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Jameco Part Number 642724

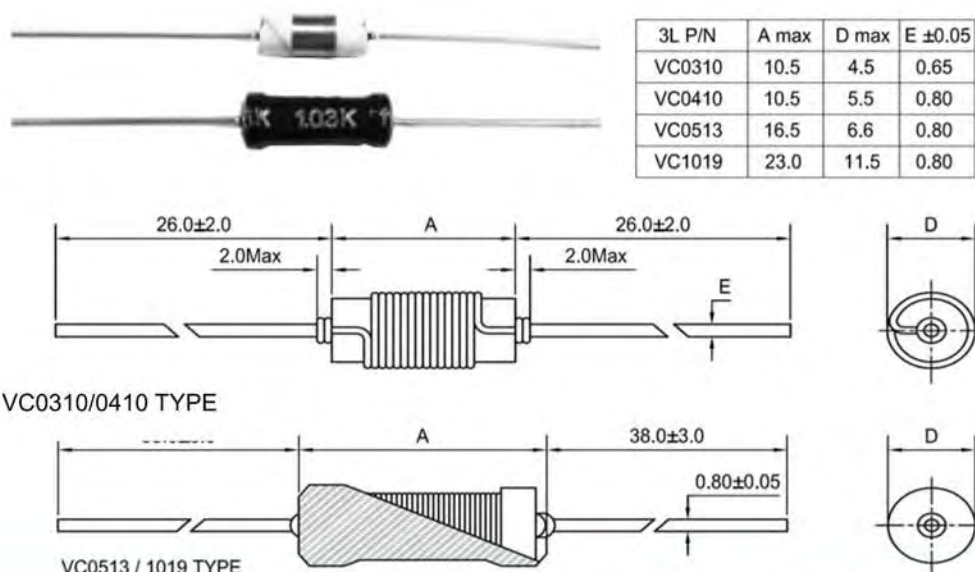
AXIAL LEADED FIXED INDUCTORS

VC0310/0410/0513/1019 TYPE



BS EN ISO 9001:2000 FM 39945

Shape and size : (Dimensions are in mm)



Features :

- Low cost power inductors.
- High current chokes.
- Wide inductance range.
- High saturation ferrite core.
- Coated with varnish or covered with PVC/UL shrink tubing. VC1019 general coated with UL tube.
- Tape and reel packaging for automatic insertion.

Ordering information :

- VC 0410 - 1R0 K - S0 - T5**
- (1) (2) (3) (4) (5) (6)
- (1) Type : **Varnish Coated**.
- (2) Style : **OD**= 4 mm , **L**=10 mm
- (3) Inductance : **1R0** for **1.0** uH.
- (4) Inductance Tolerance: "**J**" : ±5% ; "**K**" : ±10% .
- (5) Sleeve : "**S0**": Black PVC sleeve, "**S6**": Blue....
 "UL": Black UL 125°C Tube; No code: No sleeve.
- (6) Taping Mode: VC0410 **T5** Type; VC0513: **T5X2**
 VC1019: **T5X3**; No code: Bulk.

Inductance and rated current ranges :

- | | | |
|----------|----------------|---------------|
| • VC0310 | 1.0 uH ~ 10uH | 1.57A ~ 1.2A |
| • VC0410 | 0.15uH ~ 56uH | 1.85A ~ 300mA |
| • VC0513 | 3.9 uH ~ 18mH | 1.28A ~ 39mA |
| • VC1019 | 3.9 uH ~ 100mH | 4.0 A ~ 65mA |

Characteristics :

- Rated DC Current: The current when temperature of coil increases up to Max. $\Delta T=40^{\circ}\text{C}$. ($T_a=20^{\circ}\text{C}$) (VC0410).
- I sat: The current when the inductance becomes 20% lower than its initial value. ($T_a=20^{\circ}\text{C}$)
- Suggested rated current: copper wire current density about 8.0 A/mm².
- Operating temperature : -20 °C to 80 °C.

Test equipment and test setup :

- L & Q: HP 4285A with HP42851A (Freq. >75kHz).
- L & Q: HP 4284A (Freq.<75kHz).
- DCR : Milli-ohm meter.
- SRF : HM 9461 L-SRF meter.
- Electrical specifications at 25°C.

Applications :

- TVs and Audio equipment .
- Telecommunication devices .
- RF filters .

AXIAL LEADED FIXED INDUCTORS

VC 0513 TYPE



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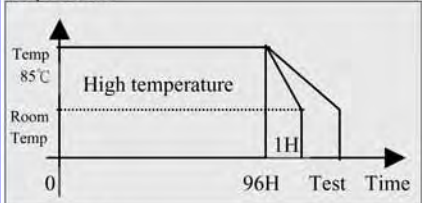
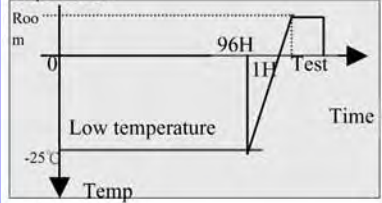
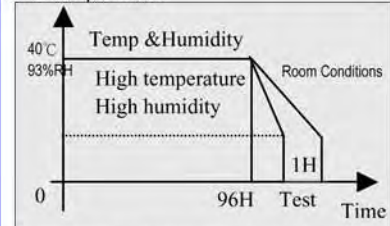
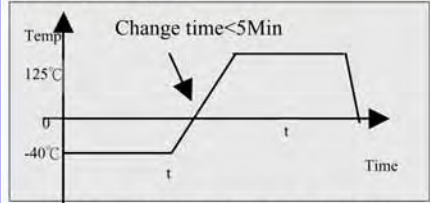
Part No.	L (uH) @1kHz	DCR (Ohm) Max.	I sat. (DC Amps) Ref.	Suggested Rated Current (AC Amps) Ref.
VC0513 -3R9K-□□	3.9	0.019	7.3	1.28
VC0513 -4R7K-□□	4.7	0.022	6.3	1.28
VC0513 -5R6K-□□	5.6	0.024	5.6	1.28
VC0513 -6R8K-□□	6.8	0.026	5.3	1.28
VC0513 -8R2K-□□	8.2	0.028	4.5	1.28
VC0513 -100K-□□	10	0.033	4.1	1.28
VC0513 -120K-□□	12	0.037	3.6	1.28
VC0513 -150K-□□	15	0.040	3.3	1.28
VC0513 -180K-□□	18	0.044	3.0	1.28
VC0513 -220K-□□	22	0.050	2.7	1.28
VC0513 -270K-□□	27	0.058	2.5	1.28
VC0513 -330K-□□	33	0.075	2.2	1.008
VC0513 -390K-□□	39	0.094	2.0	0.804
VC0513 -470K-□□	47	0.109	1.8	0.804
VC0513 -560K-□□	56	0.140	1.7	0.804
VC0513 -680K-□□	68	0.145	1.5	0.804
VC0513 -820K-□□	82	0.152	1.4	0.804
VC0513 -101K-□□	100	0.208	1.2	0.632
VC0513 -121K-□□	120	0.283	1.1	0.508
VC0513 -151K-□□	150	0.340	1.0	0.508
VC0513 -181K-□□	180	0.362	0.95	0.508
VC0513 -221K-□□	220	0.430	0.86	0.508
VC0513 -271K-□□	270	0.557	0.77	0.400
VC0513 -331K-□□	330	0.665	0.70	0.400
VC0513 -391K-□□	390	0.772	0.64	0.400
VC0513 -471K-□□	470	1.15	0.59	0.315
VC0513 -561K-□□	560	1.27	0.54	0.315
VC0513 -681K-□□	680	1.61	0.49	0.250
VC0513 -821K-□□	820	1.96	0.44	0.200
VC0513 -102K-□□	1000	2.30	0.40	0.200
VC0513 -122K-□□	1200	2.65	0.35	0.200
VC0513 -152K-□□	1500	3.45	0.33	0.158
VC0513 -182K-□□	1800	4.03	0.29	0.158
VC0513 -222K-□□	2200	4.48	0.27	0.158
VC0513 -272K-□□	2700	5.90	0.24	0.125
VC0513 -332K-□□	3300	6.56	0.22	0.125
VC0513 -392K-□□	3900	8.63	0.20	0.100
VC0513 -472K-□□	4700	10.5	0.18	0.100
VC0513 -562K-□□	5600	13.9	0.166	0.082
VC0513 -682K-□□	6800	16.3	0.151	0.082
VC0513 -822K-□□	8200	20.8	0.136	0.065
VC0513 -103K-□□	10000	26.4	0.125	0.050
VC0513 -123K-□□	12000	29.2	0.114	0.050
VC0513 -153K-□□	15000	42.5	0.098	0.039
VC0513 -183K-□□	18000	48.3	0.091	

RELIABILITY TEST CONDITIONS

EC,PK,VC,FC,TC(IRON CORE) and other similar types

REV:2.0

EC,PK,VC,FC,TC(IRON CORE) and other similar types

Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
High temperature Storage test Reference documents: MIL-STD-202G Method 108A 高溫儲存試驗	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.品質因數變化不超過 30% 4.直流電阻變化不超過 10%	Temperature: $85 \pm 2^\circ\text{C}$ Time : 96 ± 2 hours Tested not less than 1 hour, nor more than 2 hours at room temperature.  溫度: $85 \pm 2^\circ\text{C}$ 時間: 96 ± 2 小時 樣品在室溫下放置 1 小時, 不超 2 小時間必須測試.
Low temperature Storage test Reference documents: IEC 68-2-1A 6.1 6.2 低溫儲存試驗	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.品質因數變化不超過 30% 4.直流電阻變化不超過 10%	Temperature: $-25 \pm 2^\circ\text{C}$ Time : 96 ± 2 hours Tested not less than 1 hour, nor more than 2 hours at room temperature.  溫度: $-25 \pm 2^\circ\text{C}$ 時間: 96 ± 2 小時 樣品在室溫下放置 1 小時, 不超 2 小時間必須測試.
Humidity test Reference documents: MIL-STD-202G Method 103B 濕度測試	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.品質因數變化不超過 30% 4.直流電阻變化不超過 10%	1. Dry oven at a temperature of $40^\circ \pm 5^\circ\text{C}$ for 24 hours. 2. Measurements At the end of this period 3. Exposure: Temperature: $40 \pm 2^\circ\text{C}$, Humidity: $93 \pm 3\% \text{RH}$ Time : 96 ± 2 hours 4. Tested while the specimens are still in the chamber 5. Tested not less than 1 hour, nor more than 2 hours at room temperature.  1.樣品必須先在 $40^\circ \pm 5^\circ$ 條件下乾燥 24 小時 2.乾燥後測試 3.暴露: 溫度: $40 \pm 2^\circ\text{C}$, 溼度: $93 \pm 3\% \text{RH}$ 時間 : 96 ± 2 hours 4.暴露結束後,在試驗箱中進行測試. 5.樣品在室溫下放置 1 小時, 不超 2 小時間必須測試.
Thermal shock test Reference documents: MIL-STD-202G Method 107G 熱衝擊測試	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ For T: weight $\leq 28\text{g}$: 15Min; 28g $\leq$ weight $\leq 136\text{g}$: 30Min 1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.品質因數變化不超過 30% 4.直流電阻變化不超過 10%	First -40°C for T time, last 125°C T time as 1 cycle. Go through 20 cycles.  從 -40°C 作用 T 分鐘, 然後溫度衝擊到 125°C 作用 T 分鐘, 作為一個循環, 共作用 20 次.

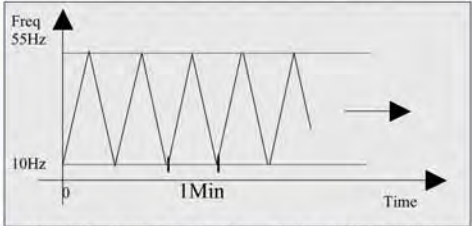
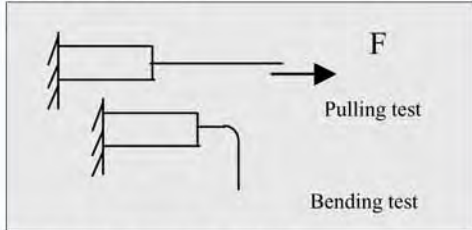
Environmental tests (環境試驗)

RELIABILITY TEST CONDITIONS

EC,PK,VC,FC,TC(IRON CORE) and other similar types

REV:2.0

EC,PK,VC,FC,TC(IRON CORE) and other similar types

Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
Solderability test Reference documents: MIL-STD-202G Method 208H IPC J-STD-002B 可焊性測試	Terminals area must have 95% min. solder coverage 端子必須有95%以上著錫	1. Dip pads in flux then dip in solder pot at $245 \pm 5^\circ\text{C}$ for 5 seconds. 2. Solder: Sn(96)/Ag(4) 3. Flux: rosin flux 1. 端子浸入助焊劑, 然後浸入 $245 \pm 5^\circ\text{C}$ 錫爐中5秒 2. 焊料: Sn(96)/Ag(4) 3. 助焊劑: 松香助焊劑
Heat endurance of flow soldering Reference documents: MIL-STD-202G Method 210F 波峰焊耐熱試驗	1. No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1. 無明顯的外觀缺陷 2. 感值變化不超過10% 3. 品質因數變化不超過30% 4. 直流電阻變化不超過10%	1. Dip pads in flux then dip in solder pot at $260 \pm 5^\circ\text{C}$ for 10 seconds. 2. Solder: Sn(96)/Ag(4) 3. Flux: rosin flux 1. 端子浸入助焊劑, 然後浸入 $260 \pm 5^\circ\text{C}$ 錫爐中10秒 2. 焊料: Sn(96)/Ag(4) 3. 助焊劑: 松香助焊劑
Vibration test Reference documents: MIL-STD-202G Method 201A 振動測試	1. No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1. 無明顯的外觀缺陷 2. 感值變化不超過10% 3. 品質因數變化不超過30% 4. 直流電阻變化不超過10%	Apply frequency 10~55Hz. 0.75mm amplitude in each of perpendicular direction for 2 hours. (total 6 hours)  用10~55Hz 振動頻率0.75mm振幅沿X,Y,Z方向各振動2小時。(共6小時)
Drop test Reference documents: IEC 68-2-32:1990 落下試驗	1. No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1. 無明顯的外觀缺陷 2. 感值變化不超過10% 3. 品質因數變化不超過30% 4. 直流電阻變化不超過10%	Packaged & Drop down from 1m with 981m/s^2 (100G) attitude In 1 angle 1 ridges & 2 surfaces orientations. 將產品包裝後從1米高度自然落下至試驗板上 1角1稜2面
Terminal strength Reference documents: MIL-STD-202G Method 211A Test A & C 端子強度試驗	1. Terminal should not come out 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ For: Wire-leaded components - Test A & C For: Others leaded components - Test A 1. 端子不會松脫 2. 感值變化不超過10% 3. 品質因數變化不超過30% 4. 直流電阻變化不超過10%	A. Pull Force: 0.45kg; the force shall be applied gradually to the terminal and then maintained for 10 seconds. C. Wire-lead bend: 0.23kg, The rate of bending shall be approximately 3 seconds per bend in each direction. The load shall be suspended at a point within 1/4 inch from the free end of the terminal.  A. 拉力: 0.45公斤力, 拉力逐漸到最大值維持10秒。 C. 線腳彎曲: 0.23公斤力, 每個方向彎曲3次。負載應該加在離端子末端1/4英寸處
Resistance to solvent test Reference documents: IEC 68-2-45:1993 耐溶劑性試驗	No case deformation or change in appearance, or obliteration of marking 無外觀破壞及標記破損	To dip parts into IPA solvent for 5 ± 0.5 Min, then drying them at room temp for 5Min, at last, to brushing making 10 times. 在IPA溶劑中浸泡 5 ± 0.5 分鐘, 室溫下乾燥5分鐘, 然後擦拭10次。

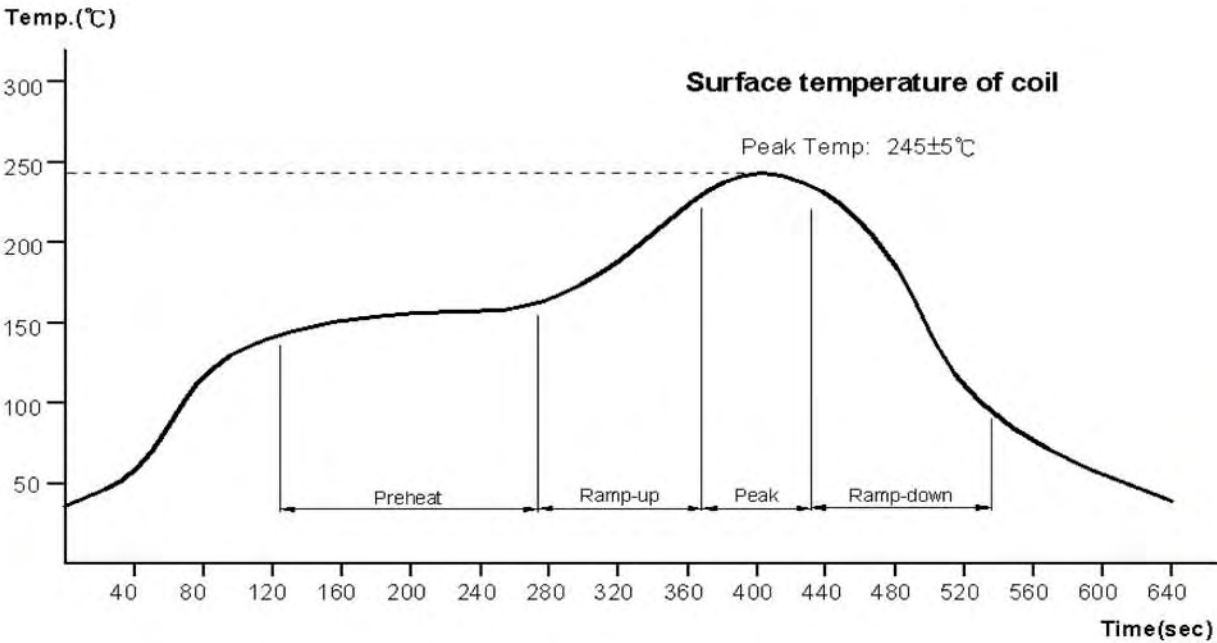
Physical characteristic tests (物理特性試驗)

RELIABILITY TEST CONDITIONS

REV:2.0

Electrical Characteristic tests (電特性試驗)	Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
	Electronic characteristic test of major products 主要產品電特性測試	Refer to catalogue of specific products 參照具體產品目錄頁	Refer to catalogue of specific products 參照具體產品目錄頁書
	Overload test Reference documents: JIS C5311-6.13 過負荷試驗	1.During the test no smoke, no peculiar,smell, no fire 2.The characteristic is normal after test 1.試驗過程中無冒煙,異味,著火等, 2.試驗後產品特性正常.	Apply twice as rated current for 5 minutes. 通兩倍額定電流 5 分鐘

Curve of Heat endurance of Reflow soldering test



A test is made under the conditions mentioned above. And it is left 1 hours in the normal temperature and humidity. After that, no mechanical and electrical defeat should be found out.

The reflow condition is according to the machine used by our company.