SYNYON

Document No. SYN-DS-SYP1010
Revision V2.0 | 2026-11-02

Molded Power Inductor

SYP1010 Series

Performance Series · 11.3×10.0×10.0 mm



RoHS Compliant · Halogen-Free

Features

- **Lowest DCR with low power loss**
- **Wide inductance range up to 56 µH**
- **High current handling with soft saturation**

Core material:	Composite magnetic powder
Environmental:	RoHS compliant, halogen-free
Terminal plating:	Ni-Sn (SN); SAC/SP optional
Anti-corrosion:	Terminal anti-corrosion plating
Operating temperature:	-40°C to +125°C
Max. part temperature:	+165°C (ambient + rise)
Storage temperature:	-55°C to +165°C (part); -55 to +80°C (reel)
Reflow soldering:	Max. 3 cycles, 260°C / 40 s
MSL level:	Level 1, unlimited floor life
Rated voltage:	60V

Electrical Specifications

(Ta = 25°C)

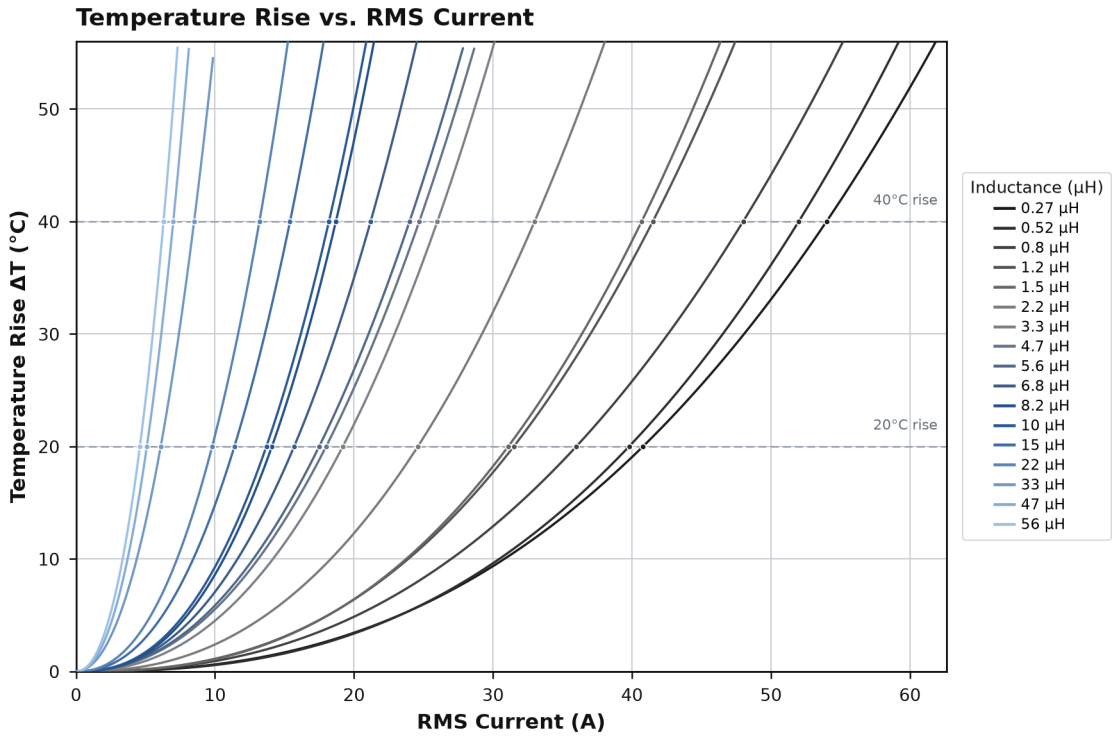
Part Number	Inductance ±20% (µH)	DCR (mΩ) typ/max	SRF typ (MHz)	Isat (A) 10%/20%/30%	Irms (A) 20°C/40°C
SYP1010-271MSN	0.27	0.47 / 0.57	96	44 / 74 / 117	40.8 / 54
SYP1010-521MSN	0.52	0.68 / 0.8	56	33 / 54 / 76	39.8 / 52
SYP1010-801MSN	0.8	0.88 / 1.1	47	29 / 46 / 64	36 / 48
SYP1010-122MSN	1.2	1.2 / 1.4	37	24 / 39 / 50	31.5 / 41.5
SYP1010-152MSN	1.5	1.5 / 1.7	31	21 / 33 / 45	31.1 / 40.7
SYP1010-222MSN	2.2	2.3 / 2.6	25	15 / 26 / 36	24.6 / 33
SYP1010-332MSN	3.3	3.2 / 3.7	21	14 / 24 / 34	19.2 / 26
SYP1010-472MSN	4.7	4 / 4.6	18	12 / 21 / 29	18 / 24.7
SYP1010-562MSN	5.6	5.2 / 5.9	16	10 / 17 / 24	17.5 / 24
SYP1010-682MSN	6.8	6.2 / 7	14	9.3 / 16 / 22	15.7 / 21.2
SYP1010-822MSN	8.2	8 / 9	13	8.7 / 14 / 20	14.1 / 18.7
SYP1010-103MSN	10	8.7 / 9.7	12	8.3 / 13 / 18	13.7 / 18.2
SYP1010-153MSN	15	13.6 / 15.2	10	7 / 11 / 16	11.4 / 15.4
SYP1010-223MSN	22	19.6 / 22	8	5.6 / 9.3 / 13	9.8 / 13.2
SYP1010-333MSN	33	29.9 / 33.5	6.6	4.6 / 7.6 / 10	6.1 / 8.5
SYP1010-473MSN	47	40.9 / 46.9	4.9	3.7 / 6.1 / 8.4	5.1 / 7
SYP1010-563MSN	56	49.9 / 55.9	4.6	3.3 / 5.3 / 7.6	4.6 / 6.3

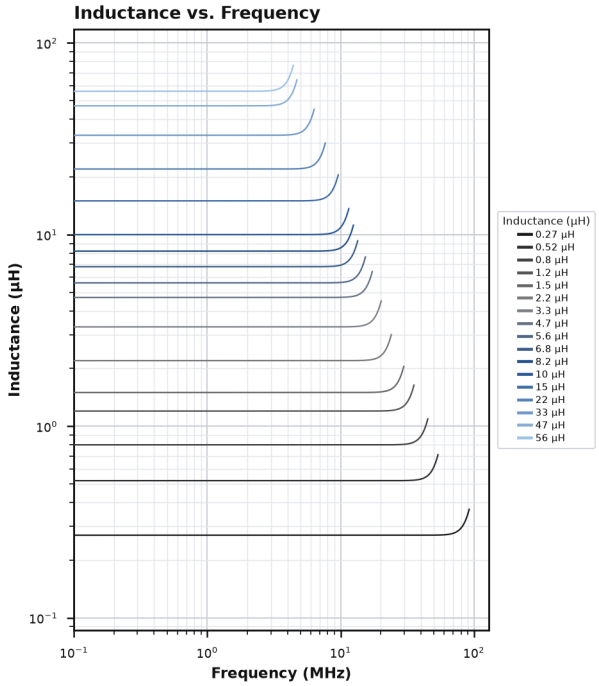
1. Inductance is measured at 1 MHz, 0.1 Vrms, 0 Adc, Ta = 25°C.
2. DCR is measured with a DC milliohm meter.
3. SRF is measured with a high-precision network analyzer.
4. Isat: DC current at which inductance drops by the stated percentage at 25°C; derating is required for high-temperature applications.
5. Irms: DC current causing the stated temperature rise (20°C/40°C). For reference only; verify by measurement in the end application.
6. Termination codes: SN = tin-nickel, SAC = tin-silver-copper; SP = tin-lead (non-RoHS).
7. Packaging: tape and reel, compliant with EIA-481; 7-inch and 13-inch reels available.
8. Electrical data are specified at Ta = 25°C. Specifications are subject to change without notice.

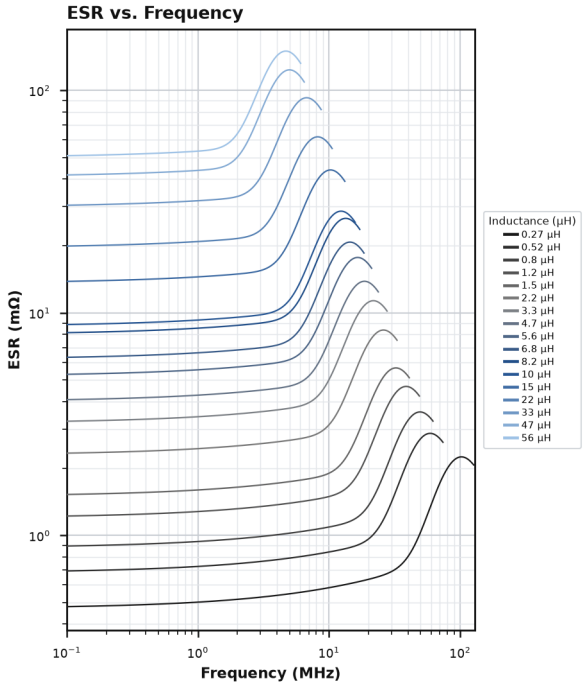
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Specifications subject to change without notice
Please refer to the latest version on our website

Performance Curves

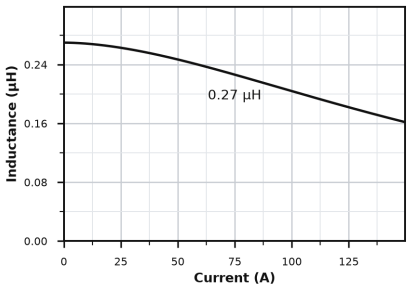


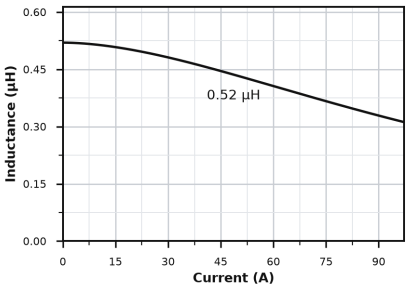


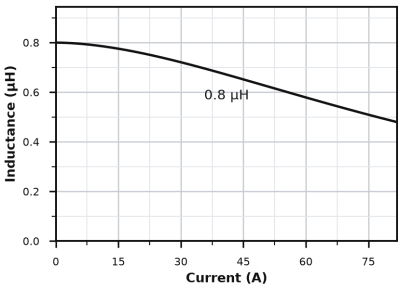


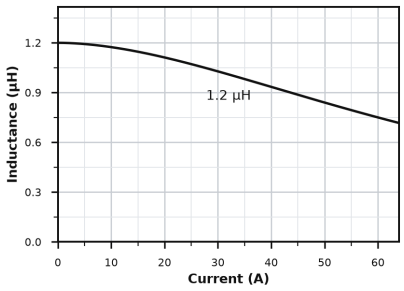
Test Condition: Ta=25℃, JEDEC standard PCB, natural convection. Curves derived from typical specifications for reference only.

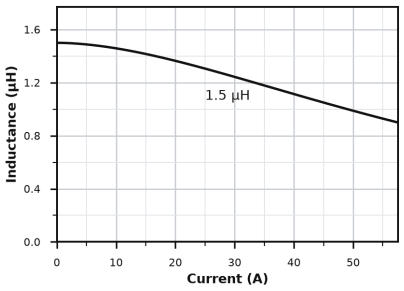
Inductance vs DC Current

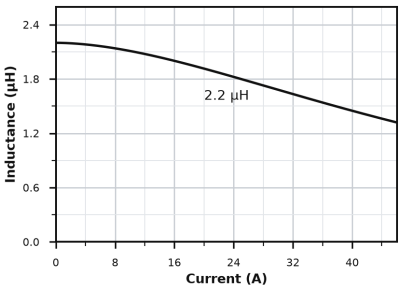


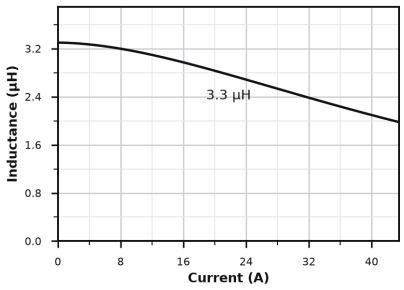


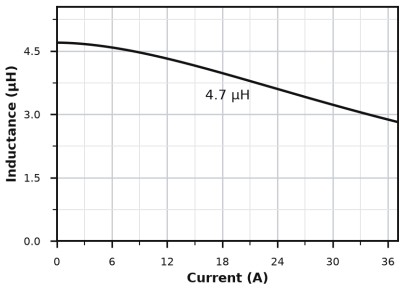


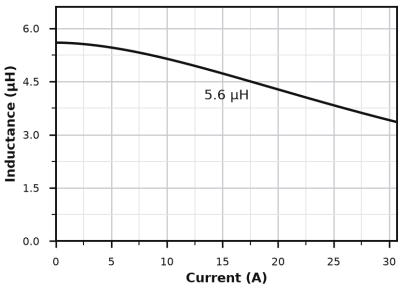


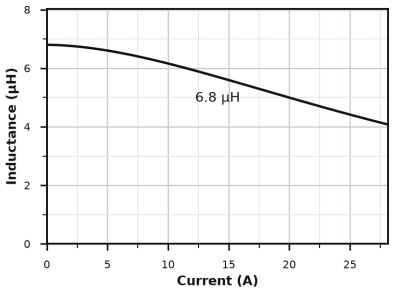


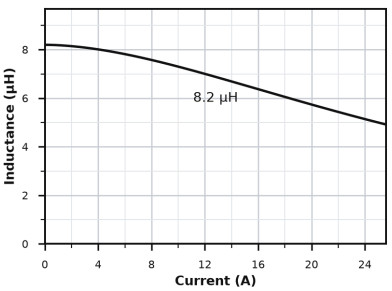


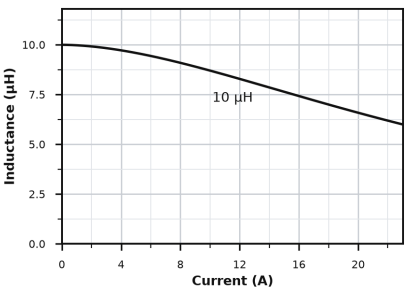


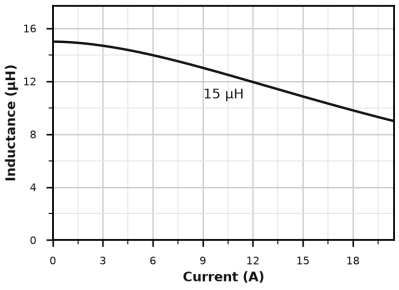


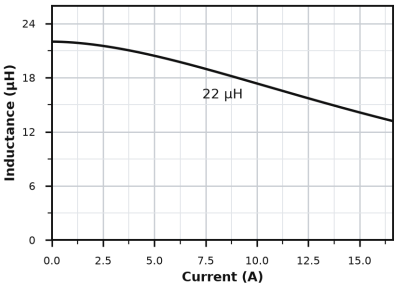


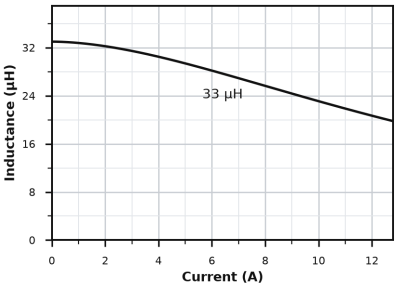






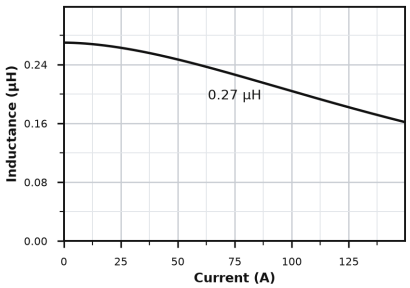


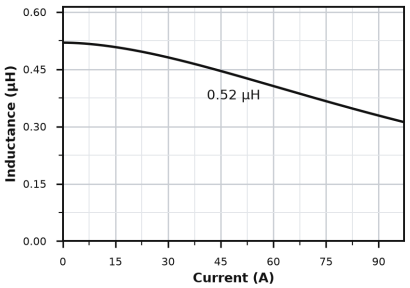




Note: Curves are plotted from Isat test points; actual performance shall be verified on the final product.

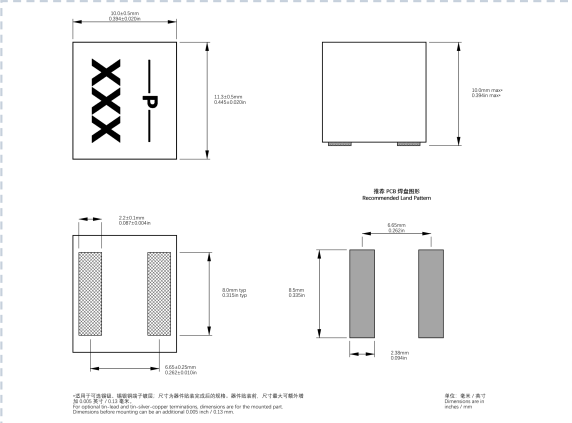
Inductance vs DC Current





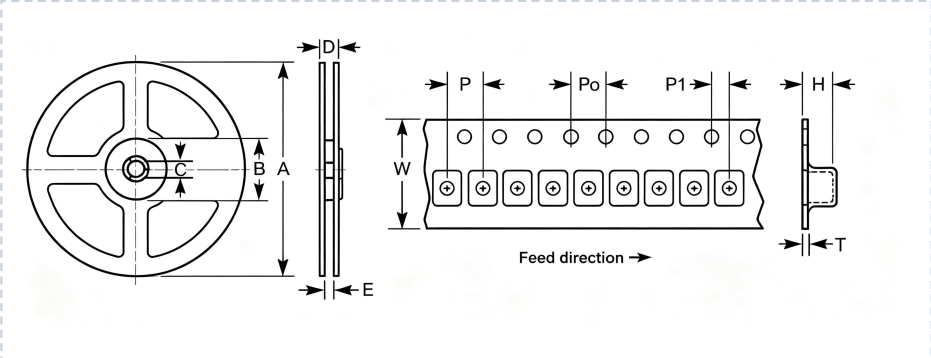
Note: Curves are plotted from Isat test points; actual performance shall be verified on the final product.

Dimensions & Recommended Land Pattern



Symbol	Parameter	Min	Typ	Max
L	Body Length (mm)	10.8	11.3	11.8
W	Body Width (mm)	9.5	10.0	10.5
H	Body Height (mm)	/	/	10.0
Wt	Weight (g)	6.00	6.45	6.90

Packaging



Parts per reel		Reel dimensions (mm)					Tape dimensions (mm)					
7" (178 mm)	13" (330 mm)	A	B	C	D	E	W	P	Po	P1	H	T
250	300	178/330	60/100	13	14.7	12.4	24	16	4	2	10.21	0.4

Packing method: Tape and reel, compliant with EIA-481

Quantity: 7" reel: 250 pcs; 13" reel: 300 pcs

Tape spec: Embossed carrier tape; dimensions per actual packing

Features & Applications

Features

· Lowest DCR with low power loss
· Wide inductance range up to 56 µH
· High current handling with soft saturation

Applications

· Servers and desktop motherboards: multi-phase VRM/VRD and CPU core rails
· High-density, high-current power modules; FPGA/SoC supply
· Industrial power supplies demanding high efficiency and low temperature rise
· Automotive and telecom equipment with strict size limits