

## SMD Power Inductors (with tube / also shielded)

FASTRON power inductors can withstand a wide temperature range. The inductance values range from 1.0  $\mu$ H to 10000  $\mu$ H and they are suitable for high rated currents. They have a high reliability and can be assembled by surface mount technology. Their low DC resistance keeps power losses to a minimum. They are also suitable for Filtering of supply voltages, Coupling, Decoupling, Automotive electronics and Network switching systems.

**Applications** These components are widely used in power supplies for VTR, LCD TV, notebooks, PC and DC/DC converters.

### Technical Data

L – Value (rated inductance)	Measured with Bode 100 Vector Network Analyzer or equivalent at frequency $f_L$
SRF (min) – (unshielded only)	Measured with HP 8753ES Network Analyzer or equivalent
DCR (max)	Measured at 25°C
Rated DC Current	Isat max. current based on inductivity drop of 10% (PISG, PISL, PISM, PISMHV, PISP, PISPHV, PISN, PISNHV, PISR, PIST, PISTHV, PISA4119 & PIHV4119) related to the unloaded inductivity.  I $\Delta$ T max. and IR current based on temperature rise: determined at the point where the temperature rise does not exceed 30°C (PISG) respectively 40°C (PISL, PISM, PISMHV, PISP, PISPHV, PISN, PISNHV, PISR, PIST, PISTHV, PISA4119, PIHV4119 & SPISM) above the ambient temperature of 25°C.  I rated current indicates the current when inductivity drop of 25% max related to the unloaded inductivity or when temperature raise $\Delta T=40^\circ\text{C}$ ( $T_a=20^\circ\text{C}$ ) whichever is lower (PISA2408, PISA2416, PISA2812, PISA2816, PISA4716, PISA4720 & PISA4728)
Operating Temperature	Non shielded: -40°C to +150°C (including component self-heating) Shielded and tube: -40°C to +125°C (including component self-heating)
Recommended soldering method	Reflow
Moisture Sensitivity Levels (MSL) (Non-shielded)	MSL Level 1, indicating unlimited floor life at $\leq 30^\circ\text{C}$ / 85% relative humidity
Solderability	Using lead free solder (Sn 99.9) at $260^\circ\text{C} \pm 5^\circ\text{C}$ for $5 \pm 0.5$ seconds, min 90% solder coverage of metallization Standard: IEC 68-2-20 ( $T_a$ )
Resistance to Soldering Heat	Resistant to $260^\circ\text{C} \pm 5^\circ\text{C}$ for $10 \pm 1$ seconds Standard: IEC 68-2-20 ( $T_b$ )
Resistance to Solvent	Resistant to Isopropyl alcohol for $5 \pm 0.5$ minutes at $23^\circ\text{C} \pm 5^\circ\text{C}$ Standard: IEC 68-2-45
Climatic Test	Defined by the following standards IEC 68-2-1 for Cold test: $-55^\circ\text{C}$ for 96 hours IEC 68-2-2 for Dry heat test: $+125^\circ\text{C}$ for 96 hours IEC 60068-2-78 for Humidity test: $40^\circ\text{C}$ at RH 95% for 4 days
Thermal Shock Test (Non-shielded)	Temperature cycle : $-40^\circ\text{C}$ to $+125^\circ\text{C}$ to $-40^\circ\text{C}$ Max/Min temperature duration: 15 minutes Temperature transition duration: 5 minutes Cycles: 25 Standard: MIL-STD-202G
Adhesion of Soldered Component (Shear Test)	Components withstand a pushing force of 20N for $10 \pm 1$ seconds Standard: IEC 60068-2-21, method Ue <sub>3</sub>
Mechanical Shock	Mil-Std 202 Method 213 Condition C 3 axis, 6 times, total 18 shocks 100 G, 6 ms, half-sine
Vibration	Mil-Std 202 Method 204 20 mins at 5G 10 Hz to 2000 Hz 12 cycles each of 3 orientations

**Ordering Code** Example: PISA2408-2R9X-YY

PISA 2408 - 2R9 X - YY (Model)(Case Size) (Inductance Value)(Tolerance) (Packing Code) → PISA2408-2R9N-04

Case Sizes - 2408, 2416, 2812, 2816, 4119, 4716, 4720, 4728, G, L, M, P, N, R, T

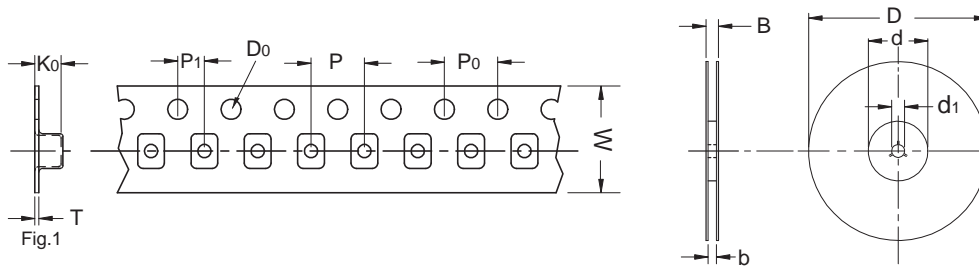
Core Type - Ferrite

Tolerances - K (10%), M (20%), N (30%)

Packing Code - 01, 04 (Taped / Reel)

**SMD Power Inductors (also shielded)**

Packing Specification



drawing only schematic, see table

Type	D	D <sub>0</sub>	d	d <sub>1</sub>	B	b	W	P	P <sub>0</sub>	P <sub>1</sub>	K <sub>0</sub>	T
PISG	180	1.55	60	13	18.4	12.4	12	8	4	2	2.9	0.25
PISL	330	1.50	100	13	30.4	24.4	24	12	4	2	3.6	0.30
PISM / SPISM / PISMHV	330	1.50	100	13	30.4	24.4	24	12	4	2	5.4	0.40
PISP / PISPHV	330	1.50	100	13	30.4	24.4	24	16	4	2	8.5	0.50
PISN / PISNHV	330	1.50	100	13	30.4	24.4	24	16	4	2	11.6	0.50
PISR	330	1.50	100	13	38.4	32.4	32	24	4	2	7.6	0.40
PIST / PISTHV	330	1.50	100	13	38.4	32.4	32	24	4	2	12.5	0.50
PISA2408 / PISA2416	330	1.55	100	13	22.4	16.4	16	12	4	2	5.1	0.35
PISA2812	330	1.55	100	13	22.4	16.4	16	12	4	2	3.6	0.35
PISA2816	330	1.55	100	13	22.4	16.4	16	12	4	2	4.6	0.40
PISA4119 / PIHV4119	330	1.50	100	13	30.4	24.4	24	16	4	2	5.7	0.50
PISA4716	330	1.55	100	13	30.4	24.4	24	16	4	2	6.1	0.50
PISA4728 / PISA4720	330	1.55	100	13	30.4	24.4	24	16	4	2	8.1	0.40

Packing Specification

## FASTRON's Component Key Characteristics



Approved according to AEC-Q200



Approved according to AEC-Q200 with High Temperature



Suitable for High Temperature



Part is RoHS conform and Halogen free



Mechanical Shock and Vibration Proof



Designed for High Q-values



Exceptionally High Q-values

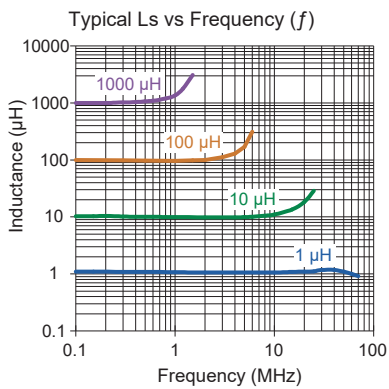
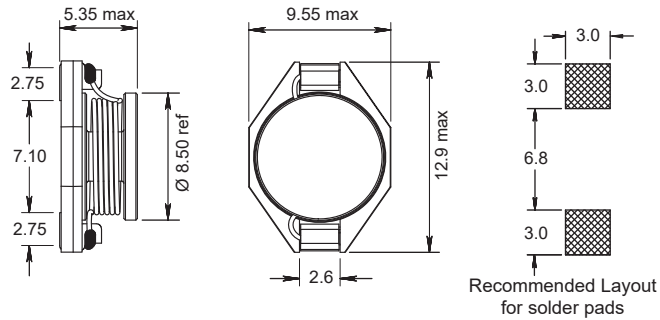


Optimized for High Currents



Optimized for High Voltages

# PISM



Part No	Inductance L ( $\mu\text{H}$ )	$f_L$ (MHz)	Tol $\pm$ (%)	SRF min (MHz)	DCR max ( $\Omega$ )	Rated DC Current (A)	
						$I_{\text{sat}}$	$I_{\Delta T = 40^\circ\text{C}}$
PISM-1R0M-04	1.0	0.1	20	115	0.008	10	6.9
PISM-1R5M-04	1.5	0.1	20	90	0.009	9	6.5
PISM-2R2M-04	2.2	0.1	20	80	0.010	8	6.2
PISM-3R3M-04	3.3	0.1	20	58	0.014	7	5.5
PISM-4R7M-04	4.7	0.1	20	49	0.017	6	4.9
PISM-6R8M-04	6.8	0.1	20	39	0.022	5.1	4.4
PISM-100M-04	10	0.1	20	28	0.036	4.2	3.9
PISM-150M-04	15	0.1	20	22	0.050	3.2	3.2
PISM-220M-04	22	0.1	20	17	0.060	2.7	2.7
PISM-330M-04	33	0.1	20	13	0.100	2.1	2.1
PISM-470M-04	47	0.1	20	10	0.140	1.7	1.7
PISM-680M-04	68	0.1	20	8.5	0.190	1.5	1.5
PISM-101M-04	100	0.1	20	7.0	0.280	1.2	1.2
PISM-151M-04	150	0.1	20	5.3	0.420	1.0	1.0
PISM-221M-04	220	0.1	20	4.1	0.600	0.85	0.85
PISM-331M-04	330	0.1	20	3.2	0.900	0.65	0.65
PISM-471M-04	470	0.1	20	2.8	1.250	0.55	0.55
PISM-681M-04	680	0.1	20	2.3	2.00	0.45	0.45
PISM-102M-04	1000	0.1	20	1.7	2.70	0.35	0.35
PISM-222M-04	2200	0.1	20	1.4	7.00	0.25	0.22

**Core Material:** Ferrite  
**Base Material:** Plastic

Revision date: 04 Mar 2022

**SPQ:** Taped / Reel 750 [-04]

**Remarks:**  $I_{\text{sat}}$  &  $I_{\Delta T}$  - see description in Inductors Technical Data.  
Terminal clip with lead-free tinned surface for SMT-Reflow soldering.