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T50-2

Features

Applies to high Q below 40 MHz, for utilization of band transformer range within 200-400 MHz

| Electrical Specifications | | | | |
|---------------------------|-------------------|-----------|-------|------|
| Item | Unit/Symbol | Condition | Value | Tol. |
| A _L | nH/N ² | Typ. | 4.9 | ± 5% |
| L _e | cm | N/A | 3.19 | Typ. |
| A _e | cm ² | N/A | 0.112 | Typ. |
| V _e | cm ³ | N/A | 0.358 | Typ. |
| Approx. Material Density | g/cm ³ | N/A | 5.0 | Typ. |
| Permeability | μ ₀ | N/A | 10 | ± 5% |
| Temperature Stability | +ppm/°C | N/A | 95 | Typ. |

| Resonant Circuit (---) and Broadband Frequency Range (+++) | | | | | | | | | | | |
|--|-------------|----------|------------|-------------|-------------|----------|-----------|------------|-------------|-------------|-----------------|
| Mix | Range (MHz) | 2-50 KHz | 50-250 KHz | 250-500 KHz | 500KHz-2MHz | 2-10 MHz | 10-40 MHz | 40-150 MHz | 150-250 MHz | 250-500 MHz | 500 MHz to 1GHz |
| 42 | 0.3-80 | ----- | | | | | | | | | |
| 3 | 0.02-1 | ----- | | | | | | | | | |
| 8 | 0.02-1 | ----- | | | | +++++ | | | | | |
| 1 | 0.15-3 | | ----- | | | | | | +++++ | | |
| 15 | 0.15-3 | | ----- | | | | | | | | |
| 2 | 0.25-10 | | ----- | | | | | | | | |
| 7 | 1-25 | | | ----- | | | | | | | |
| 4 | 3-40 | | | | ----- | | | | | | |
| 6 | 3-40 | | | | | ----- | | | +++++ | | |
| 10 | 15-100 | | | | | | ----- | | | +++++ | |
| 17 | 20-200 | | | | | | | ----- | | | |
| 12 | 30-250 | | | | | | | | | | |
| 0 | 50-350 | | | | | | | | | | +++++ |

| REVISION HISTORY | | | | | | |
|------------------|-----|--------------------|-------------|--------|-----|--------|
| REV | ECN | DESCRIPTION | SIGN & DATE | | | |
| | | | BY | DATE | AP. | DATE |
| A | | Production release | EO | 3/7/13 | JL | 3/7/13 |
| | | | | | | |



| Case Dimensional Tolerances | | | | |
|-----------------------------|-------|-------|-------|------|
| | in | tol. | mm | tol. |
| B (Outer Diameter) | 0.500 | 0.020 | 12.70 | 0.51 |
| A (Inner Diameter) | 0.303 | 0.020 | 7.70 | 0.51 |
| H (Height) | 0.190 | 0.020 | 4.83 | 0.51 |
| Weight 1.79 g | | | | |

$$\text{Temperature Rise : } \Delta T(^{\circ}\text{C}) = \left[\frac{\text{Total Power Dissipation (milliwatts)}}{\text{Surface Area (cm}^2\text{)}} \right]^{0.833}$$

$$\text{Required turns} = \left[\frac{\text{desired L (nH)}}{A_L \left(\frac{\text{nH}}{\text{N}^2} \right)} \right]^{\frac{1}{2}}$$

$$\text{Peak AC Flux Density: } B_{pk} = \frac{E_{avg} 10^8}{4ANf}$$

$$\text{Magnetizing Force: } H = \frac{0.4\pi N I}{\ell}$$

L = inductance
 nH = nanohenries
 H = oersteds (Oe)
 N = Number of turns
 I = Current (amperes)
 ℓ = Mean Magnetic Path (cm)
 A = Cross-sectional area (cm²)
 f = frequency (hertz)
 B_{pk} = Gauss (G)

UNLESS OTHERWISE SPECIFIED
 DIMENSIONING AND TOLERANCE PER ANSI Y14.5M
 ALL DIMENSIONS ARE IN INCHES AND [MILLIMETERS].
 TOLERANCE INCHES:
 .XXX=±.005 .XX=±.015 $\angle = \pm 0^{\circ}30'$
 TOLERANCE METRICS:
 .XXX=±.127 .XX=±.38 $\angle = \pm 0^{\circ}30'$
 ANGLE PROJECTION
 DO NOT SCALE DRAWING

For additional detail, specifications and charts see:

http://www.bytemark.com/products/IPCores_index.html

| CODE IDENT | MFG. P/N | DESCRIPTION | ITEM NO. |
|-------------------|-----------|---|--------------|
| PARTS LIST | | | |
| AUTOCAD | X | www.coilws.com CWSBYTEMARK 353 West Grove Ave. Orange, CA. 92865 www.cwsbytemark.com | |
| SOLIDWORKS | | | |
| SIGN | DATE | | |
| DRAWN | EO 3/7/13 | | |
| CHECKED | JL 3/7/13 | | |
| ENGR. | JL 3/7/13 | Iron Powder Core: Material Mix 2 (Carbonyl E), Red/Clear | |
| APPR. | JL 3/7/13 | | |
| | | | |
| SIZE DWG. NO. | | T50-2 | REV A |
| SCALE | | | |
| | | SHEET | 1 OF 1 |