SPECIFICATION FOR APPROVAL

產品規格承認書

客戶名稱
CUSTOMER: _____

產品名稱
PRODUCT NAME: **FIV5650 Series (RoHS Directive)**

型號規格
MODEL: **FIV5650-3R9K**

日　　期
DATE: **2013/**

審核 **CHECKED BY**	批准 **APPROVED BY**

備註：承認簽章後請回覆一份承認書（或複印件）給我司

Note: Please return one signed copy with your company chop if approved.

FIV5650 特性總表

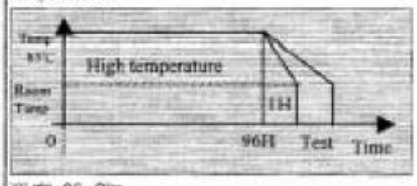
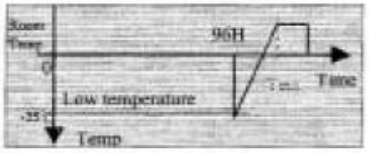
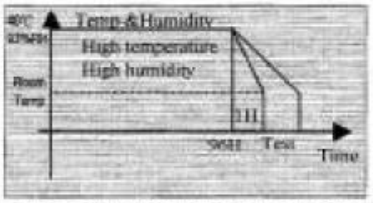
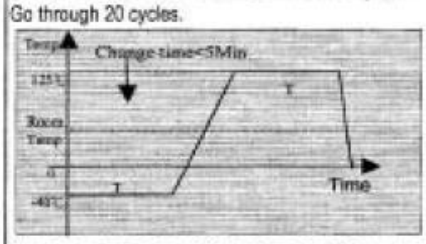
RoHS 危害物質限用

PART NO	L 規格 (uH)	L 公差	Q 規格 MIN	Freq MHz	SRF (MHz) MIN	DCR (OHM) MAX	Idc 規格 mA	圈數 REF
FIV5650 - 1R0	1.0	K,M	10	7.96	95	0.030	1800	8.0
FIV5650 - 1R2	1.2	K,M	10	7.96	70	0.035	1700	9.0
FIV5650 - 1R5	1.5	K,M	10	7.96	55	0.04	1600	10.0
FIV5650 - 1R8	1.8	K,M	10	7.96	47	0.05	1400	11.0
FIV5650 - 2R2	2.2	K,M	10	7.96	42	0.06	1300	12.0
FIV5650 - 2R7	2.7	K,M	10	7.96	37	0.07	1200	13.0
FIV5650 - 3R3	3.3	K,M	10	7.96	34	0.08	1500	15.0
FIV5650 - 3R9	3.9	K,M	10	7.96	32	0.09	1050	16.0
FIV5650 - 4R7	4.7	K,M	10	7.96	29	0.11	950	17.0
FIV5650 - 5R6	5.6	K,M	10	7.96	26	0.13	880	19.0
FIV5650 - 6R8	6.8	K,M	10	7.96	24	0.15	810	21.0
FIV5650 - 8R2	8.2	K,M	10	7.96	22	0.18	750	23.0
FIV5650 - 100	10	K,M	10	2.52	19	0.21	690	25.0
FIV5650 - 120	12	K,M	10	2.52	17	0.25	630	28.0
FIV5650 - 150	15	K,M	10	2.52	16	0.30	580	30.0
FIV5650 - 180	18	K,M	10	2.52	14	0.36	530	33.0
FIV5650 - 220	22	J,K	10	2.52	13	0.43	480	37.0
FIV5650 - 270	27	J,K	10	2.52	11.5	0.52	440	41.0
FIV5650 - 330	33	J,K	10	2.52	10.5	0.62	400	45.0
FIV5650 - 390	39	J,K	10	2.52	9.5	0.72	370	49.0
FIV5650 - 470	47	J,K	10	2.52	8.5	0.85	340	54.0
FIV5650 - 560	56	J,K	10	2.52	7.8	1.0	310	59.0
FIV5650 - 680	68	J,K	10	2.52	7.0	1.2	290	65.0
FIV5650 - 820	82	J,K	10	2.52	6.4	1.4	270	72.0
FIV5650 - 101	100	J,K	20	0.796	6.0	1.6	250	80.0
FIV5650 - 121	120	J,K	20	0.796	5.4	1.9	230	87.0
FIV5650 - 151	150	J,K	20	0.796	4.8	2.2	210	98.0
FIV5650 - 181	180	J,K	20	0.796	4.4	2.8	190	109.0
FIV5650 - 221	220	J,K	20	0.796	3.9	3.4	170	117.0
FIV5650 - 271	270	J,K	20	0.796	3.6	4.2	155	132.0
FIV5650 - 331	330	J,K	20	0.796	3.2	4.9	140	145.0
FIV5650 - 391	390	J,K	20	0.796	2.9	5.8	130	158.0
FIV5650 - 471	470	J,K	20	0.796	2.6	7.0	120	173.0
FIV5650 - 561	560	J,K	20	0.796	2.4	8.5	110	188.0
FIV5650 - 681	680	J,K	20	0.796	2.2	10	100	208.0
FIV5650 - 821	820	J,K	20	0.796	2.0	13	90	228.0
FIV5650 - 102	1000	J,K	20	0.252	1.8	15	85	251.0
FIV5650 - 122	1200	J,K	20	0.252	1.5	17	75	275.0
FIV5650 - 152	1500	J,K	20	0.252	1.4	20	70	308.0
FIV5650 - 182	1800	J,K	20	0.252	1.3	30	60	340.0
FIV5650 - 222	2200	J,K	20	0.252	1.2	35	55	378.0
FIV5650 - 272	2700	J,K	20	0.252	1.1	55	45	416.0
FIV5650 - 332	3300	J,K	20	0.252	1.0	60	40	458.0
FIV5650 - 392	3900	J,K	20	0.252	1.0	70	38	500.0
FIV5650 - 472	4700	J,K	20	0.252	0.9	78	36	550.0
FIV5650 - 562	5600	J,K	20	0.252	0.8	85	33	595.0
FIV5650 - 682	6800	J,K	20	0.252	0.7	110	30	660.0
FIV5650 - 822	8200	J,K	20	0.252	0.6	125	28	680.0
FIV5650 - 103	10000	J,K	15	0.0796	0.5	150	25	790.0

RELIABILITY TEST CONDITIONS

WIRE WOUND CHIP INDUCTORS TYPE

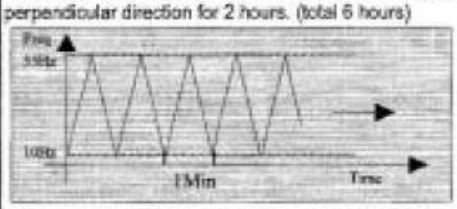
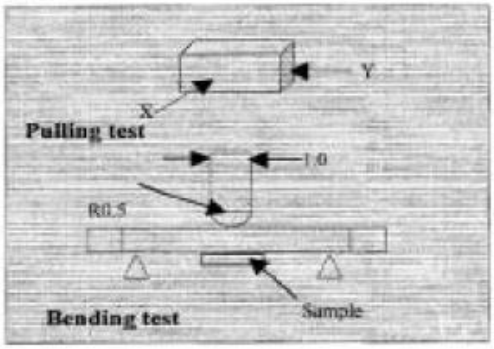
FOR SMD2520V(P) / 3225V(P) / 4532V(P) / 5650V(L)

	Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
Environmental tests (環境試驗)	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. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 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±2℃ Time : 96±2 hours Tested not less than 1 hour, nor more than 2 hours at room temperature.  溫度: 85±2℃ 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. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 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±2℃ Time : 96±2 hours Tested not less than 1 hour, nor more than 2 hours at room temperature.  溫度: -25±2℃ 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. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 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° ±5°C for 24 hours. 2. Measurements At the end of this period 3. Exposure:Temperature: 40±2℃ , Humidity: 93±3%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° ±5° 條件下乾燥24小時 2.乾燥後測試 3.暴露: 溫度:40±2℃ , 濕度: 93±3%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. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 10% For T: weight ≤ 28g : 15Min; 28g ≤ weight ≤ 136g : 30Min 1.無明顯的外觀缺陷 2.感值變化小於10% 3.品質因數變化小於30% 4.直流電阻變化小於10%	First -40℃ forT time, last125℃ T time as 1 cycle. Go through 20 cycles.  從-40℃作用T分鐘,然後溫度衝擊到125℃作用T分鐘,作爲一個循環,共作用20次.

RELIABILITY TEST CONDITIONS

WIRE WOUND CHIP INDUCTORS TYPE

FOR SMD2520V(P) / 3225V(P) / 4532V(P) / 5650V(L)

	Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
Physical characteristic tests (物理特性試驗)	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±5℃ for 5 seconds. 2.Solder: Sn(96.5)/Ag(3.5) 3.Flux: rosin flux 1.端子浸入助焊劑,然後浸入245±5℃錫爐中5秒 2.焊料 :Sn(96.5)/Ag(3.5) 3.助焊劑 松香助焊劑
	Heat endurance of Reflow soldering Reference documents: IPC J-STD-020B 過再流焊測試	1.No case deformation or change in appearance. 2. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 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.Refer to the next page reflow curve Go through 3 times 2.The peak temperature : 260±5℃ 1.參照下頁回流焊曲線過三次 2.峰值溫度為: 260±5℃
	Vibration test Reference documents: MIL-STD-202G Method 201A 振動測試	1.No case deformation or change in appearance. 2. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 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: MIL-STD-202G Method 203C 落下試驗	1.No case deformation or change in appearance. 2. ΔL/L ≤ 10% 3. ΔQ/Q ≤ 30% 4. ΔDCR/DCR ≤ 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/s²(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棱2面
	Terminal strength push test Reference documents: JIS C 5321 :1997 端子強度試驗	Pulling test: Define: A: sectional area of terminal A ≤ 8mm² force ≥ 5N time: 30sec 8mm²<A ≤ 20mm² force ≥ 10N time : 10sec 20mm²<A force ≥ 20N time: 10sec Bending test: Soldering the products on PCB,after the pulling test and bending test ,terminal should not pull off 推力測試: 定義: A: 焊接端子截面積 A ≤ 8mm² 推力 ≥ 5牛頓 時間: 30秒 8mm²<A ≤ 20mm² 推力 ≥ 10牛頓 時間: 10秒 20mm²<A 推力 ≥ 20牛頓 時間: 10秒 彎折測試: 將產品焊於PCB上,分別經過推力測試和彎折	Bend the testing PCB at middle point,the deflection shall be 2mm  將PCB對中彎折,到撓曲度2mm.
	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±0.5Min,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.

RELIABILITY TEST CONDITIONS

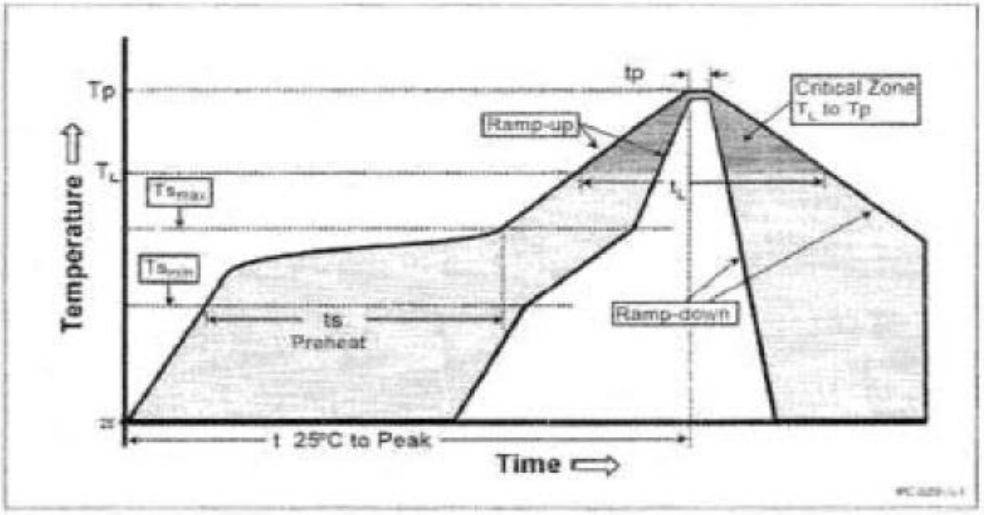
WIRE WOUND CHIP INDUCTORS TYPE

FOR SMD2520V(P) / 3225V(P) / 4532V(P) / 5650V(L)

	Item (項目)	Required Characteristics (要求)	Test Method / Condition (測試方法)
Electrical Characteristic tests (電特性試驗)	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
	voltage resistance test Reference documents: MIL-STD-202G Mthod 301 絕緣耐壓測試	1.During the test no breakdown 2.The characteristic is normal after test 1.試驗過程中無擊穿 2.試驗後產品特性正常	1.For parts with two coils 2.DC1000V,Current:1mA,Time:1Min. 1.只針對二線組以上之產品 2.電壓DC1000V,電流1mA,時間1分鐘

Curve of Heat endurance of Reflow soldering test

Table 5-2 Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3 °C/second max.	3° C/second max.
Preheat – Temperature Min (Ts_{min}) – Temperature Max (Ts_{max}) – Time (ts_{min} to ts_{max})	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-180 seconds
Time maintained above: – Temperature (T_L) – Time (t_L)	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak Classification Temperature (Tp)	See Table 4.1	260+0-5°C
Time within 5 °C of actual Peak Temperature (tp)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.