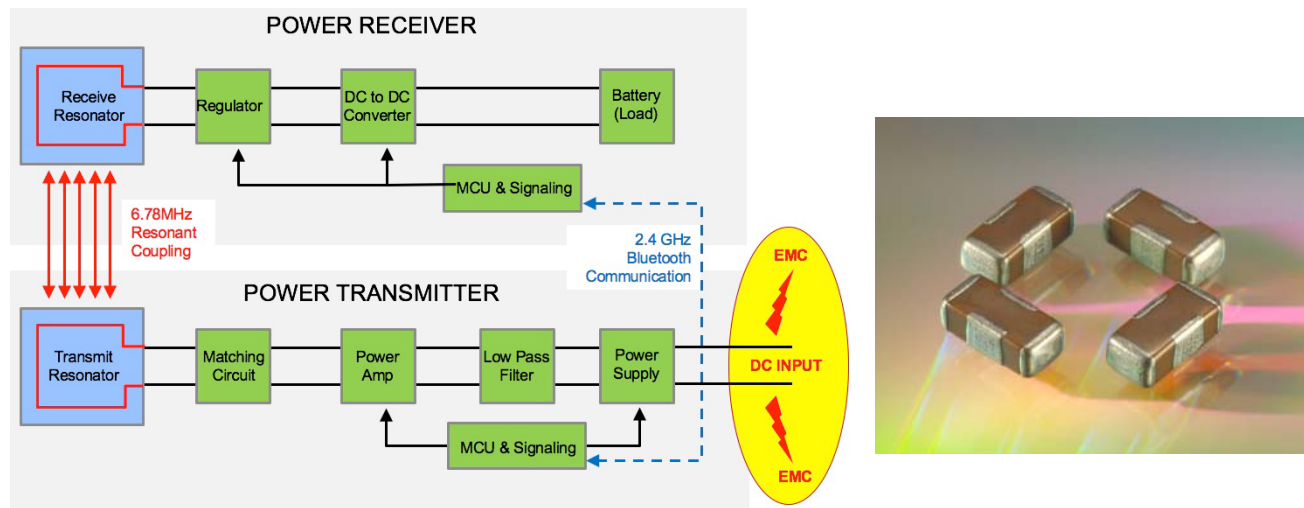


# Wireless Charging EMI Filter

## Increase Charge Efficiency, Reduce Size & Cost

### Description

Wireless charging systems conforming to Qi, A4WP and the new AirFuel multi-mode standards present designers with major EMC challenges due to the switching frequencies used in the power conversion sections.



Typical solutions include capacitive and inductive EMC filter components which often can't meet demanding conducted and radiated EMC specifications. Typical filter solutions also decrease system efficiency due to DC loss of common mode chokes or ferrite beads.

### Features

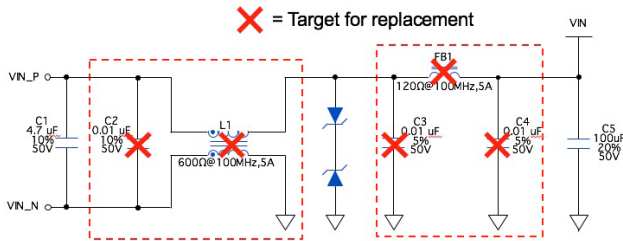
- Ultra-low ESL (Equivalent Series Inductance)
- Tight Line-to-Line Impedance Matching
- 4 Terminals Allow Circuit Flexibility
- No added DC Losses
- 80% Smaller than typical DC CM Chokes

### Benefits

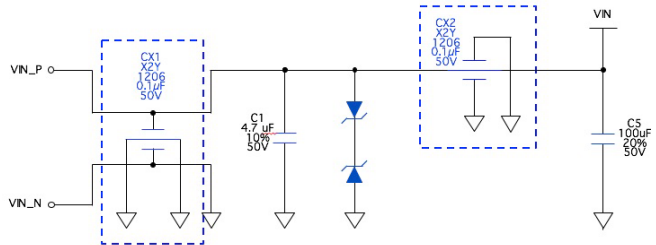
- Wide-band High Frequency Noise Reduction
- Low Noise Mode Conversion
- NO CURRENT LIMIT** due to Bypass Connection
- Reduced Conducted / Radiated Emissions
- Reduced Compliance Testing accelerates time to market

A single X2Y outperforms L-C filters while saving space and cost.

Conventional L-C EMC Filter

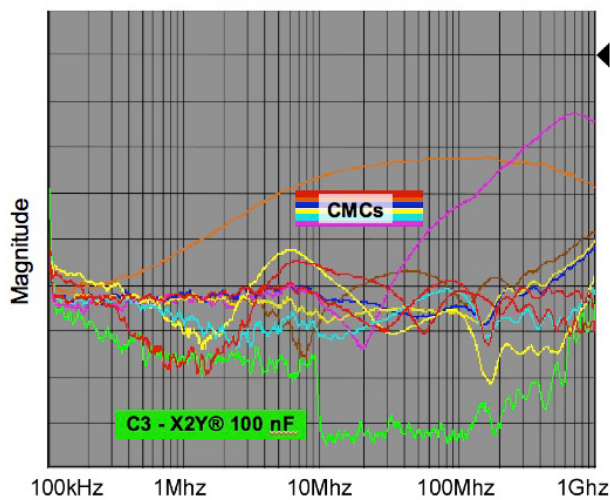


X2Y Low ESL Shunt EMC Filter

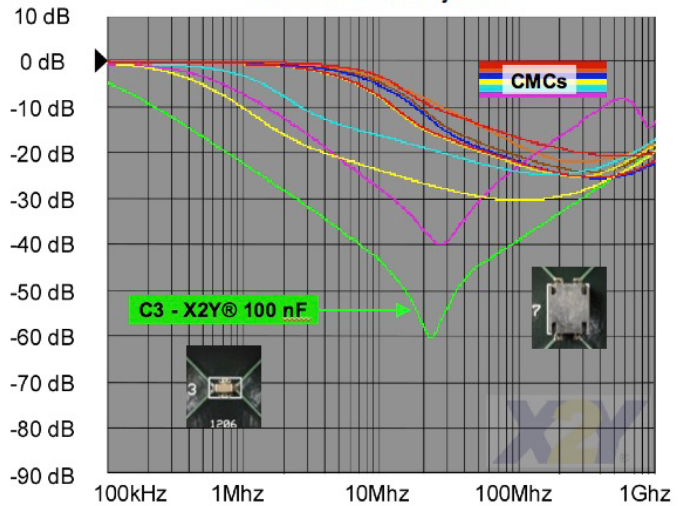


A single X2Y can replace CMC & MLCCs, or C-L-C PI Filter.

Noise Mode Conversion



Common Mode Rejection



- ✓ **HIGHEST common and differential mode noise rejection**
- ✓ **LOWEST noise-mode conversion**
- ✓ **LOWEST Cost: 80% Average Savings**
- ✓ **SMALLEST PCB Footprint: >70% Smaller**
- ✓ **LOWEST Profile: 73% Lower on average**
- ✓ **CM Chokes often require 2-3 additional filter capacitors**
- ✓ **X2Y exhibits superior Temp. & Vibration characteristics**

The highly efficient X2Y component has application on the receiver side and in the power matching section depending on system topologies. A detailed application note for Wireless Charging may be found at the following link: [X2Y® EMC Solutions for Inductive \(Qi\) and Resonant \(A4WP\) Wireless Charging DC Input](#)