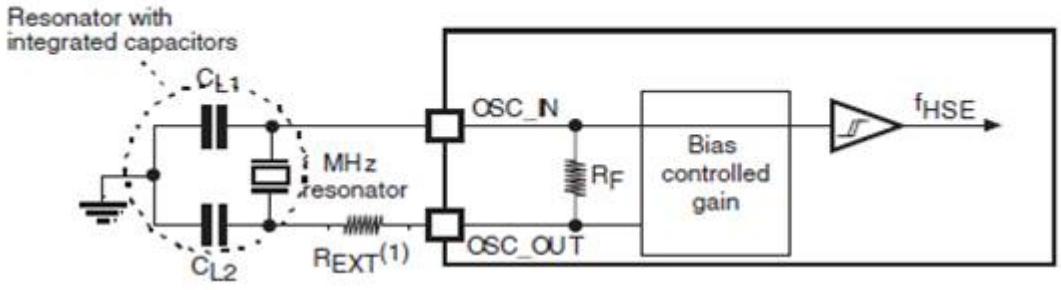
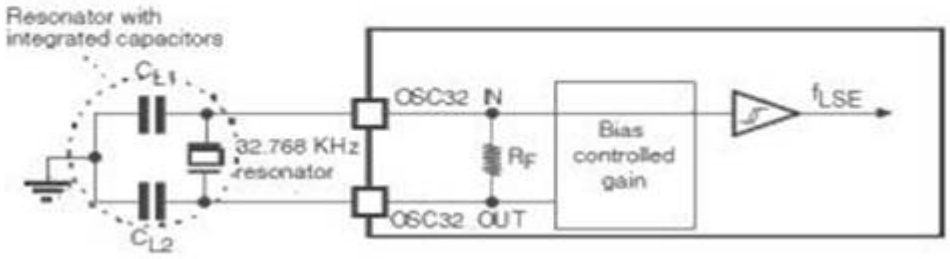
Design Note & Recommended YIC Crystals/Oscillators for IoT Application

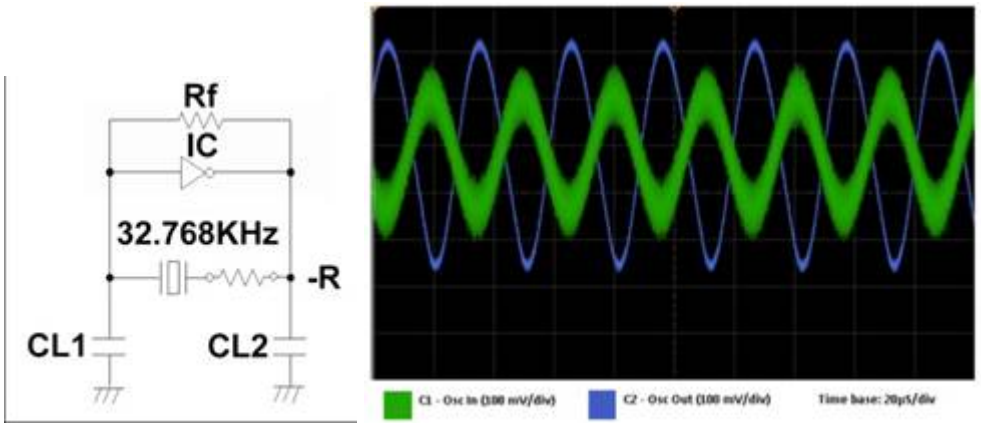
Typical application with an MHz crystal



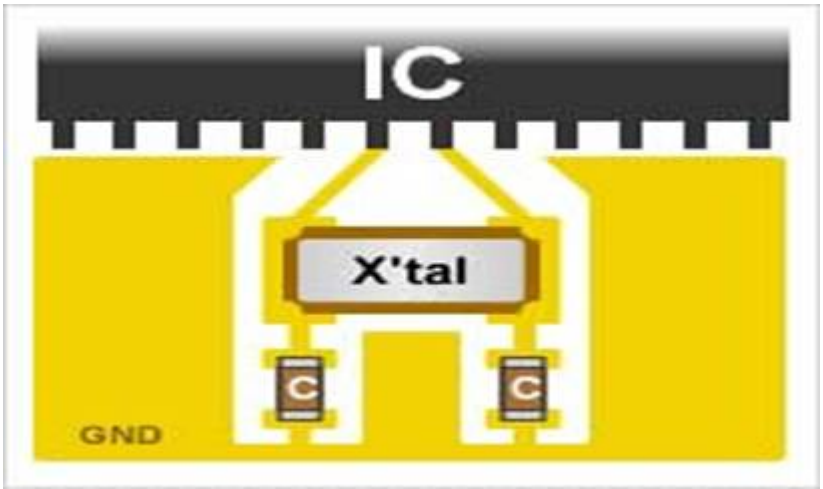
Typical application with a 32.768 kHz crystal



.Correct "-R" (Negative resistance) design to make sure stable oscillation.



.Recommended Layout:



.Recommended YIC MHz Quartz Crystals:

Ferquency (MHz)	Tolerance (ppm)	Load Capacitance (pF)	Temp. Range (℃)	Package Series (mm)
40	10	9,10	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
32	10,20,30	9,10,12	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
27.12	10,20,30	8,10,12	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
27	10,20,30	9,12,20	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
26	10,20,30	8,9,10	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
24	10,20,30	9,12,20	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
20	10,20,30	9,10,12	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
16	10,20,30	9,10,12,20	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
12	10,20,30	12,20	-20~+70 -40~+85	2.0x1.6 (SMDXT214) 2.5x2.0 (SMDXT224) 3.2x2.5 (SMDXT324)
8	20,30	18,20	-20~+70 -40~+85	5.0x3.2(SMDXT532,XT534)

.Recommended YIC KHz Quartz Crystals:

Ferquency (KHz)	Tolerance (ppm)	Load Capacitance (pF)	Temp. Range (℃)	Package Series (mm)
32.768	10,20	7,9,12.5	-40~+85	1.6x1.0(1610E) 2.0x1.2 (2012E) 3.2x1.5 (3215E) 6.9x1.4 (6914E) 8.0x3.8 (MC306)

.Recommended YIC KHz Clock Oscillators:

Ferquency (KHz)	Tolerance (ppm)	VDD (DCV)	Temp. Range (℃)	Package Series (mm)
32.768	25,50	1.8,2.5,3.0,3.3	-20~+70 -40~+85	2.0x1.6 (S21) 2.5x2.0 (S22) 3.2x2.5 (S3) 5.0x3.2 (S5) 7.0x5.0 (S7)

* Automotive grade & low power consumption models are available.