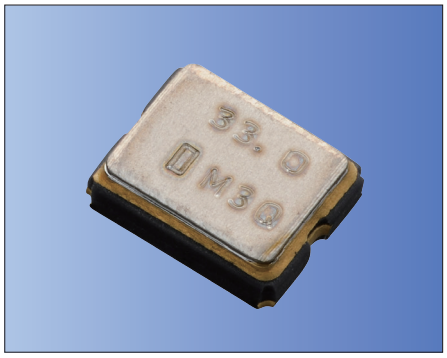
Clock Oscillators Surface Mount Type
KC2520M Series

KYOCERA

CMOS/ 1.8V to 3.3V/ 2.5×2.0mm for Automotive



AEC-Q100/ 200 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/ 3.3V
  Wide operating voltage range 1.6 to 3.63V
- Low current consumption

Table 1

Freq. Tol.		Operating Temperature Range (°C)	Note
Code	× 10^{-6}		
F	±100	−40 to +85	Please contact us for available frequencies.
G	± 50		
6	± 50	−40 to +105	
X	±100	−40 to +125	Standard specifications

How to Order

KC2520M ① 25.0000 ② C ③ 1 ④ □ ⑤ E ⑥ SH ⑦

① Series
② Output Frequency
③ Output Type (CMOS)
④ Supply Voltage (1.8V, 2.5V, 3.3V Compatible)
⑤ Frequency Tolerance (See Table 1)
⑥ Symmetry/ INH Function (45/ 55%)
⑦ Individual Specification
(STD Specification is "SH")

Packaging (Tape & Reel 2000 pcs./ reel)

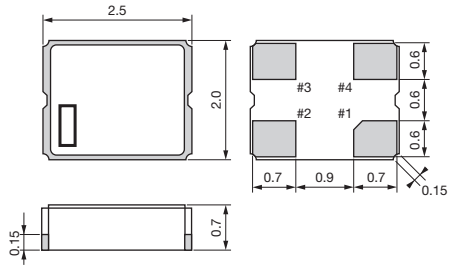
Specifications

Item	Symbol	Conditions		Specifications Min.	Specifications Max.	Units
Output Frequency Range	fo			1.5	60	MHz
Frequency Tolerance	$f_{\_tol}$	Initial tolerance, Operating temperature range, Rated power supply voltage change, Aging (1 year @25°C), Shock and vibration	Temp.: −40 to +85°C −40 to +125°C	−100	+100	×10^{-6}
			Temp.: −40 to +85°C −40 to +105°C	−50	+50	
Storage Temperature Range	$T_{\_stg}$			−55	+125	°C
Operating Temperature Range	$T_{\_use}$			−40	+125	°C
Max. Supply Voltage	—	1.5≤fo≤60MHz		−0.6	+6.5	V
Supply Voltage	V_{CC}			+1.6	+3.63	V
Current Consumption (Maximum Loaded/ 1.6≤V_{CC}≤2.0V)	I_{CC}	1.5≤fo≤24MHz		—	2.5	mA
		24<fo≤40MHz		—	3.0	
		40<fo≤60MHz		—	4.5	
Current Consumption (Maximum Loaded/ 2.0<V_{CC}≤2.8V)		1.5≤fo≤24MHz		—	3.0	
		24<fo≤40MHz		—	4.0	
		40<fo≤60MHz		—	5.0	
Current Consumption (Maximum Loaded/ 2.8<V_{CC}≤3.63V)		1.5≤fo≤24MHz		—	3.5	
		24<fo≤40MHz		—	5.0	
		40<fo≤60MHz		—	6.5	
Stand-by Current	$I_{\_std}$			—	10	µA
Symmetry	SYM	@50%V_{CC}		45	55	%
Rise/ Fall Time (10% V_{CC} to 90% V_{CC} Maximum Loaded)	Tr/ Tf	1.6≤V_{CC}≤2.0V		—	6.5	ns
		2.0<V_{CC}≤2.8V		—	5.5	
		2.8<V_{CC}≤3.63V		—	4.5	
Low Level Output Voltage	V_{OL}	I_{OL}=4mA		—	10%V_{CC}	V
High Level Output Voltage	V_{OH}	I_{OH}=−4mA		90%V_{CC}	—	V
Output Load	L_CMOS	CMOS Output		—	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	$t_{\_ena}$			—	5	ms
Start-up Time	$t_{\_str}$	@Minimum operating voltage to be 0 sec.		—	10	ms
1 Sigma Jitter	J_{Sigma}	Measured with Wavecrest SIA-3000		—	8	ps
Peak to Peak Jitter	J_{PK-PK}			—	80	ps

Note: All electrical characteristics are defined at the maximum load and operating temperature range.
Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Dimensions

(Unit: mm)



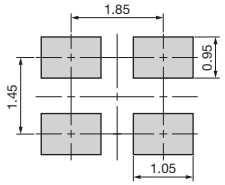
Plating: Ni+Au
Tolerance: ±0.1

Pad Connections	
#1	INH
#2	Case GND
#3	Output
#4	V_{CC}

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

Recommended Land Pattern

(Unit: mm)



Note: A capacitor of value 0.01µF between V_{CC} and GND is recommended.

As of February 2019