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# TOKEN

## (TPSDC)

# Low Profile Low DCR Power Inductors

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**▶ Product Introduction****Token (TPSDC) Shielded Small Footprint SMD Power Inductors  
Deliver Higher Inductances.**

To meet the electrical demands of next-generation products such as microprocessors, high-current dc/dc converters and telecom equipment, the (TPSDC) SMD Inductors from Token Electronic targets applications that require wide range inductance, lower DCR and high current.

Token TPSDC series of shielded, surface-mount wire-wound inductors features a profile ranging from 2.92 mm, 5.08 mm, to 7.62 mm, and is suited for use in low-profile DC-DC converters and switch-mode power supplies used in power telecommunications systems, industrial controls, and medical instrumentation.



All parts are magnetically shielded to avoid electromagnetic interference with surrounding circuitry. Electrical parameters include an inductance of 1.0  $\mu$ H to 10000.00  $\mu$ H, resistance of 0.021 ohms to 32.800 ohms, and a rated current of 0.02A to 8.00A. The inductors also operate from -40°C to +85°C.

The power shielded inductors are wound around a ferrite core and are particularly suitable for cost-critical mass applications and the surface-mounting capability. The TPSDC series conform to the RoHS directive and Lead-free. Custom parts are available on request for tighter tolerances. Application of shielded inductors specific designs also available including different inductance and frequency specifications adjusted to requirements. Please contact our sales or link to Token official website "[SMD Power Inductors](#)" for more information.

## ▶ TPSDC Quick Selection

### Surface Mount Inductor Quick Selection (TPSDC)

#### Characteristics :

- Saturation Rated Current (IDC): The DC current when the inductance becomes 10% lower than its initial value. ( $T_a = 25^\circ\text{C}$ ).
- Temperature Rise Current ( $I_{rms}$ ): The actual current when temperature of coil becomes  $\Delta 40^\circ\text{C}$ . ( $T_a = 25^\circ\text{C}$ ).
- Operating temperature range:  $-40^\circ\text{C} \sim +85^\circ\text{C}$ .

#### Features :

- TPS1608DC is specified to achieve longer battery life significantly in handheld communication devices.
- TPS3316DC and TPS5022DC designed for the higher current requirements of portable computers.
- TPS3316DC and TPS5022DC used LCP plastic base.
- TPS1608DC used ceramic base with gold-plating.
- Magnetically shielded against radiation.
- Compact Size and Thin.

#### Test Equipment :

- Inductance (L): HP4284A LCR meter.
- Direct Current Resistance (DCR): Milli-ohm meter.
- Electrical specifications at  $25^\circ\text{C}$ .

#### Applications :

- Notebook, Personal Computers, Cellular Phone.
- Other Various Electronic Appliances.
- DC-DC converter, PDA.

#### TPSDC Quick Reference :


- TPS1608DC  $1.0\mu\text{H} \sim 10000\mu\text{H}$ ;  $3.0\text{A} \sim 0.02\text{A}$ .
- TPS3316DC  $1.0\mu\text{H} \sim 1000\mu\text{H}$ ;  $5.0\text{A} \sim 0.17\text{A}$ .
- TPS5022DC  $10\mu\text{H} \sim 1000\mu\text{H}$ ;  $3.9\text{A} \sim 0.53\text{A}$ .
- Test equipment: L: HP4284A LCR meter; DCR: Milli-ohm meter.
- Electrical specifications at  $25^\circ\text{C}$ .



## ► Dimensions

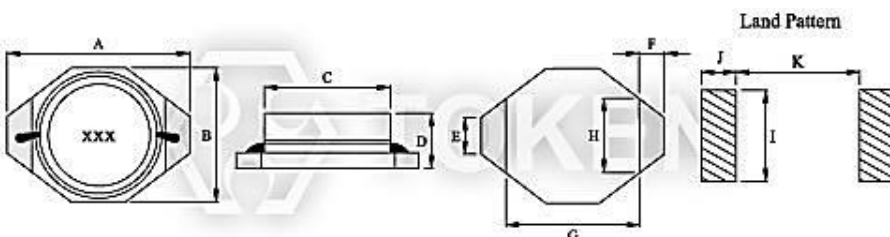
### Dimensions & Configurations (TPS1608DC)

Type	A Max.	B Max.	C ± 0.3	D Max.	E ± 0.3	F ± 0.3	G ± 0.3	H ± 0.3	I	J	K
TPS1608DC	6.60	4.45	4.00	2.92	1.27	1.02	4.32	2.50	3.56	1.40	4.06



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**SMD Wirewound Inductors -  
TPS1608DC**



**SMD Shielded Power Inductors (TPS1608DC) Dimensions**

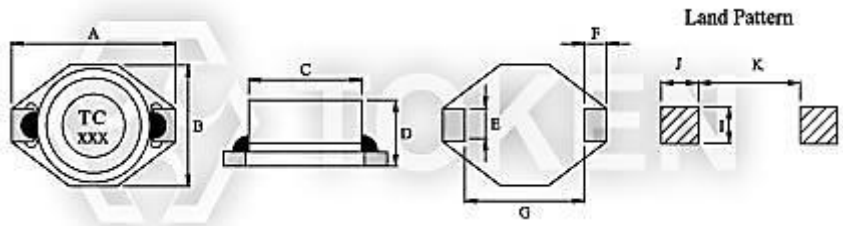
### Dimensions & Configurations (TPS3316DC)

Type	A Max.	B Max.	C ± 0.3	D Max.	E ± 0.3	F ± 0.3	G ± 0.3	I	J	K
TPS3316DC	12.95	9.40	8.38	5.08	2.54	2.54	7.62	2.79	2.92	7.37



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**Wire-wound Inductors - TPS3316DC**



**Shielded SMD Power Inductors (TPS3316DC) Dimensions**

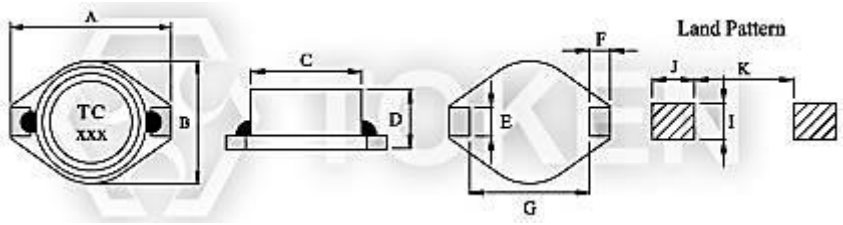
### Dimensions & Configurations (TPS5022DC)

Type	A Max.	B Max.	C ± 0.3	D Max.	E ± 0.3	F ± 0.3	G ± 0.3	I	J	K
TPS5022DC	18.54	15.24	12.70	7.62	2.54	2.54	12.70	2.79	2.92	12.45



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**Shielded Wirewound Inductors -  
TPS5022DC**



**Shielded SMD Power Inductors (TPS5022DC) Dimensions**

▶ **TPS1608DC**

**Electrical Characteristics (TPS1608DC)**

Part Number	Inductance (μH)	Tolerance	Test Condition		DCR (Ω) Max.	SRF (MHz) Ref.	Q Min.	IDC (A) Max.
			L	Q				
TPS1608DC - 1R0M	1.00	M	100KHz, 0.1V	200KHz, 0.1V	0.040	250	30	3.00
TPS1608DC - 1R5M	1.50	M	100KHz, 0.1V	200KHz, 0.1V	0.045	125	30	2.80
TPS1608DC - 2R2M	2.20	M	100KHz, 0.1V	200KHz, 0.1V	0.050	120	40	1.80
TPS1608DC - 3R3M	3.30	M	100KHz, 0.1V	200KHz, 0.1V	0.055	120	40	1.60
TPS1608DC - 4R7M	4.70	M	100KHz, 0.1V	200KHz, 0.1V	0.060	105	40	1.40
TPS1608DC - 6R8M	6.80	M	100KHz, 0.1V	200KHz, 0.1V	0.065	50	40	1.20
TPS1608DC - 100M	10.00	M	100KHz, 0.1V	200KHz, 0.1V	0.075	38	40	1.00
TPS1608DC - 150M	15.00	M	100KHz, 0.1V	200KHz, 0.1V	0.090	33	40	0.80
TPS1608DC - 220M	22.00	M	100KHz, 0.1V	200KHz, 0.1V	0.110	25	40	0.70
TPS1608DC - 330M	33.00	M	100KHz, 0.1V	200KHz, 0.1V	0.190	20	40	0.60
TPS1608DC - 470M	47.00	M	100KHz, 0.1V	200KHz, 0.1V	0.230	20	40	0.50
TPS1608DC - 680M	68.00	M	100KHz, 0.1V	200KHz, 0.1V	0.290	15	40	0.40
TPS1608DC - 101M	100.00	K	100KHz, 0.1V	200KHz, 0.1V	0.480	10	40	0.30
TPS1608DC - 151M	150.00	K	100KHz, 0.1V	200KHz, 0.1V	0.590	9	40	0.26
TPS1608DC - 221M	220.00	K	100KHz, 0.1V	200KHz, 0.1V	0.770	6	40	0.22
TPS1608DC - 331M	330.00	K	100KHz, 0.1V	200KHz, 0.1V	1.400	5	40	0.20
TPS1608DC - 471M	470.00	K	100KHz, 0.1V	200KHz, 0.1V	1.800	4	40	0.19
TPS1608DC - 681M	680.00	K	100KHz, 0.1V	200KHz, 0.1V	2.200	3	40	0.18
TPS1608DC - 102M	1000.00	K	100KHz, 0.1V	200KHz, 0.1V	3.400	2	40	0.15
TPS1608DC - 152M	1500.00	K	100KHz, 0.1V	200KHz, 0.1V	4.200	2	50	0.12
TPS1608DC - 222M	2200.00	K	100KHz, 0.1V	200KHz, 0.1V	8.500	2	50	0.10
TPS1608DC - 332M	3300.00	K	100KHz, 0.1V	200KHz, 0.1V	11.000	1	50	0.08
TPS1608DC - 472M	4700.00	K	100KHz, 0.1V	200KHz, 0.1V	13.900	1	50	0.06
TPS1608DC - 682M	6800.00	K	100KHz, 0.1V	200KHz, 0.1V	25.000	1	50	0.04
TPS1608DC - 103M	10000.00	K	100KHz, 0.1V	200KHz, 0.1V	32.800	0.8	50	0.02

Note:

- Test Freq.: 100KHz / 0.1V.
- Current Max..... 30°C temperature rise.
- Operating Temp.: -40°C ~ +85°C.



▶ **TPS3316DC**

**Electrical Characteristics (TPS3316DC)**

Part Number	Inductance (μH)	Tolerance	Test Condition	DCR (Ω) Max.	SRF (MHz) Ref.	IDC (A) Max.	IDC (A) Max.
TPS3316DC - 1R0M	1.00	M	100KHz, 0.1V	0.021	140	5.60	5.0
TPS3316DC - 1R5M	1.50	M	100KHz, 0.1V	0.022	120	5.20	4.5
TPS3316DC - 2R2M	2.20	M	100KHz, 0.1V	0.032	80	5.00	3.8
TPS3316DC - 3R3M	3.30	M	100KHz, 0.1V	0.039	70	3.90	3.3
TPS3316DC - 4R7M	4.70	M	100KHz, 0.1V	0.054	40	3.20	2.7
TPS3316DC - 6R8M	6.80	M	100KHz, 0.1V	0.075	38	2.80	2.2
TPS3316DC - 100M	10.00	M	100KHz, 0.1V	0.101	35	2.40	2.0
TPS3316DC - 150M	15.00	M	100KHz, 0.1V	0.150	25	2.00	1.5
TPS3316DC - 220M	22.00	M	100KHz, 0.1V	0.207	19	1.60	1.3
TPS3316DC - 330M	33.00	M	100KHz, 0.1V	0.334	15	1.40	1.1
TPS3316DC - 470M	47.00	M	100KHz, 0.1V	0.472	13	1.00	0.8
TPS3316DC - 680M	68.00	M	100KHz, 0.1V	0.660	10	0.9	0.7
TPS3316DC - 101M	100.00	M	100KHz, 0.1V	1.110	7	0.8	0.6
TPS3316DC - 151M	150.00	M	100KHz, 0.1V	1.550	6	0.6	0.5
TPS3316DC - 221M	220.00	M	100KHz, 0.1V	2.000	5	0.5	0.37
TPS3316DC - 102M	1000.00	M	100KHz, 0.1V	8.300	2	0.32	0.17

Note:

- Test Freq.: 100KHz / 0.1V.
- Current Max..... 30°C temperature rise.
- Operating Temp.: -40°C ~ +85°C.





▶ **TPS5022DC**

**Electrical Characteristics (TPS5022DC)**

Part Number	Inductance (μH)	Tolerance	Test Condition	DCR (Ω) Max.	SRF (MHz) Ref.	IDC (A) Max.	IDC (A) Max.
TPS5022DC - 100M	10.00	M	100KHz, 0.1V	0.040	30	8.00	3.9
TPS5022DC - 150M	15.00	M	100KHz, 0.1V	0.048	20	7.00	3.4
TPS5022DC - 220M	22.00	M	100KHz, 0.1V	0.059	18	6.00	3.1
TPS5022DC - 330M	33.00	M	100KHz, 0.1V	0.075	14	5.00	2.8
TPS5022DC - 470M	47.00	M	100KHz, 0.1V	0.097	10	4.00	2.4
TPS5022DC - 680M	68.00	M	100KHz, 0.1V	0.138	9.0	3.00	2.0
TPS5022DC - 101M	100.00	M	100KHz, 0.1V	0.207	7.0	2.40	1.7
TPS5022DC - 151M	150.00	M	100KHz, 0.1V	0.293	6.0	2.10	1.3
TPS5022DC - 221M	220.00	M	100KHz, 0.1V	0.470	5.0	1.90	1.1
TPS5022DC - 331M	330.00	M	100KHz, 0.1V	0.780	4.0	1.10	0.86
TPS5022DC - 471M	470.00	M	100KHz, 0.1V	1.080	3.0	1.10	0.73
TPS5022DC - 681M	680.00	M	100KHz, 0.1V	1.400	2.5	0.96	0.64
TPS5022DC - 102M	1000.00	M	100KHz, 0.1V	2.010	2.0	0.80	0.53

Note:

- Test Freq.: 100KHz / 0.1V.
- Current Max..... 30°C temperature rise.
- Operating Temp.: -40°C ~ +85°C.



▶ **Order Codes**

**Order Codes (TPS1608DC, TPS3316DC, TPS5022DC)**

TPS1608DC	-	100		M	
Part Number		Inductance		Tolerance	
TPS1608DC		1R0	1.00μH	K	10%
TPS3316DC		100	10.00μH	L	15%
TPS5022DC		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 - [rfq@token.com.tw](mailto:rfq@token.com.tw)

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 - [rfq@token.com.tw](mailto:rfq@token.com.tw)

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**

