dVOs	dVOD =│VOD1 - VOD2│	50 max.	mV
Output Load	—	LVDS Output	100	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		35 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"