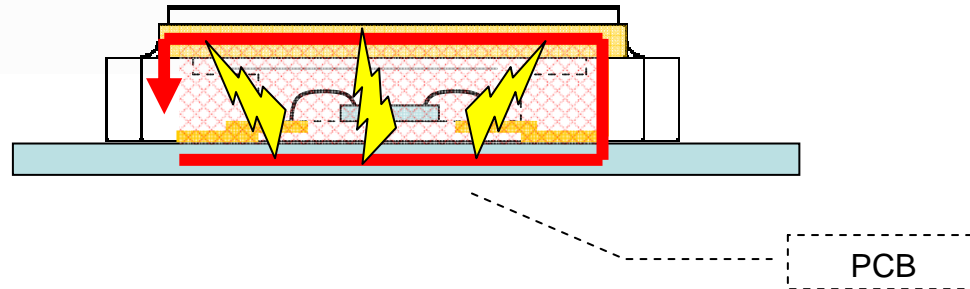
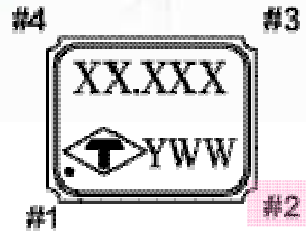


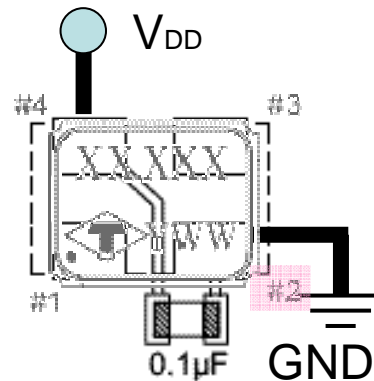


Application Note: How to Minimize EMI effect on Crystal Oscillators

EMI from Crystal Oscillators



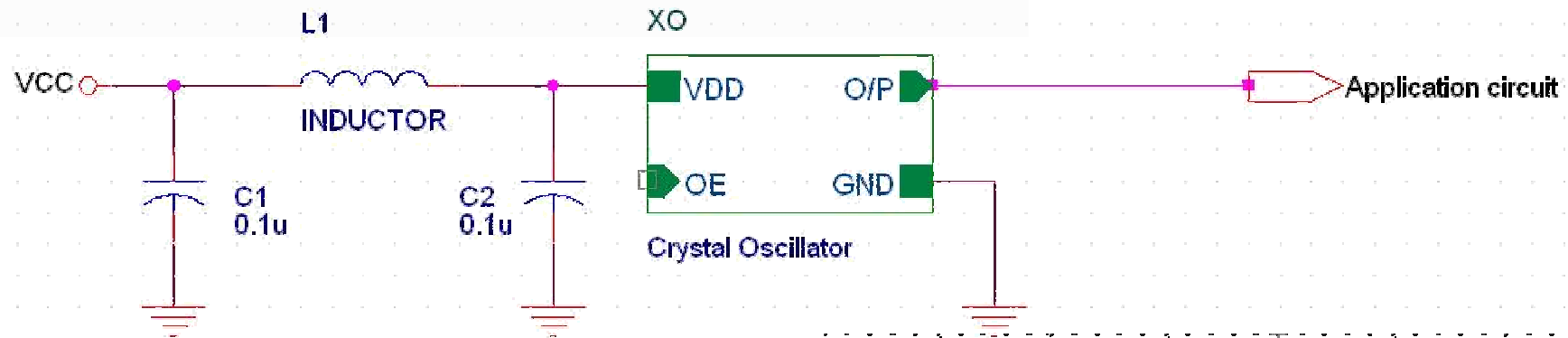
Pin	Function
#1	Tri-State
#2	GND
#3	Output
#4	VDD



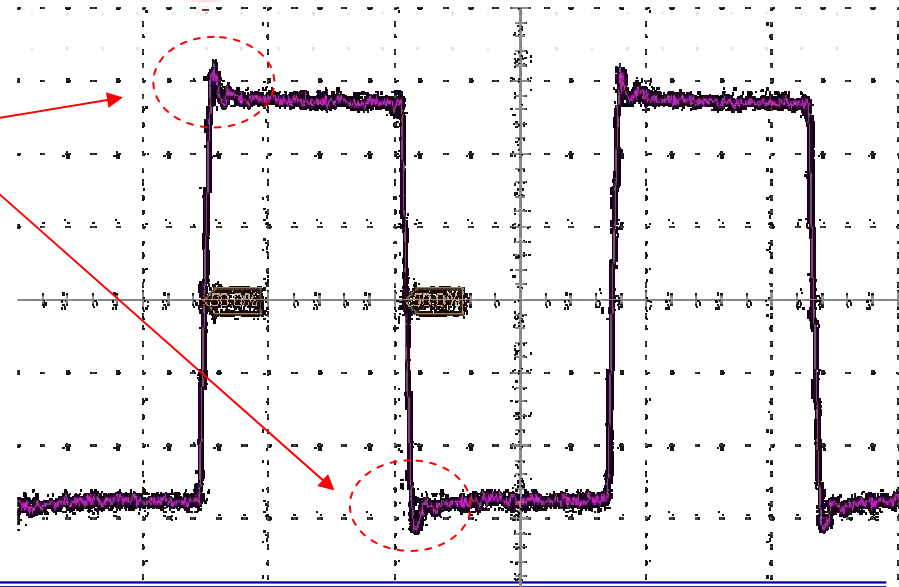
For TAIEN crystal oscillators, top metal covers are electrically connected to GND terminals.

The metal covers provide effective shielding against EMI from ASIC inside the oscillator.

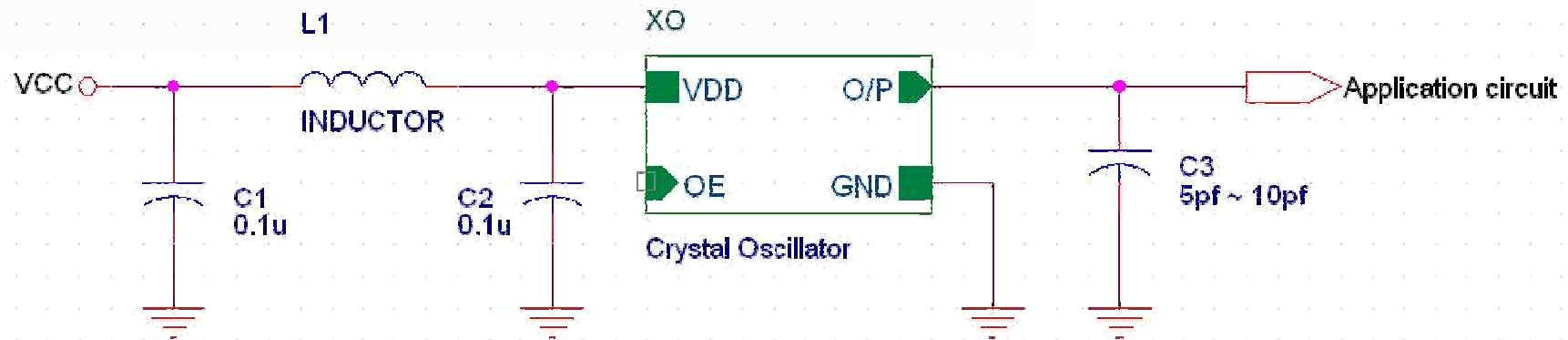
Effects of Oscillator Output Signals on EMI Generation



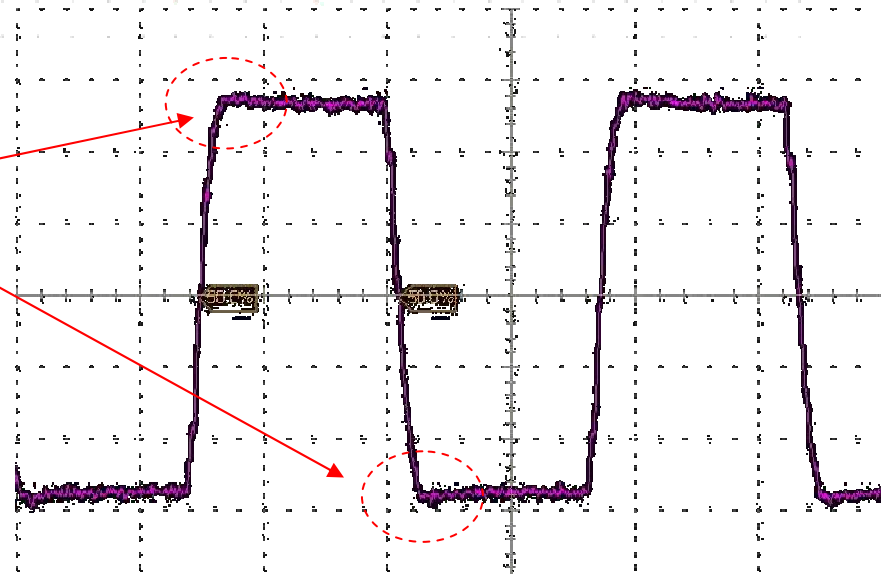
Voltage spikes seen on output signals from crystal oscillators. This can contribute to EMI issues in the application circuits.



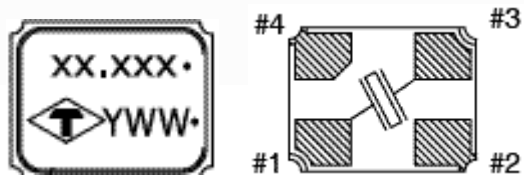
Eliminating EMI Caused by Signal Waveforms



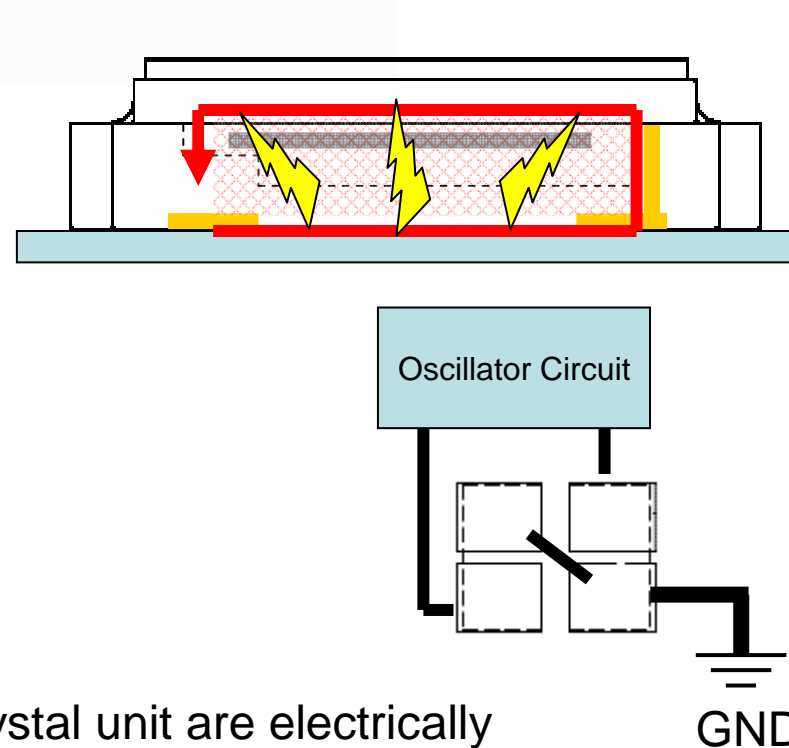
Adding a bypass capacitor (5 to 10 pF) between the output terminal and GND would smooth out the output waveform and reduce EMI significantly.



Reducing EMI from Crystal within Oscillator Circuit



Pin	Function
#1	Crystal Pin 1
#2	Connected to cover
#3	Crystal Pin 2
#4	Connected to cover



Terminals 2 and 4 on a TAITIEN crystal unit are electrically connected to the metal cover of the crystal. It is recommended to connect terminals 2 and 4 to GND to minimize EMI.