

CRYSTAL DEVICE SELECTOR PRODUCT GUIDE

CRYSTAL UNITS | CLOCK OSCILLATORS | TEMPERATURE COMPENSATED CRYSTAL OSCILLATORS

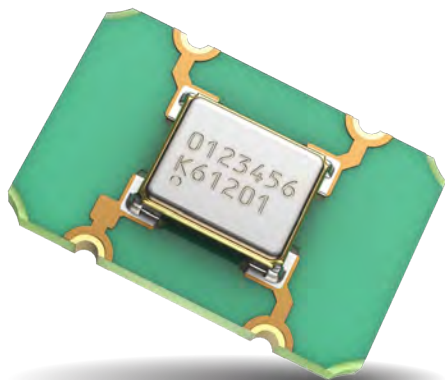


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CRYSTAL SELECTOR






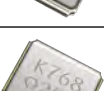

TUNING FORK | NON-AUTOMOTIVE

	Series	Size	Frequency (MHz)	Tolerance (RT)	Series Resistance (kΩ max.)	Features
	ST3215FB	3215	0.032768	±20ppm	70kΩ	<ul style="list-style-type: none"> • High Precision • High Reliability • Low ESR
	DT2012SB	2012	0.032768	±20ppm	80kΩ	<ul style="list-style-type: none"> • High Precision • High Reliability • Low Profile
	DT1610SB	1610	0.032768	±20ppm	80kΩ	<ul style="list-style-type: none"> • High Precision • High Reliability • Low ESR • Low Profile



CRYSTAL | AUTOMOTIVE

	Series	Size	Frequency (MHz)	Tolerance (RT)	Operating Temperature Tolerance	Features	Certification
	CX3225CA	3225	12 ~ 54	±15ppm	-40 ~ +125°C ±50ppm -40 ~ +150°C ±100ppm	<ul style="list-style-type: none"> • 3225 size • Ceramic Cap • 4 pad 	AEC-Q200
	CX3225GA	3225	8 ~ 54	±15ppm	-40 ~ 125°C ±50ppm -40 ~ +150°C ±100ppm	<ul style="list-style-type: none"> • 3225 size • Ceramic Cap • 2 pad (Solder crack 3000c clear) 	AEC-Q200
	CX3225SA	3225	8 ~ 54	±10ppm	-40 ~ 125°C ±50ppm -40 ~ +150°C ±100ppm	<ul style="list-style-type: none"> • 3225 size • Metal Lid • 4 pad (Solder crack 3000c clear) 	AEC-Q200
	CX2016SA	2016	16 ~ 60	±10ppm	-40 ~ 125°C ±50ppm -40 ~ +150°C ±100ppm	<ul style="list-style-type: none"> • 2016 size • Metal lid • 4 pad 	AEC-Q200
	CX2016GR	2016	16 ~ 50	±15ppm	-40 ~ 125°C ±100ppm -40 ~ +150°C ±150ppm	<ul style="list-style-type: none"> • 2016 size • Ceramic Cap • 2 pad (Solder crack 3000c clear) 	AEC-Q200
	CX2016DB	2016	16 ~ 60	±10ppm	-40 ~ 125°C ±50ppm -40 ~ +150°C ±100ppm	<ul style="list-style-type: none"> • 2016 size • Metal lid • 4 pad for TPMS 	AEC-Q200




CRYSTAL | NON-AUTOMOTIVE

	Series	Size	Frequency (MHz)	Tolerance (RT)	Operating Temperature Tolerance	Features
	CX3225GB	3225	12 ~ 54	±15ppm	-40 ~ +85°C ±30ppm	<ul style="list-style-type: none"> • 3225 size • Ceramic Cap • 4 pad
	CX3225SB	3225	12 ~ 54	±10ppm	-40 ~ +85°C ±30ppm	<ul style="list-style-type: none"> • 3225 size • Metal Lid • 4 pad
	CX2016DB	2016	16 ~ 60	±10ppm	-40 ~ +85°C ±20ppm	<ul style="list-style-type: none"> • 2016 size • Metal lid • 4 pad
	CX1612DB	1612	24 ~ 76.8	±10ppm	-30 ~ 85°C ±15ppm	<ul style="list-style-type: none"> • High reliability • Low ESR • Low Profile
	CX1210SB	1210	24 ~ 80	±10ppm	-30 ~ 85°C ±15ppm	<ul style="list-style-type: none"> • High precision • High reliability • Low ESR • Low Profile
	CX1210DB	1210	37.4 ~ 80	±10ppm	-30 ~ 85°C ±15ppm	<ul style="list-style-type: none"> • High precision • High reliability • Low ESR • Low Profile
	CX1008SB	1008	37.4 ~ 80	±10ppm	-30 ~ 85°C ±15ppm	<ul style="list-style-type: none"> • Ultra-Miniaturization • High precision • High reliability • Low ESR • Low Profile





CRYSTAL WITH THERMISTOR | AUTOMOTIVE

	Series	Size	Frequency (MHz)	Tolerance (RT)	Operating Temperature Tolerance	Features	Certification
	CT2016RA	2016	55.2	±10ppm	-40 ~ +115°C +25.6/-20.3ppm	<ul style="list-style-type: none"> • 2016 size • Metal lid • 4 pad with thermistor 	AEC-Q200
			38.4	±10ppm	-40 ~ +105°C ±30ppm		
	CT1612RA	1612	76.8	-10 ~ 22ppm	±16ppm -30 ~ 85°C ±35ppm -40 ~ 105°C -35ppm ~ +55ppm -40 ~ 115°C	<ul style="list-style-type: none"> • 1612 size • Metal lid • 4 pad with thermistor • Under Development 	AEC-Q200









CRYSTAL WITH THERMISTOR | NON-AUTOMOTIVE

	Series	Size	Major Frequency (MHz)	Tolerance (RT)	Operating Temperature Tolerance	Features
	CT1612RB	1612	38.4	±10ppm	-30 ~ +85°C ±12ppm	• IC Reference
	CT1612RB	1612	52	±10ppm	-30 ~ +85°C -12 ~ +10ppm -40 ~ +85°C -30 ~ +10ppm -40 ~ 105°C -30 ~ +40ppm	• IC Reference
	CT1612RB	1612	76.8	-10 / +16ppm	-30 ~ +85°C ±12ppm	• IC Reference

TCXO | AUTOMOTIVE




	Series	Size	Output	Major Frequency (MHz)	Operating Temperature Tolerance	Features	Certification
	KT2520K	2520	Clipped Sine	19.2, 24, 26, 32, 38.4, 40, 48, 52, 60	±0.5ppm (-40 ~ +85°C) ±5.0ppm (+85 ~ +105°C)	• Low Phase Noise type Freq. 26 MHz, Vcc = 1.8V/3.3V -139dBc/Hz @1kHz offset -169dBc/Hz @1MHz offset	AEC-Q200
	KT2016K	2016	Clipped Sine	19.2, 24, 26, 32, 38.4, 40, 48, 52, 60	±0.5ppm (-40 ~ +85°C) ±5.0ppm (+85 ~ +105°C)		AEC-Q200
	KT1612A	1612	Clipped Sine	19.2, 26, 38.4, 40, 48, 52, 76.8	±0.5ppm (-40 ~ +85°C) ±5.0ppm (+85 ~ +105°C)		AEC-Q200
	KT2016K	2016	Clipped Sine	26, 38.4, 40, 48, 52	±0.5ppm (-40 to 105°C)	• High temperature high precision type Freq. 26 MHz, Vcc = 1.8V/3.3V -136dBc/Hz @1kHz offset -161dBc/Hz @1MHz offset	AEC-Q200 AEC-Q100

TCXO | NON-AUTOMOTIVE



	Series	Size	Output	Major Frequency (MHz)	Operating Temperature Tolerance	Features
	KT2520K	2520	Clipped sine	19.2, 24, 26, 32, 38.4, 40, 48, 52, 60	±0.5ppm (-40 ~ +85°C)	<ul style="list-style-type: none"> Standard type. Freq. 26MHz, Vcc = 1.8V/3.3V -140dBc/Hz @1kHz offset -156dBc/Hz @1MHz offset
	KT2016K	2016	Clipped sine	19.2, 24, 26, 32, 38.4, 40, 48, 52, 60	±0.5ppm (-40 ~ +85°C)	
	KT1612A	1612	Clipped sine	19.2, 26, 38.4, 40, 48, 52, 76.8	±0.5ppm (-40 ~ +85°C)	
	KT2520K	2520	Clipped sine	26, 38.4, 40, 48, 52	±0.5ppm (-40 ~ +85°C)	<ul style="list-style-type: none"> Low Phase Noise type. Freq. 26MHz, Vcc = 1.8V/3.3V -139dBc/Hz @1kHz offset -169dBc/Hz @1MHz offset
	KT2016K	2016	Clipped sine	26, 38.4, 40, 48, 52	±0.5ppm (-40 ~ +85°C)	
	KT1612A	1612	Clipped sine	19.2, 26, 38.4, 40, 48, 52, 76.8	±0.5ppm (-40 ~ +85°C)	
	KT2016K	2016	Clipped sine	26, 38.4, 40, 48, 52	±0.5ppm (-40 ~ +85°C)	<ul style="list-style-type: none"> Low Supply Voltage Drive type. Freq. 26MHz, Vcc = 1.2V -135dBc/Hz @1kHz offset -155dBc/Hz @1MHz offset
	KT1612A	1612	Clipped sine	26, 38.4, 48, 52	±0.5ppm (-40 ~ +85°C)	

CRYSTAL SELECTOR

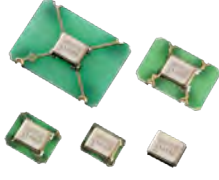


OSCILLATORS | AUTOMOTIVE

	Series	Size	Output	Frequency (MHz)	Frequency Tolerance	Features	Certification
	MC K Series	7050 5032 3225 2520 2016	CMOS	1.5 ~ 160	-40 ~ +105°C ±50ppm -40 ~ +125°C ±100ppm	• Phase Jitter 0.15ps Typ. @ 60 MHz	AEC-Q200
	MC K Series 32.768 kHz			32.768 kHz	-40 ~ +85°C ±25ppm -40 ~ +105°C ±50ppm -40 ~ +125°C ±90ppm	• Tighter stability • High temperature compatible	AEC-Q200
	MC Z Series X Type			0.5 ~ 170	-40 ~ +105°C ±20ppm -40 ~ +125°C ±30ppm	• Compatible with high temperature and tighter stability • Programmable Frequency	AEC-Q200
	MC Z Series Y Type			24, 24.576, 25, 30, 33.3333, 40, 50, 60 *Other frequencies required consultation	-40 ~ +105°C ±30ppm -40 ~ +125°C ±35ppm	• Tighter stability and low Jitter • Phase Jitter 0.17ps Typ. @ 60 MHz	AEC-Q200
	MC Z Series Z Type	3225 2520 2016	CMOS	0.5 ~ 80	-40 ~ +85°C ±10ppm **Temperature expansion planned	• Compatible with high temperature and tighter stability • Programmable Frequency	AEC-Q200
	MC1612A	1612	CMOS	9.6, 12, 16.6667, 19.2, 24, 25, 38.4, 50	-40 ~ +105°C ±50ppm	• Low Voltage 0.8 ~ 1.8V • Under Development	AEC-Q200



DIFFERENTIAL CLOCK | AUTOMOTIVE

	Series	Size	Output	Frequency (MHz)	Frequency Tolerance	Features	Certification
	MC F Series	3225 2520 2016	LV-PECL LVDS HCSL	100, 125, 156.25	-40 ~ +105°C ±50ppm -40 ~ +125°C ±100ppm	• Phase Jitter 0.05ps Typ. @ 156.25 MHz	AEC-Q200
	X Series	3225 2520 2016	LV-PECL LVDS	100, 125, 156.25, 312.5	-40 ~ +105°C ±20ppm -40 ~ +125°C ±50ppm	• Phase Jitter 0.03ps Typ. @ 156.25 MHz • Under Development	AEC-Q200

OSCILLATORS | NON-AUTOMOTIVE

	Series	Size	Output	Frequency (MHz)	Frequency Tolerance	Features
	KC K Series	7050 5032 3225 2520 2016	CMOS	1.5 ~ 160	-40 ~ +85°C ± 50ppm -40 ~ +105°C ± 50ppm -40 ~ +125°C ± 100ppm	<ul style="list-style-type: none"> Phase Jitter 0.15ps Typ. @ 60 MHz
	KC K Series 32.768 kHz			32.768 kHz	-40 ~ +85°C ± 25ppm -40 ~ +105°C ± 50ppm -40 ~ +125°C ± 90ppm	<ul style="list-style-type: none"> Tighter stability High temperature compatible
	KC Z Series X Type			0.5 ~ 170	-40 ~ +85°C ± 15ppm -40 ~ +105°C ± 20ppm -40 ~ +125°C ± 30ppm	<ul style="list-style-type: none"> Compatible with high temperature and tighter stability Programmable Frequency
	KC Z Series Y Type			24, 24.576, 25, 30, 33.3333, 40, 50, 60 *Other frequencies required consultation	-40 ~ +105°C ± 30ppm -40 ~ +125°C ± 35ppm	<ul style="list-style-type: none"> Tighter stability and low Jitter Phase Jitter 0.17ps Typ. @ 60 MHz
	KC Z Series Z Type	3225 2520 2016	CMOS	0.5 ~ 80	-40 ~ +85°C ± 10ppm **Temperature expansion planned	<ul style="list-style-type: none"> Simple TCXO Programmable Frequency
	KC1612A	1612	CMOS	9.6, 12, 16.6667, 19.2, 24, 25, 38.4, 50	-40 ~ +85°C ± 30ppm -40 ~ +105°C ± 50ppm	<ul style="list-style-type: none"> Low Voltage 0.8 ~ 1.8V Under Development

DIFFERENTIAL CLOCK | NON-AUTOMOTIVE

	Series	Size	Output	Frequency (MHz)	Frequency Tolerance	Features
	KC F Series	3225 2520 2016	LV-PECL LVDS HCSL	100, 125, 156.25	-40 ~ +85°C ± 50ppm -40 ~ +105°C ± 50ppm	<ul style="list-style-type: none"> Phase Jitter 0.05ps Typ. @ 156.25 MHz
	X Series	3225 2520 2016	LV-PECL LVDS	100, 125, 156.25, 312.5	-40 ~ +105°C ± 20ppm -40 ~ +125°C ± 50ppm	<ul style="list-style-type: none"> Phase Jitter 0.03ps Typ. @ 156.25 MHz Under Development

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