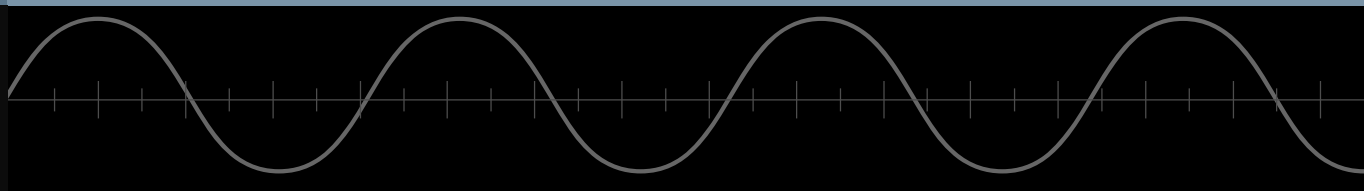


Linear Technology Corporation

Silent Switcher regulators



Silent Switcher – How It Works

- ◆ We reduce the magnitude of the harmonics by eliminating parasitics (eliminating long bond wires)
- ◆ We reduce the energy in the harmonics by splitting the “hot loops” into two lower powered loops
- ◆ We prevent the EMI from propagating by having the fields from the two loops cancel each other

Figure 4. Comparison of switch node rising edges for LT8614 Silent Switcher and the LT8610

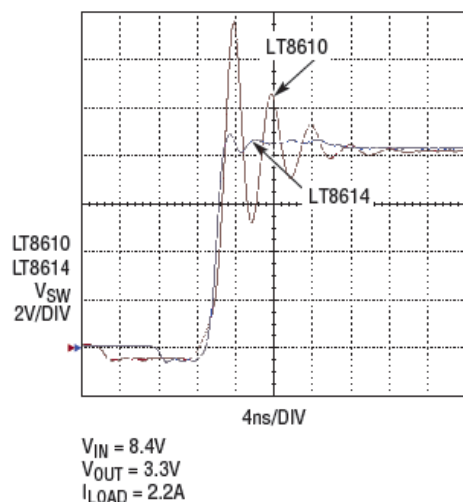
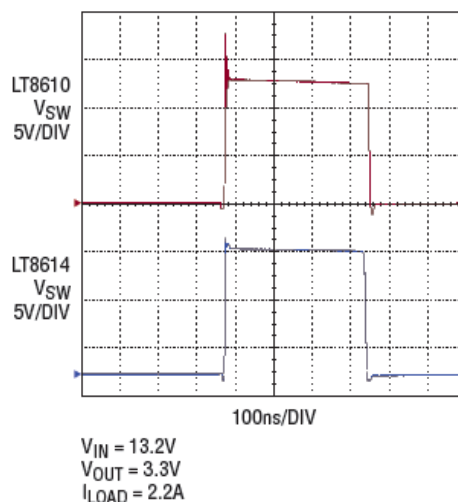


Figure 5. Near ideal square wave switch waveform of LT8614 enables low noise operation



Lower parasitics
means lower
harmonic energy

Silent Switcher – How It Works

Splitting the “hot loops” creates two lower powered loops with cancelling EMI

Dual Hot-Loop
+
Coupled Loops

Low-EMI

C_{VIN}

VIN

GND

SW

VIN

GND

C_{VIN}

Low-EMI

Much Lower
Total Inductance
+
Lower EMI

Silent Switcher – How It Works

- ◆ The two high current loops cancel each others magnetic field, almost like enclosing the circuit in a metal box

