

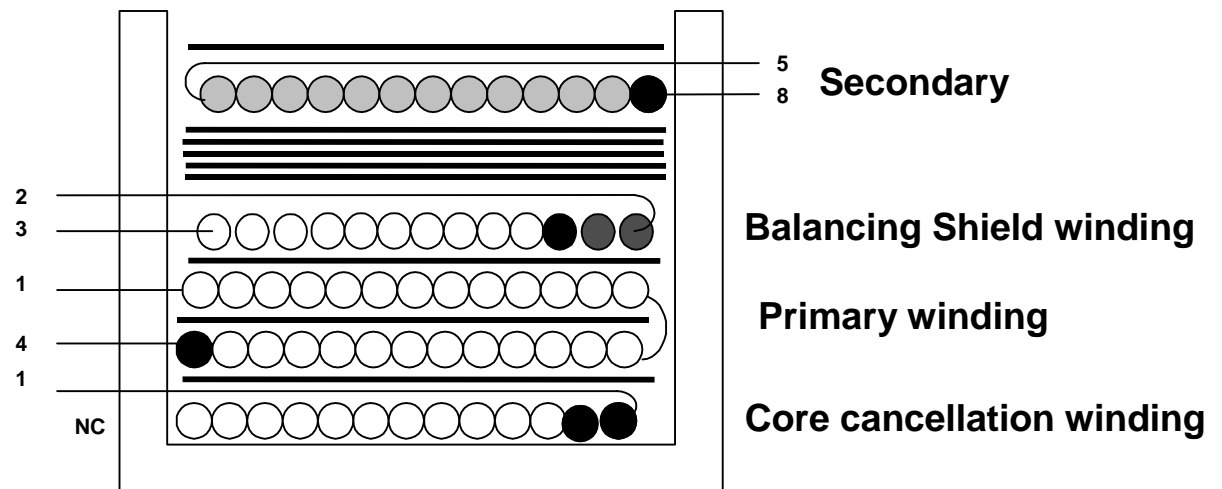
# E-Shield™

## Transformer Techniques for Low EMI

- **3 constructions**
  - Can eliminate a Y cap and possibly 2 resistors – up to \$0.04-\$0.06 in high volume
  - Alternative external solutions typically cost \$0.04-\$0.08 (increased filtering costs with common mode choke and possibly also X cap)

- **1<sup>st</sup> Construction - “Primary E-Shield™ ”**

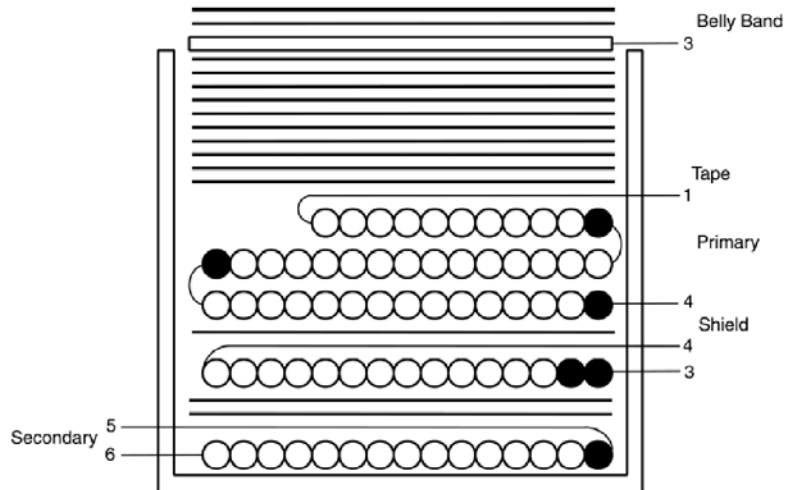
Core cancellation, primary and balancing shield windings are separate windings



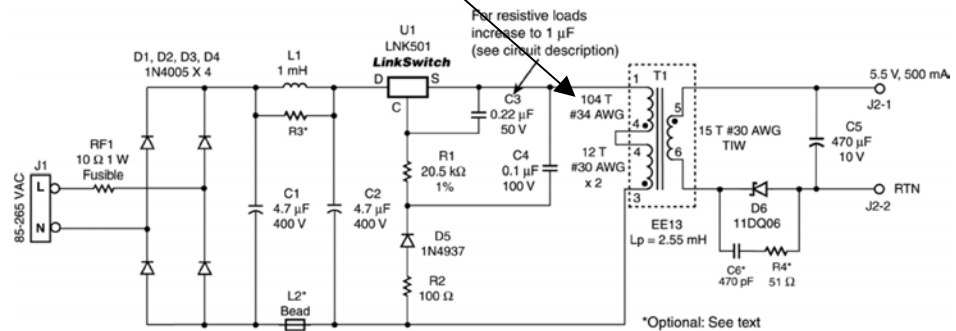
# E-Shield™ Transformer Techniques

- 2<sup>nd</sup> Construction – “Series E-Shield™ ”

Balancing shield portion of winding is in series with main winding (either primary or secondary)



Shown in series in circuit schematic



# E-Shield™ Transformer Techniques

- **3<sup>rd</sup> Construction – “Bias E-Shield™”**

Copper shield is used between primary and secondary and balancing winding is placed outside secondary.

Ideal if balancing winding is also the bias winding and used for feedback as this is tightly coupled to output winding so voltage regulation is typically good.

