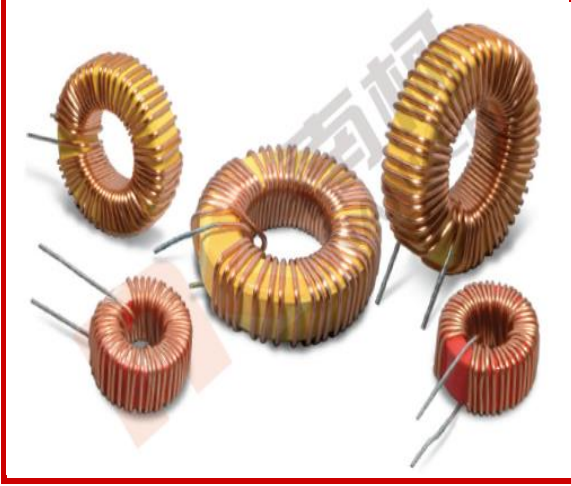


环形插件电感

Shielded Power Inductor (Toroidal Type THT)



特性

Characteristics

低漏磁场

Low magnetic stray field

铁粉材料导致的低铁心损耗

Low core loss due to iron powder materials

适用于额定电流1.1 A至14.5 A

Available for rated current 1.1 A to 14.5 A

应用

Application

例如用于开关电源和电压互感器

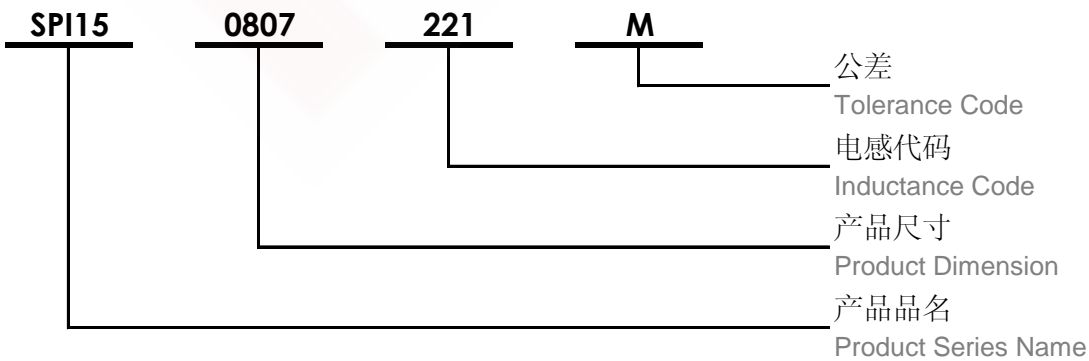
Used for example in switching power supplies and voltage transformers

高达100 kHz的开关调节器

Switching regulators up to 100 kHz

产品品名介绍

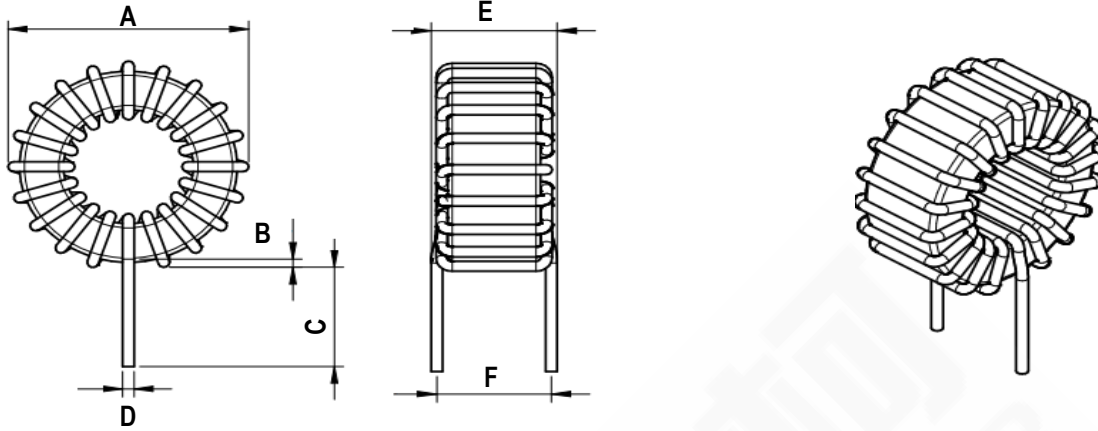
Product Number Structure





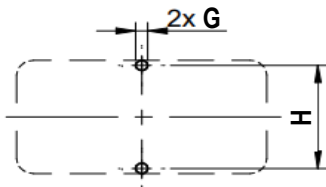
尺寸

Dimension (mm)



焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



产品尺寸

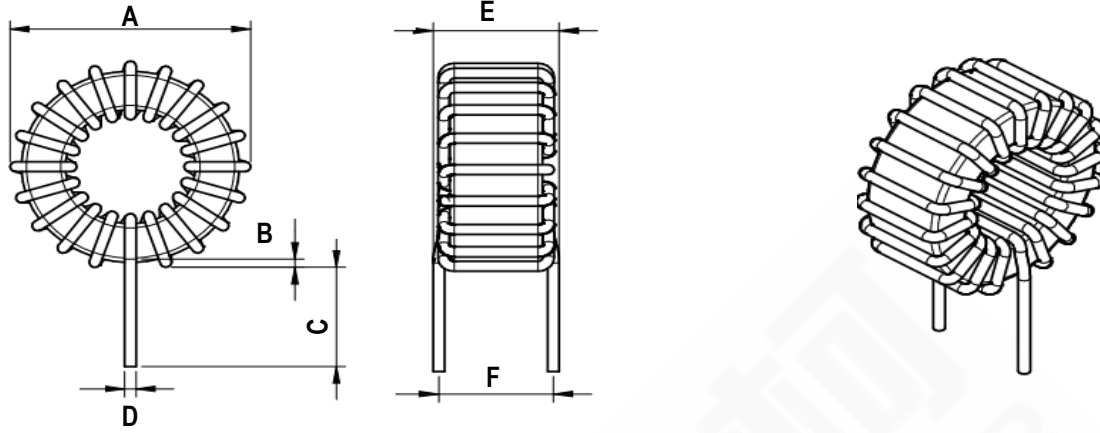
Product Dimension

型号 Part No.	尺寸 (Dimension)							
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
SPI15-2815-120M	28.50 max.	1.00 min.	12.00±1.00	Ø1.20 ref.	14.50 max.	12.00±1.00	Ø1.20	12.00
SPI15-2815-260M	28.50 max.	1.00 min.	12.00±1.00	Ø1.20 ref.	14.50 max.	12.00±1.00	Ø1.20	11.50
SPI15-1711-340M	17.00 max.	1.00 min.	12.00±1.00	Ø0.80 ref.	11.00 max.	8.00±1.50	Ø1.00	8.00
SPI15-1508-370M	15.50 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	8.50 max.	7.50 typ.	Ø0.70	7.50
SPI15-3012-480M	30.00 max.	1.00 min.	12.00±1.00	Ø1.00 ref.	12.10 max.	10.00±1.00	Ø1.20	10.00
SPI15-2111-490M	21.00 max.	1.00 min.	12.00±1.00	Ø0.80 ref.	10.90 max.	8.50±1.50	Ø1.00	8.50
SPI15-1508-500M	15.00 max.	1.00 min.	12.00±1.00	Ø0.30 ref.	8.40 max.	7.00±1.00	Ø0.50	7.00
SPI15-1709-530M	17.00 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	9.50 max.	7.50 typ.	Ø0.70	7.50
SPI15-1508-730M	15.00 max.	1.00 min.	12.00±1.00	Ø0.30 ref.	8.00 max.	7.00 typ.	Ø0.50	7.00
SPI15-2414-750M	24.00 max.	1.00 min.	12.00±1.00	Ø0.80 ref.	13.90 max.	11.50±1.50	Ø1.00	11.50
SPI15-2815-800M	17.00 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	9.50 max.	7.50±1.00	Ø0.70	7.50
SPI15-2815-820M	28.00 max.	1.00 min.	12.00±1.00	Ø1.00 ref.	12.10 max.	10.00±1.00	Ø1.20	10.00
SPI15-1711-920M	31.00 max.	1.00 min.	12.00±1.00	Ø0.90 ref.	13.50 max.	10.00±1.00	Ø1.10	10.00
SPI15-1508-111M	15.00 max.	1.00 min.	12.00±1.00	Ø0.30 ref.	8.40 max.	7.00±1.00	Ø0.50	7.00
SPI15-3012-121M	18.00 max.	1.00 min.	20.00±2.00	Ø0.50 ref.	9.60 max.	7.50±1.50	Ø0.70	7.50
SPI15-2111-131M	32.00 max.	1.00 min.	12.00±1.00	Ø1.00 ref.	15.60 max.	13.00±1.50	Ø1.20	13.00
SPI15-1508-151M	31.00 max.	1.00 min.	12.00±1.00	Ø0.90 ref.	13.50 max.	10.00±1.50	Ø1.10	10.00



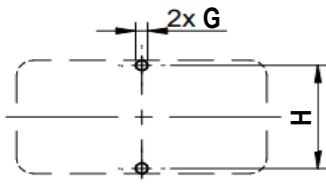
尺寸

Dimension (mm)



焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



产品尺寸

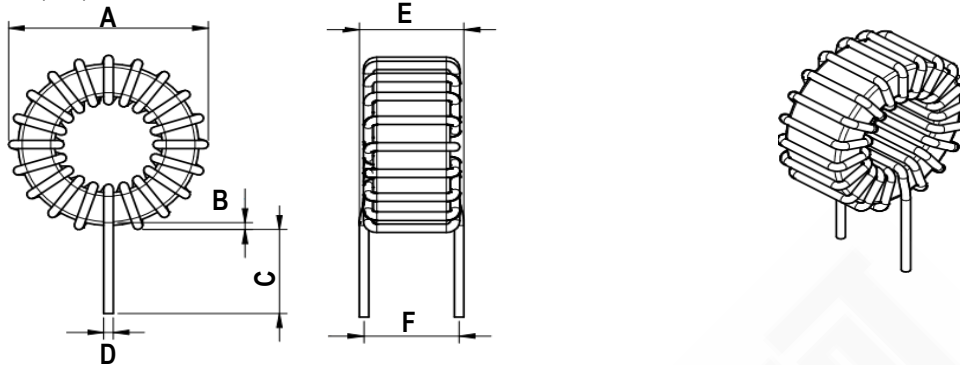
Product Dimension

型号 Part No.	尺寸 (Dimension)							
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
SPI15-1709-161M	17.50 max.	1.00 min.	12.00±1.00	Ø0.30±0.05	8.00 max.	7.00 typ.	Ø0.50	7.00
SPI15-1508-171M	32.00 max.	1.00 min.	12.00±1.00	Ø1.00 ref.	16.50 max.	13.00±1.50	Ø1.20	13.00
SPI15-2414-201M	18.00 max.	1.00 min.	20.00±2.00	Ø0.50±0.10	9.70 max.	7.50±1.50	Ø0.70	7.50
SPI15-2815-221M	43.00 max.	1.00 min.	12.00±1.00	Ø1.10 max.	15.70 max.	13.00±1.50	Ø1.30	13.00
SPI15-2815-251M	17.50 max.	1.00 min.	20.00±2.00	Ø0.30 ref.	8.40 max.	7.00±1.00	Ø0.50	7.00
SPI15-1711-341M	18.00 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	10.10 max.	8.00±1.50	Ø0.70	8.00
SPI15-1508-341M	31.00 max.	1.00 min.	12.00±1.00	Ø0.70 ref.	15.30 max.	13.00±1.50	Ø0.90	13.00
SPI15-3012-381M	44.00 max.	1.00 min.	12.00±1.00	Ø1.00 ref.	16.10 max.	13.50±1.50	Ø1.20	13.50
SPI15-2111-391M	23.00 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	15.30 max.	11.00±1.50	Ø0.70	11.00
SPI15-1508-391M	17.50 max.	1.00 min.	12.00±1.00	Ø0.30 ref.	8.40 max.	7.00±1.00	Ø0.50	7.00
SPI15-1709-551M	22.50 max.	1.00 min.	12.00±1.00	Ø0.32 ref.	12.40 max.	10.50±1.50	Ø0.50	10.50
SPI15-1508-601M	30.00 max.	1.00 min.	12.00±1.00	Ø0.50±0.05	14.00 max.	12.00 typ.	Ø0.70	12.50
SPI15-2414-631M	31.00 max.	1.50 min.	12.00±1.00	Ø0.70 ref.	15.30 max.	13.00±1.50	Ø0.90	13.00
SPI15-2815-721M	42.00 max.	1.00 min.	12.00±1.00	Ø0.70 ref.	15.00 max.	13.00 typ.	Ø0.90	13.00
SPI15-2815-891M	30.00 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	14.00 max.	13.00±1.50	Ø0.70	13.00
SPI15-1711-112M	44.00 max.	1.00 min.	12.00±1.00	Ø0.70±0.10	18.50 max.	16.00 typ.	Ø0.90	16.00
SPI15-1508-162M	30.00 max.	1.00 min.	12.00±1.00	Ø0.50 ref.	14.50 max.	12.50±1.00	Ø0.70	12.50



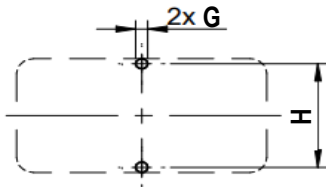
尺寸

Dimension (mm)



焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

型号 Part No.	电感 Inductance μH	温升电流 Rated Current I_r typ 40°C (A)	直流电阻 DC Resistance DCRmax (Ω)	饱和电流 Saturation Current I_{sat} typ (A)
SPI15-2815-120M	12.00 $\pm 20\%$	14.50	0.008	6.90
SPI15-2815-260M	26.00 $\pm 20\%$	10.30	0.015	4.00
SPI15-1711-340M	34.00 $\pm 20\%$	5.20	0.038	1.80
SPI15-1508-370M	37.00 $\pm 20\%$	3.10	0.060	1.80
SPI15-3012-480M	48.00 $\pm 20\%$	8.10	0.025	3.00
SPI15-2111-490M	49.00 $\pm 20\%$	5.80	0.050	2.20
SPI15-1508-500M	50.00 $\pm 20\%$	1.70	0.180	1.50
SPI15-1709-530M	53.00 $\pm 20\%$	3.00	0.080	1.40
SPI15-1508-730M	73.00 $\pm 20\%$	1.40	0.230	1.20
SPI15-2414-750M	75.00 $\pm 20\%$	5.80	0.040	2.00

测试状态

Test Condition

☆ 电感测试条件为 100 kHz/ 5.0 mA

Inductance measure condition at 100 kHz/ 5.0 mA

☆ 工作温度: -40°C ~ +105°C

Operating Temperature: -40°C ~ +105°C

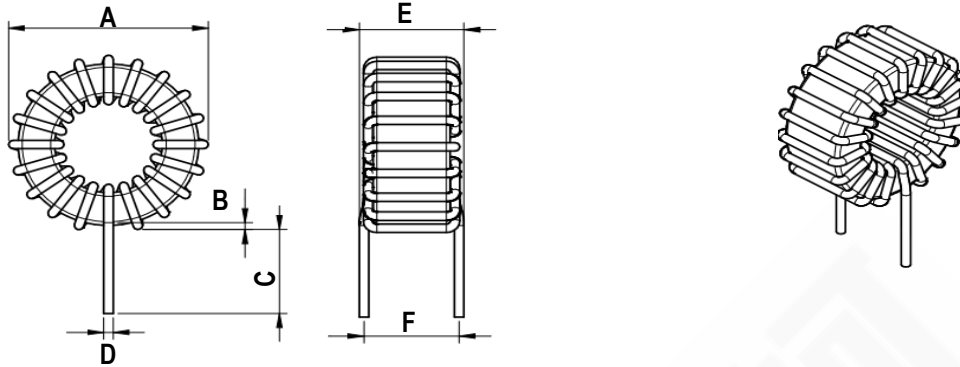
☆ 饱和电流: 电感值下降其初始值的10%时所加载的实际直流电流值

Saturation Current: The actual value of DC current when the inductance drop 10% of initial value



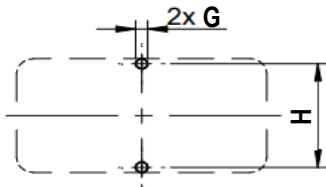
尺寸

Dimension (mm)



焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

型号 Part No.	电感 Inductance μH	温升电流 Rated Current I_r typ 40°C (A)	直流电阻 DC Resistance DCRmax (Ω)	饱和电流 Saturation Current I_{sat} typ (A)
SPI15-2815-800M	80 $\pm 20\%$	2.50	0.100	1.00
SPI15-2815-820M	82 $\pm 20\%$	7.70	0.030	1.70
SPI15-1711-920M	92 $\pm 20\%$	5.40	0.050	2.30
SPI15-1508-111M	109 $\pm 20\%$	1.30	0.300	1.00
SPI15-3012-121M	127 $\pm 20\%$	2.30	0.120	1.00
SPI15-2111-131M	137 $\pm 20\%$	7.00	0.050	2.00
SPI15-1508-151M	157 $\pm 20\%$	5.10	0.063	1.50
SPI15-1709-161M	167 $\pm 20\%$	1.35	0.400	0.72
SPI15-1508-171M	172 $\pm 20\%$	6.50	0.055	2.00
SPI15-2414-201M	200 $\pm 20\%$	2.20	0.180	0.90

测试状态

Test Condition

☆ 电感测试条件为 100 kHz/ 5.0 mA

Inductance measure condition at 100 kHz/ 5.0 mA

☆ 工作温度: -40°C ~ +105°C

Operating Temperature: -40°C ~ +105°C

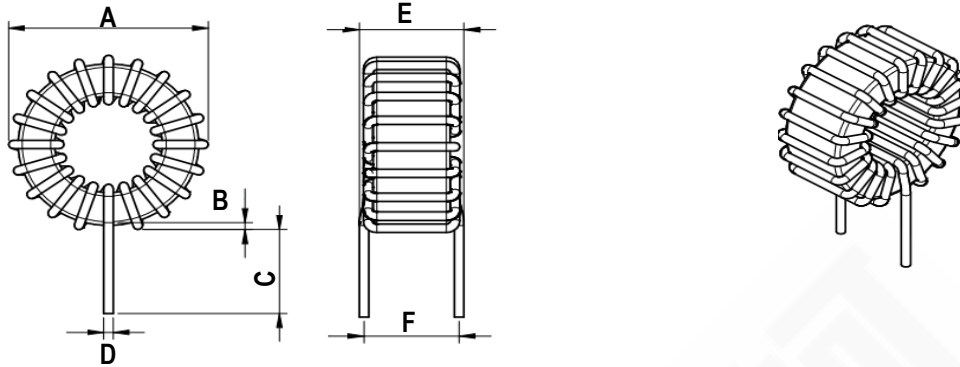
☆ 饱和电流: 电感值下降其初始值的10%时所加载的实际直流电流值

Saturation Current: The actual value of DC current when the inductance drop 10% of initial value



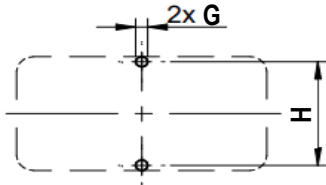
尺寸

Dimension (mm)



焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

型号 Part No.	电感 Inductance μH	温升电流 Rated Current I_r typ 40°C (A)	直流电阻 DC Resistance DCRmax (Ω)	饱和电流 Saturation Current I_{sat} typ (A)
SPI15-2815-221M	220 $\pm 20\%$	7.10	0.060	2.00
SPI15-2815-251M	258 $\pm 20\%$	1.20	0.400	0.60
SPI15-1711-341M	345 $\pm 20\%$	2.10	0.200	0.50
SPI15-1508-341M	346 $\pm 20\%$	3.80	0.150	1.50
SPI15-3012-381M	380 $\pm 20\%$	6.20	0.070	2.00
SPI15-2111-391M	390 $\pm 20\%$	2.00	0.250	0.80
SPI15-1508-391M	393 $\pm 20\%$	1.10	0.700	0.50
SPI15-1709-551M	557 $\pm 20\%$	1.10	0.700	0.70
SPI15-1508-601M	600 $\pm 20\%$	2.20	0.330	1.10
SPI15-2414-631M	630 $\pm 20\%$	3.10	0.175	1.00

测试状态

Test Condition

☆ 电感测试条件为 100 kHz/ 5.0 mA

Inductance measure condition at 100 kHz/ 5.0 mA

☆ 工作温度: -40°C ~ +105°C

Operating Temperature: -40°C ~ +105°C

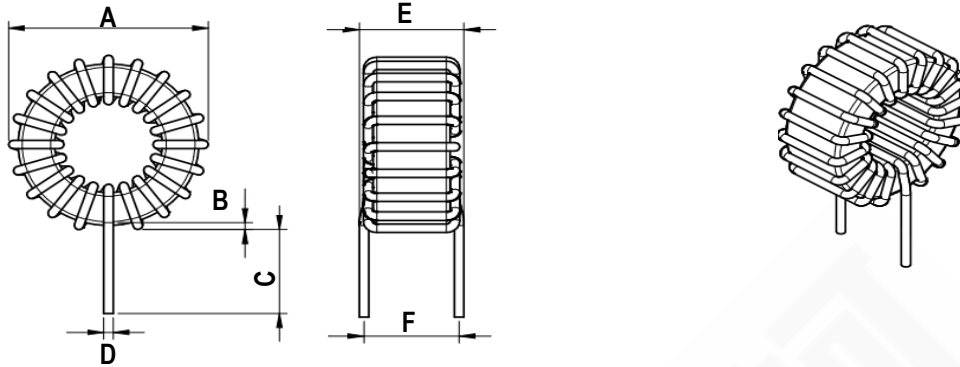
☆ 饱和电流: 电感值下降其初始值的10%时所加载的实际直流电流值

Saturation Current: The actual value of DC current when the inductance drop 10% of initial value



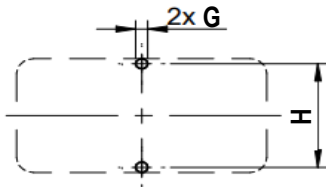
尺寸

Dimension (mm)



焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

型号 Part No.	电感 Inductance μH	温升电流 Rated Current I_r typ 40°C (A)	直流电阻 DC Resistance DCRmax (Ω)	饱和电流 Saturation Current I_{sat} typ (A)
SPI15-2815-721M	727 $\pm 20\%$	3.50	0.240	1.40
SPI15-2815-891M	890 $\pm 20\%$	2.00	0.400	0.90
SPI15-1711-112M	1,124 $\pm 20\%$	3.40	0.280	1.00
SPI15-1508-162M	1,619 $\pm 20\%$	1.80	0.480	0.70

测试状态

Test Condition

☆ 电感测试条件为 100 kHz/ 5.0 mA

Inductance measure condition at 100 kHz/ 5.0 mA

☆ 工作温度: -40°C ~ +105°C

Operating Temperature: -40°C ~ +105°C

☆ 饱和电流: 电感值下降其初始值的10%时所加载的实际直流电流值

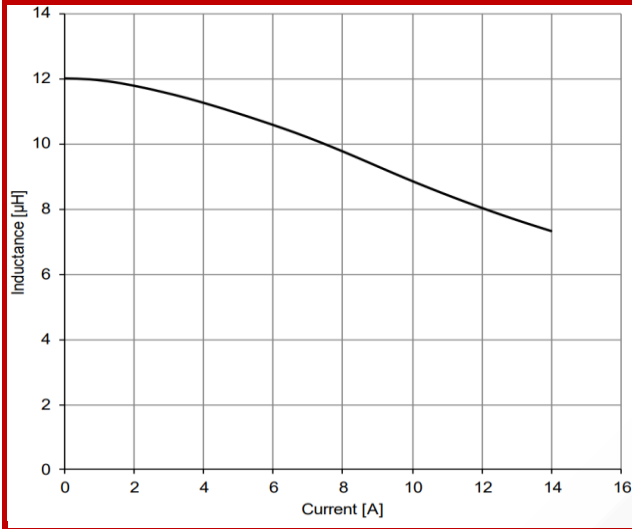
Saturation Current: The actual value of DC current when the inductance drop 10% of initial value



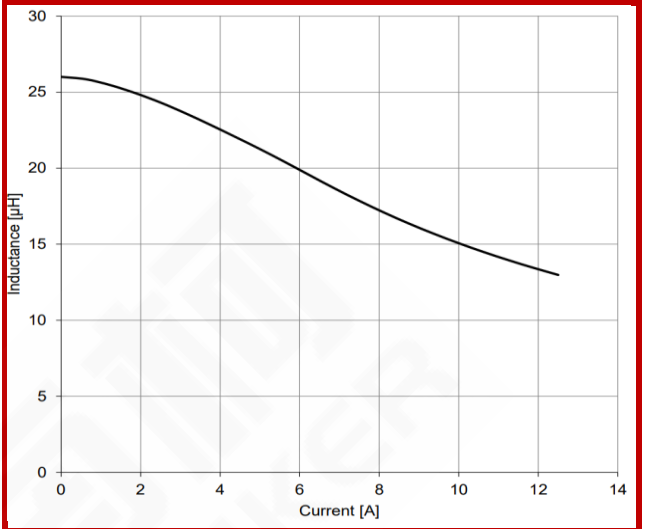
典型电感与电流特性

Typical Inductance vs. Current Characteristics

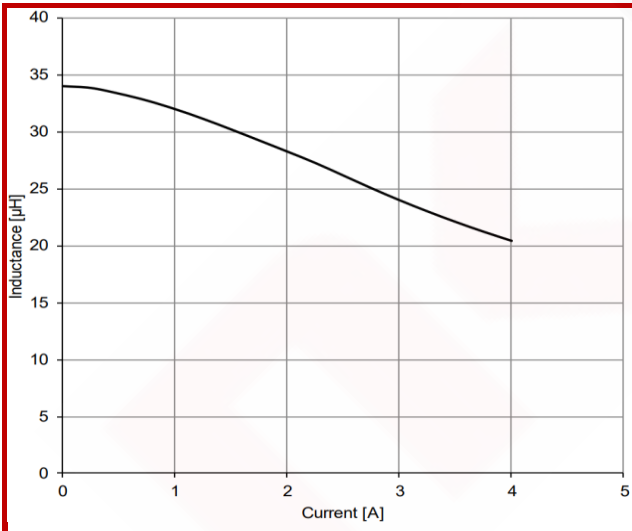
SPI15-2815-120M



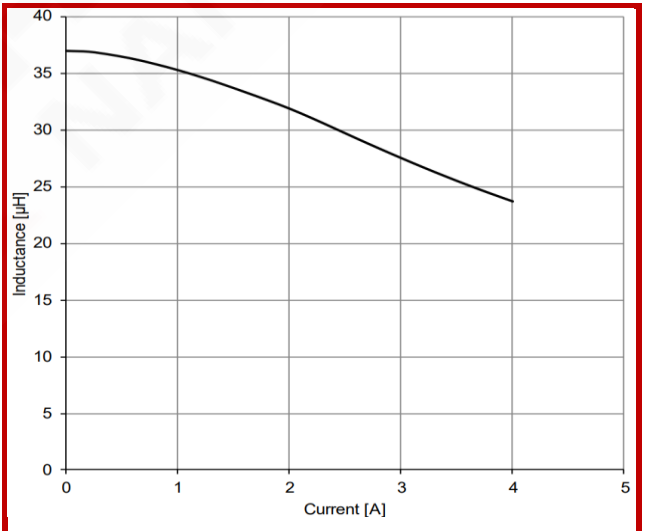
SPI15-2815-260M



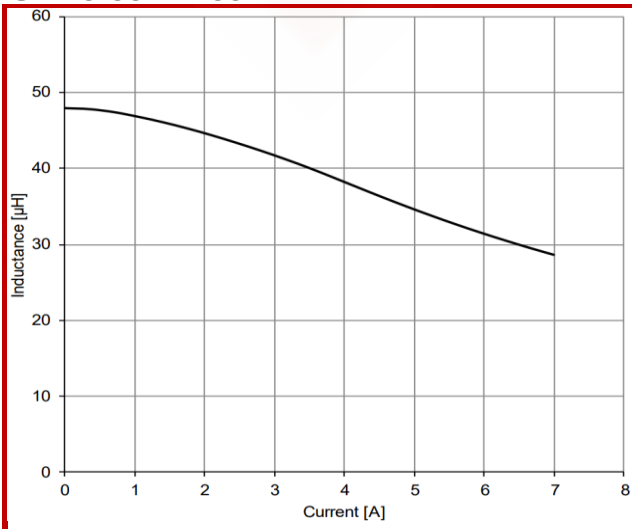
SPI15-1711-340M



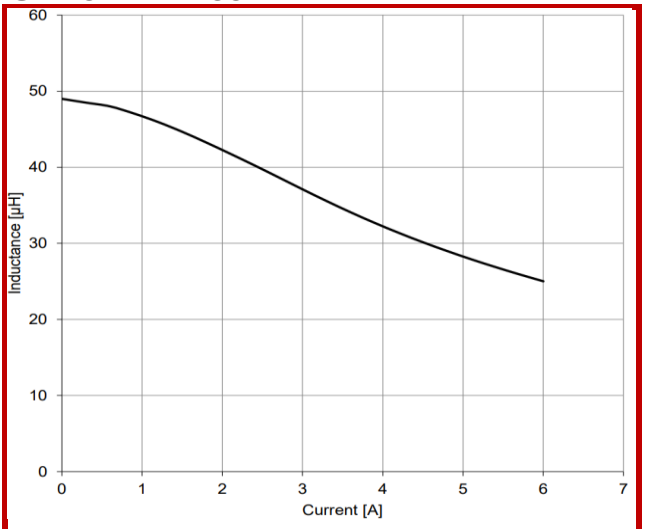
SPI15-1508-370M



SPI15-3012-480M



SPI15-2111-490M

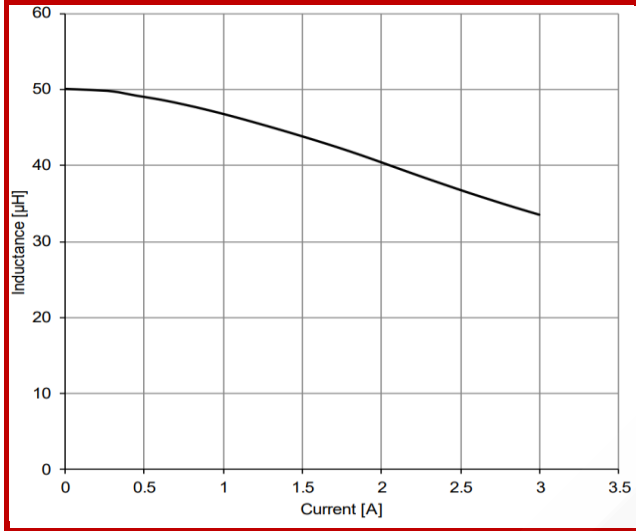




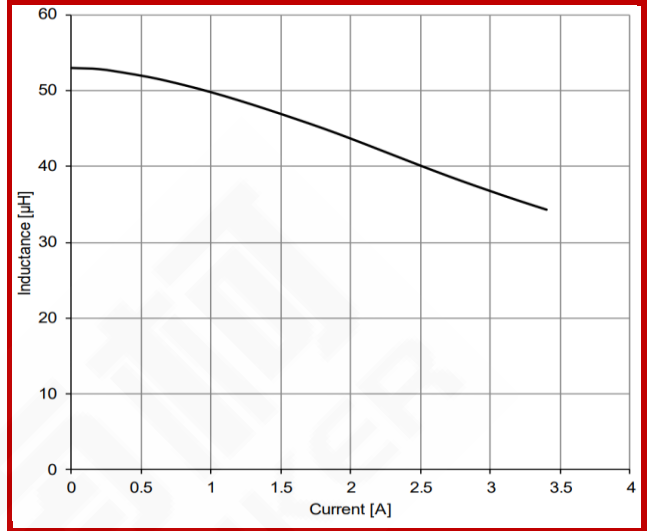
典型电感与电流特性

Typical Inductance vs. Current Characteristics

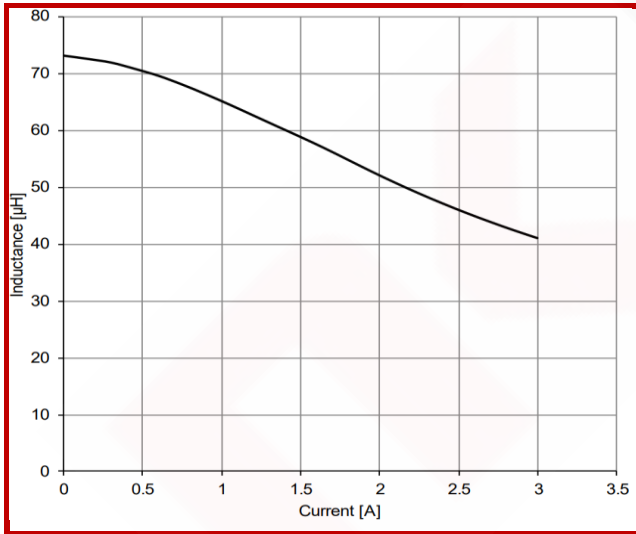
SPI15-1508-500M



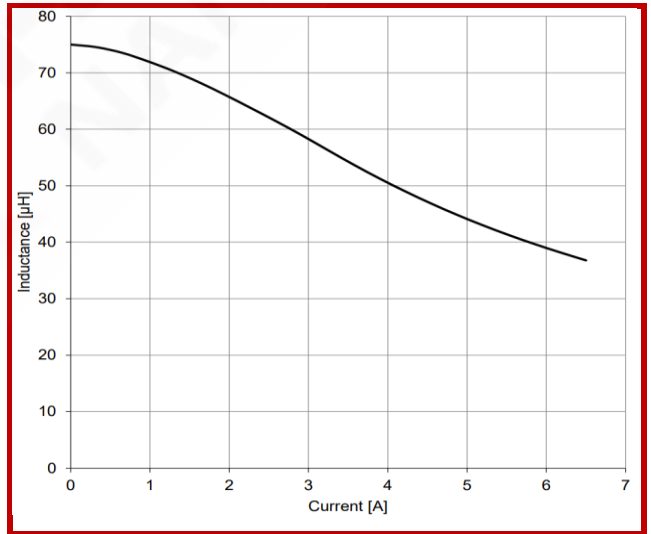
SPI15-1709-530M



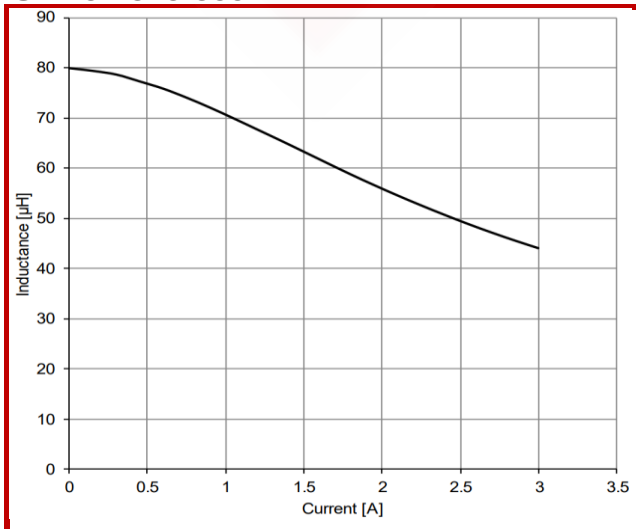
SPI15-1508-730M



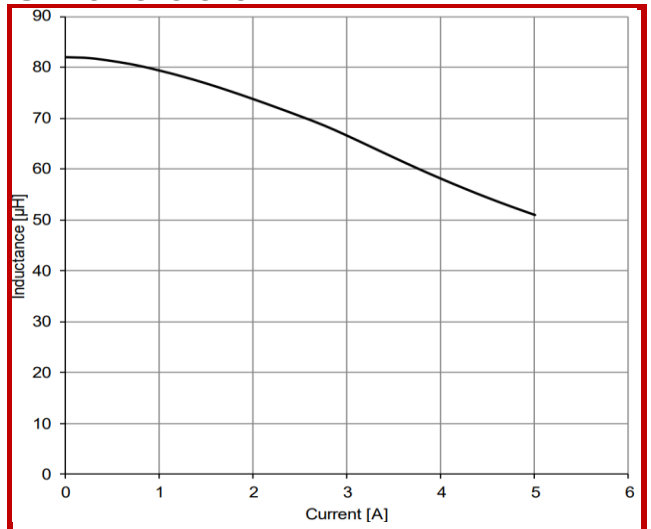
SPI15-2414-750M



SPI15-2815-800M



SPI15-2815-820M

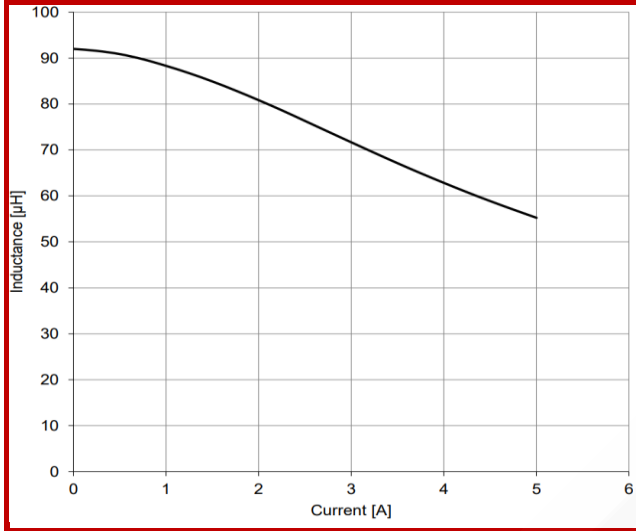




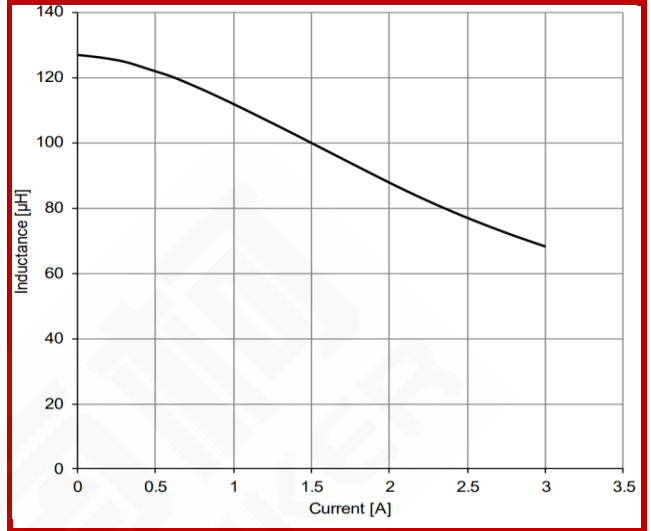
典型电感与电流特性

Typical Inductance vs. Current Characteristics

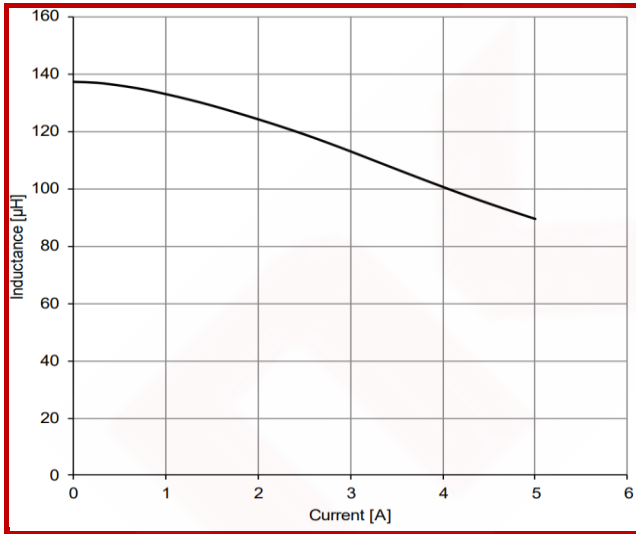
SPI15-1711-920M



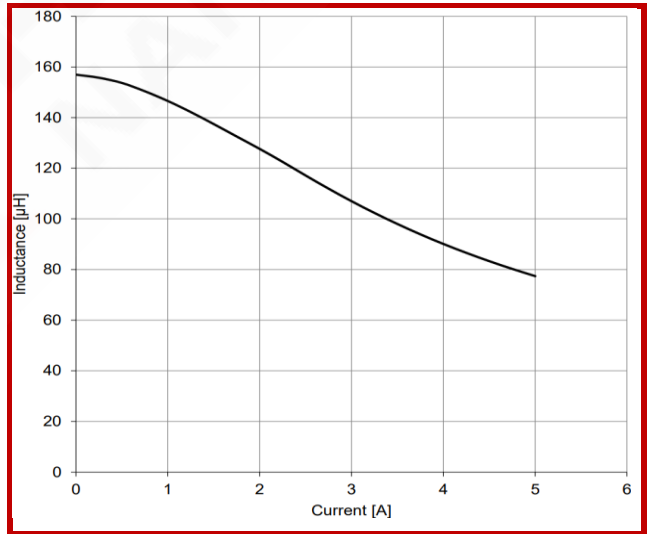
SPI15-3012-121M



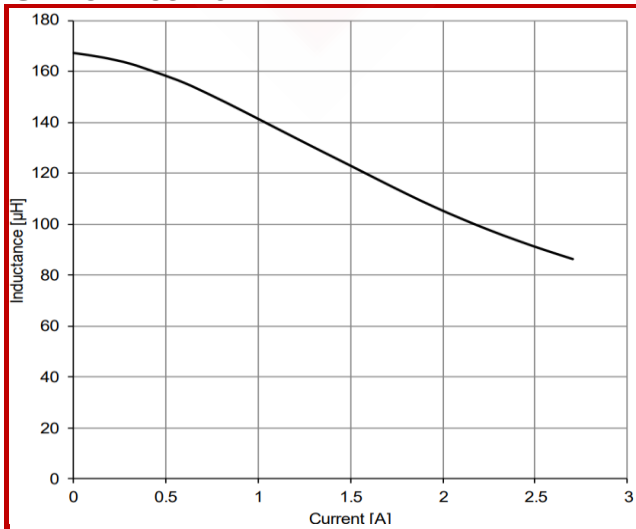
SPI15-2111-131M



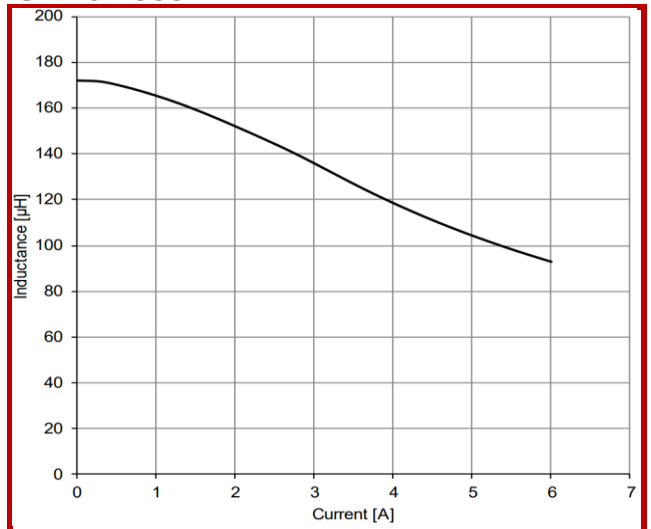
SPI15-1508-151M



SPI15-1709-161M



SPI15-1508-171M

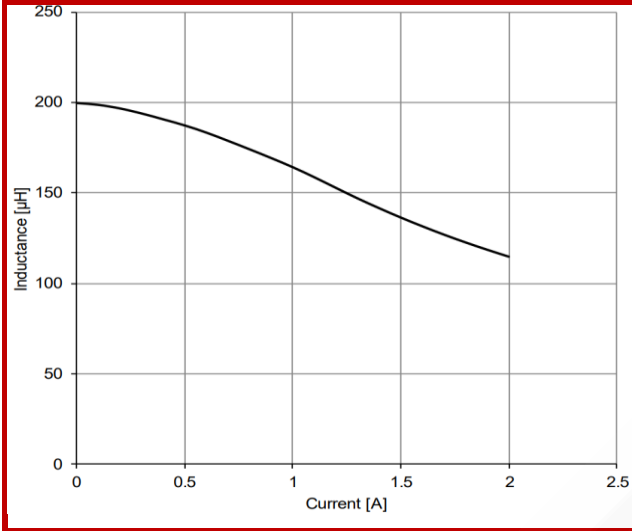




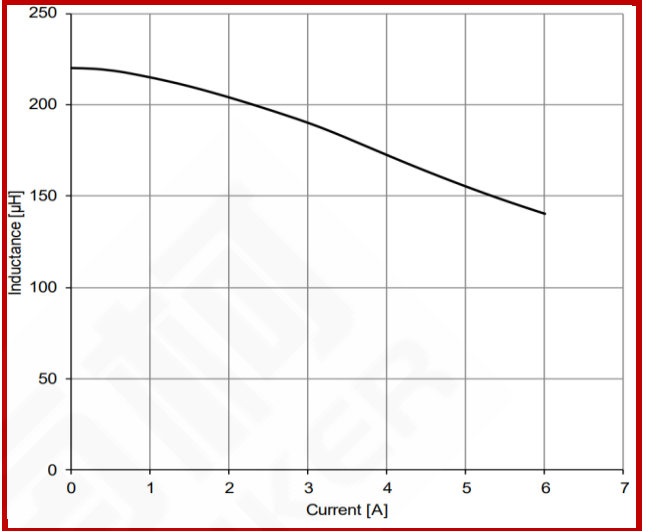
典型电感与电流特性

Typical Inductance vs. Current Characteristics

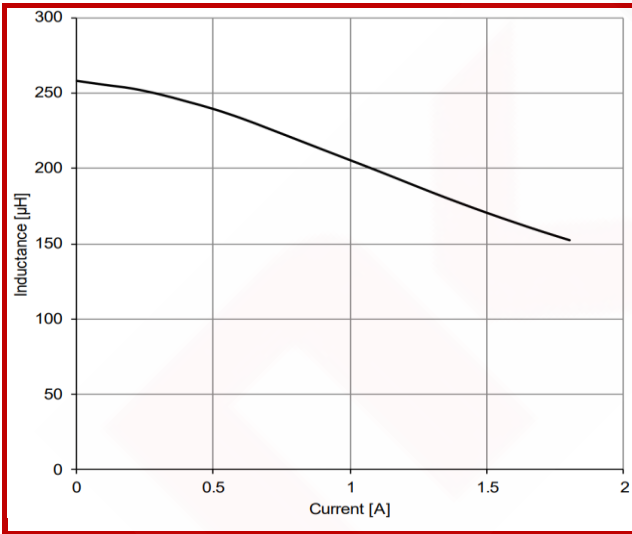
SPI15-2414-201M



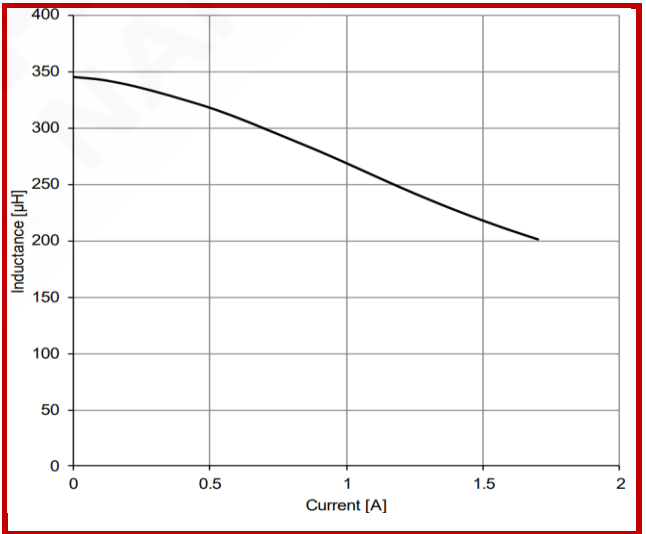
SPI15-2815-221M



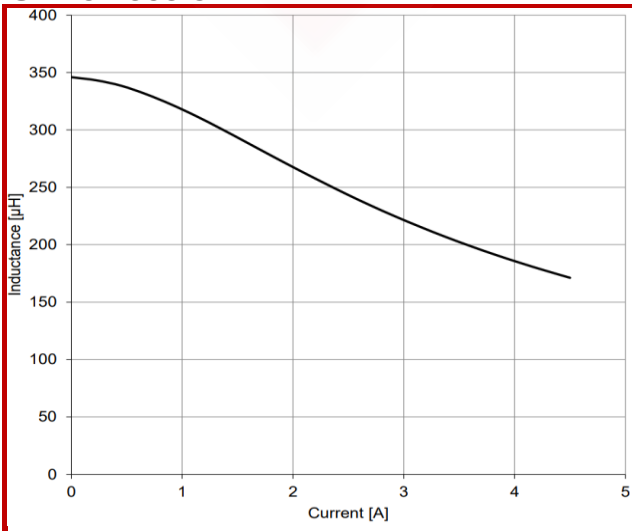
SPI15-2815-251M



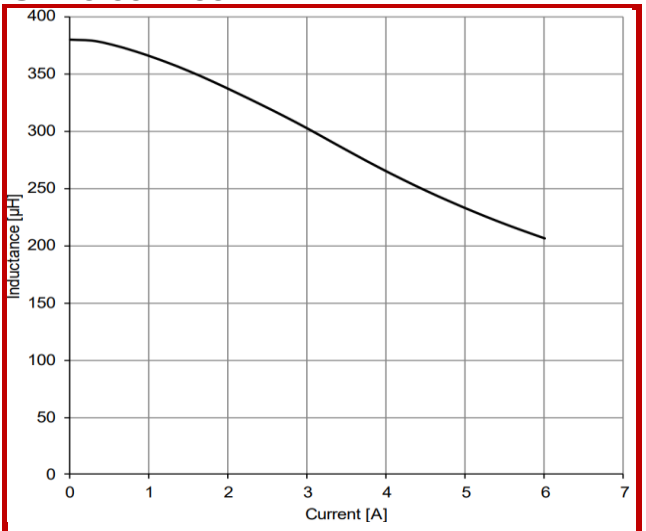
SPI15-1711-341M



SPI15-1508-341M



SPI15-3012-381M

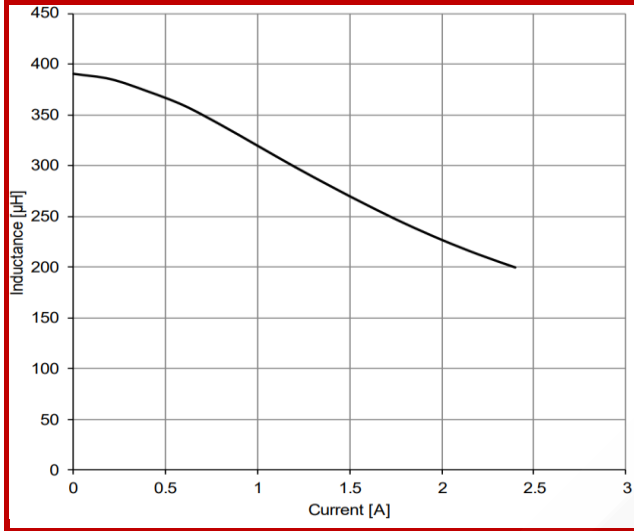




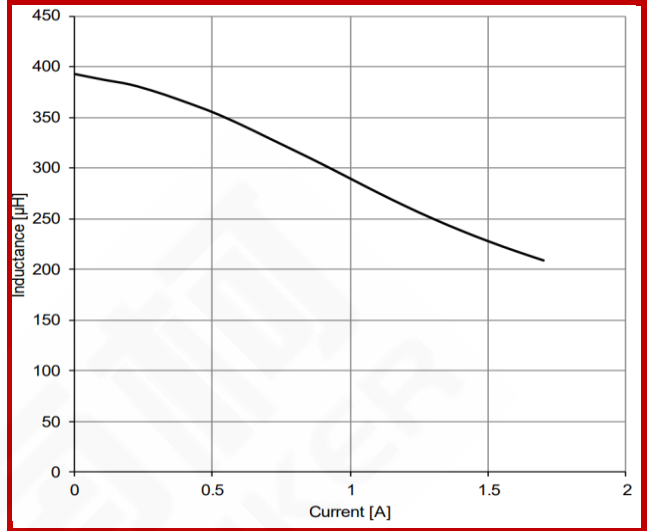
典型电感与电流特性

Typical Inductance vs. Current Characteristics

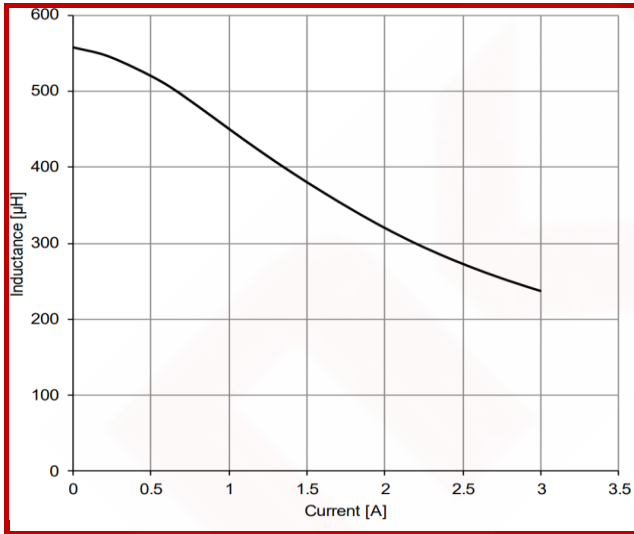
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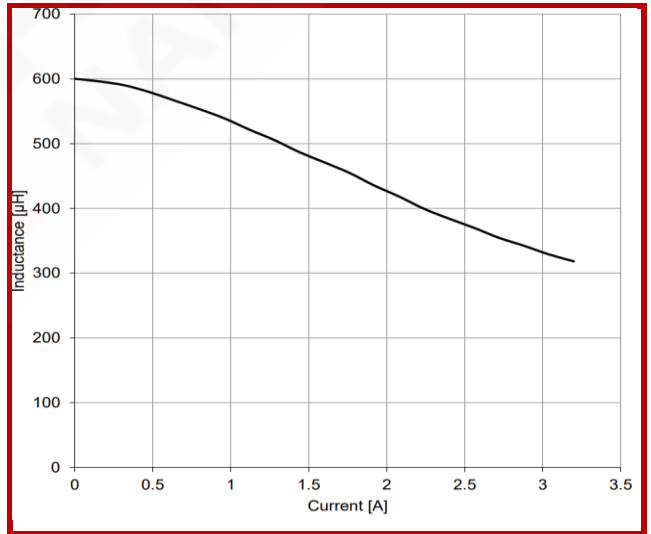
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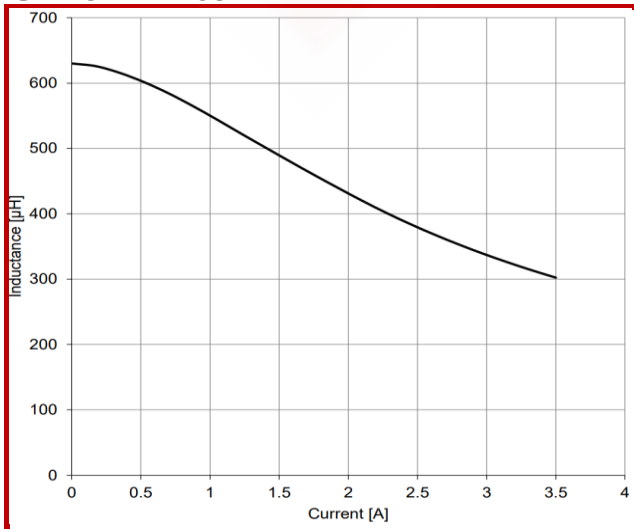
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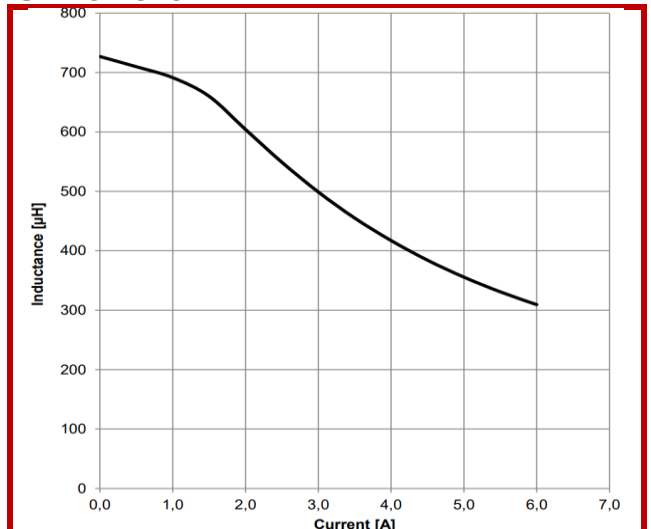
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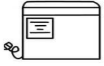


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SPI15-2815-721M

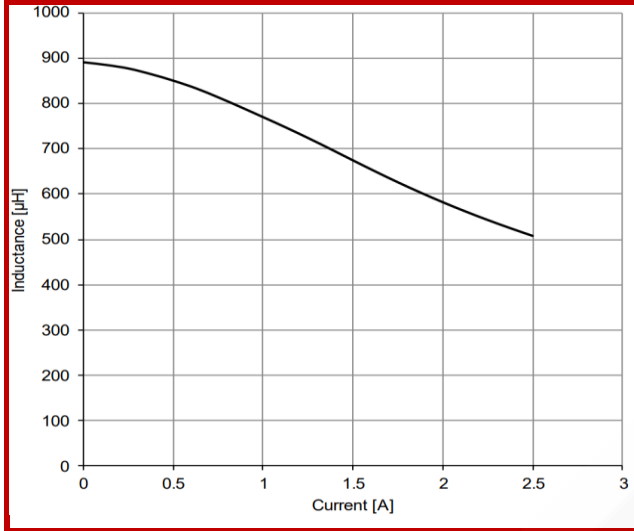




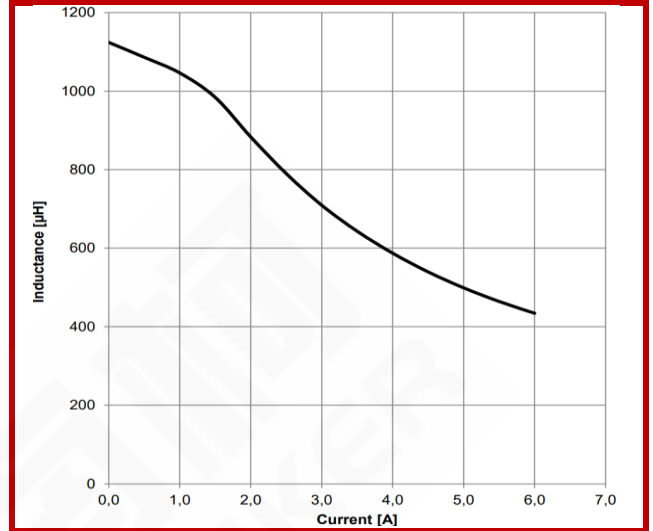
典型电感与电流特性

Typical Inductance vs. Current Characteristics

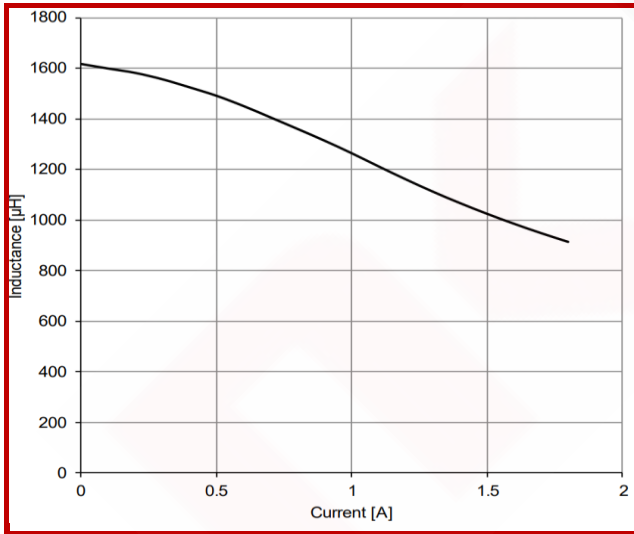
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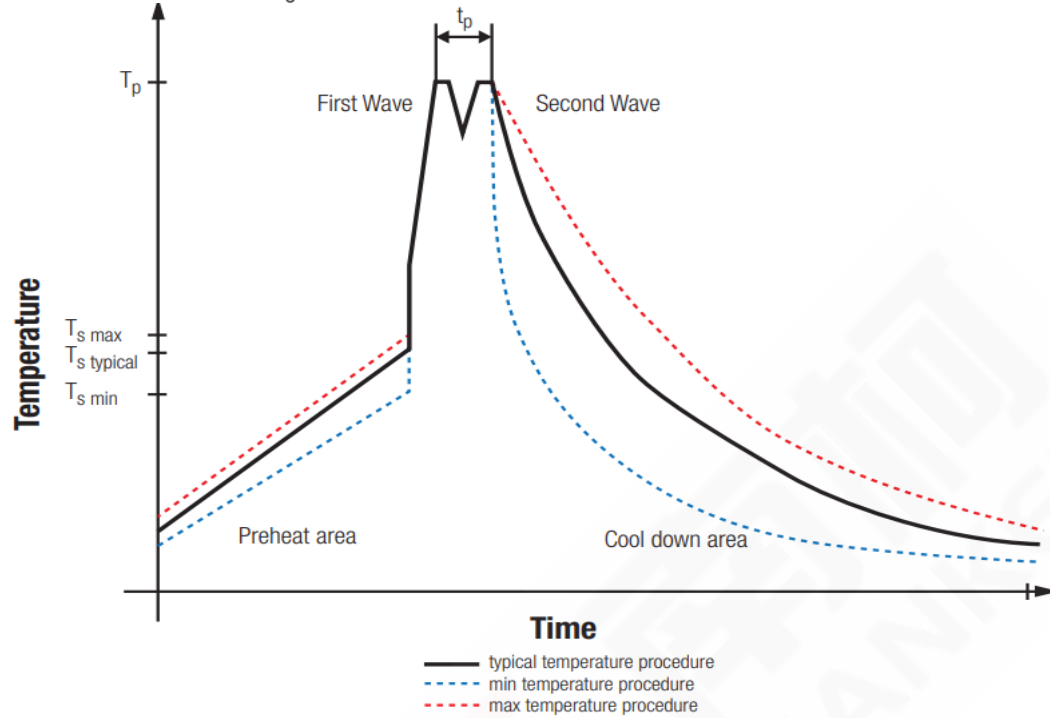
SPI15-1508-162M





波峰焊线图

Classification Wave Soldering Profile



封装体峰值温度(Tp)分类

Classification Reflow Soldering Profile:

Profile Feature		Pb-Free Assembly	Sn-Pb Assembly
Preheat Temperature Min	$T_{s \min}$	100°C	100°C
Preheat Temperature Typical	$T_{s \text{ typical}}$	120°C	120°C
Preheat Temperature Max	$T_{s \max}$	130°C	130°C
Preheat Time t_s from $T_{s \min}$ to $T_{s \max}$	t_s	70 seconds	70 seconds
Ramp-up Rate	ΔT	150°C max	150°C max
Peak Temperature	T_p	250°C ~ 260°C	235°C ~ 260°C
Time of actual peak temperature	t_p	max. 10 seconds max. 5 seconds each wave	max. 10 seconds max. 5 seconds each wave
Ramp-down Rate, Min		~ 2K/seconds	~ 2K/seconds
Ramp-down Rate, Typical		~3.5K/seconds	~3.5K/seconds
Ramp-down Rate, Max		5K/seconds	5K/seconds
Time 25°C to 25°C		4 minutes	4 minutes

* 波峰焊参照标准EN61760-1:2006。

Wave Soldering is refer to standard EN61760-1:2006