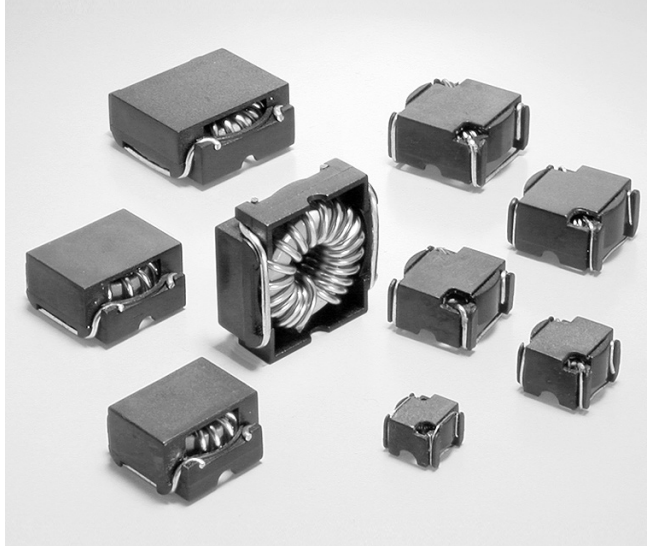




# Toroid Power Inductors – SPT Series



- Toroid winding eliminates stray electromagnetic emissions
- Two versions: Standard, current ratings up to 8 Amps; High current, with ratings up to 12.2 Amp

**Core material** Powered iron

**Core and winding loss** See [www.coilcraft.com/coreloss](http://www.coilcraft.com/coreloss)

**Terminations** RoHS compliant tin-silver over copper. Other terminations available at additional cost.

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

**Maximum part temperature:** The part temperature should not exceed  $+85^{\circ}\text{C}$  (ambient + self-heating). Prolonged operation above  $+85^{\circ}\text{C}$  may result in a permanent increase in core loss and part failure due to thermal aging of the core material.

**Storage temperature** Component:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .  
Packaging:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**Resistance to soldering heat** Max three 40 second reflows at  $+260^{\circ}\text{C}$ , parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at  $<30^{\circ}\text{C}$  / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**  
38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).

Part number <sup>1</sup>	L <sup>2</sup> $\pm 20\%$ ( $\mu\text{H}$ )	DCR max (mOhm)	SRF typ <sup>3</sup> (MHz)	Isat (A) <sup>4</sup>			Irms (A) <sup>5</sup>		Body size
				10% drop	20% drop	30% drop	20°C rise	40°C rise	
<b>Standard series</b>									
SPT20L-112ML_	1.1	16.0	130	3.2	4.8	6.7	4.7	6.1	1
SPT38L-382ML_	3.8	9.3	61	4.0	6.1	8.2	6.5	8.5	3
SPT30L-522ML_	5.2	24.2	47	2.8	4.2	5.8	4.2	5.7	2
SPT20L-702ML_	7.0	95.0	37	1.2	1.8	2.5	1.8	2.2	1
SPT38L-752ML_	7.5	22.8	50	2.7	4.2	5.8	4.4	6.5	3
SPT44L-792ML_	7.9	16.2	26	3.5	5.4	7.3	5.6	7.5	4
SPT30L-123ML_	12	54.7	23.9	1.9	2.8	3.7	2.5	3.3	2
SPT44L-143ML_	14	23.6	15.6	2.8	4.1	5.7	4.2	5.7	4
SPT50L-163ML_	16	19.7	14.3	2.8	4.2	5.8	5.1	7.1	5
SPT38L-223ML_	22	63	18.1	1.5	2.3	3.1	3.1	3.8	3
SPT20L-233ML_	23	320	13.5	0.6	1.0	1.3	0.71	1.0	1
SPT50L-263ML_	26	32	11.2	2.3	3.4	4.6	4.3	6.0	5
SPT30L-353ML_	35	166	11.0	1.1	1.6	2.2	1.3	1.6	2
SPT44L-413ML_	41	85	8.30	1.6	2.3	3.1	2.3	3.1	4
SPT38L-733ML_	73	290	10.8	0.81	1.3	1.7	1.1	1.5	3
SPT50L-733ML_	73	133	4.56	1.4	2.0	2.7	2.6	3.5	5
SPT30L-174ML_	170	640	3.84	0.44	0.68	0.95	0.70	0.88	2
SPT38L-294ML_	290	657	2.87	0.41	0.64	0.90	0.70	1.0	3
SPT50L-564ML_	560	550	1.54	0.37	0.59	0.81	0.70	0.90	5
SPT38L-674ML_	670	1200	1.38	0.26	0.40	0.55	0.48	0.65	3
SPT44L-115ML_	1100	1908	1.35	0.25	0.41	0.57	0.57	0.63	4
SPT50L-205ML_	2000	1932	1.35	0.18	0.29	0.41	0.56	0.70	5
<b>High current series</b>									
SPT44H-282ML_	2.8	4.6	74	5.8	8.8	12.2	9.7	13.6	6
SPT44H-422ML_	4.2	6.6	61	5.0	7.8	10.9	8.8	11.8	6
SPT50H-652ML_	6.5	7.2	27.3	4.6	6.7	9.1	8.6	11.7	7
SPT50H-842ML_	8.4	8.5	22.8	4.3	6.4	8.5	7.1	9.8	7
SPT68H-113ML_	11	8.2	25.9	4.8	7.2	9.9	8.3	11.2	8
SPT68H-183ML_	18	12.5	12.0	3.9	5.7	7.7	6.8	9.2	8

1. Please specify **termination** and **packaging** codes:

SPT20L-112MLD

**Termination:** L = RoHS compliant tin-silver over copper.

**Special order:**

T = RoHS tin-silver-copper  
(95.5/4/0.5) or S = non-RoHS  
tin-lead (63/37).

**Packaging:** D = 13" machine-ready reel

EIA-481 embossed plastic tape.  
Body size 1: 750 per full reel.  
Body sizes 2-3: 350 per full reel.  
Body size 4: 300 per full reel.  
Body sizes 5-6: 250 per full reel.  
Body sizes 7-8: 200 per full reel.

**B = Less than full reel**

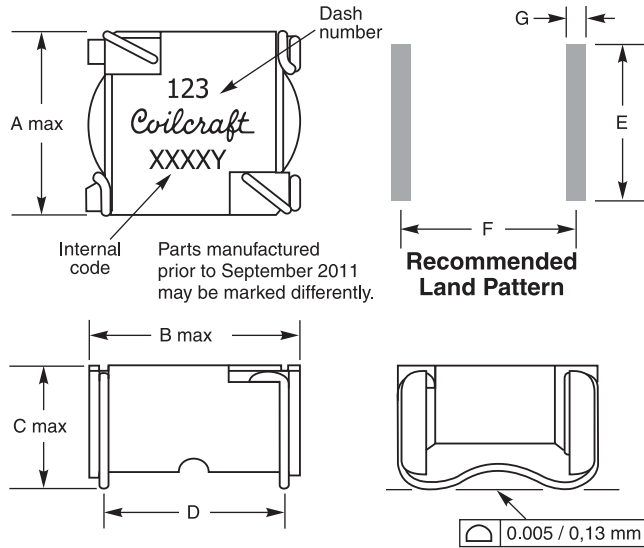
In tape, but not machine ready.  
To have a leader and trailer added  
(\$25 charge), use code letter D  
instead.

- Inductance tested at 100 kHz, 0.1 Vrms on Agilent/HP 4192A.
- SRF measured on Agilent/HP 8753ES network analyzer.
- DC current that causes the specified inductance drop from its value without current.
- Current that causes the specified temperature rise from  $25^{\circ}\text{C}$  ambient.
- Electrical specifications at  $25^{\circ}\text{C}$ . Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

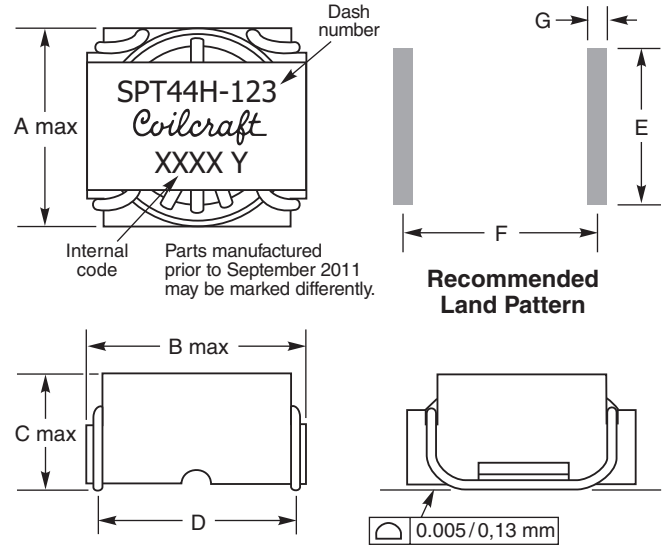


# Toroid Power Inductors – SPT Series

## Body size 1 - 5



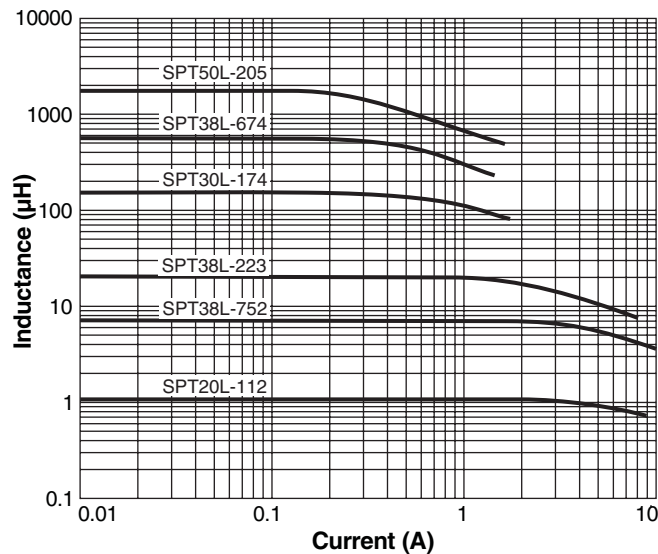
## Body size 6 - 8



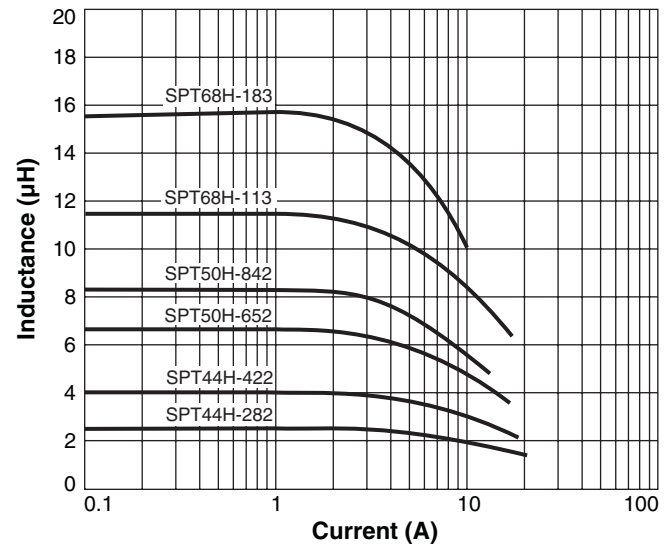
Size	A max	B max	C max	D <sup>1</sup>	E <sup>2</sup>	F <sup>2</sup>	G	Weight (g)
1	0.34/8,64	0.34/8,64	0.28/7,00	0.26/6,60	0.30/7,62	0.27/6,86	0.06/1,52	0.47-0.54
2	0.44/11,05	0.44/11,18	0.37/9,50	0.35/8,89	0.40/10,16	0.36/9,14	0.06/1,52	1.42-1.59
3	0.56/14,22	0.56/14,35	0.37/9,50	0.45/11,43	0.52/13,21	0.46/11,68	0.06/1,52	2.73-3.34
4	0.59/14,99	0.61/15,62	0.41/10,50	0.50/12,70	0.55/13,97	0.51/12,95	0.06/1,52	3.57-4.08
5	0.67/17,02	0.70/17,78	0.41/10,50	0.58/14,73	0.62/15,75	0.59/14,99	0.06/1,52	5.19-5.97
6	0.66/16,89	0.66/16,89	0.41/10,50	0.56/14,22	0.49/12,45	0.57/14,48	0.08/2,03	4.23-4.48
7	0.74/18,80	0.74/18,80	0.41/10,50	0.63/16,00	0.56/14,22	0.64/16,26	0.08/2,03	6.18-6.53
8	0.94/23,88	0.94/23,88	0.41/10,50	0.82/20,83	0.70/17,78	0.83/21,08	0.08/2,03	11.12-11.63

Dimensions are in inches / mm. Unless specified, tolerance is ± 0.009/0,25.  
 1. ±0.030/0,76  
 2. ±0.005/0,13

## Typical L vs Current (Standard series)



## Typical L vs Current (High current series)



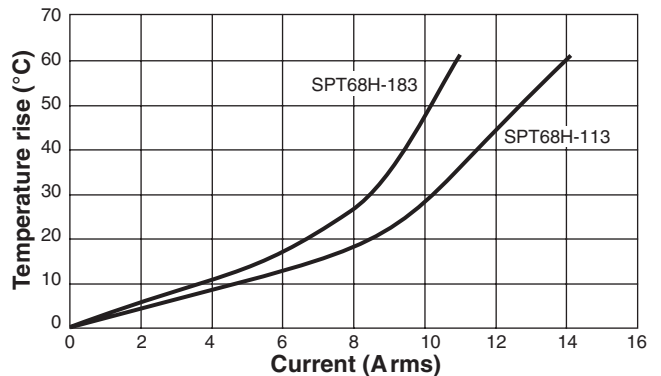
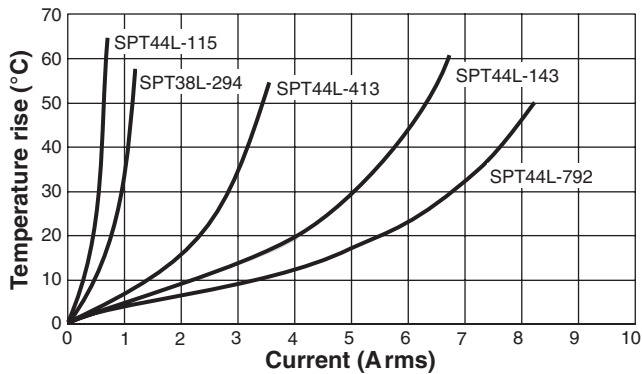
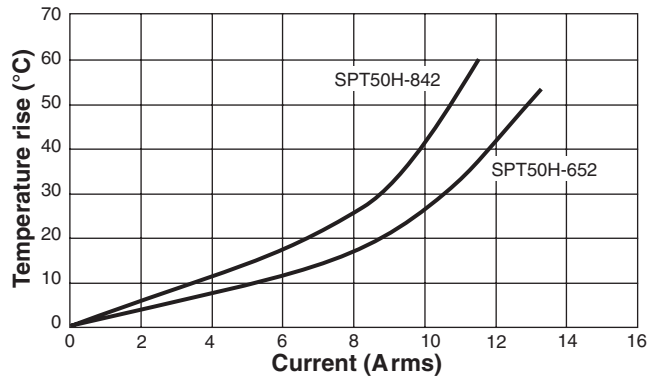
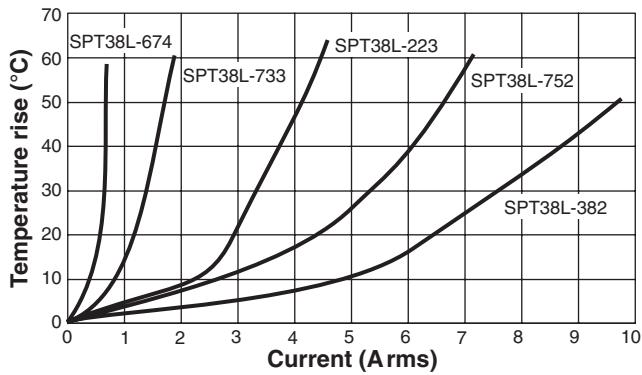
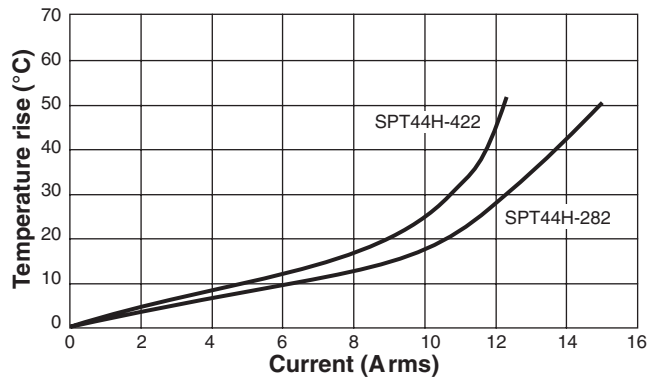
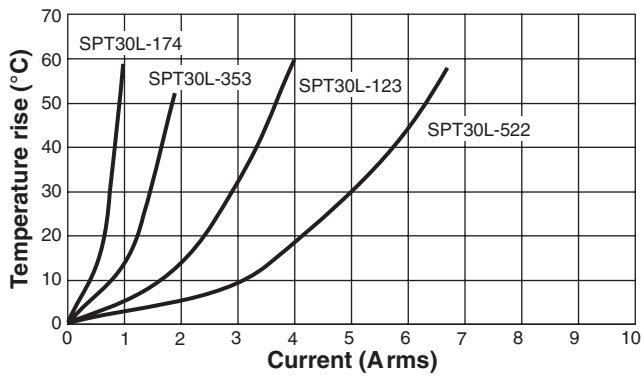
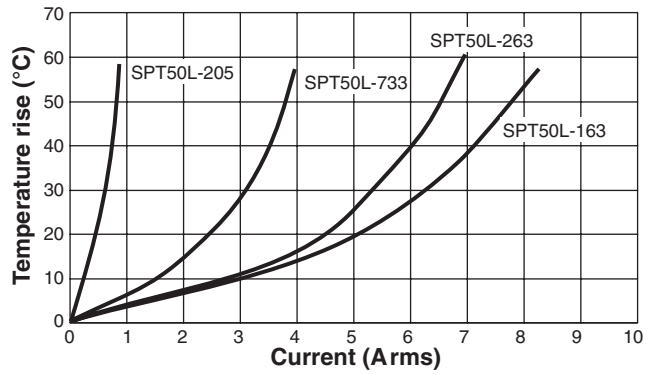
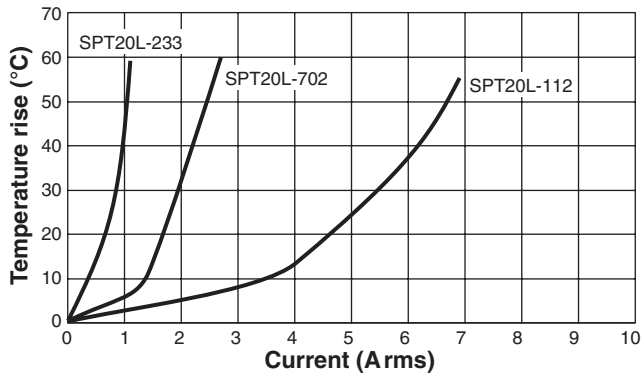
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# Toroid Power Inductors – SPT Series

## Typical Temperature Rise vs Current\*



\* Measured at 25°C ambient.



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