

# MATERIALS

研新科技 YST Corp.

## Material Characteristics

Material Grade				N1	N7	N8	N20	L25	DC36	DC38	DC40	DC50	DC60	LDC6	H10	LH10	H15
Initial Permeability	$\mu_i$	25°C		125	730	800	2000	2500	3600	3800	3900	5000	4700	5200	10000	10000	15000
Saturation Flux Density	Bsat	25°C	mT	400	330	320	295	480	480	480	430	420	430	430	390	390	320
		100°C	mT		---	---	---	380				---	---	---	---	---	---
Curie Temperature	Tc	---	°C	>450	>160	>150	>100	>220	>190	>190	>150	>150	>150	>150	>120	>100	>105
Resistivity	$\rho$	---	$\Omega$ -cm	109	107	106	---	700	100	100	100	100	100	100	50	50	10
Power Loss	Pv	25°C	mW/cm <sup>3</sup>	---	---	---	---	550	---	---	---	---	---	---	---	---	---
	100kHz, 200mT	100°C															
				mW/cm <sup>3</sup>	---	---	---	---	450	---	---	---	---	---	---	---	---
	Pv	25°C	mW/cm <sup>3</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	500kHz, 50mT	100°C															
			mW/cm <sup>3</sup>	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Material Type				Ni-Zn	Ni-Zn	Ni-Zn	Ni-Zn	Mn-Zn									
Application Frequency			MHz	300	200	100	60	10	5	5	5	5	5	5	1	1	0.7



# MN-ZN MATERIALS

- L25: 2500ui 一般用POWER材,相當於PC40
- DC36: 3600ui 高溫加電流後的表現優於DC60,適合大電流的POE+設計使用
- DC38: 3800ui 高低溫加電流後的表現優於DC60,加電流後電感降幅小
- DC40: 4000ui 耐大電流材質,適合POE+設計使用
- DC50: 5000ui 一般CHOKe用,阻抗表現與STEWARD35材相當
- DC60: 4700ui 100/1000 BASE網路變壓器適用
- H10: 10000ui 電感穩定之高導材
- LH10: 10000ui 低溫高導材
- H15: 15000ui 電感穩定之高導材
- 主要成份: 氧化鐵 氧化錳 氧化鋅 其他微量添加元素  
粉料等級主要由以上各種元素的純度決定,供應我司粉料的日本廠商均使用高純度的元素



# ***NI-ZN MATERIALS***

- N1: 125ui 阻抗表現與FERRONICS的K材相當
- N7: 730ui 適合100~200MHz的濾波CHOKE
- N8: 850ui 阻抗表現與FERRONICS的J材相當
- N20: 2000ui 特殊EMI要求使用
  
- 主要成份:氧化鐵 氧化鎳 氧化鋅 其他微量添加元素  
粉料等級主要由以上各種元素的純度決定,供應我司粉料的日本廠商均使用高純度的元素



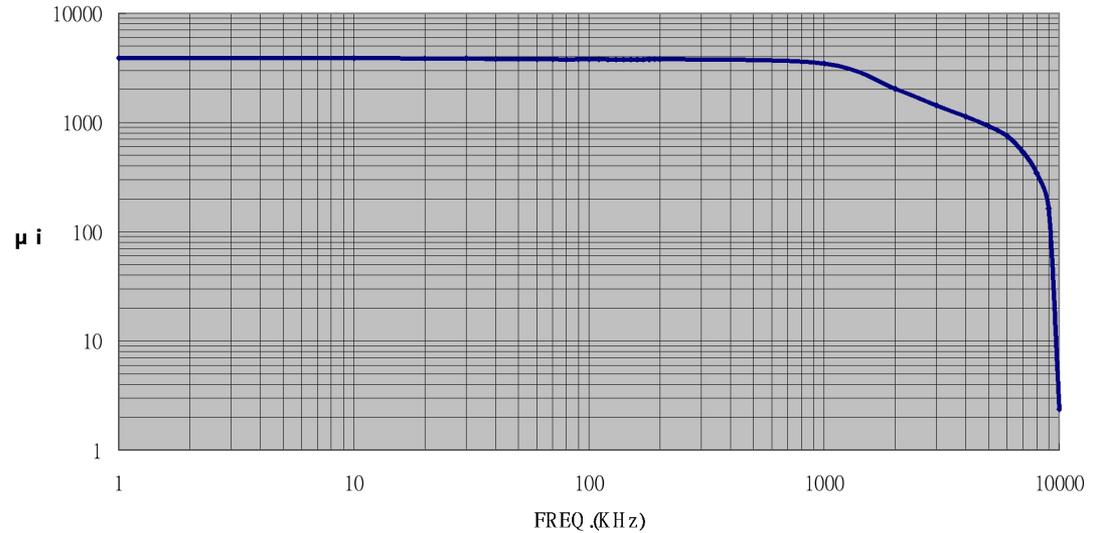
# ***COATING***

- **Parylene** : 主要用於尺寸較小的磁環,磨擦系數較低(接近PTFE特富龍),可減少繞線時的線傷,並起絕緣效果
- **Epoxy** : 主要用於較大尺寸的磁環,減少繞線時的線傷,並起絕緣效果

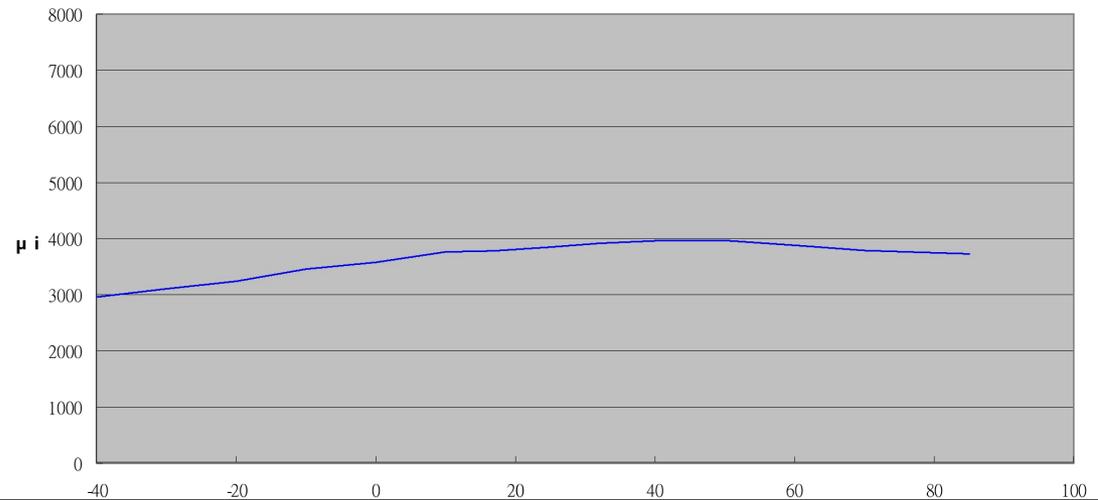
# characteristic curve

YST Corp.  
DC38 Materials  
Characteristics

PERMEABILITY v. s. FREQUENCY  
DC38 Material

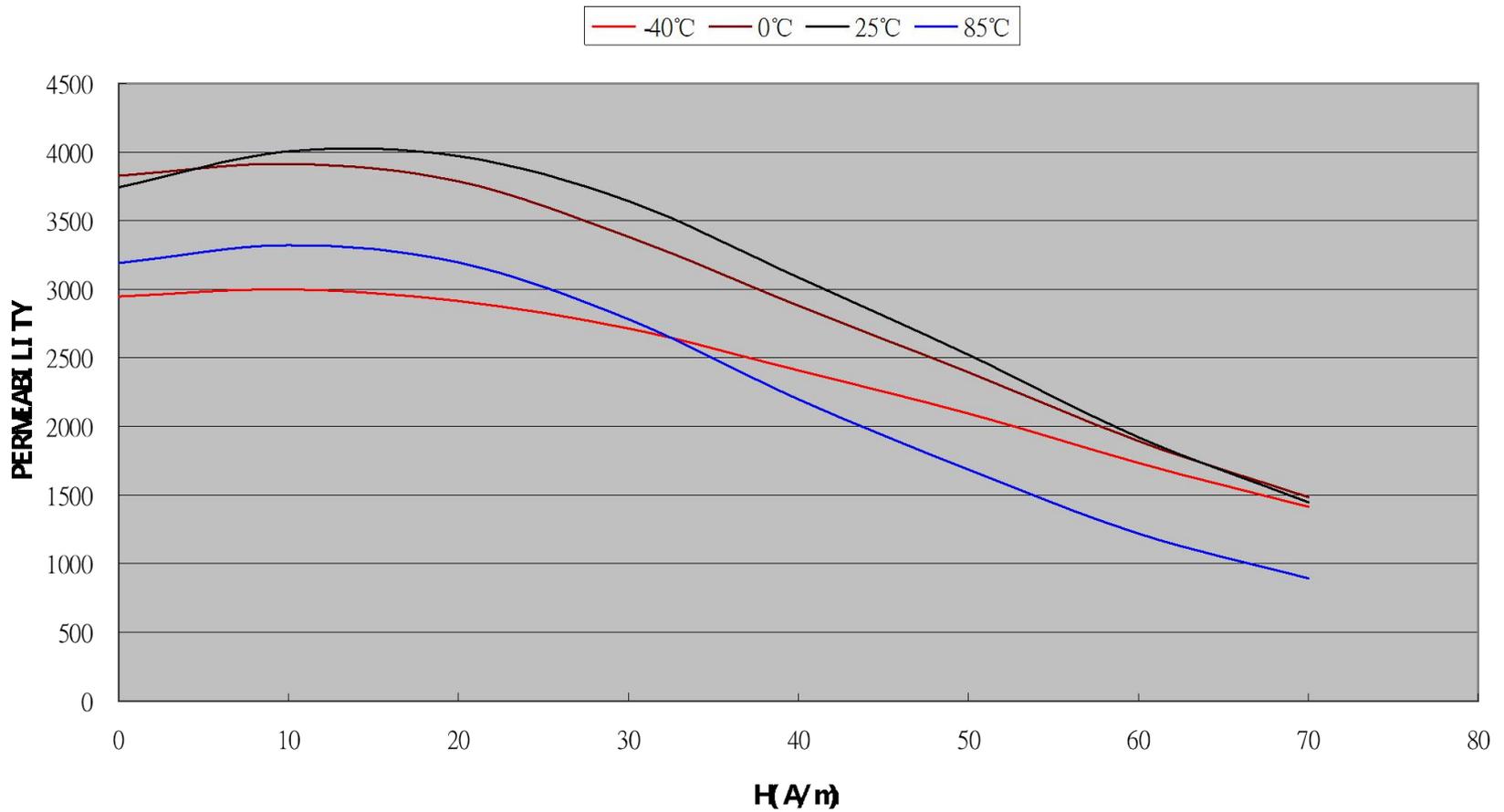


PERMEABILITY v. s. TEMPERATURE  
DC38 Material



# *characteristic curve*

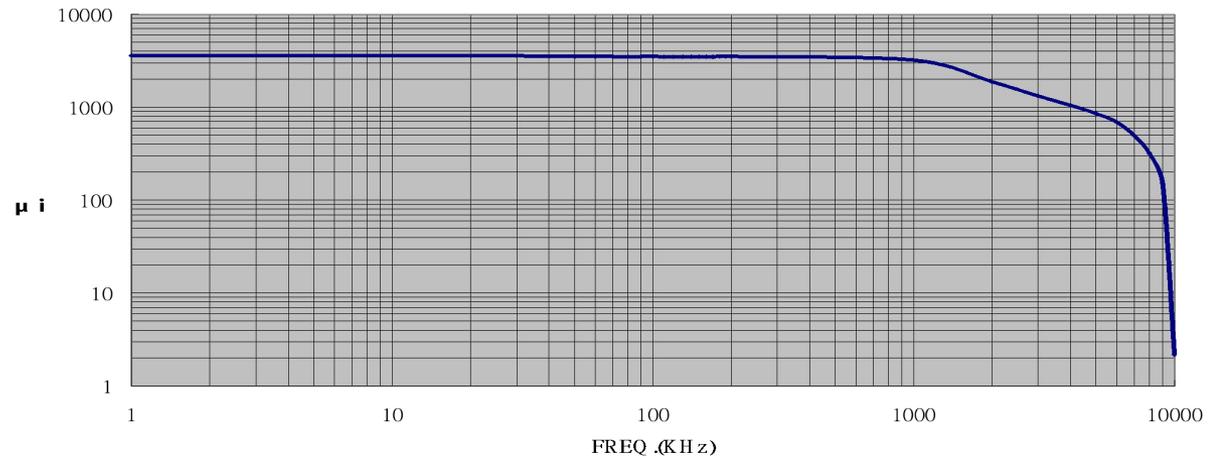
PERMEABILITY vs.  $H$  (typical performance)



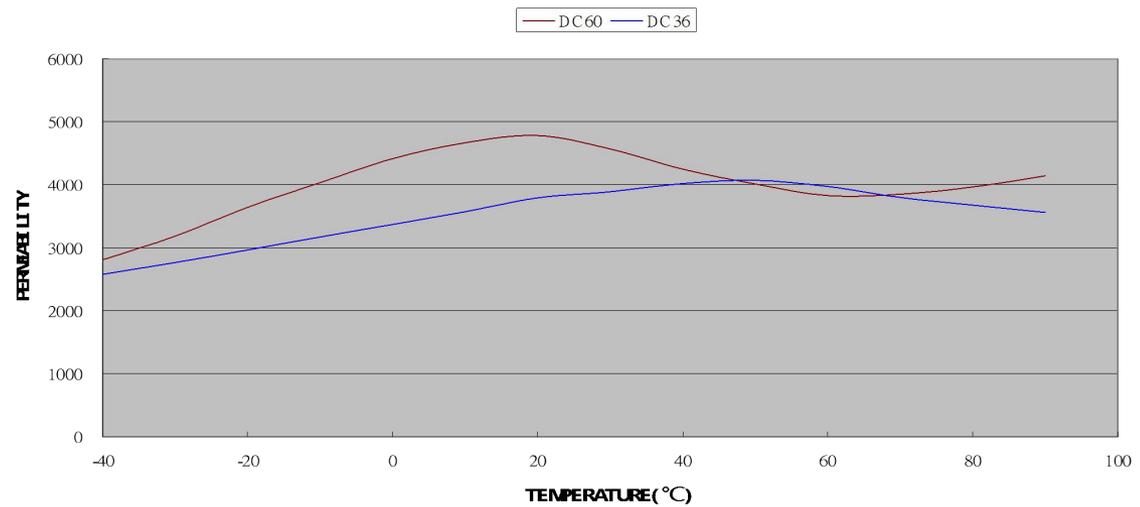
# characteristic curve

YST Corp.  
DC36 Materials  
Characteristics

PERMEABILITY v.s. FREQUENCY  
DC36 Material



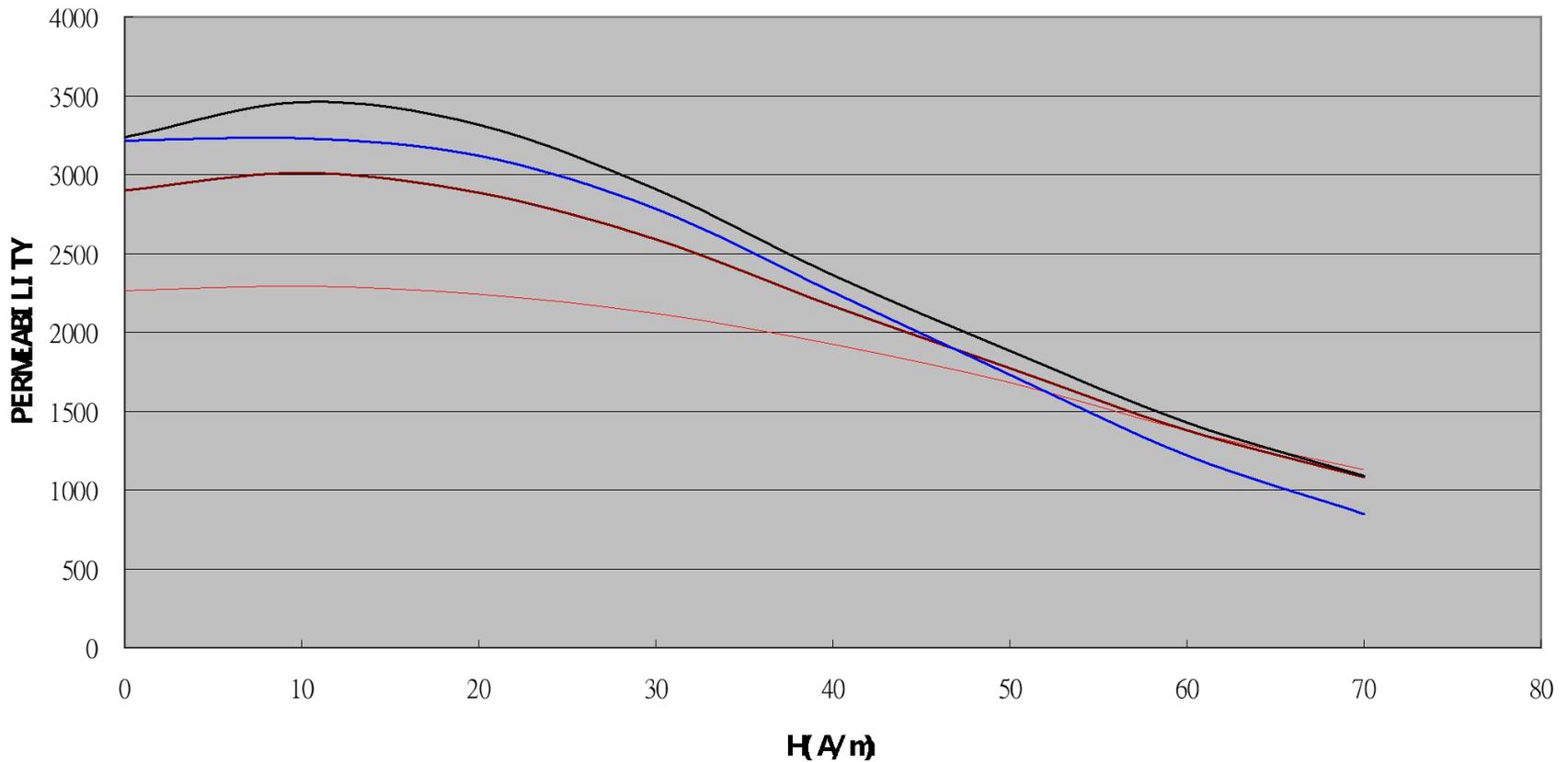
PERMEABILITY vs. TEMPERATURE



# *characteristic curve*

PERMEABILITY vs. FIELD STRENGTH (typical performance)

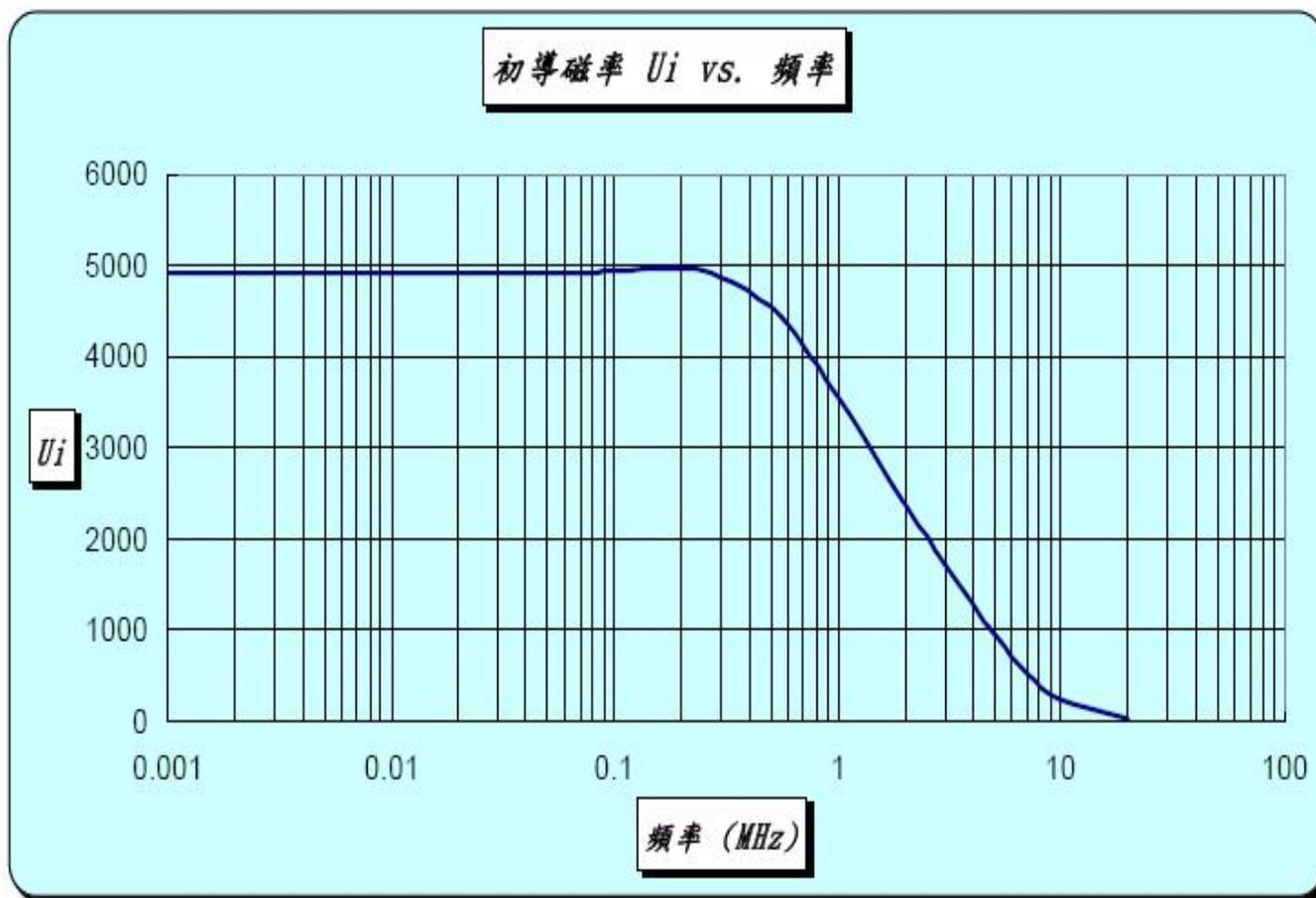
— 40°C — 0°C — 25°C — 85°C



# 研新的材料-DC50

## DC50 材料特性

DC50 材料为 5000 $\mu$ i 材质,用于 CMC 及一般隔离变压器有良好的效果



# 研新的材料-DC50

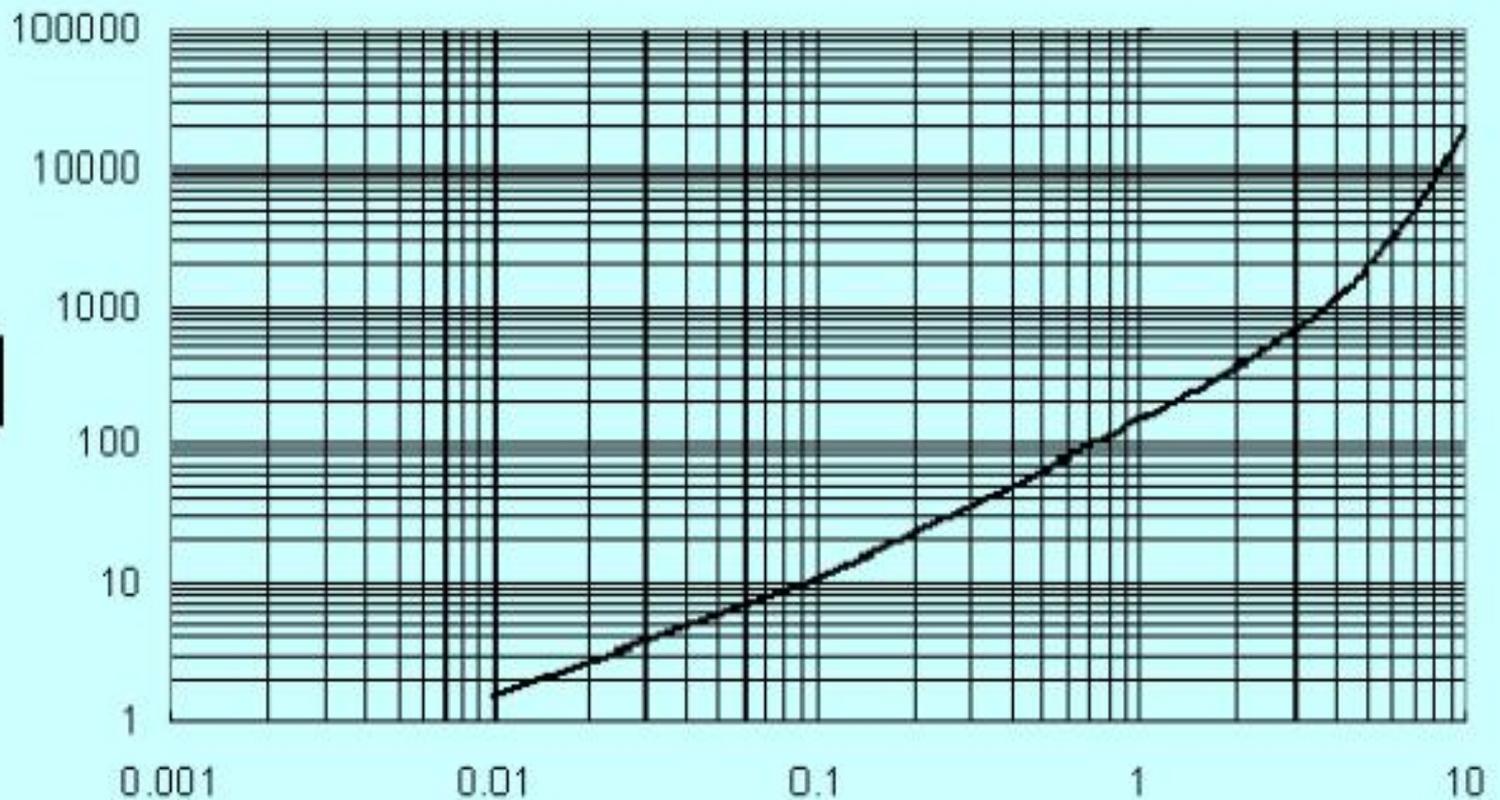
初導磁率  $U_i$  vs. 溫度



# 研新的材料-DC50

損失係數 vs. 頻率

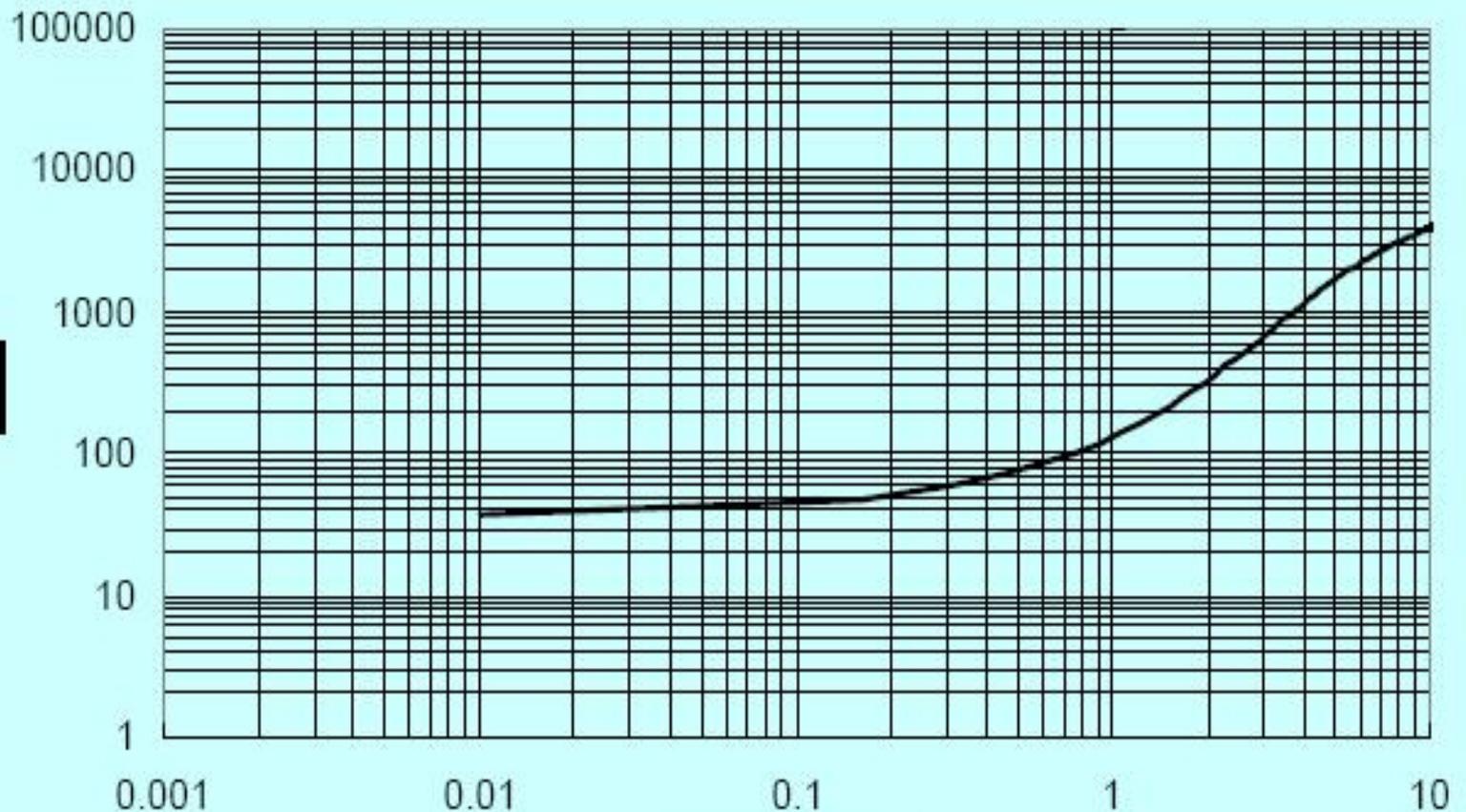
Loss Factor



頻率 (MHz)

# 研新的材料-N8

損失係數 vs. 頻率

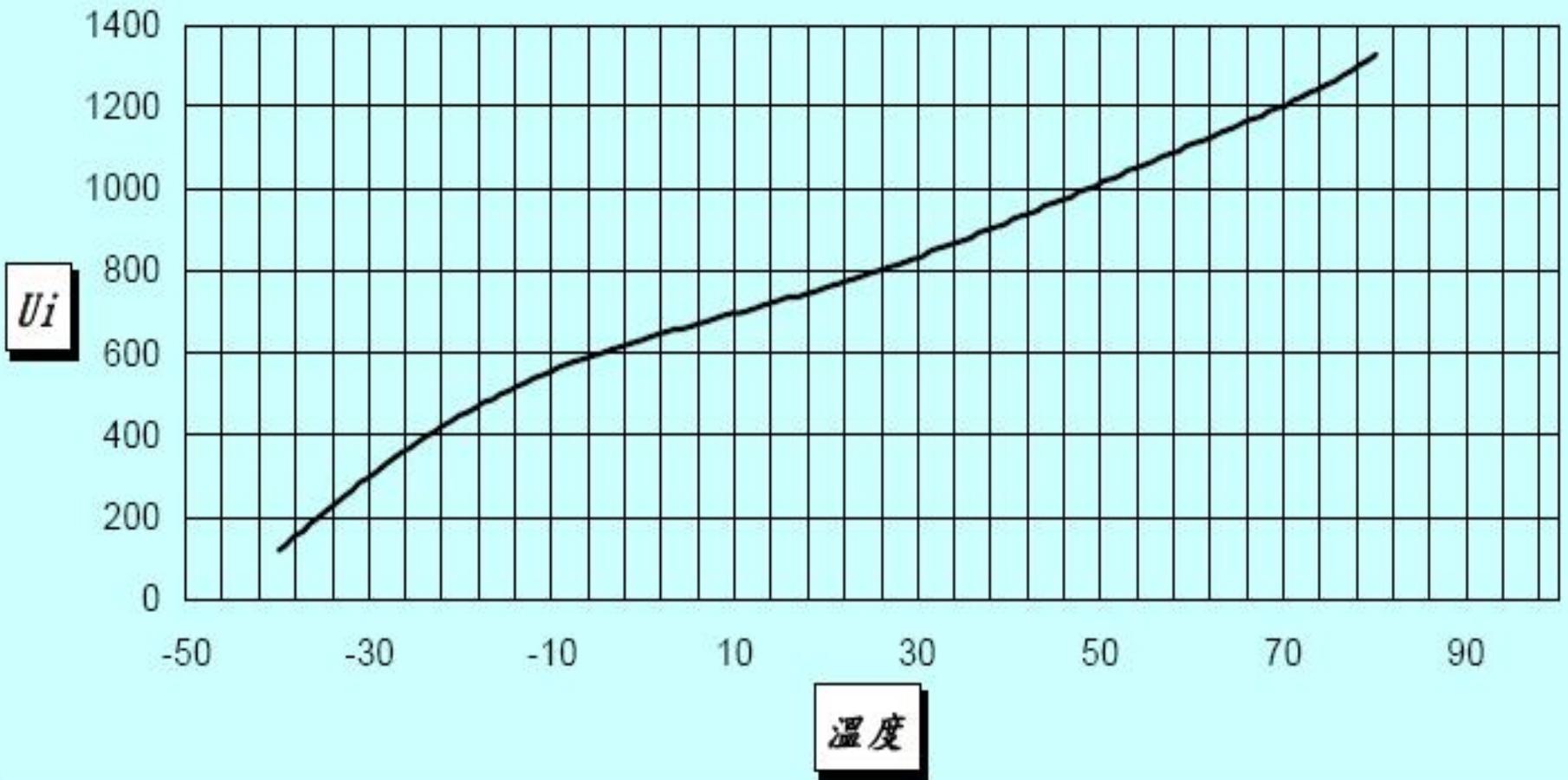


Loss Factor

頻率 (MHz)

# 研新的材料-N8

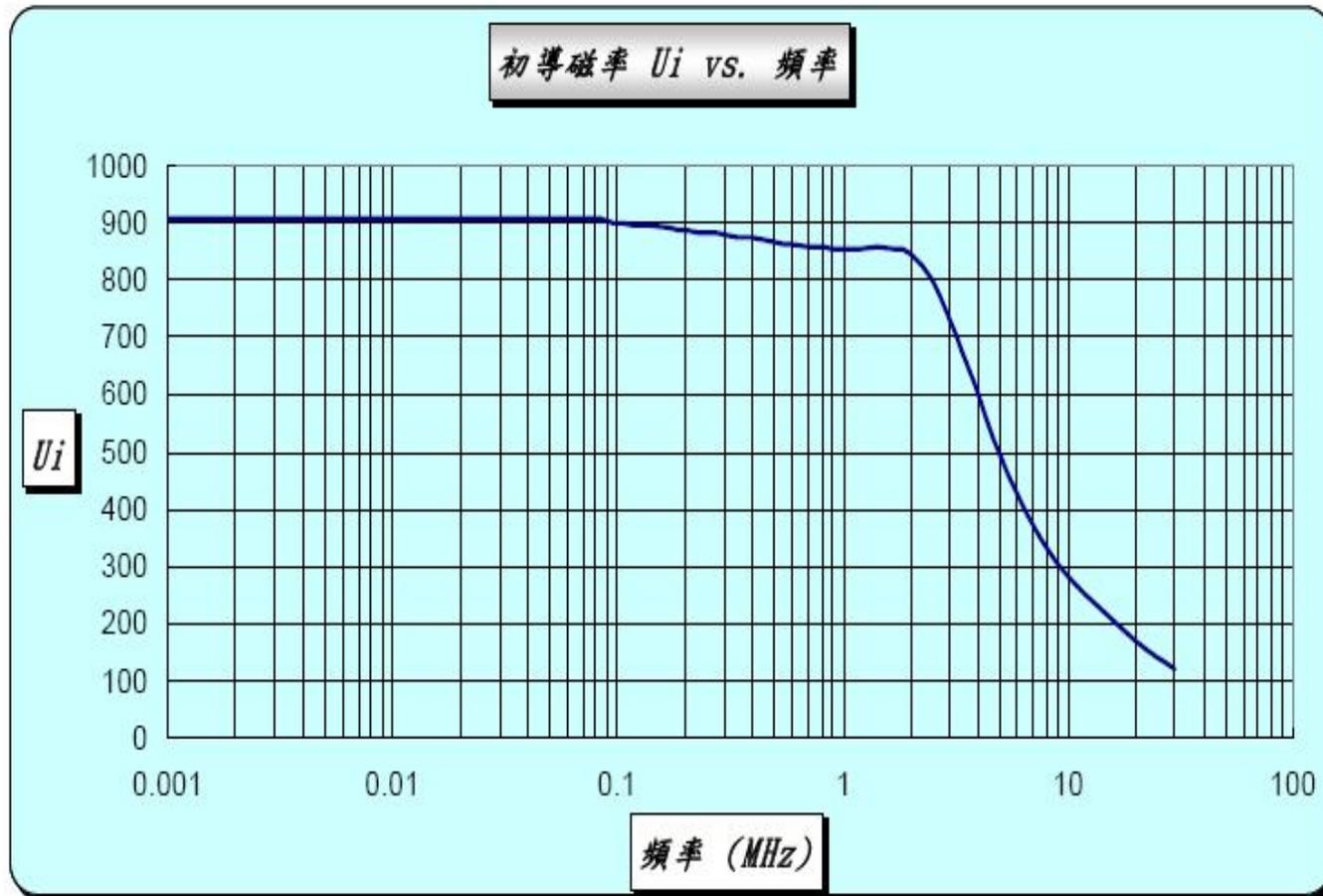
初導磁率  $U_i$  vs. 溫度



# 研新的材料-N8

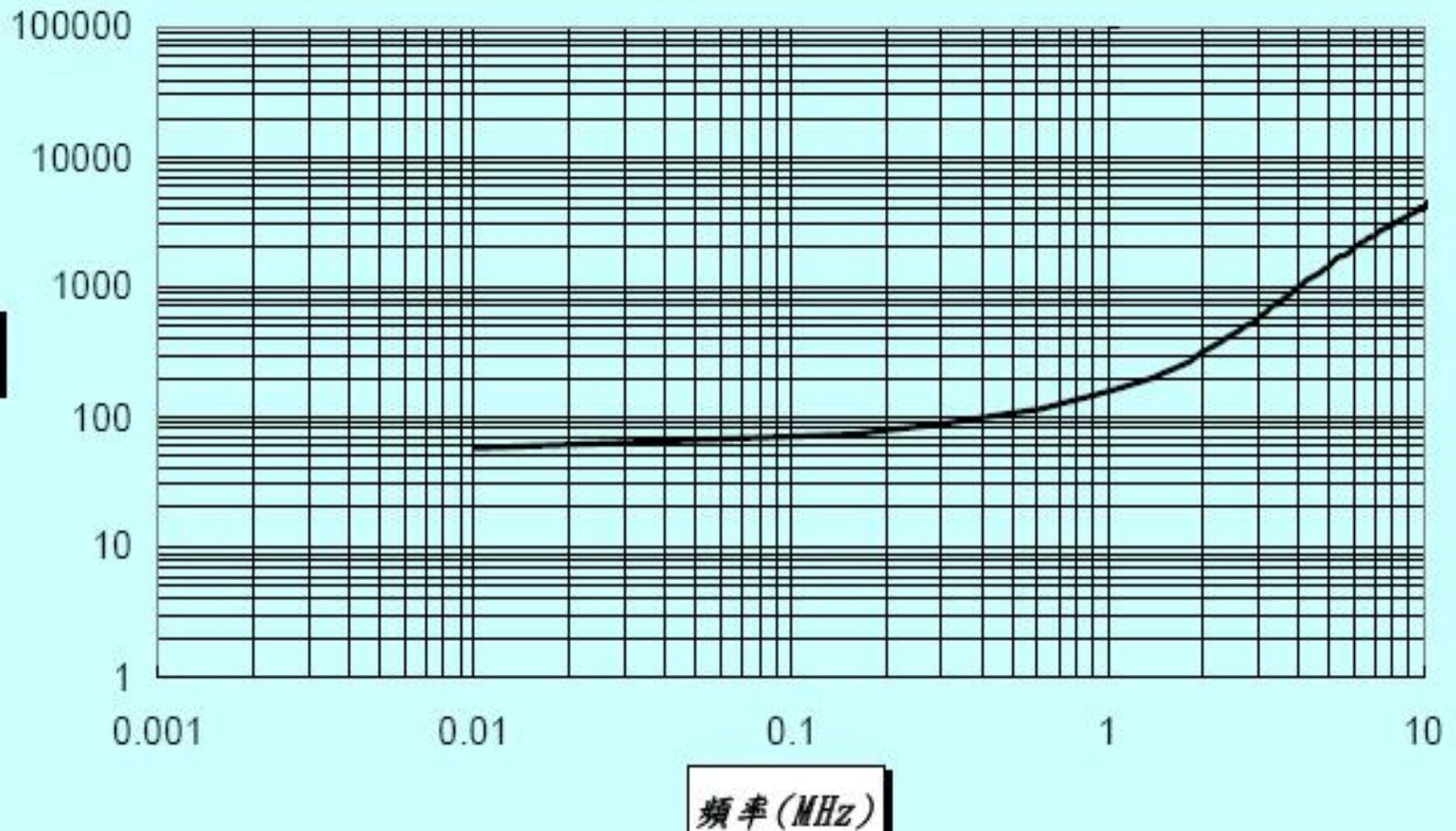
## N8 材料特性

N8 材料为  $850\mu\text{i}$  的镍锌材质,适合用于 10/100/1000 base 的 CMC 磁环,具有良好的 EMI 过滤效果.



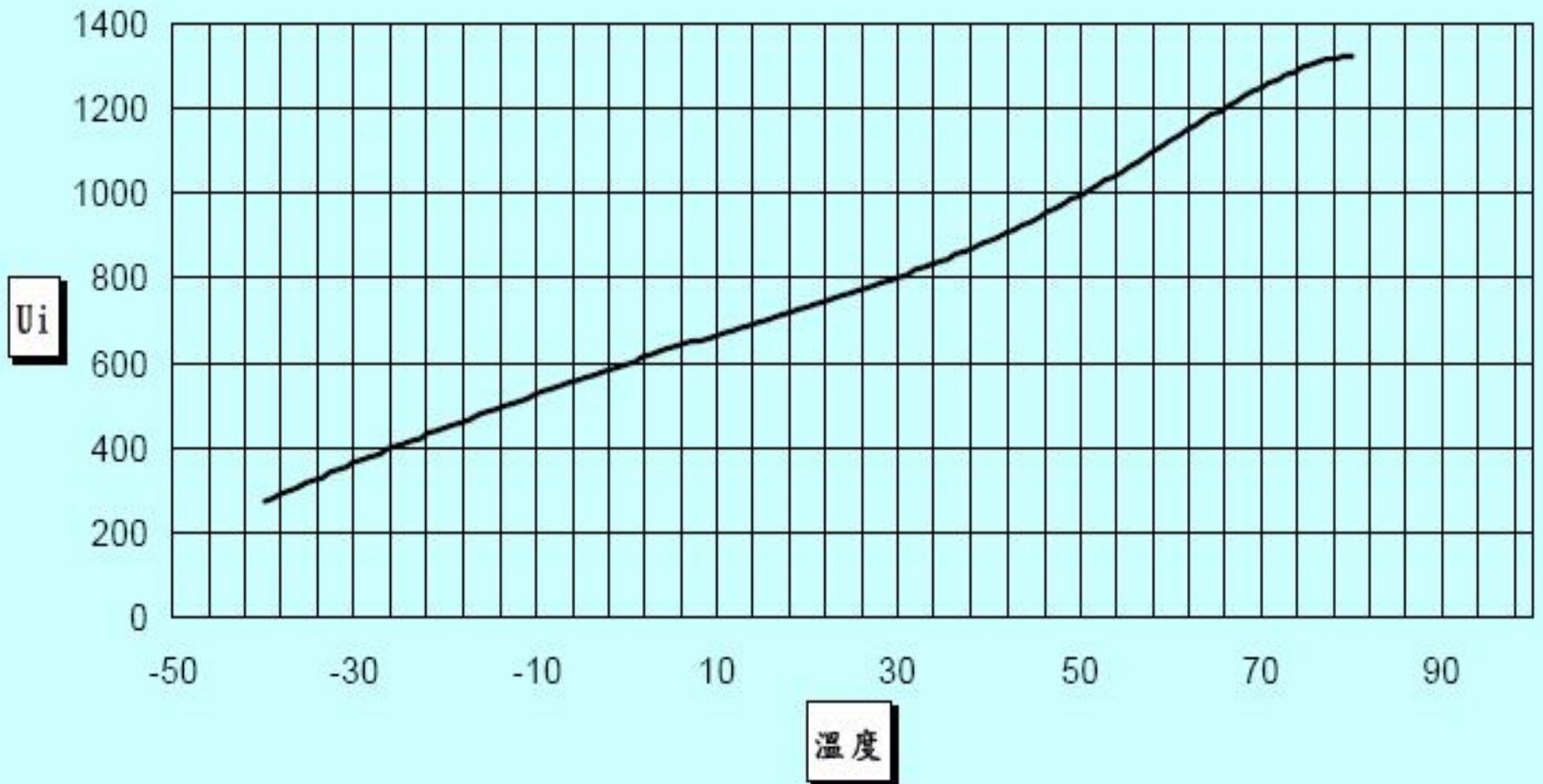
# 研新的材料-N7

損失係數 vs. 頻率



# 研新的材料-N7

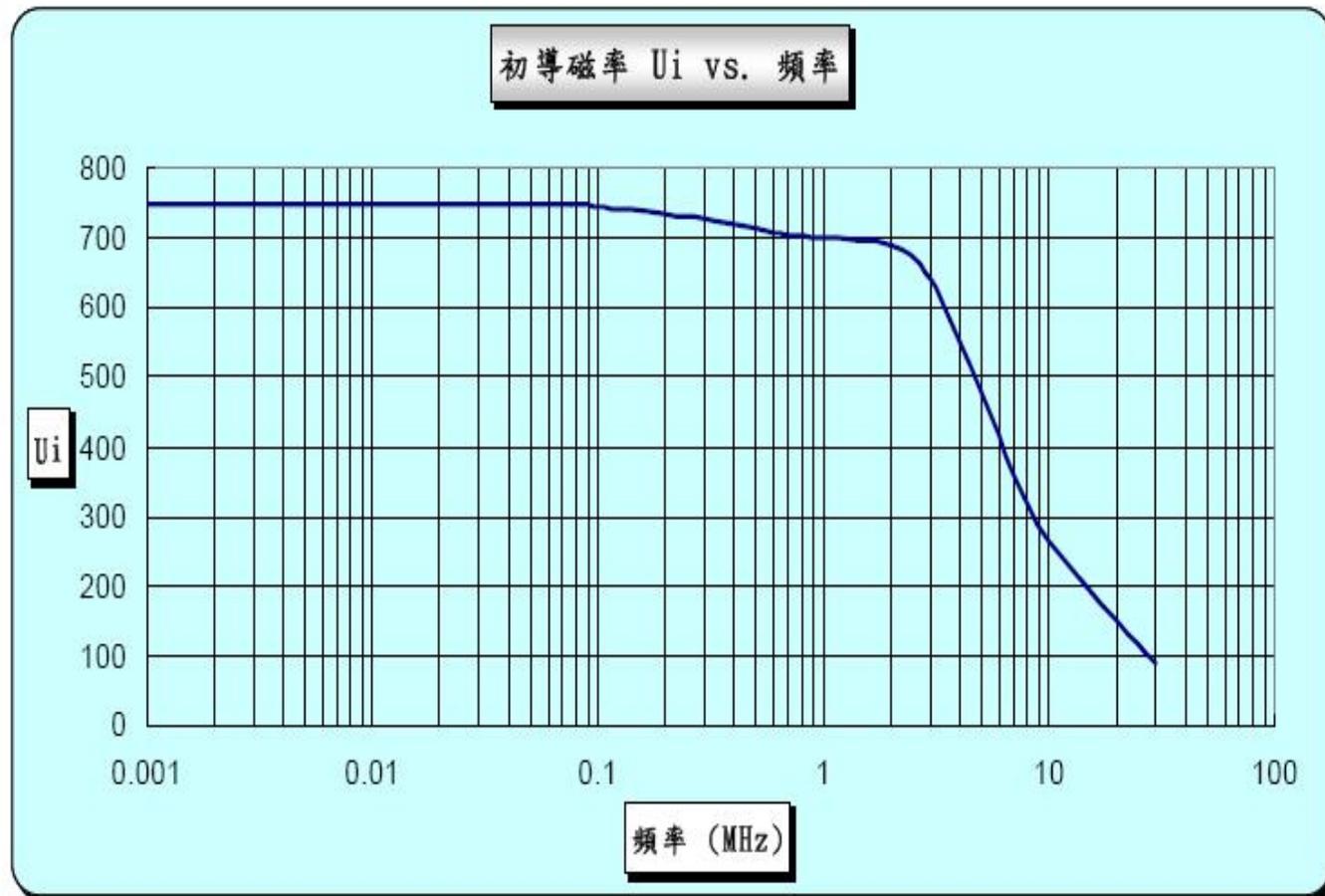
初導磁率  $U_i$  vs. 溫度



# 研新的材料-N7

## N7 材料特性

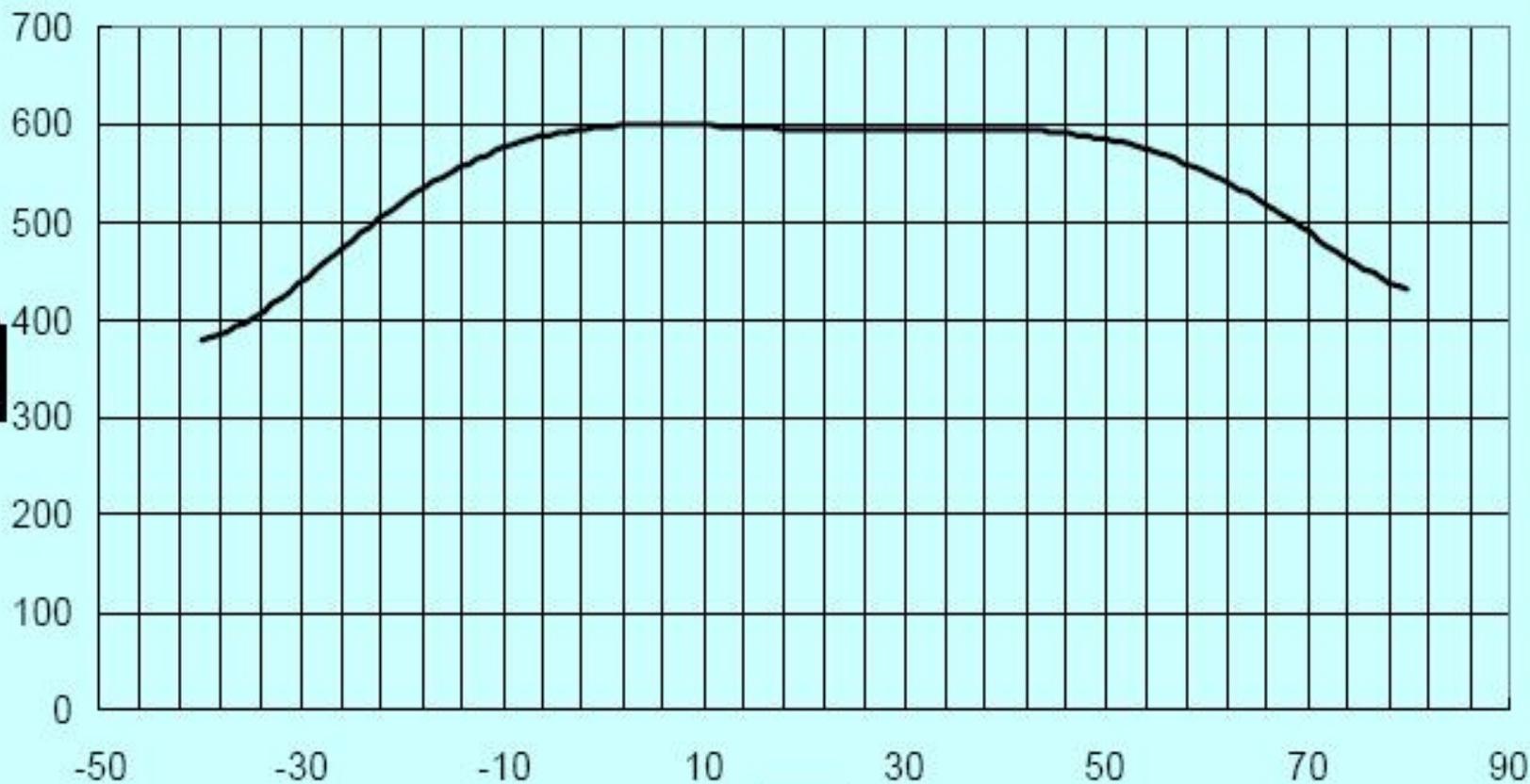
N7 材料为  $730\mu\text{i}$  的镍锌材质,主要用于 10/100/1000 base 的 CMC,对于 125MHz 噪声有良好的过滤效果.



# 研新的材料-LDC60

DC60 R3.05/1.78/2.06P, 26圈, 8mA

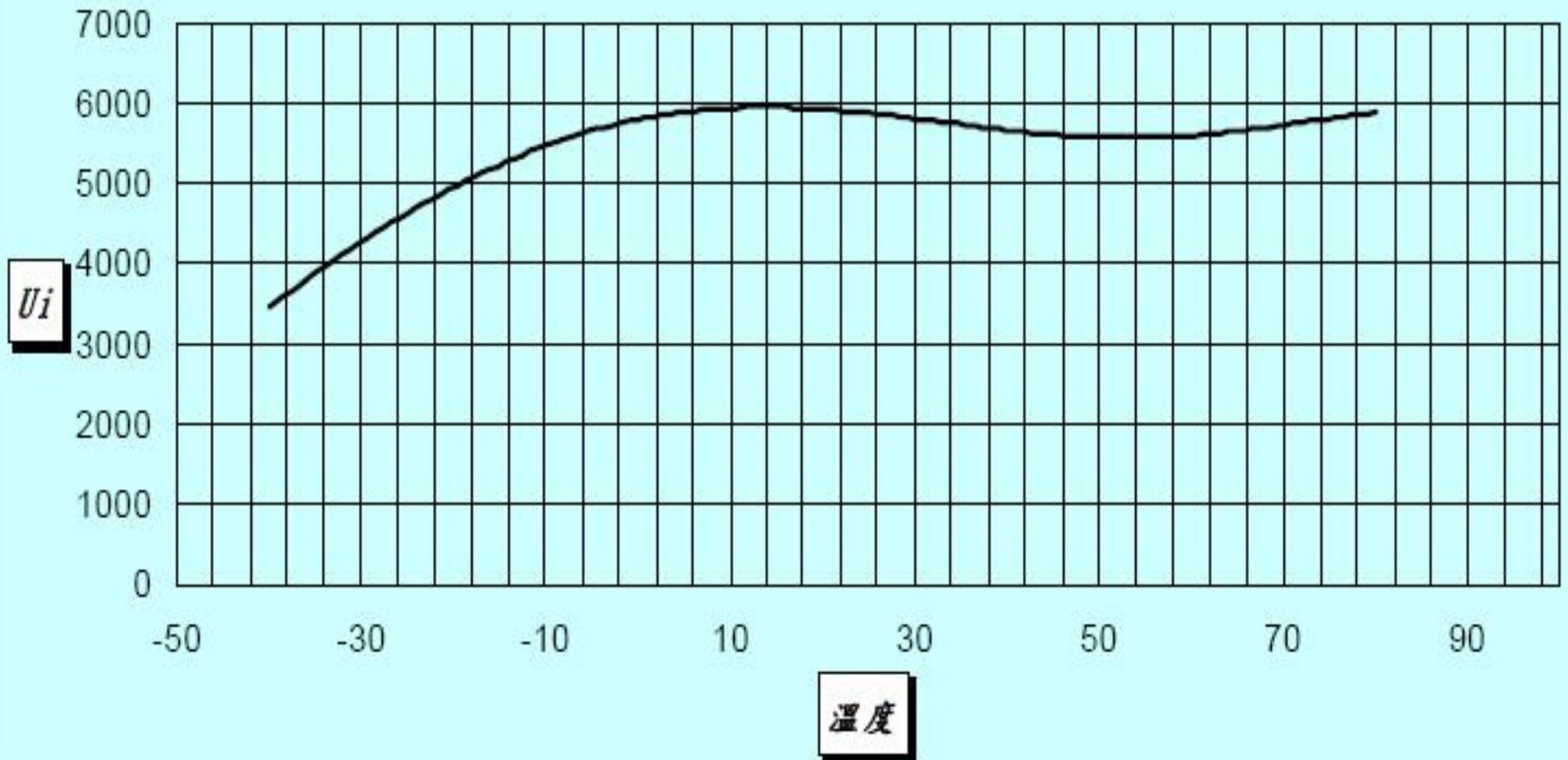
電感 (uH)



溫度

# 研新的材料-LDC60

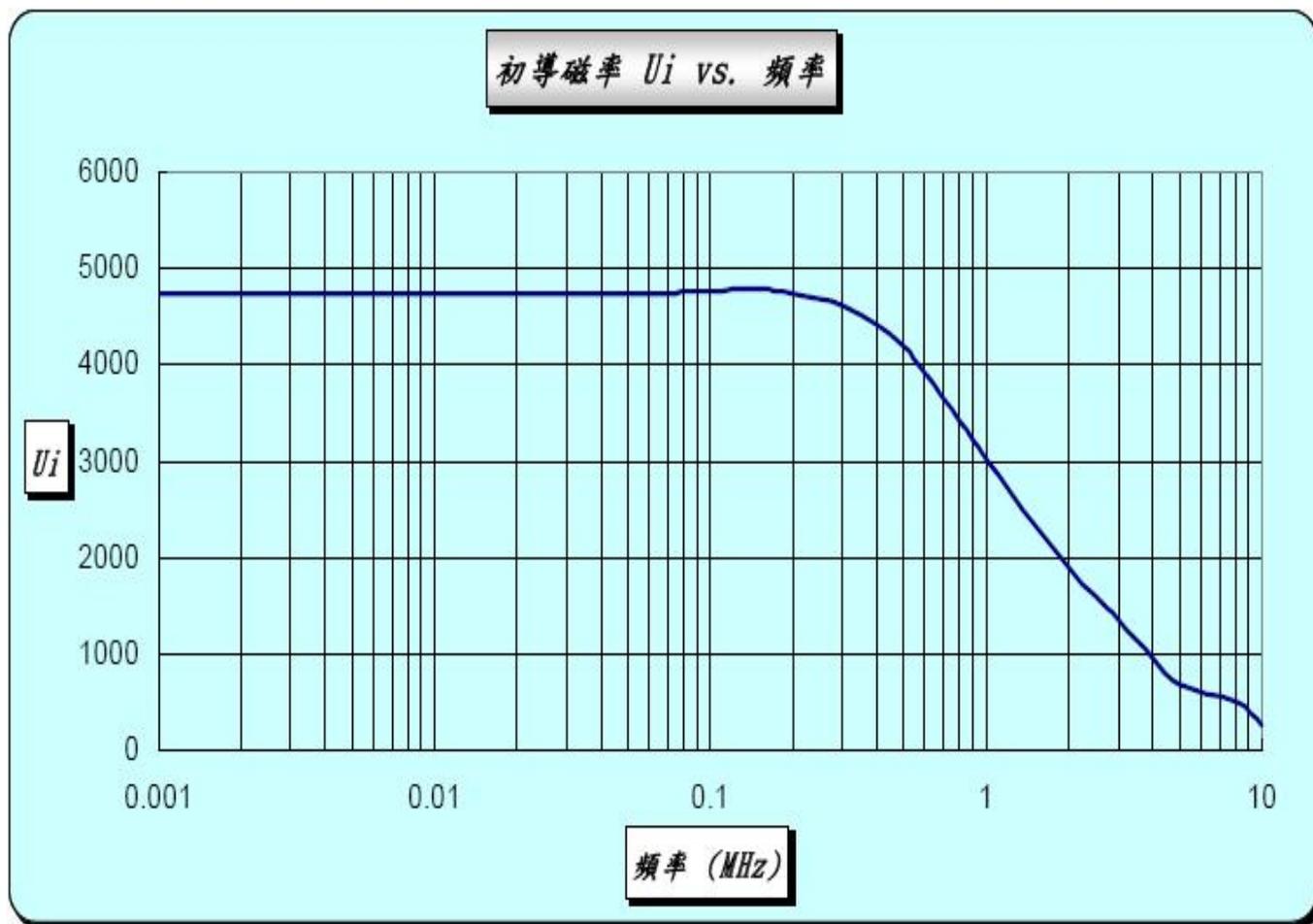
初導磁率  $U_i$  vs. 溫度



# 研新的材料-LDC60

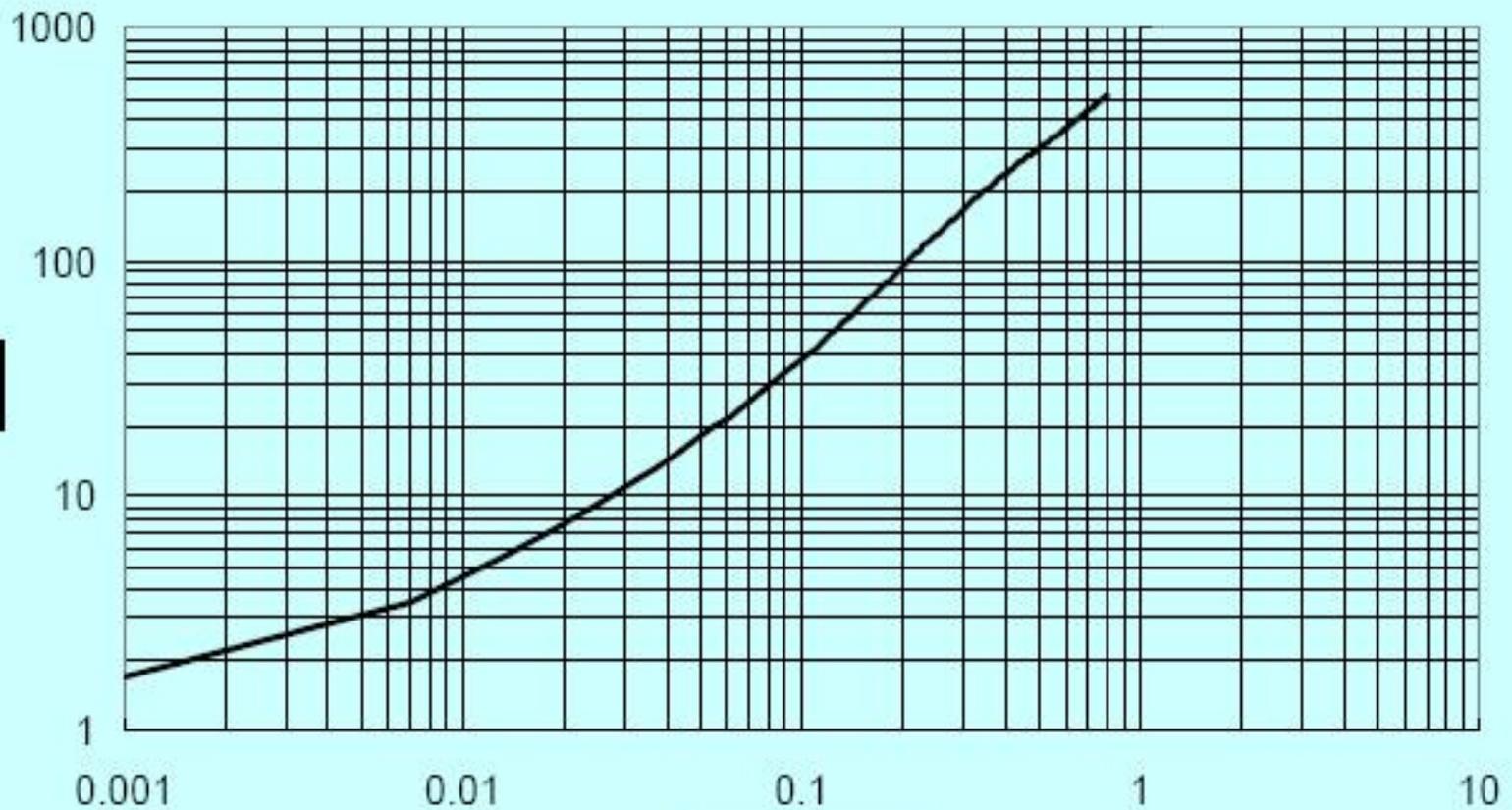
## LDC60 材料特性

LDC60 材料为宽温区设计的 10/100/1000 base 材质



# 研新的材料-H15

損失係數 vs. 頻率

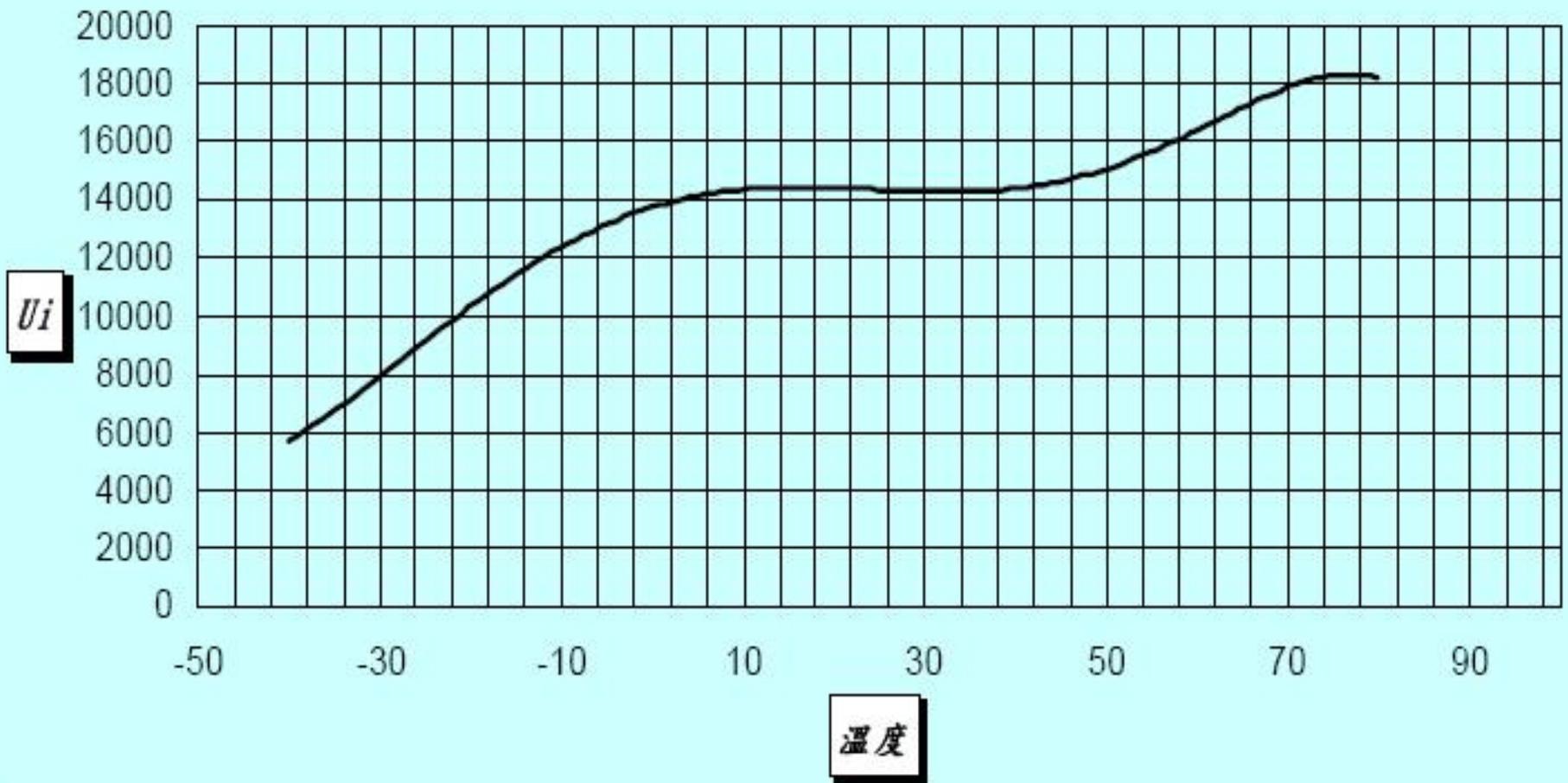


Loss Factor

頻率 (MHz)

# 研新的材料-H15

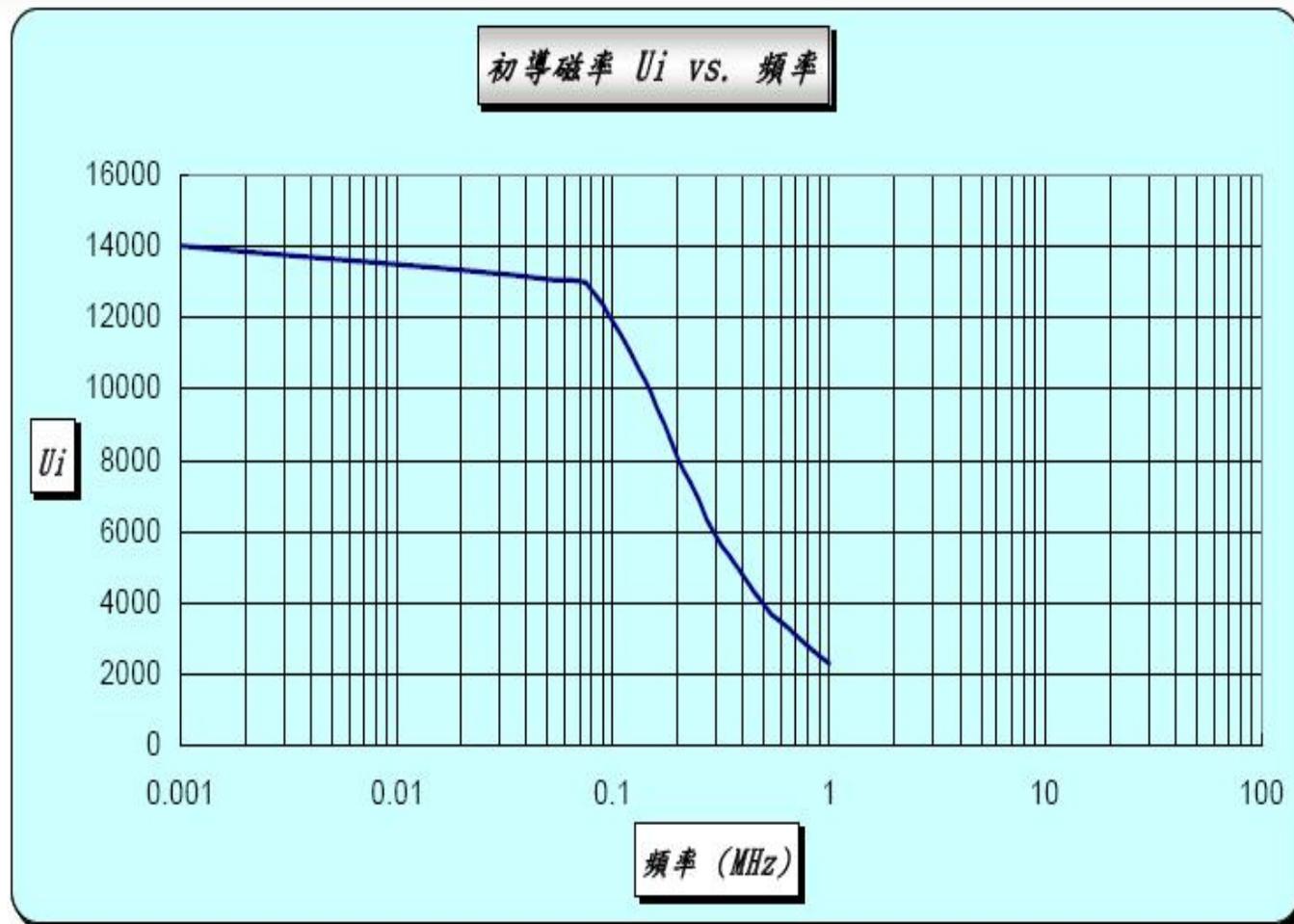
初導磁率  $U_i$  vs. 溫度



# 研新的材料-H15

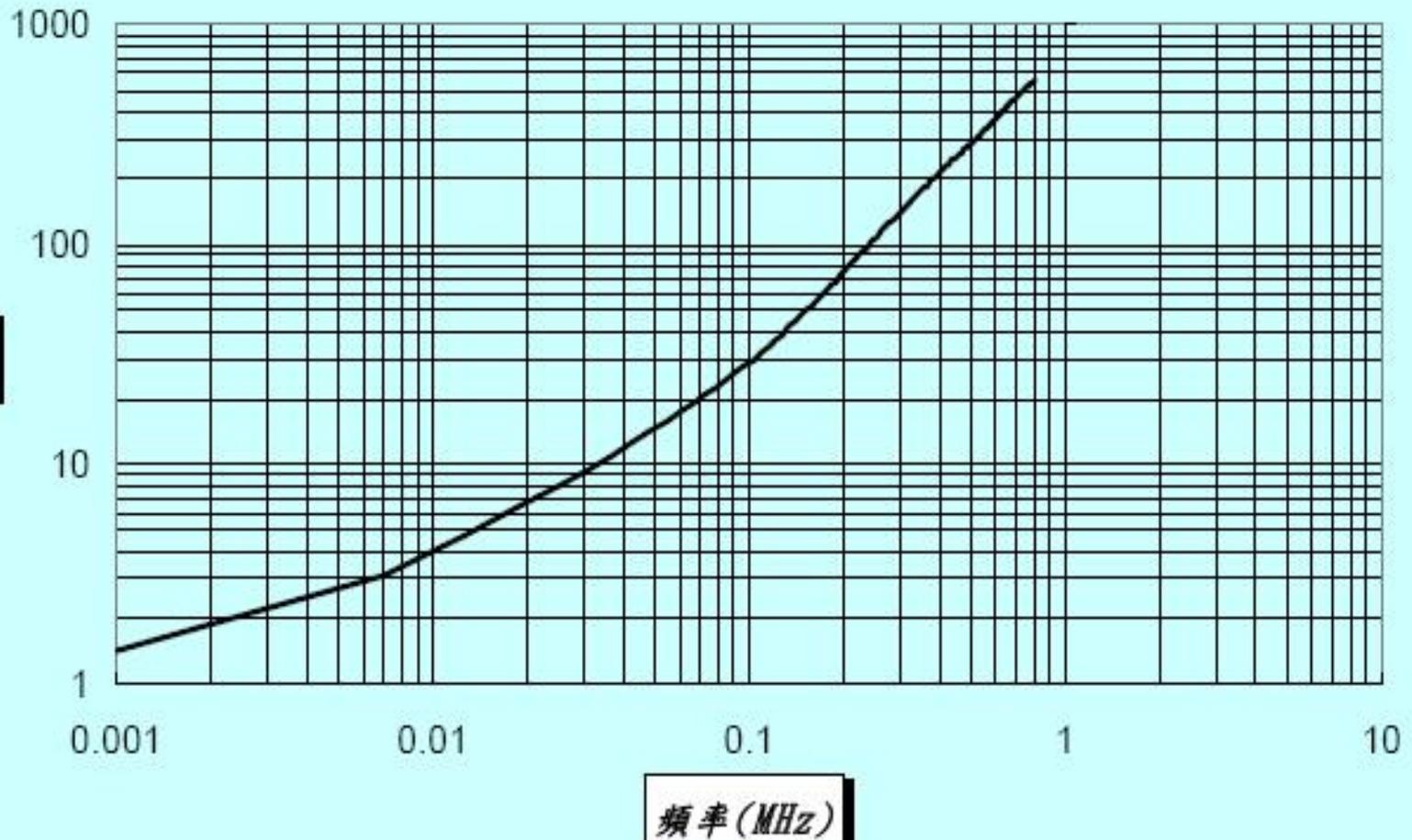
## H15 材料特性

H15 材料为  $15000 \mu i$  高导磁的锰锌材质



# 研新的材料-LH10

損失係數 vs. 頻率

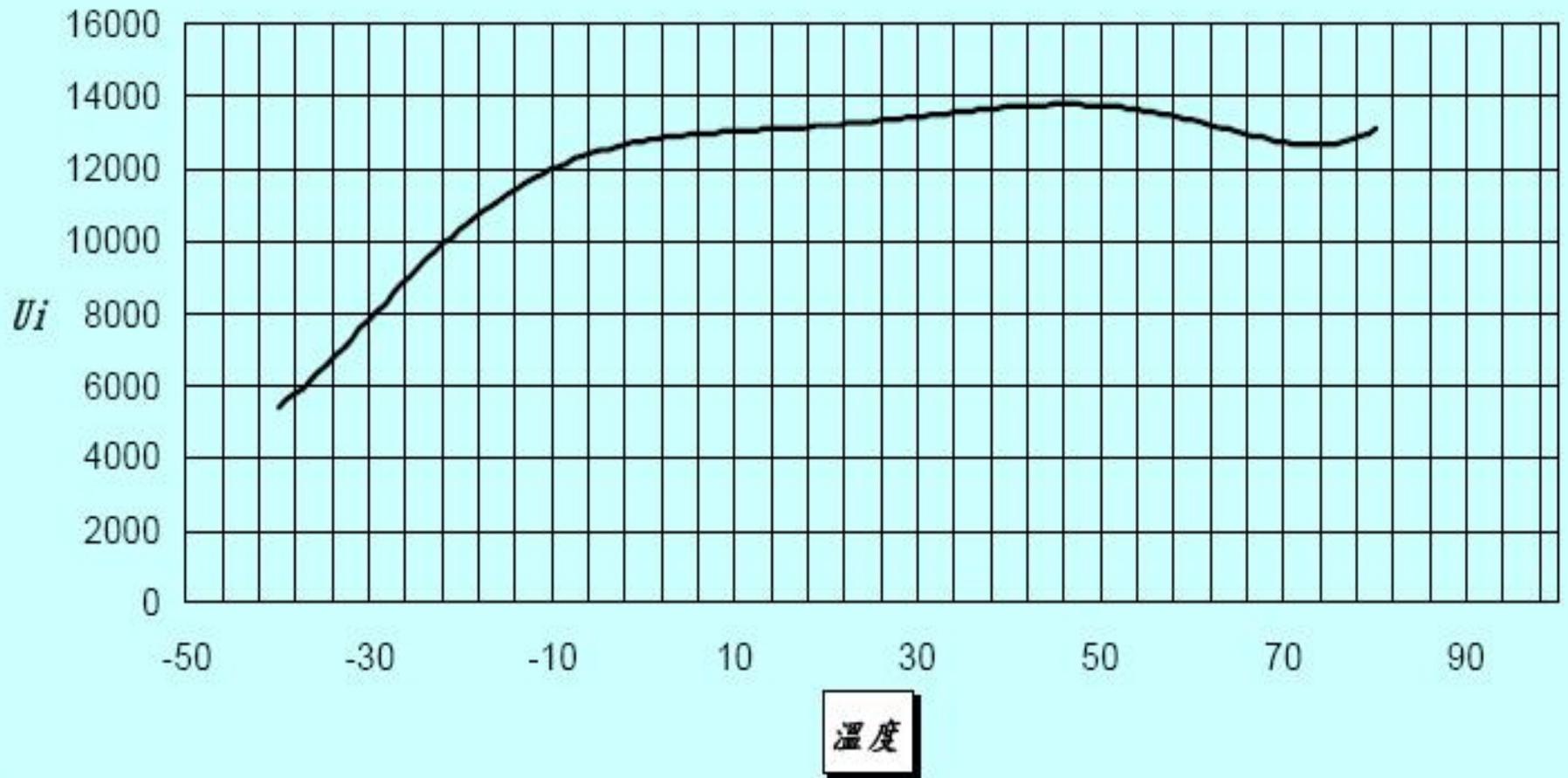


Loss Factor

頻率 (MHz)

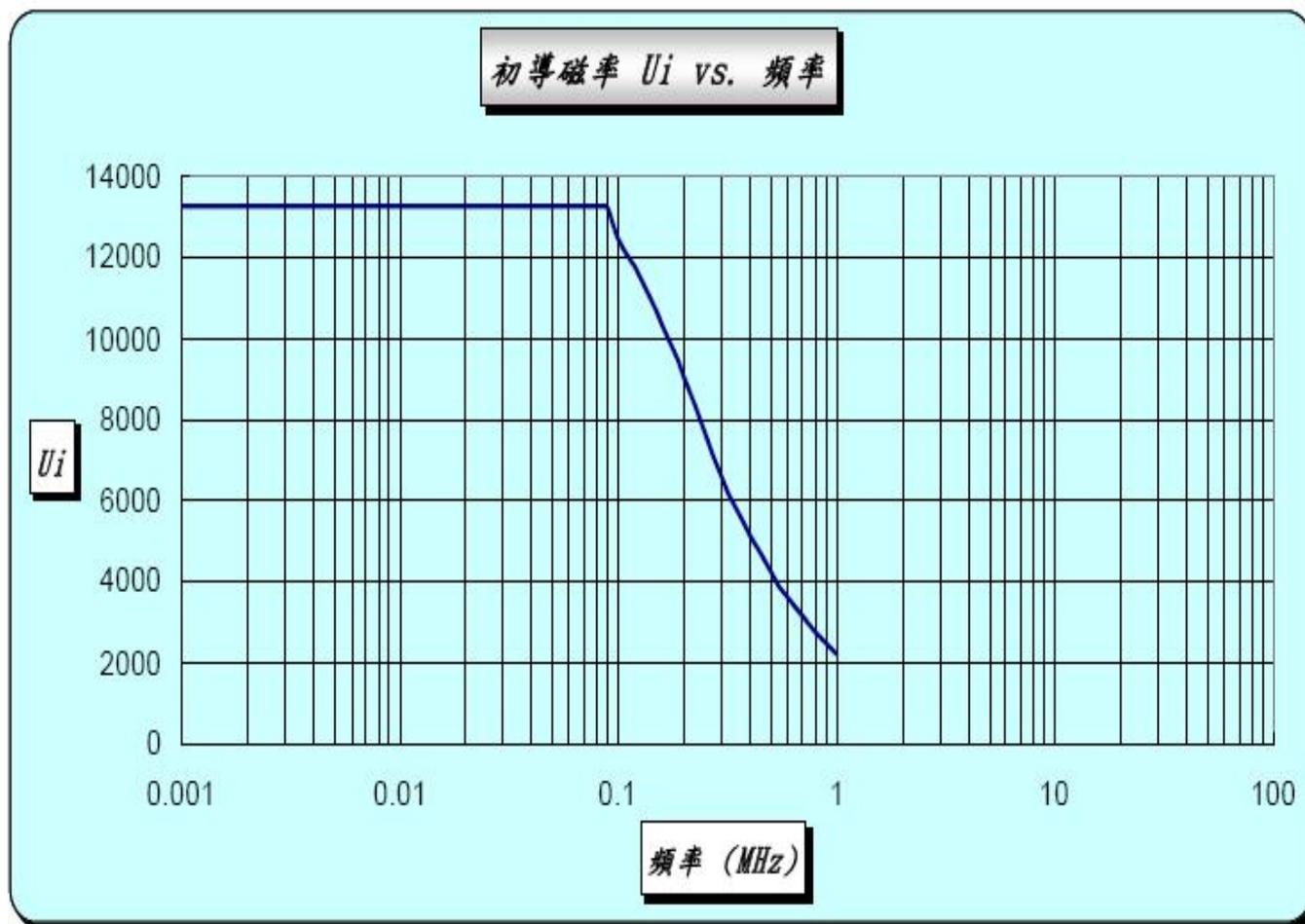
# 研新的材料-LH10

初導磁率  $U_i$  vs. 溫度



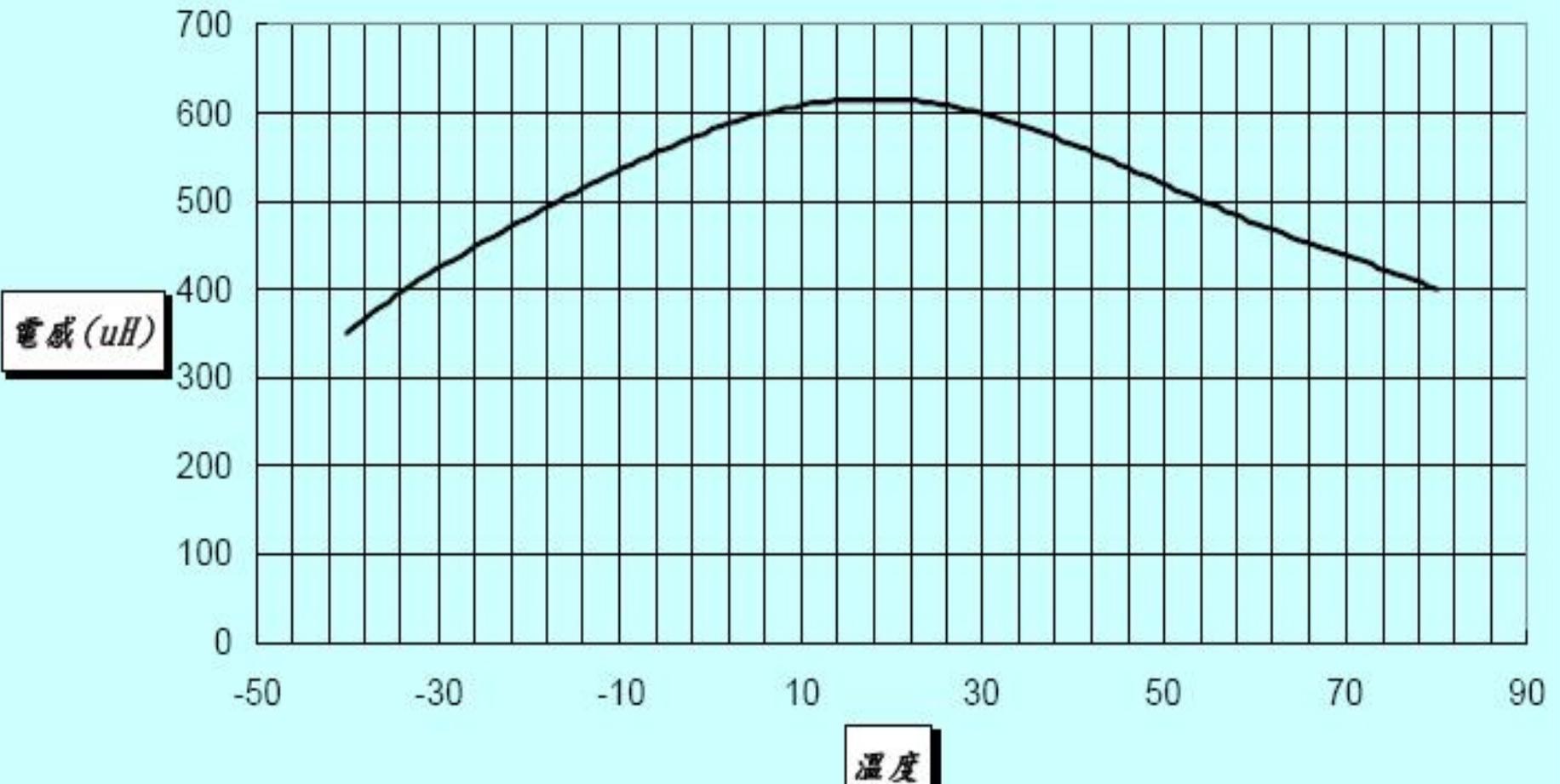
# 研新的材料-LH10

LH10 材料特性 LH10 材料为 10000 $\mu$ i 宽温设计的锰锌材质, 适合有低温要求的高感量设计



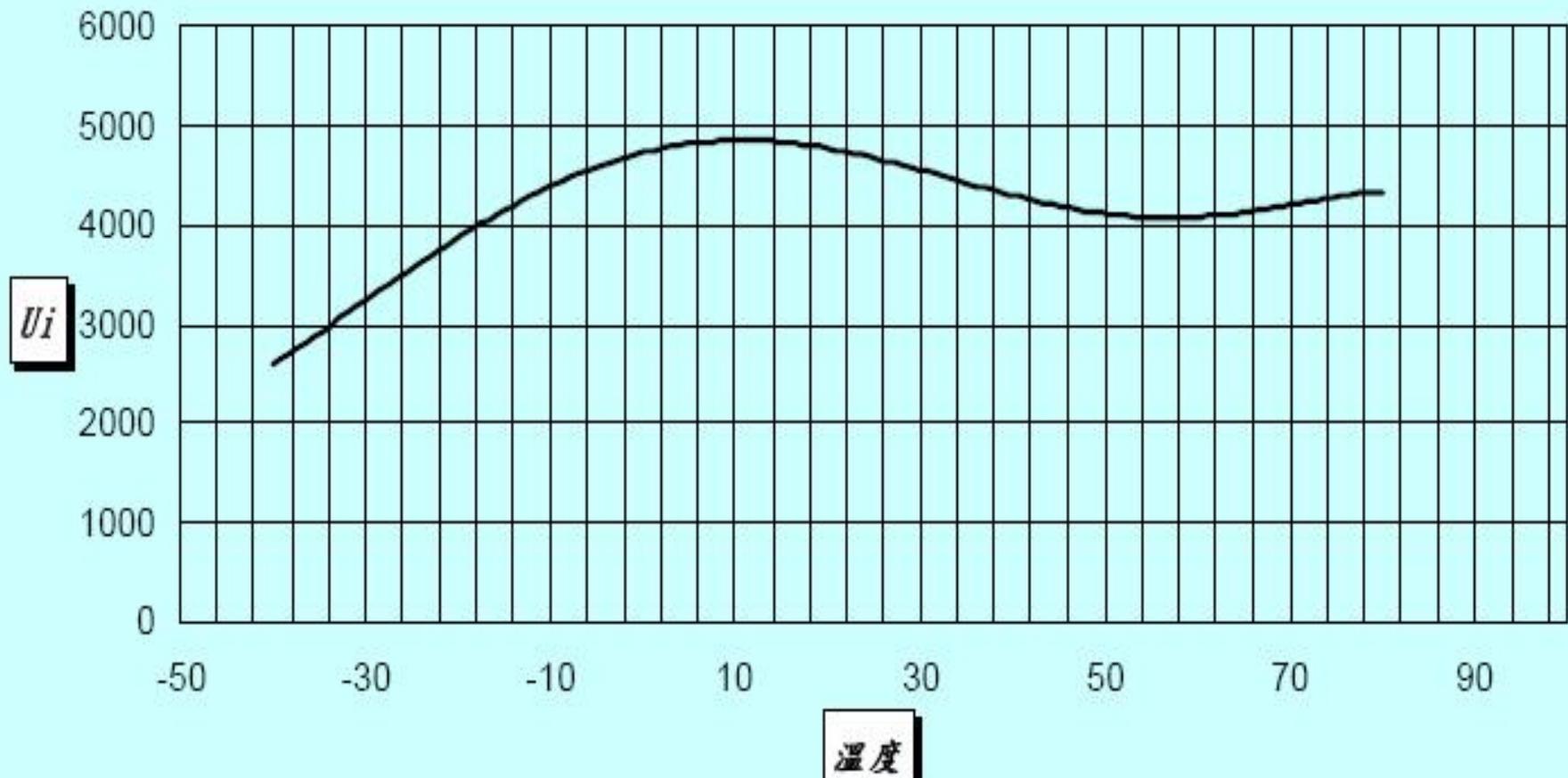
# 研新的材料-DC60

DC60 R3.05/1.78/2.06P, 26圈, 8mA



# 研新的材料-DC60

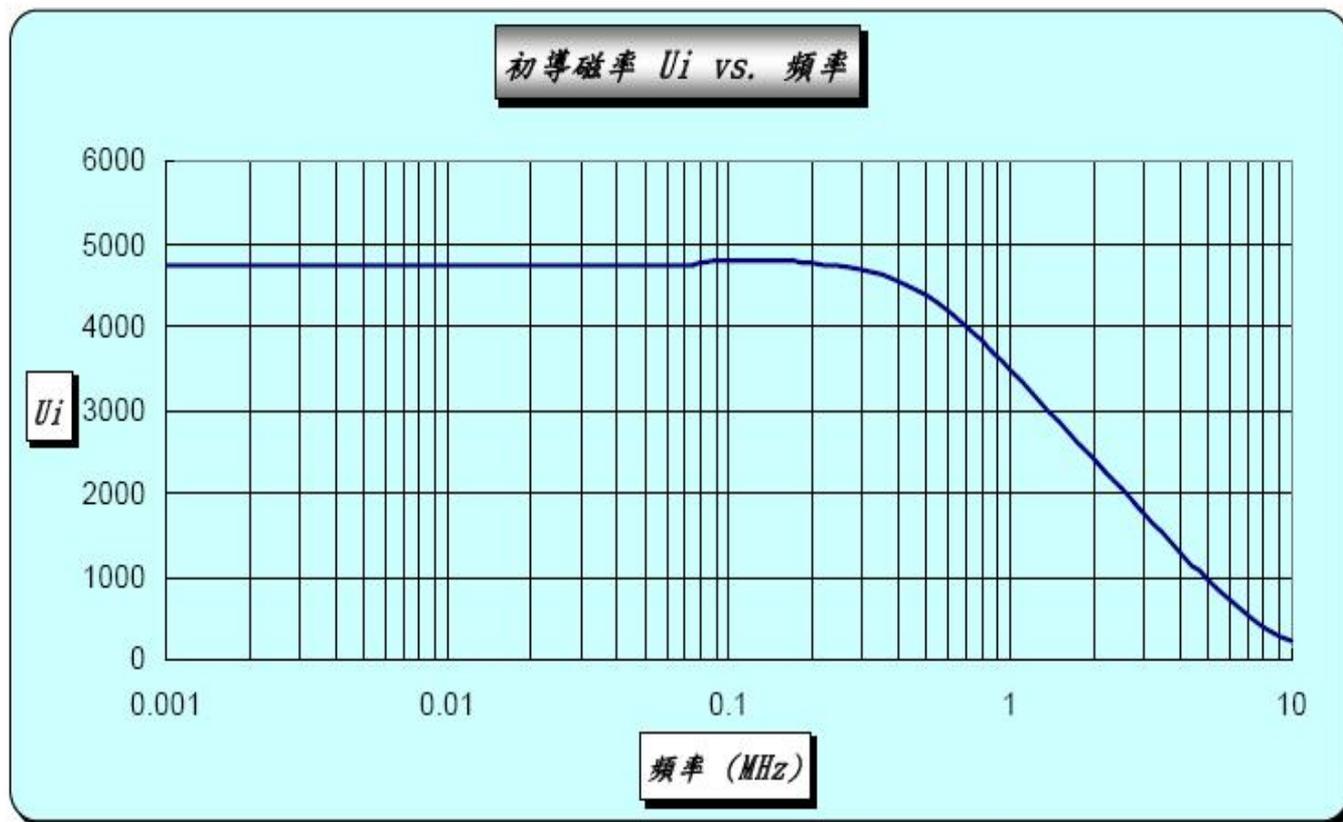
初導磁率  $U_i$  vs. 溫度



# 研新的材料-DC60

## DC60 材料特性

DC60 材料是专门为 10/100/1000 base 网络变压器开发, 耐 8mA 直流偏压的材质. 具有低降幅, 低应力敏感性的特性, 高低温也有相当好的表现.



# 研新磁环的原材料-铁粉

镍  
锌  
铁  
粉



锰  
锌  
铁  
粉

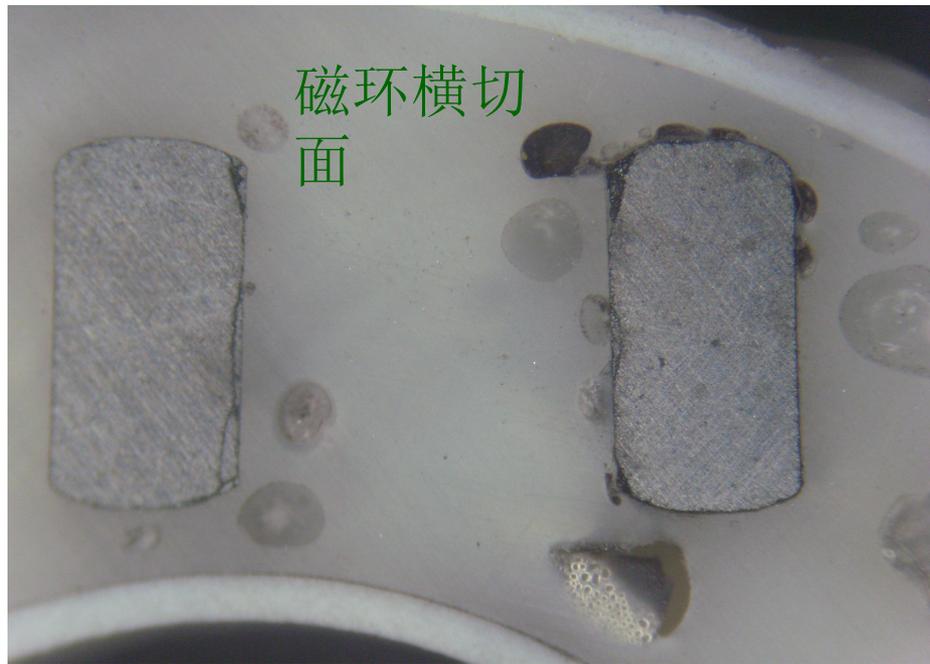


# 研新的磁环

磁环成品



磁环横切面



# 研新磁环的涂层-N粉

