

Version:
January 13, 2017



TOKEN

(TPSME)

Low-Profile Power Inductor

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▶ Product Introduction**Token (TPSME) Miniature Low Profile Power Inductor
for new generation portable products.****Features :**

- High current saturation.
- Tape & Reel, RoHS Compliant.
- Magnetically Shielded Structure.
- Lead-free reflow soldering is available.
- Low profile construction and miniature size.
- Small size in 3.0 × 3.0mm with low profile (1.0 mm & 1.5 mm max.).

Applications :

- DC to DC converters.
- Power line filtering.
- DVC/DSC/PDA, LCD display.

Token Electronics has added two new ranges of low-profile wire wound 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 miniature 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 × 3 × 1mm (TPSME3010) or 3 × 3 × 1.5mm (TPSME3015). A wide range of inductances is also available: 1.0μH to 47μH for the TPSME3010 series and 1.0μH to 100μH 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.

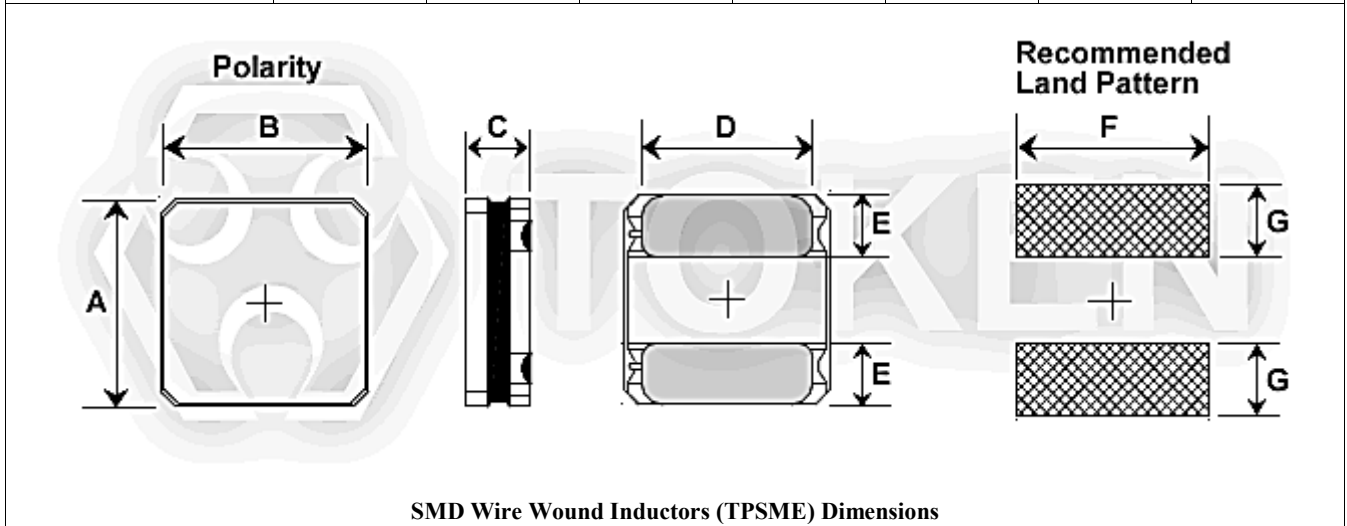
Custom parts are available on request. Token will also produce devices outside these specifications to meet specific customer requirements, contact us with your specific needs. For more information, please link to Token official website "[SMD Power Inductors](http://www.token.com.tw)".



► Dimensions

Dimensions & Configurations (Unit: mm) (TPSME)

Type	A	B	C(max)	D(typ.)	E	F	G
TPSME3010	3.0±0.1	3.0±0.1	1.0	2.7	0.9±0.2	2.7	1.00
TPSME3015	3.0±0.1	3.0±0.1	1.5	2.7	0.9±0.2	2.7	1.00



Construction & Material:

- Wire : H Class Enameled copper wire.
- Terminal : Ni / Cu / Ag alloy with Sn.
- Core : Ferrite core.
- Coating : Magnetic epoxy resin.

▶ TPSME3010 Specification

Electrical Specification (TPSME3010)

Part Number	Inductance (μH)	DCR (Ω)		Isat (Amp)		Irms (Amp)		SRF (MHz)	Tolerance
		(Typical)	(Max)	(Typical)	(Max)	(Typical)	(Max)		
TPSME-3010-1R0N	1.0	0.065	0.078	1.95	1.70	1.700	1.525	180	30%
TPSME-3010-1R5N	1.5	0.080	0.096	1.60	1.40	1.650	1.470	140	
TPSME-3010-2R2M	2.2	0.095	0.114	1.45	1.25	1.450	1.270	100	
TPSME-3010-3R3M	3.3	0.160	0.192	1.05	0.90	1.300	1.130	80	20%
TPSME-3010-4R7M	4.7	0.190	0.228	0.95	0.85	1.100	0.925	60	
TPSME-3010-6R8M	6.8	0.300	0.360	0.76	0.66	0.850	0.710	50	
TPSME-3010-100M	10	0.450	0.540	0.61	0.53	0.720	0.630	45	
TPSME-3010-150M	15	0.740	0.888	0.48	0.42	0.560	0.475	35	
TPSME-3010-220M	22	0.980	1.176	0.42	0.36	0.500	0.430	25	
TPSME-3010-330M	33	1.550	1.860	0.34	0.28	0.415	0.345	24	
TPSME-3010-470M	47	2.000	2.400	0.27	0.24	0.320	0.270	19	

● Note: Test Frequency: 1MHz.

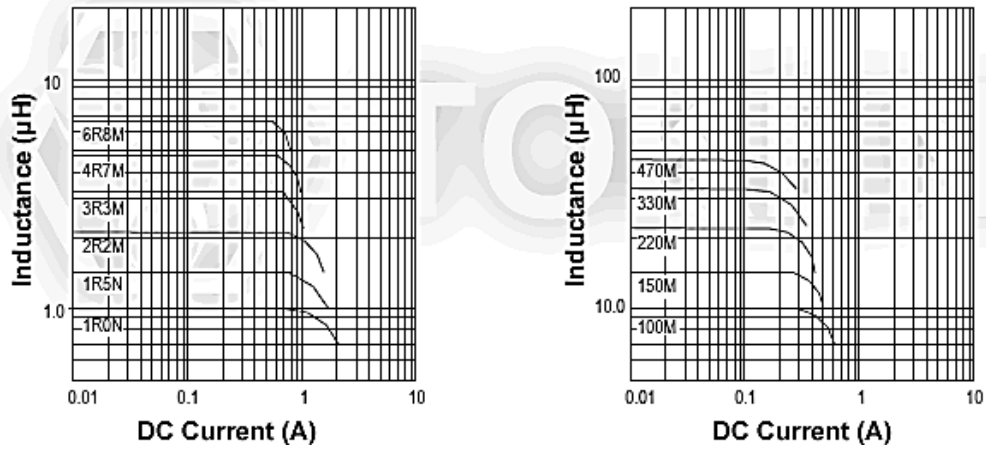
Isat : Based on Inductance decrease 30%; Irms : Based on Temperature increase 40°C.

Test Equipment: L & Q: HP-4286A; SRF: HP-4291B & HP4287A; DCR: HP-4286A & CH16502.

Operating Temp. (Including self-temperature rise): -40°C ~ +105°C; Storage Temp. : -40°C ~ +85°C.

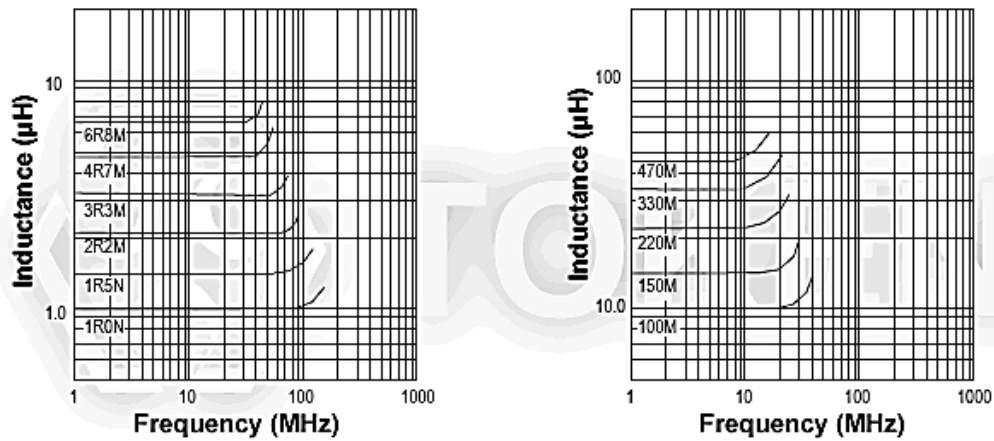
Characteristics (TPSME3010)

Inductance VS Current



(TPSME3010) Inductance VS Current

Inductance VS Frequency



(TPSME3010) Inductance VS Frequency

TPSME3015 Specification

Electrical Specification (TPSME3015)

Part Number	Inductance (μH)	DCR (Ω)		Isat (Amp)		Irms (Amp)		SRF (MHz)	Tolerance
		(Typical)	(Max)	(Typical)	(Max)	(Typical)	(Max)		
TPSME-3015-1R0N	1.0	0.040	0.048	2.35	2.10	2.35	2.10	145	30%
TPSME-3015-1R5N	1.5	0.055	0.066	2.00	1.80	2.10	1.90	130	
TPSME-3015-2R2M	2.2	0.060	0.072	1.65	1.48	1.80	1.60	90	
TPSME-3015-3R3M	3.3	0.093	0.112	1.40	1.21	1.60	1.45	75	20%
TPSME-3015-4R7M	4.7	0.113	0.136	1.20	1.08	1.40	1.25	65	
TPSME-3015-6R8M	6.8	0.176	0.211	1.05	0.90	1.10	0.90	50	
TPSME-3015-100M	10	0.234	0.276	0.88	0.75	1.00	0.87	45	
TPSME-3015-150M	15	0.352	0.422	0.68	0.58	0.80	0.65	33	
TPSME-3015-220M	22	0.510	0.622	0.58	0.47	0.60	0.55	28	
TPSME-3015-330M	33	0.799	0.959	0.46	0.39	0.50	0.45	22	
TPSME-3015-470M	47	1.172	1.406	0.38	0.32	0.40	0.40	18	
TPSME-3015-101M	100	2.433	2.920	0.27	0.23	0.29	0.25	11	

● Note: Test Frequency: 1MHz.

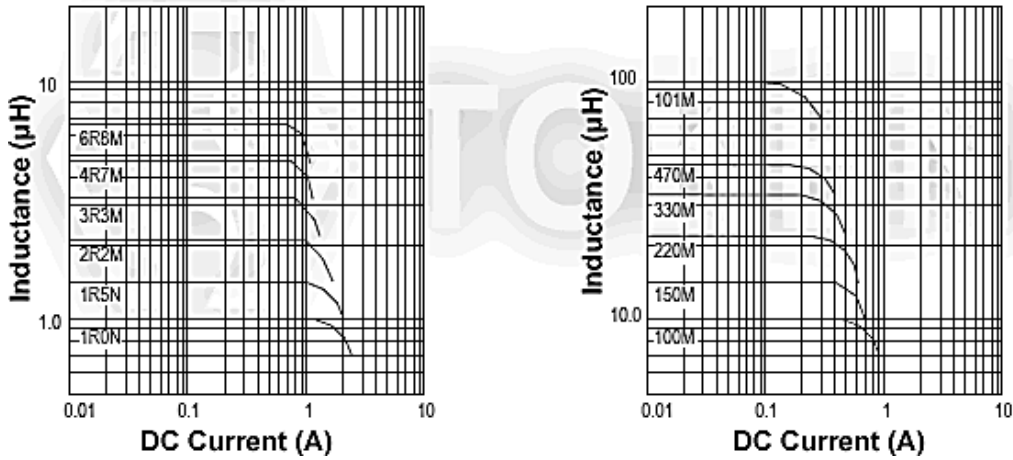
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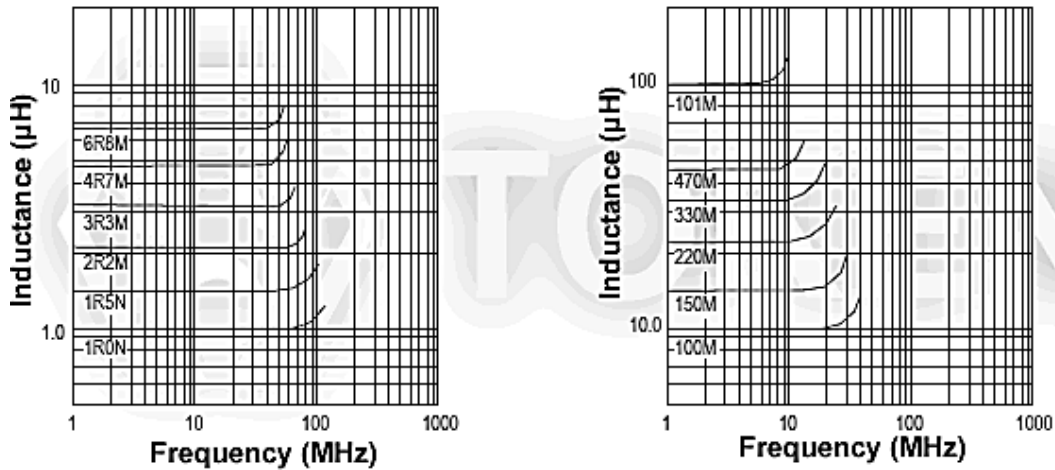
Characteristics (TPSME3015)

Inductance VS Current



(TPSME3015) Inductance VS Current

Inductance VS Frequency



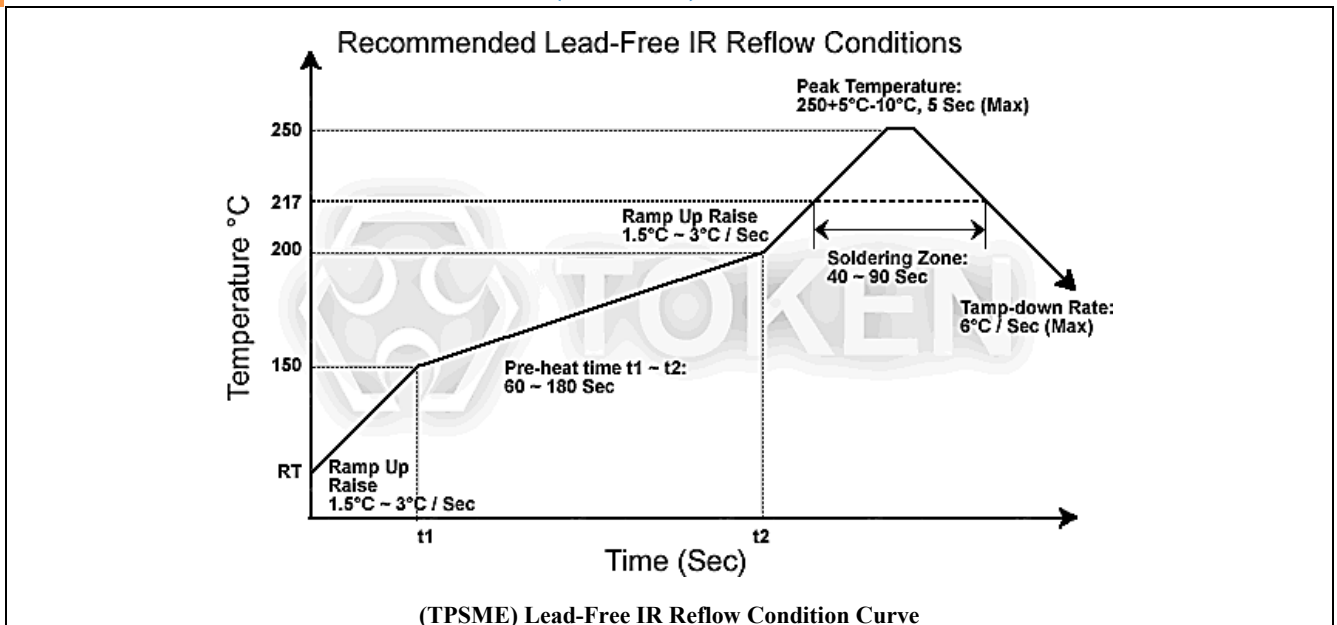
(TPSME3015) Inductance VS Current

▶ Reflow Conditions & Reliability Test

Reliability Test (TPSME)

Test Items	Specifications	Test Methods
Solderability	More than 90% of the Terminal Electrode Shall be covered with fresh solder.	Preheat: $150 \pm 25^{\circ}\text{C}$ for 60 seconds; Solder Temperature: $235 \pm 5^{\circ}\text{C}$; Solder: Sn96.5 / Ag3 / Cu0.5 or equivalent; Flux: Rosin; Dip Time 4 ± 1 seconds.
High Temperature	Storage Test Electrical Characteristics Variation shall not change more 3%.	Test Conditions: $125 \pm 2^{\circ}\text{C}$ for 48 ± 2 Hours.
Low Temperature Storage Test		Test Conditions: $-40 \pm 2^{\circ}\text{C}$ for 48 ± 2 Hours.
Temperature Cycle Test		Test Conditions: $125 \pm 5^{\circ}\text{C}$ (30 min) ~ $25 \pm 5^{\circ}\text{C}$ (2 Hours) ~ $-40 \pm 5^{\circ}\text{C}$ (30 min); Total Test: 10 cycle.
Humidity Test		Temperature: $40 \pm 2^{\circ}\text{C}$; Humidity: $90 \pm 5\%$; Time: 96 hours.
Thermal Shock Test		Test Conditions: $125 \pm 5^{\circ}\text{C}$ (30 min) ~ $-65 \pm 5^{\circ}\text{C}$ (30 min); Temperature Change: 2 min; Total : 50 cycles.
Life Test		Test Conditions: $70 \pm 5^{\circ}\text{C}$; Total Test: 300 hours.

Lead-Free IR Reflow Conditions (TPSME)



▶ Reel Quantity & Order Codes

Reel Quantity (TPSME)

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

Order Codes (TPSME)

TPSME3010	-	100	M
Part Number		Inductance	Tolerance
TPSME3010		1R0 1.00µH	K 10%
TPSME3015		470 47.00µH	L 15%
		101 100.00µH	M 20%
			N 30%

▶ General Information

How to Quickly Search Inductor for all of the Characteristics?

Quickly Search Inductor Finder

Searching and comparing data sheets of inductor manufacturers can be time consuming. Token's Parameter Sorting Search Mode allows selection of inductors based on different parameters.

By entering just the inductance value,

By sorting parameter to narrow down searching range,

Or by enter keyword / part number / size dimensions L*W*H to partial or exact searching.

Leading-Edge Technology

Token Electronics brand passive component specializes in standard and custom solutions offering the latest in state-of-the-art low profile high power density inductor components. Token provides cost-effective, comprehensive solutions that meet the evolving needs of technology-driven markets. In working closely with the industry leaders in chipset and core development, we remain at the forefront of innovation and new technology to deliver the optimal mix of packaging, high efficiency and unbeatable reliability. Our designs utilize high frequency, low core loss materials, new and custom core shapes in combination with innovative construction and packaging to provide designers with the highest performance parts available on the market.

Find Inductor Solutions Faster

Find Your Inductor - wt.moc.nekot@qfr

Only timely and accurate information can help manage the changing needs of your customers. The Token Inductor Finder puts you only a click away from all of the inductor information you need.

Find Your Solution - wt.moc.nekot@qfr

Selecting the correct inductor solution will not only save you time, but it will give you a competitive edge. At Token, we are committed to helping you find the most efficient alternative for your power design. Our inductor and power supply design experts can help you make that selection.

Please forward us:

- A brief description of your particular application's requirements.
- Details of an existing solution that you'd like to replace, enhance or find an alternative.
- Inquiries for feasibility to tailor a power transformer or inductor to your specific application.

We can also help you with any additional technical information you might need relating to any of our products.

Ask Us Today

