

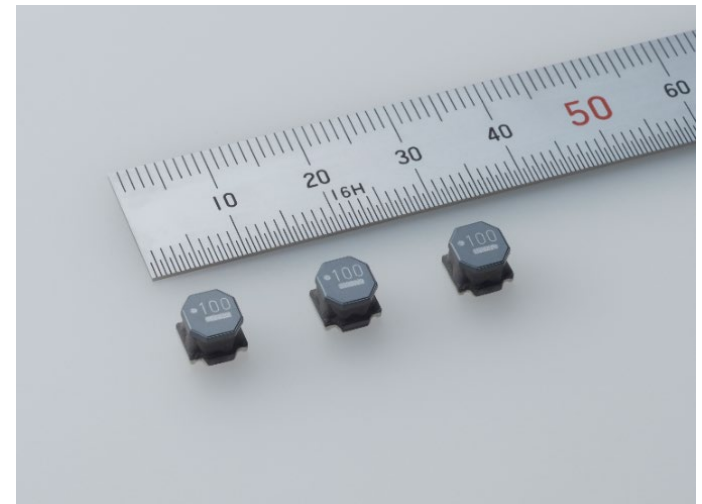
电感器（线圈）的三个功能

电感器有以下三种功能。

- (1) 将电能转化为磁能储存并释放。
- (2) 电流流动时产生磁场，反之磁场变化时产生电流。
- (3) 直流电通过，但交流电难以通过，频率越高越难以通过。

有关详细信息，请参阅以下产品介绍页面。

<https://www.yuden.co.jp/cs/solutions/inductor/>



代表性功率电感器目录的看法（太阳诱电）

•Nominal inductance
The inductance value at the measured frequency of 100KHz.

● 6060YE type

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	DC Resistance [mΩ] Max (Typ)	Rated current ※ [A]			Measuring frequency [MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current① Idc2 Max (Typ)	Temperature rise current② Idc2 Max (Typ)	
LCXHF6060YEL1R0NMNR	NRM6045T 1R0NMRRV	1	±30%	13 (10)	13.50 (14.50)	4.00 (6.00)	6.20 (7.00)	0.1
LCXHF6060YEL1R5NMNR	NRM6045T 1R5NMRRV	1.5	±30%	19 (14)	10.00 (11.00)	3.40 (4.70)	5.50 (6.40)	0.1
LCXHF6060YEL2R2NMNR	NRM6045T 2R2NMRRV	2.2	±30%	23 (18)	8.50 (9.50)	3.00 (4.00)	4.40 (5.10)	0.1
LCXHF6060YEL3R3MMNR	NRM6045T 3R3MMRSV	3.3	±20%	27.6 (23)	7.00 (7.50)	2.50 (3.50)	4.00 (4.50)	0.1
LCXHF6060YEL4R7MMNR	NRM6045T 4R7MMRRV	4.7	±20%	36 (30)	6.00 (6.50)	2.20 (3.00)	3.60 (3.90)	0.1
LCXHF6060YEL6R8MMNR	NRM6045T 6R8MMRRV	6.8	±20%	52 (43)	5.10 (5.60)	1.90 (2.60)	3.10 (3.50)	0.1
LCXHF6060YEL100MMNR	NRM6045T 100MMRSV	10	±20%	60 (50)	4.00 (4.40)	1.80 (2.40)	2.60 (3.20)	0.1
LCXHF6060YEL150MMNR	NRM6045T 150MMRRV	15	±20%	105 (87)	3.10 (3.50)	1.40 (1.80)	2.15 (2.45)	0.1
LCXHF6060YEL220MMNR	NRM6045T 220MMRRV	22	±20%	132 (110)	2.50 (3.00)	1.20 (1.60)	1.80 (2.00)	0.1
LCXHF6060YEL330MMNR	NRM6045T 330MMRRV	33	±20%	216 (180)	1.75 (1.95)	0.75 (0.95)	1.25 (1.35)	0.1
LCXHF6060YEL470MMNR	NRM6045T 470MMRRV	47	±20%	272 (227)	1.55 (1.70)	0.70 (0.90)	1.20 (1.30)	0.1
LCXHF6060YEL680MMNR	NRM6045T 680MMRRV	68	±20%	385 (320)	1.20 (1.30)	0.65 (0.85)	1.05 (1.20)	0.1
LCXHF6060YEL101MMNR	NRM6045T 101MMRRV	100	±20%	600 (475)	1.05 (1.15)	0.55 (0.70)	0.85 (0.95)	0.1
LCXHF6060YEL151MMNR	NRM6045T 151MMRRV	150	±20%	816 (680)	0.83 (0.90)	0.48 (0.65)	0.76 (0.85)	0.1
LCXHF6060YEL221MMNR	NRM6045T 221MMRRV	220	±20%	1320 (1100)	0.70 (0.75)	0.35 (0.50)	0.57 (0.65)	0.1
LCXHF6060YEL331MMNR	NRM6045T 331MMRRV	330	±20%	1872 (1580)	0.55 (0.60)	0.29 (0.39)	0.45 (0.54)	0.1
LCXHF6060YEL471MMNR	NRM6045T 471MMRRV	470	±20%	2760 (2300)	0.45 (0.50)	0.22 (0.30)	0.38 (0.45)	0.1

•DC Resistance
The resistance when DC is applied.
The main resistance is the winding resistance.

•Saturation current (Isat)
The current value at which the inductance value is -10% to 30% (depending on the item) by DC superposition.
For the NR series, it is -30%.

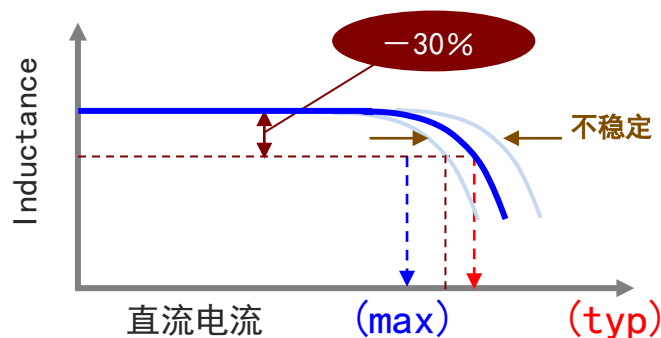
•Temperature rise current (Itemp)
The current value at which the temperature rises between 20°C and 40°C (depending on the item) when DC current is applied.
In the case of the NR series, it is 20°C and 40°C.

额定电流: 重叠电流、温度上升中较小的电流值 保证值为Max

直流叠加特性与温升特性

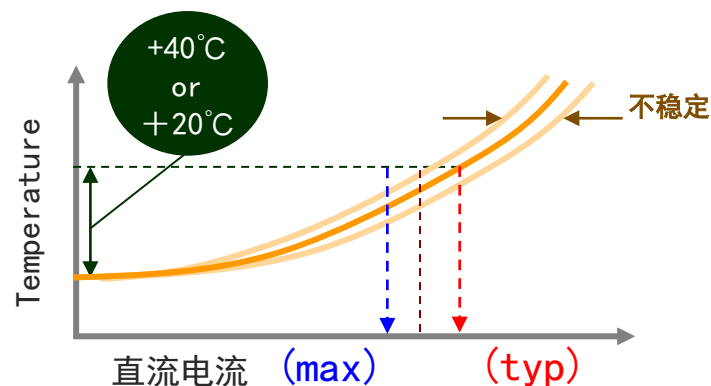
这是IDC1

直流叠加特性（饱和允许电流） I_{dc1}



这是IDC2

温度升高特性 IDC2



Typ: 中值 MAX: 考虑误差的值

· L值降低30%时的电流为直流重叠容许电流

由于磁饱和，L值下降，脉动电流增大，导致IC无法控制。或者损坏IC。

· 温度上升40°C时的电流为温度上升容许电流

直流电流增加，发热增加，可靠性降低。最严重的是会引起线材绝缘不良而烧毁。