Series Number	Package	Description	Last Modified
230	2.0x1.2 Chip Type	SMD Quartz Crystal	Nov. 17, 2011

FEATURES

- Ultra miniature and lightweight 2.0x1.2mm chip type quartz crystal
- Suitable for telecommunications as well as other applications.
- Low profile of 0.75mm
- Tight stability / High reliability
- Cost Efficient
- Tape and Reel
- RoHS / Lead Free compliant

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	SYMBOL	CONDITION	MINIMUM	TYPICAL	MAXIMUM	UNITS
Frequency Range	Fo	-	-	32.768	-	KHz
Frequency Tolerance	$\Box$F/Fo	@ 25ºC	±10	±20	±10	ppm
Temperature Coefficient	K	REFTO25ºC	-	-	-0.042	ppm($\Box$ºC)
Operating Temperature	TORP	-	-40	-	+85	ºC
Storage Temperature	TSTG	-	-40	-	+85	ºC
Shunt Capacitance	Co	-	-	1.5	2	pF
Motional Capacitance	C1	-	-	2	4	fF
Load Capacitance	CL	-	6	12.5	Series	pF
Insulation Resistance	IR	100VDC	500	-	-	M
Drive Level	DL	-	-	-	1	µ W
Aging (First Year)	Fa	@25ºC±30ºC	-5.0	-	+5.0	Ppm
Equivalent Series Resistance (ESR)	RS	-	-	-	80	K $\Box$

drawing of 4 pad quartz crystal x series

PART NUMBER GUIDE

Example: 230-32.768K-12.5-20W-TR

Series Number	Frequency	Load Capacitance	Tolerance @ +25ºC		Operating Temp (ºC)		Packaging**
230	32.768K	12.5	20		W		TR
Oscilent 3.2 x 1.5 SMD	Enter desired frequency. Avail. = 32.768KHz	Enter desired capacitance here. Avail. = 6 ~ 12.5pF * SR for series	Blank * = 10 = 15 = 20 = 25 = 50 = **Avail. =**	±30 PPM ±10 PPM ±15 PPM ±20 PPM ±25 PPM ±50 PPM **±10 ~ ±100**	P = R = S = T = W =	0~+50 -10~+60 -20~+70 -30~+80 -40~+85	Blank* = Bulk TR = Tape/Reel
NOTE: Deviations on all parameters available. Please consult Oscilent for details. **DEFINITIONS:** Click on the characteristic names above for definitions of that particular characteristic. ***STANDARDS:** "Blank" part number selections indicate standard variables for that particular characteristic. ****PACKAGING:** Click on the packaging name above for tape/reel specifications							

Series No.: 230