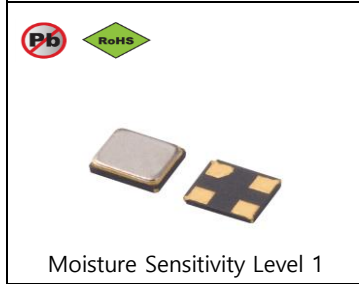


KC2Q**AUTOMOTIVE CRYSTAL UNIT****■ SMD X-TAL 2.5×2.0mm 4PAD Seam Sealing**

- Miniature and lightweight Surface Mount package
- Excellent environmental characteristics for Automotive
- High reliability and Wide temperature range available
- AEC-Q200 compliant
- Applications : Automotive electronics, Infotainment system, ADAS, TPMS, Ethernet etc.

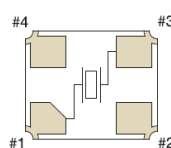
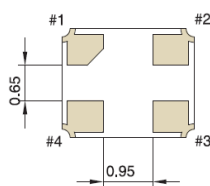
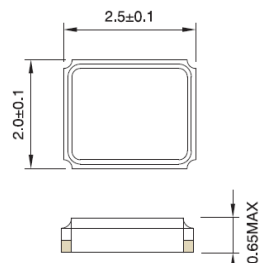
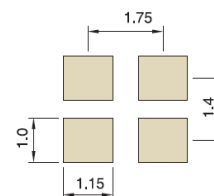
■ Standard Specification

Frequency range	12.000MHz to 54.000MHz	
Oscillation mode	Fundmental	
Load capacitance (CL)	6pF to 32pF or please specify	
Frequency tolerance (25°C)	±10ppm, ±15ppm, ±20ppm, ±30ppm	
Frequency Stability vs Temp range	Temp Stability	Operating temp
	±30ppm	-40 to +85°C
	±50ppm	-40 to 105°C
	±100ppm	-40 to 125°C
	±150ppm or please specify	-40 to 150°C
Storage temperature range	-40°C to +150°C	
Shunt Capacitance (C0)	3.0pF Max	
Level of drive (DL)	100μW Max (std) or please specify	
Aging (Initial first year)	± 3ppm Max	

■ Motional resistance (ESR)

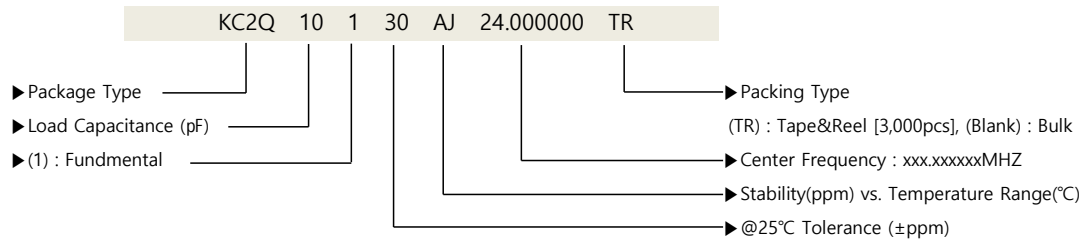
Frequency (MHz)	$12 \leq f < 16$	$16 \leq f < 24$	$24 \leq f < 32$	$32 \leq f < 54$
CI (Ω) max	150	80	50	40
Oscillation mode	Fundmental			

*Please contact us for lower ESR

■ Dimensions (mm)**• Recommended Soldering Pattern****CONNECTION**

#1 : X-TAL
#2 : GND
#3 : X-TAL
#4 : GND

Part Numbering Guide

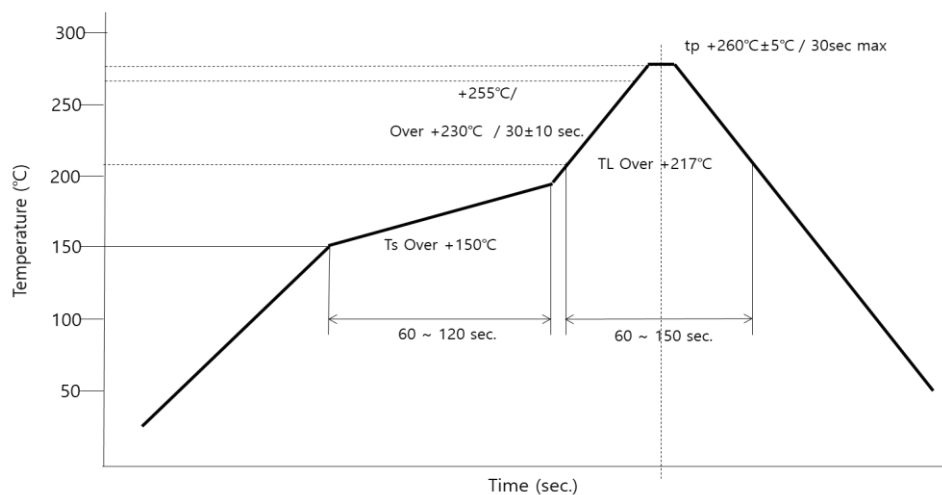


Frequency Stability vs. Temperature Range

Temp' vs Stability		±10ppm	±15ppm	±20ppm	±25ppm	±30ppm	±50ppm	±100ppm	±150ppm
		J	K	L	M	N	O	P	Q
-10 ~ 60°C	A	◎	◎	◎	◎	◎	◎	◎	◎
-10 ~ 70°C	B	◎	◎	◎	◎	◎	◎	◎	◎
-20 ~ 70°C	C	◎	◎	◎	◎	◎	◎	◎	◎
-30 ~ 70°C	D	◎	◎	◎	◎	◎	◎	◎	◎
-30 ~ 85°C	E	◎	◎	◎	◎	◎	◎	◎	◎
-40 ~ 85°C	F		◎	◎	◎	◎	◎	◎	◎
-40 ~ 90°C	G					◎	◎	◎	◎
-40 ~ 105°C	H					◎	◎	◎	◎
-40 ~ 125°C	I					◎	◎	◎	◎
-40 ~ 150°C	J							◎	◎

*Please contact us for other specifications.

Recommendation reflow condition



(1) Reflow soldering heat resistance
 Peak Temp. : 265°C, 30sec max.
 Heating : 230°C or higher, 40sec.
 Preheating : 150~180°C, 120sec.
 Reflow passage times : 2 times

(2) Manual soldering heat resistance
 Pressing a soldering iron of 350°C on the terminal electrode
 Soldering touch time : 4sec.
 Manual soldering times : 2 times