SYNYON

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Revision V2.0 | 2026-11-02

Molded Power Inductor

SYP5020 Series

Performance Series · 5.5×5.3×2.1 mm



RoHS Compliant · Halogen-Free

Features

Lowest DCR with very low AC loss across a wide band
Excellent 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:	80V

Electrical Specifications

(Ta = 25°C)

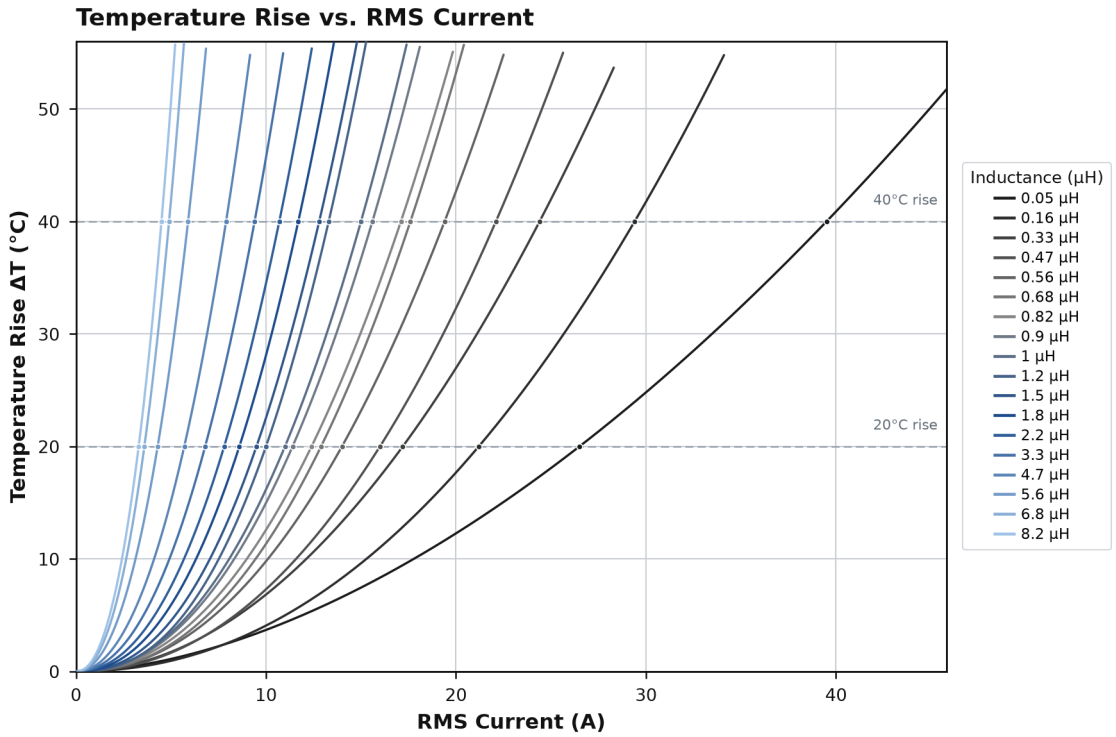
Part Number	Inductance ±20% (μH)	DCR (mΩ) typ/max	SRF typ (MHz)	Isat (A) 10%/20%/30%	Irms (A) 20℃/40℃
SYP5020-500MSN	0.05	0.65 / 0.78	560	19.6 / 32 / 45	26.5 / 39.5
SYP5020-161MSN	0.16	1.8 / 2.1	150	11.5 / 19 / 27	21.2 / 29.4
SYP5020-331MSN	0.33	2.7 / 3.2	90	8.3 / 13.5 / 18.8	17.2 / 24.4
SYP5020-471MSN	0.47	3.7 / 4.3	75	6.4 / 10.7 / 15.7	16 / 22.1
SYP5020-561MSN	0.56	4.2 / 4.9	70	6.3 / 10.5 / 15.2	14 / 19.4
SYP5020-681MSN	0.68	5.3 / 6.1	65	6.2 / 10 / 14	12.9 / 17.6
SYP5020-821MSN	0.82	5.9 / 6.8	55	5 / 8.5 / 12.3	12.4 / 17.1
SYP5020-901MSN	0.9	7 / 8	50	5 / 8.3 / 11.8	11.4 / 15.6
SYP5020-102MSN	1	7.5 / 8.7	50	4.9 / 8.1 / 11.4	11 / 15
SYP5020-122MSN	1.2	8.9 / 10.3	40	4.3 / 7.1 / 10	10 / 13.3
SYP5020-152MSN	1.5	11.4 / 13.2	38	3.7 / 6.2 / 8.9	9.5 / 12.8
SYP5020-182MSN	1.8	14.3 / 16.5	35	3.7 / 6 / 8.3	8.6 / 11.7
SYP5020-222MSN	2.2	16.3 / 18.8	30	3.3 / 5.4 / 7.6	7.8 / 10.7
SYP5020-332MSN	3.3	23.4 / 27	25	2.8 / 4.5 / 6.5	6.8 / 9.4
SYP5020-472MSN	4.7	36 / 41.5	20	2.2 / 3.6 / 5.3	5.7 / 7.9
SYP5020-562MSN	5.6	45.1 / 52	19	2.1 / 3.4 / 4.9	4.3 / 5.9
SYP5020-682MSN	6.8	55 / 63.5	18	2 / 3.2 / 4.5	3.6 / 4.9
SYP5020-822MSN	8.2	64 / 73.6	16	1.8 / 2.9 / 4.1	3.3 / 4.5

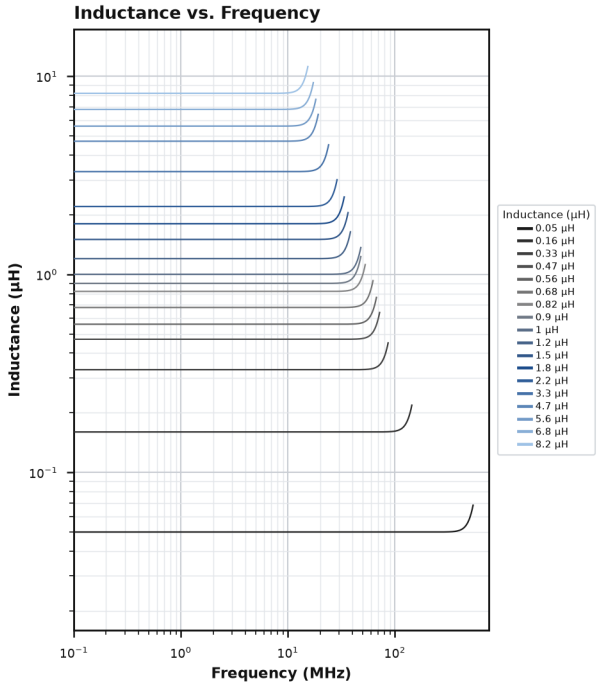
1. Inductance is measured at 1 MHz, 0.1 Vrms, 0 Adc, Ta = 25°C.
2. DCR is measured with a DC milliohm meter.
3. SRF is measured with a high-precision network analyzer.
4. Isat: DC current at which inductance drops by the stated percentage at 25°C; derating is required for high-temperature applications.
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.

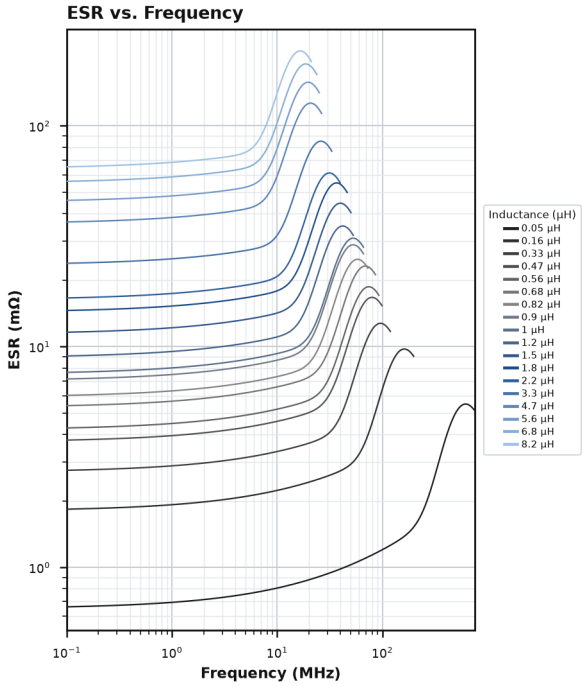
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Specifications subject to change without notice
Please refer to the latest version on our website

Performance Curves

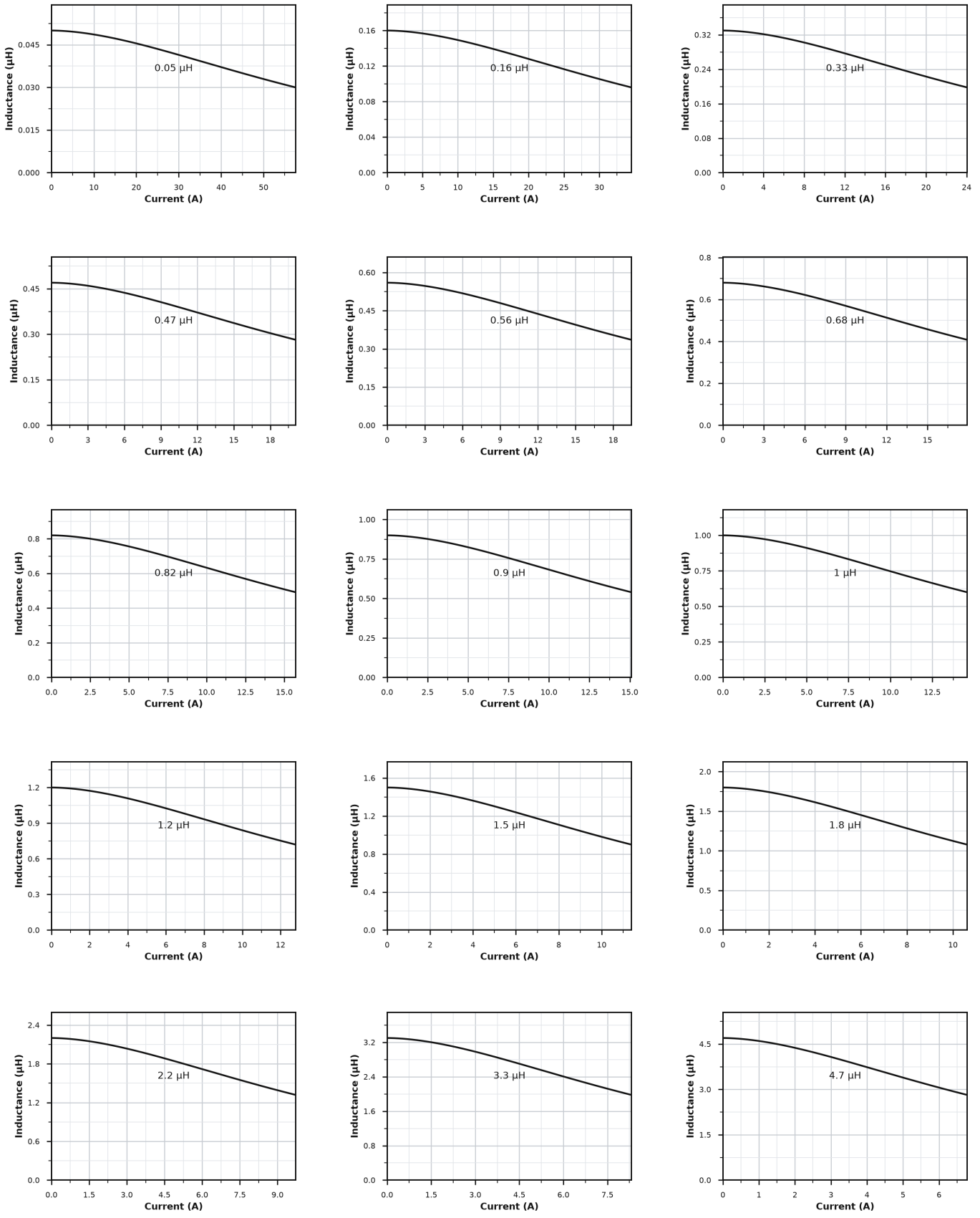






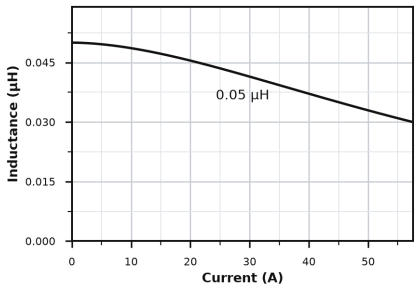
Test Condition: Ta=25℃, JEDEC standard PCB, natural convection. Curves derived from typical specifications for reference only.

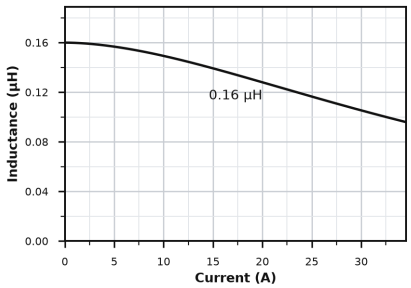
Inductance vs DC Current

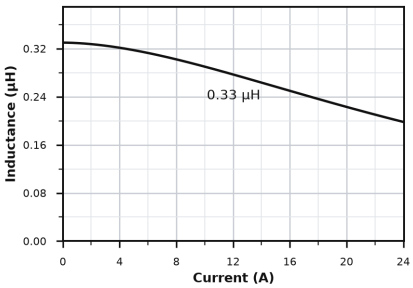


Note: Curves are plotted from Isat test points; actual performance shall be verified on the final product.

Inductance vs DC Current

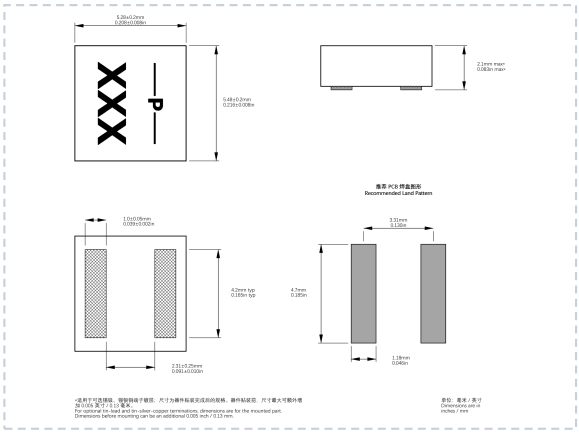






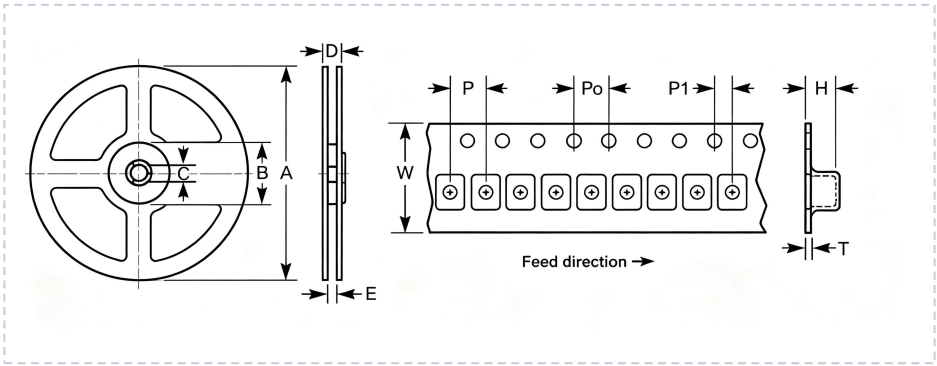
Note: Curves are plotted from Isat test points; actual performance shall be verified on the final product.

Dimensions & Recommended Land Pattern



Symbol	Parameter	Min	Typ	Max
L	Body Length (mm)	5.28	5.48	5.68
W	Body Width (mm)	5.08	5.28	5.48
H	Body Height (mm)	/	/	2.1
Wt	Weight (g)	0.30	0.32	0.33

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
1000	3500	178/330	60/100	13	14.7	12.4	16	8	4	2	2.16	0.3

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

Quantity: 7" reel: 1000 pcs; 13" reel: 3500 pcs

Tape spec: Embossed carrier tape; dimensions per actual packing

Features & Applications

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· Excellent 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