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T20-1

Features

Highest carbonyl permeability.
Applies to high Q below 1 MHz, for utilization of band transformer range within 50-500 MHz

Electrical Specifications				
Item	Unit/Symbol	Condition	Value	Tol.
A _L	nH/N ²	Typ.	5.2	± 10%
L _e	cm	N/A	1.15	Typ.
A _e	cm ²	N/A	0.023	Typ.
V _e	cm ³	N/A	0.026	Typ.
Approx. Material Density	g/cm ³	N/A	6.4	Typ.
Permeability	μ ₀	N/A	20	± 10%
Temperature Stability	+ppm/°C	N/A	280	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)	0.200	0.010	5.08	0.25
A (Inner Diameter)	0.088	0.010	2.24	0.25
H (Height)	0.070	0.010	1.78	0.25
Weight 0.17 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 www.cwsbytemark.com	CWSBYTEMARK 353 West Grove Ave. Orange, CA. 92865
SOLIDWORKS			
DRAWN	EO 3/7/13	TITLE: Iron Powder Core: Material Mix 1 (Carbonyl C), Blue/Clear	
CHECKED	JL 3/7/13		
ENGR.	JL 3/7/13		
APPR.	JL 3/7/13		
		SIZE DWG. NO.	REV
		B	T20-1
		SCALE	SHEET 1 OF 1
		N/A	