

# SMT High Saturation Power Inductors

## Token Power Inductor Enhances Low DCR High Saturation Current With Up To 1MHz High Frequency

### ► Preview

Token Electronics has added two new ranges of low-profile wirewound chip inductors, TPSME3010 and TPSME3015, for use in DC-DC converter applications to increase flexibility of maximum height measurements with extended electrical characteristics.

The new TPSME series is designed to provide a good balance of height and performance within chip power inductor offering. The TPSME3010 Series was developed to have a low profile height of 1.0mm. The TPSME3015 Series was developed to have a medium range maximum height of 1.5mm. This two TPSME family enables flexibility and efficiency.

Both winding chip coils the TPSME3010 series and TPSME3015 series of inductors offer low DC resistance and large rated current. This is vital for DC-DC converter applications as it prevents energy dissipation from the chip inductor, improving the converter's overall efficiency.

The new ranges deliver a good size/performance ratio with low DC resistances of 0.065ohm (TPSME3010) and 0.040ohm (TPSME3015). Their low-profile 1212 size packaging is designed to save space, measuring 3 x 3 x 1mm (TPSME3010) or 3 x 3 x 1.5mm (TPSME3015). A wide range of inductances is also available: 1.0 $\mu$ H to 47 $\mu$ H for the TPSME3010 series and 1.0 $\mu$ H to 100 $\mu$ H for the TPSME3015 series. The parts come with high rated currents, up to 2.35A, and feature magnetic shielding as standard. Operating temperature range is -40°C to +105°C.

Custom parts are available on request. Token will also produce devices outside these specifications to meet specific customer requirements, please contact our sales for more information.

### Features :

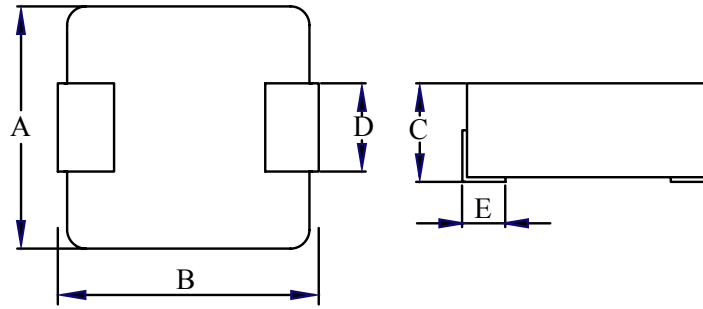
- Low Profile: 3.0mm ~ 6.5mm.
- Low DCR, SMT Power Inductor.
- High Frequency (up to 1MHz).
- For Large Current Use: 10 amp ~ 60 amp.

### Applications :

- Inductor for general purpose use.
- DC-DC converter or VRM applications.
- Thin type on-board power supply module for exchanger.
- Notebook, Laptop Computer, Graphic Card, VGA Module.



## ► Dimensions & Configurations



Type	A	B	C	D	E
TPSPA0603	6.8max	7.1 ± 0.3	3.0 max.	3.0 ± 0.3	1.6 ± 0.3
TPSPA0603A	6.8max	7.1 ± 0.3	3.0 max.	3.0 ± 0.3	1.6 ± 0.3
TPSPA1040	10.5 ± 0.5	11.5 ± 1.0	4.0 max.	3.0 ref.	2.3 ref.
TPSPA1040A	10.5 ± 0.5	11.5 ± 1.0	4.0 max.	2.5 ref.	2.3 ref.
TPSPA1040B	10.5 ± 0.5	11.5 ± 1.0	4.0 max.	3.0 ref.	2.3 ref.
TPSPA1040C	10.5 ± 0.5	11.5 ± 1.0	4.0 max.	3.0 ref.	2.3 ref.
TPSPA1235	12.8 ± 0.5	13.2 ± 1.0	3.5 max.	3.8 ref.	2.5 ref.
TPSPA1240	12.8 ± 0.5	13.2 ± 1.0	4.0 max.	3.8 ref.	2.5 ref.
TPSPA1250	12.8 ± 0.5	13.2 ± 1.0	5.0 max.	3.8 ref.	2.5 ref.
TPSPA1265	12.8 ± 0.5	13.2 ± 1.0	6.5 max.	3.8 ref.	2.5 ref.

## ► (TPSPA0603) Electrical Characteristics

Part Number	L0 Inductance (μH) ±20% @0A	DCR (mΩ)		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-0603-R10M	0.10	1.5	1.7	32.5	60
TPSPA-0603-R15M	0.15	1.9	2.5	26	52
TPSPA-0603-R20M	0.20	2.4	3.0	24	41
TPSPA-0603-R22M	0.22	2.5	2.8	23	40
TPSPA-0603-R33M	0.33	3.5	3.9	20	30
TPSPA-0603-R47M	0.47	4.0	4.2	17.5	26
TPSPA-0603-R68M	0.68	5.0	5.5	15.5	25
TPSPA-0603-R82M	0.82	6.7	8.0	13	24
TPSPA-0603-1R0M	1.0	9	10.0	11	22
TPSPA-0603-1R5M	1.5	14	15.0	9	18
TPSPA-0603-2R2M	2.2	18	20.0	8	14
TPSPA-0603-3R3M	3.3	28	30.0	6	13.5
TPSPA-0603-4R7M	4.7	37	40.0	5.5	10
TPSPA-0603-6R8M	6.8	54	60.0	4.5	8
TPSPA-0603-8R2M	8.2	64	68.0	4	7.5
TPSPA-0603-100M	10.0	102	105.0	3	7

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately ΔT of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA0603A) Electrical Characteristics

Part Number	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR ( $\text{m}\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-0603A-1R0M	1.0	7.6	8.0	12.5	9.5
TPSPA-0603A-1R5M	1.5	11.7	12.5	10.5	8.0
TPSPA-0603A-2R2M	2.2	15.7	16.5	9.0	7.0
TPSPA-0603A-3R3M	3.3	24.8	26.0	7.0	6.5
TPSPA-0603A-4R7M	4.7	31.8	33.4	6.0	4.0
TPSPA-0603A-6R8M	6.8	44.6	46.8	5.5	4.0
TPSPA-0603A-8R2M	8.2	52.3	54.9	5.0	4.0
TPSPA-0603A-100M	10.0	67.8	71.2	4.0	3.5
TPSPA-0603A-220M	22.0	128.9	135.0	2.9	2.5

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA1040) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR ( $\text{m}\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1040-R19M	0.19	0.50	0.60	44	44
TPSPA-1040-R24M	0.24	0.70	0.80	38	38
TPSPA-1040-R36M	0.36	0.85	0.95	35	35
TPSPA-1040-R47M	0.47	1.20	1.40	32	32
TPSPA-1040-R56M	0.56	1.25	1.35	30	30
TPSPA-1040-R68M	0.68	1.60	1.80	25	30
TPSPA-1040-R78M	0.78	1.60	1.70	25	25
TPSPA-1040-1R0M	1.0	2.20	2.50	20	20
TPSPA-1040-1R8M	1.8	4.50	5.00	15	15
TPSPA-1040-2R0M	2.0	5.20	5.80	14	14

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA1040B) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR (m $\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1040B-R19M	0.19	0.875	0.95	40	90
TPSPA-1040B-R36M	0.36	1.30	1.40	31.5	60
TPSPA-1040B-R56M	0.56	1.70	1.80	27.5	49
TPSPA-1040B-1R0M	1.0	3.70	4.10	17.5	36
TPSPA-1040B-1R5M	1.5	5.30	5.80	15	27.5
TPSPA-1040B-2R2M	2.2	8.20	9.00	12	25.5
TPSPA-1040B-3R3M	3.3	10.80	11.80	10	18.6
TPSPA-1040B-4R7M	4.7	15.00	16.50	9.5	17
TPSPA-1040B-5R6M	5.6	17.60	19.30	8.5	16
TPSPA-1040B-6R8M	6.8	21.20	23.30	8.0	13.5
TPSPA-1040B-8R2M	8.2	31.00	34.00	7.0	12.5
TPSPA-1040B-100M	10	33.20	36.50	6.8	12

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA1040C) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR (m $\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1040C-R19M	0.19	0.70	0.80	40.0	46
TPSPA-1040C-R24M	0.24	0.85	0.95	33	44
TPSPA-1040C-R36M	0.36	1.05	1.15	32	30
TPSPA-1040C-R47M	0.47	1.53	1.68	30	30
TPSPA-1040C-R56M	0.56	1.60	1.80	32	22
TPSPA-1040C-R78M	0.78	1.80	1.90	27	22
TPSPA-1040C-1R0M	1.0	2.30	2.50	25	20
TPSPA-1040C-1R8M	1.8	4.50	5.00	17	16
TPSPA-1040C-2R0M	2.0	5.20	5.80	16	14
TPSPA-1040C-4R7M	4.7	12.90	14.20	9.5	7.6
TPSPA-1040C-6R8M	6.8	17.50	19.30	9.0	7.5
TPSPA-1040C-100M	10	27.80	30.50	7.5	7.1
TPSPA-1040C-150M	15	40.90	45.00	6.25	6.0
TPSPA-1040C-220M	22	60.40	66.00	5.0	4.5
TPSPA-1040C-330M	33	87.50	94.50	4.4	4.0
TPSPA-1040C-470M	47	132.0	145.0	4.0	3.0
TPSPA-1040C-101M	100	249.0	270.0	3.00	2.25

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA1235) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR ( $\text{m}\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1235-R10M	0.10	0.8	0.96	43	84
TPSPA-1235-R15M	0.15	1.0	1.2	41	75
TPSPA-1235-R22M	0.22	1.1	1.3	38.5	65
TPSPA-1235-R33M	0.33	1.3	1.5	36.5	62
TPSPA-1235-R47M	0.47	1.6	2.0	32	55
TPSPA-1235-R60M	0.60	1.8	2.2	29	51
TPSPA-1235-R68M	0.68	2.3	2.5	28	49
TPSPA-1235-R82M	0.82	2.6	3.0	25	44
TPSPA-1235-1R0M	1.0	3.3	3.5	24	40
TPSPA-1235-1R5M	1.5	5.1	5.5	19	35
TPSPA-1235-1R8M	1.8	6.5	7.0	16.5	30
TPSPA-1235-2R2M	2.2	7.2	8.0	16	29
TPSPA-1235-3R3M	3.3	11.0	12.0	12	27
TPSPA-1235-4R7M	4.7	14.3	15.0	10	24
TPSPA-1235-5R6M	5.6	17.1	18.0	9.5	19
TPSPA-1235-6R8M	6.8	19.8	22.0	9	18
TPSPA-1235-8R2M	8.2	24.8	28.0	8.5	16
TPSPA-1235-100M	10	30.4	34.0	7	14

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA1240) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR ( $\text{m}\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1240-R10M	0.10	0.90	1.10	43	75
TPSPA-1240-R22M	0.22	1.20	1.40	41	70
TPSPA-1240-R33M	0.33	1.30	1.50	38	60
TPSPA-1240-R47M	0.47	1.40	1.90	32	55
TPSPA-1240-R60M	0.60	2.00	2.30	30	50
TPSPA-1240-R68M	0.68	2.10	2.50	28	46
TPSPA-1240-R82M	0.82	2.70	3.10	25	44
TPSPA-1240-0R9M	0.9	3.00	3.50	24	40
TPSPA-1240-1R0M	1.0	3.00	3.70	24	38
TPSPA-1240-1R2M	1.2	3.00	3.70	20	25
TPSPA-1240-1R5M	1.5	5.50	6.00	19	30
TPSPA-1240-1R8M	1.8	6.40	7.60	16	26
TPSPA-1240-2R2M	2.2	6.40	7.60	16	22
TPSPA-1240-3R3M	3.3	7.50	8.40	14	20
TPSPA-1240-4R7M	4.7	10.50	12.00	11	15

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## ▶ (TPSPA1250) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR ( $\text{m}\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1250-R10M	0.10	0.53	0.60	55	118
TPSPA-1250-R22M	0.22	0.64	0.80	51	110
TPSPA-1250-R33M	0.33	0.85	1.10	42	80
TPSPA-1250-R47M	0.47	1.10	1.30	38	65
TPSPA-1250-R56M	0.56	1.30	1.50	36	55
TPSPA-1250-R68M	0.68	1.50	1.70	34	54
TPSPA-1250-R82M	0.82	2.00	2.30	31	53
TPSPA-1250-1R0M	1.0	2.10	2.50	29	50
TPSPA-1250-1R2M	1.2	2.80	3.50	25	49
TPSPA-1250-1R5M	1.5	3.40	4.10	23	48
TPSPA-1250-1R8M	1.8	4.20	4.90	19	40
TPSPA-1250-2R2M	2.2	4.60	5.50	20	32
TPSPA-1250-3R3M	3.3	7.70	9.20	15	32
TPSPA-1250-4R7M	4.7	12.8	15.0	12	27
TPSPA-1250-5R6M	5.6	14.0	16.5	11.5	22
TPSPA-1250-6R8M	6.8	15.4	18.5	11	21
TPSPA-1250-7R8M	7.8	17.2	20.5	10	18
TPSPA-1250-8R2M	8.2	18.9	22.5	9.5	18
TPSPA-1250-100M	10	21.4	25.5	9	16

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.

## (TPSPA1265) Electrical Characteristics

Part Numbers	L0 Inductance ( $\mu\text{H}$ ) $\pm 20\%$ @0A	DCR (m $\Omega$ )		Heat Rating Current Idc (Amp) Typical	Saturation Current Isat (Amp) Typical
		(Typical)	(Max)		
TPSPA-1265-R10M	0.10	0.47	0.50	60	120
TPSPA-1265-R15M	0.15	0.53	0.60	55	118
TPSPA-1265-R22M	0.22	0.63	0.70	53	112
TPSPA-1265-R30M	0.30	0.70	0.80	48	72
TPSPA-1265-R33M	0.33	0.83	0.90	46	65
TPSPA-1265-R40M	0.40	0.90	1.00	44	64
TPSPA-1265-R47M	0.47	1.00	1.20	41	63
TPSPA-1265-R56M	0.56	1.20	1.40	37	62
TPSPA-1265-R68M	0.68	1.40	1.60	35	60
TPSPA-1265-R82M	0.82	1.60	1.90	33	50
TPSPA-1265-1R0M	1.0	1.70	2.00	32	49
TPSPA-1265-1R2M	1.2	2.10	2.50	30	48
TPSPA-1265-1R5M	1.5	2.50	3.00	27	45
TPSPA-1265-1R8M	1.8	2.80	3.20	24	41
TPSPA-1265-2R2M	2.2	3.50	4.20	22	40
TPSPA-1265-3R3M	3.3	5.70	6.80	18	35
TPSPA-1265-4R7M	4.7	9.30	11.2	13.5	30
TPSPA-1265-5R6M	5.6	9.30	10.0	13.5	26.5
TPSPA-1265-6R8M	6.8	13.1	14.0	11.5	16.5
TPSPA-1265-8R2M	8.2	14.5	15.5	10.5	16.0
TPSPA-1265-100M	10	15.8	16.8	10	15.5

Note: All test Data is referenced to 25°C ambient.

Typical Heat Rating DC Current would cause an approximately  $\Delta T$  of 40°C.

Typical Saturation DC Current would cause Lo to drop approximately 20%.

Operating Temperature Range: -25°C to +125°C.



## ▶ Reel Quantity

Reel		5Reel / Box		6Box / Carton	
Q'ty(Pcs)	Size m/m	Q'ty(Pcs)	Size m/m	Q'ty(Pcs)	Size m/m
2,000	180Ø	10,000	182×182×80	60,000	540×210×205

## ▶ How to Order

TPSPA

❶

❶ Part Number: TPSPA

1265

❷

❷ Size (L×M)(mm)

Code	Size
0603	6.8×7.1
0603A	6.8×7.1
1040	10.5×11.5
1040A	10.5×11.5
1040B	10.5×11.5
1040C	10.5×11.5
1235	12.8×13.2
1240	12.8×13.2
1250	12.8×13.2
1265	12.8×13.2

R10

❸

❸ Inductance

Code	Inductance
R10	0.10μH
1R0	1.00μH

M

❹

❹ Tolerance

Code	Tolerance
M	20%

*Back to 1st Page - SMT Power High Saturation Inductors (TPSPA)*