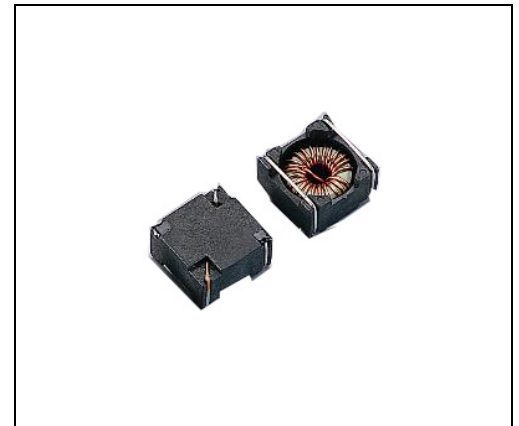


## Type SMT TC (1.8 ~ 4700) $\mu$ H

- # High current with closed magnetic path to eliminate stray electromagnetic emissions
- # Self-leaded design ensures rugged reliability
- # Magnetically shielded
- # RoHS Compliant



### General Material Properties

Material Mix No.	Reference Permeability ( $\mu$ )	Material Density(g/cm <sup>3</sup> )	Temp. Coef. of Permeability ppm/ $^{\circ}$ C	Relative Cost	Colour Code
-2	10	5.0	95	2.7	Red/Clear
-8	35	6.5	255	5.0	Yellow/Red
-14	14	5.2	150	3.6	Black/Red
-18	55	6.6	385	3.4	Green/Red
-26	75	7.0	825	1.0	Yellow/White
-30 *	22	6.0	510	1.4	Green/Gray
-33	33	6.3	565	1.6	Gray/Yellow
-38	85	7.1	956	1.1	Gray/Black
-40	60	6.9	950	1.0	Green/Yellow
-52	75	7.0	650	1.2	Green/Blue
M125 **	125	---	85	---	Gray
H125 **	125	---	255	---	Gray

Note: -2 ~ -52 are Iron Powder cores, M125 / H125 are alloy cores.

\* The -30 Material was developed as a low cost, lower loss alternate to the -28 material.

\*\* M125 : MPP (Ni-Fe-Mo alloy) besides  $\mu=125$ , there are  $\mu=26 / 60 / 75 / 147 / 160 / 200$ .

\*\* H125 : High Flux (Ni-Fe alloy) besides  $\mu=125$ , there are  $\mu=26 / 60 / 75 / 90 / 160$ .

CORE LOSS COMPARISON (mW/cm <sup>3</sup> )							PERMEABILITY WITH DC BIAS		
Material	60 Hz	1KHz	10KHz	50KHz	100KHz	500KHz	H <sub>DC</sub> = 50 Oersteds		
Mix No.	@5000G	@1500G	@500G	@225G	@140G	@50G	% μ <sub>0</sub>	μ <sub>effective</sub>	
-2	19	32	32	28	19	12	100%	10.0	
-8	45	64	59	50	35	28	91%	31.9	
-14	19	32	32	29	21	17	100%	14.0	
-18	48	72	70	63	46	37	74%	40.7	
-26	32	60	75	89	83	139	51%	38.3	
-30	37	80	120	149	129	129	91%	20.0	
-33	90	90	105	160	145	155	84%	27.7	
-38	31	57	72	99	103	217	51%	43.4	
-40	29	62	93	130	127	223	62%	37.2	
-52	30	56	68	72	58	63	59%	44.3	
M125	15	5	6	10	7	10	52%	65.0	
H125	18	25	20	32	35	30	67%	83.8	

**MATERIAL APPLICATIONS**

Typical Application	-2	-8	-14	-18	-26	-30	-34	-38	-40	-52	M125	H125
Light Dimmer Chokes					X			X	X			
60 Hz Differential-mode EMI Line Chokes					X			X	X	X		
DC Chokes: < 50kHz or lower Et/N (Buck/Boost)					X	X	X	X	X			
DC Chokes: ≥50kHz or higher Et/N(Buck/Boost)		X	X	X		X	X			X	X	X
Power Factor Correction Chokes: < 50kHz						X	X		X			
Power Factor Correction Chokes: ≥50kHz	X	X	X	X	X	X	X				X	X
Resonant Inductors : ≥50kHz	X		X									

<i>TFC Part No.</i>	<i>L (μH) ±20%</i>	<i>DCR (mΩ) max.</i>	<i>SRF (MHz) typ.</i>	<i>I sat (A) typ.</i>	<i>I rms (A) max.</i>
<i>SMTTC30 - 8/90 - 1R8M</i>	<b>1.8</b>	<b>12.0</b>	<b>140</b>	<b>12</b>	<b>5.5</b>
<i>SMTTC30 - 8/90 - 3R3M</i>	3.3	19.9	110	10	4.8
<i>SMTTC30 - 8/90 - 6R8M</i>	6.8	47.2	55	6.5	2.8
<i>SMTTC30 - 8/90 - 220M</i>	22	166	15	3.5	1.4
<i>SMTTC30 - 8/90 - 101M</i>	100	640	5.0	1.6	0.94
<i>SMTTC30 - 18 - 2R7M</i>	2.7	12.0	125	7.4	5.5
<i>SMTTC30 - 18 - 5R2M</i>	5.2	19.9	102	5.4	4.8
<i>SMTTC30 - 18 - 120M</i>	12	47.2	52	3.5	2.8
<i>SMTTC30 - 18 - 350M</i>	35	166	12	2.0	1.4
<i>SMTTC30 - 18 - 171M</i>	170	640	4.0	0.95	0.94
<i>SMTTC30 - 52 - 3R6M</i>	3.6	12.0	150	5.0	5.5
<i>SMTTC30 - 52 - 6R8M</i>	6.8	19.9	110	3.7	4.8
<i>SMTTC30 - 52 - 150M</i>	15	47.2	45	2.5	2.8
<i>SMTTC30 - 52 - 470M</i>	47	166	14	1.4	1.4
<i>SMTTC30 - 52 - 221M</i>	220	640	4.2	0.64	0.94
<i>SMTTC30 - M125 - 6R0M</i>	6.0	12.0	95	4.6	5.5
<i>SMTTC30 - M125 - 120M</i>	12	19.9	75	3.4	4.8
<i>SMTTC30 - M125 - 220M</i>	22	47.2	50	2.4	2.8
<i>SMTTC30 - M125 - 820M</i>	82	166	10	1.3	1.4
<i>SMTTC30 - M125 - 391M</i>	390	640	3	0.60	0.94
<i>SMTTC38 - 8/90 - 1R5M</i>	<b>1.5</b>	<b>9.3</b>	<b>133</b>	<b>18</b>	<b>8.0</b>
<i>SMTTC38 - 8/90 - 3R3M</i>	3.3	18.7	73	12	5.4
<i>SMTTC38 - 8/90 - 8R2M</i>	8.2	63	24	7.5	2.7
<i>SMTTC38 - 8/90 - 270M</i>	27	290	12	4.0	1.3
<i>SMTTC38 - 8/90 - 101M</i>	100	657	4.0	2.1	0.90
<i>SMTTC38 - 18 - 3R8M</i>	3.8	9.3	133	8.8	8.0
<i>SMTTC38 - 18 - 7R5M</i>	7.5	18.7	73	5.8	5.4
<i>SMTTC38 - 18 - 220M</i>	22	63	34	3.5	2.7
<i>SMTTC38 - 18 - 730M</i>	73	290	5.0	2.0	1.3
<i>SMTTC38 - 18 - 291M</i>	290	657	2.0	0.98	0.90
<i>SMTTC38 - 52 - 4R7M</i>	4.7	9.3	133	6.5	8.0
<i>SMTTC38 - 52 - 100M</i>	10	18.7	62	4.4	5.4
<i>SMTTC38 - 52 - 330M</i>	33	63	25	2.4	2.7
<i>SMTTC38 - 52 - 101M</i>	100	290	5.0	1.4	1.3
<i>SMTTC38 - 52 - 391M</i>	390	657	1.8	0.71	0.90
<i>SMTTC38 - M125 - 6R8M</i>	6.8	9.3	133	6.2	8.0
<i>SMTTC38 - M125 - 150M</i>	15	18.7	58	4.2	5.4
<i>SMTTC38 - M125 - 390M</i>	39	63	18	2.6	2.7
<i>SMTTC38 - M126 - 121M</i>	120	290	4.0	1.6	1.3
<i>SMTTC38 - M127 - 471M</i>	470	657	1.2	0.74	0.90

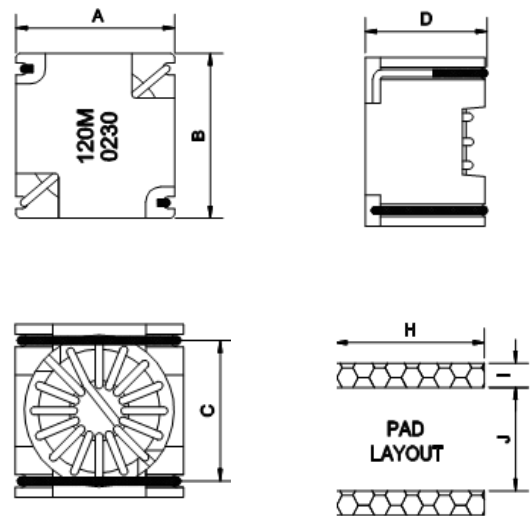
<i>TFC Part No.</i>	<i>L (μH) ±20%</i>	<i>DCR (mΩ) max.</i>	<i>SRF (MHz) typ.</i>	<i>I sat (A) typ.</i>	<i>I rms (A) max.</i>
<i>SMTTC44 - 8/90 - 5R6M</i>	<b>5.6</b>	<b>16.2</b>	<b>65</b>	<b>11.0</b>	<b>7.8</b>
<i>SMTTC44 - 8/90 - 100M</i>	10.0	23.6	40	9.0	5.5
<i>SMTTC44 - 8/90 - 150M</i>	15.0	39.0	25	7.4	4.0
<i>SMTTC44 - 8/90 - 270M</i>	27.0	85.0	12	5.4	2.7
<i>SMTTC44 - 8/90 - 681M</i>	680	1908	1.4	1.0	0.70
<i>SMTTC44 - 18 - 7R9M</i>	7.9	16.2	49	6.6	7.8
<i>SMTTC44 - 18 - 140M</i>	14.0	23.6	33	5.2	5.5
<i>SMTTC44 - 18 - 220M</i>	22.0	39.0	23	4.1	4.0
<i>SMTTC44 - 18 - 410M</i>	41.0	85.0	9.5	3.0	2.7
<i>SMTTC44 - 18 - 112M</i>	1100	1908	1.2	0.58	0.70
<i>SMTTC44 - 52 - 120M</i>	12	16.2	62	4.5	7.8
<i>SMTTC44 - 52 - 180M</i>	18	23.6	35	3.5	5.5
<i>SMTTC44 - 52 - 270M</i>	27	39.0	26	2.8	4.0
<i>SMTTC44 - 52 - 560M</i>	56	85.0	9.0	2.0	2.7
<i>SMTTC44 - 52 - 152M</i>	1500	1908	0.85	0.39	0.70
<i>SMTTC44 - M125 - 180M</i>	18	16.2	49	4.3	7.8
<i>SMTTC44 - M125 - 270M</i>	27	23.6	33	3.4	5.5
<i>SMTTC44 - M125 - 470M</i>	47	39.0	23	2.6	4.0
<i>SMTTC44 - M125 - 101M</i>	100	85.0	7.5	1.8	2.7
<i>SMTTC44 - M125 - 222M</i>	2200	1908	0.60	0.38	0.70
<i>SMTTC50 - 8/90 - 100M</i>	<b>10</b>	<b>19.7</b>	<b>35</b>	<b>9.0</b>	<b>7.2</b>
<i>SMTTC50 - 8/90 - 150M</i>	15	32	27	7.5	5.1
<i>SMTTC50 - 8/90 - 470M</i>	47	133	7.0	4.3	2.6
<i>SMTTC50 - 8/90 - 101M</i>	100	220	3.8	2.9	2.0
<i>SMTTC50 - 8/90 - 152M</i>	1500	1932	0.72	0.76	0.71
<i>SMTTC50 - 18 - 160M</i>	16	19.7	24	5.4	7.2
<i>SMTTC50 - 18 - 260M</i>	26	32	11	4.3	5.1
<i>SMTTC50 - 18 - 730M</i>	73	133	4.5	2.5	2.6
<i>SMTTC50 - 18 - 151M</i>	150	220	2.6	1.8	2.0
<i>SMTTC50 - 18 - 202M</i>	2000	1932	0.60	0.50	0.71
<i>SMTTC50 - 52 - 180M</i>	18	19.7	35	4.4	7.2
<i>SMTTC50 - 52 - 270M</i>	27	32	27	3.6	5.1
<i>SMTTC50 - 52 - 101M</i>	100	133	5.2	1.9	2.6
<i>SMTTC50 - 52 - 221M</i>	220	220	2.2	1.3	2.0
<i>SMTTC50 - 52 - 272M</i>	2700	1932	0.50	0.37	0.71
<i>SMTTC50 - M125 - 330M</i>	33	19.7	19	3.5	7.2
<i>SMTTC50 - M125 - 470M</i>	47	32	16	2.8	5.1
<i>SMTTC50 - M125 - 151M</i>	150	133	3.6	1.6	2.6
<i>SMTTC50 - M125 - 331M</i>	330	220	2.0	1.2	2.0
<i>SMTTC50 - M125 - 472M</i>	4700	1932	0.45	0.31	0.71

<b>SMT TC dimensions (mm)</b>	<b>A (max.)</b>	<b>B (max.)</b>	<b>C (max.)</b>	<b>D</b>	<b>H</b>	<b>I</b>	<b>J</b>
<b>SMTC30</b>	11.05	11.18	9.50	8.89	10.16	1.52	9.14
<b>SMTC38</b>	14.22	14.35	9.50	11.43	13.21	1.52	11.68
<b>SMTC44</b>	14.99	15.62	10.50	12.70	13.97	1.52	12.95
<b>SMTC50</b>	17.02	17.78	10.50	14.73	15.75	1.52	14.99

**Ordering information :**

**SMT**   **TC30**   -   **18**   -   **120**   **M**  
 (1)        (2)        (3)        (4)        (5)

- (1) **Type:** Surface Mountable Type
- (2) **Style:** 0.3inch size Torroids
- (3) **Material:** Refer to table above
- (4) **Inductance:** 120 for 12.0uH
- (5) **Inductance tolerance:** N: ± 30%; M: ± 20%

**SMT TC drawing (mm)**

**Electrical specification**
**Inductance range**

BMTC30	1.8~390uH	5.5~0.60A
BMTC38	1.5~470uH	8.0~0.74A
BMTC44	5.68~2200uH	7.8~0.38A
BMTC50	10.0~4700uH	7.2~0.31A

**I sat**

The current when the inductance becomes 30% lower than its initial value, (Ta=20°C)

**I rms**

The current when temperature of coil increases up to max. ΔT=40°C, (Ta=20°C)

**Operating temperature**

-20 °C to 85 °C

**Test equipment and set up**

L: Tested by Agilent 4284ALCR meter @100kHz 0.1Vrm  
 DCR: Tested by Milli-ohm meter  
 SRF: Tested by Agilent 4191A RF impedance analyzer  
 Electrical specifications at 25°C