

Wire Wound Type Common Mode Filter

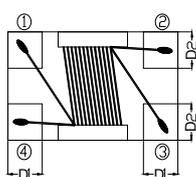
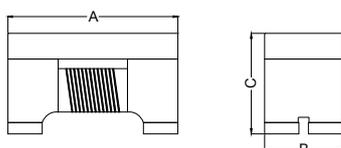
WCM4532F2SF-801T10

1. Features

1. High common mode impedance at high frequency cause excellent noise suppression performance.
2. WCM4532F2SF series realizes small size and low profile. 4.5x3.2x2.8 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.

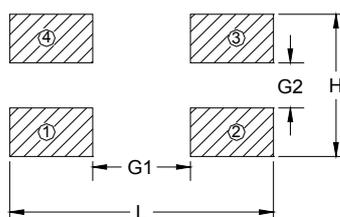


2. Dimension



BOTTOM view

Recommended PC Board Pattern

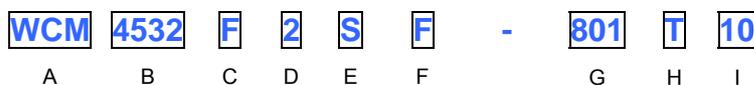


PC board should be designed so that products can prevent damage from mechanical stress when warping the board.
Products shall be positioned in the sideways direction against the mechanical stress to prevent failure.

Series	A(mm)	B(mm)	C(mm)	D1(mm)	D2(mm)	L(mm)	H(mm)	G1(mm)	G2(mm)
4532F2SF	4.5±0.2	3.2±0.2	2.8±0.2	1.0±0.1	1.2±0.1	4.8	3.8	2.5	0.7

Units: mm

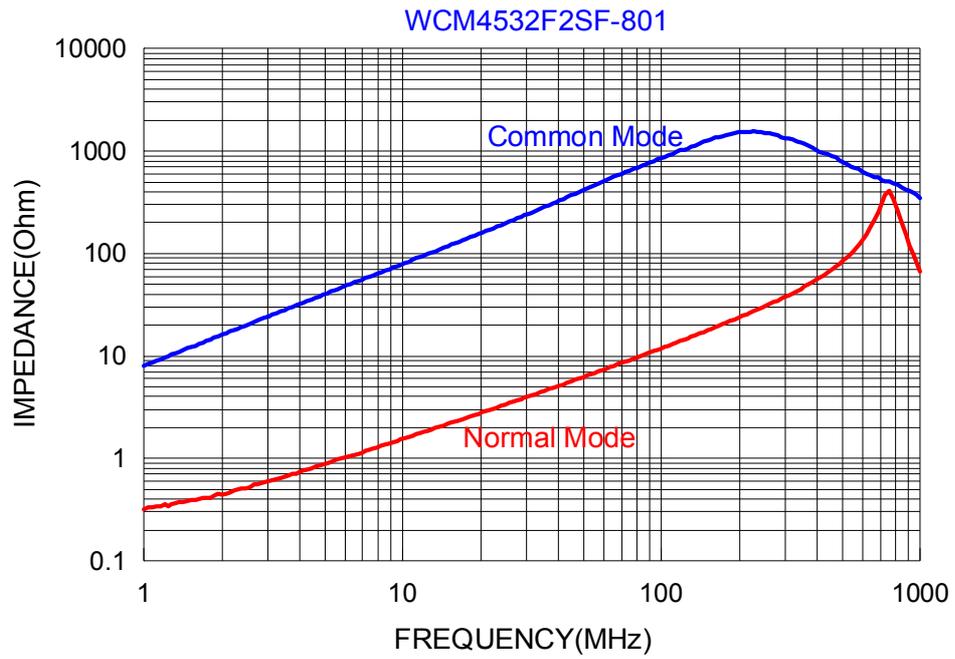
3. Part Numbering



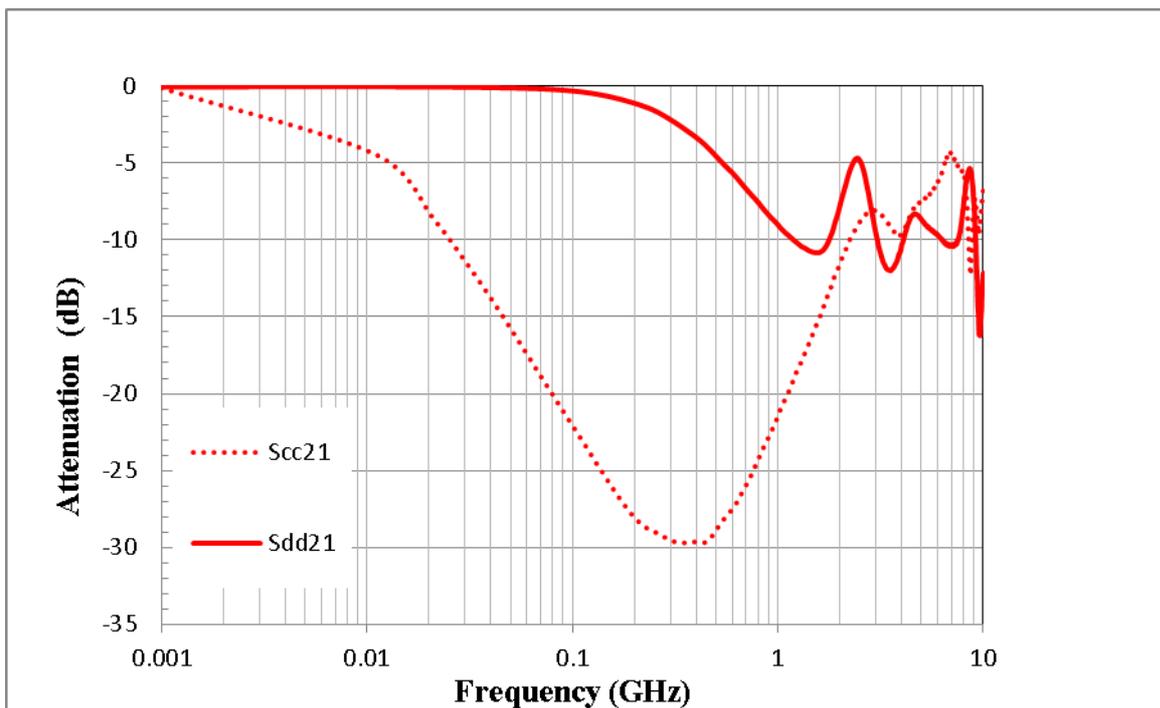
- A: Series
 B: Dimension
 C: Material Ferrite Core
 D: Number of Lines 2=2 lines
 E: Type S=Shielded , N=Unshielded
 F: Lead free
 G: Impedance 801=800Ω
 H: Packaging T=Taping and Reel
 I: Rated Current 10=1000mA

4. Specification

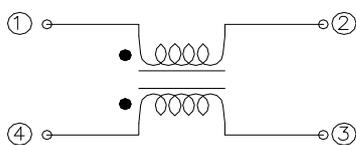
TAI-TECH Part Number	Common mode Impedance (Ω)	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.	Rated Volt. (Vdc) max.	Withstand Volt. (Vdc) max.	IR (Ω) min.
WCM4532F2SF-801T10	800±25%	100	0.24	1000	50	125	10M



Sdd21&Scc21

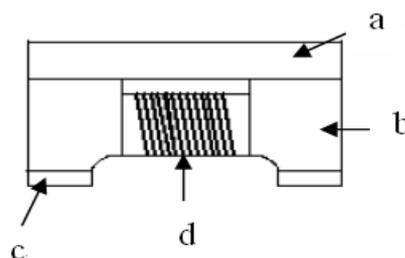


5.Schematic Diagram



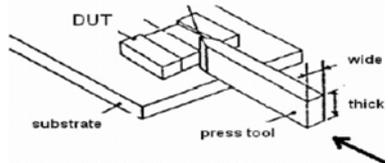
6. Materials

No.	Description	Specification
a.	Upper Plate	Ferrite
b.	Core	Ferrite Core
c.	Termination	Tin (Pb Free)
d.	Wire	Enameled Copper Wire



7. Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125°C (Including self - temperature rise)	
Storage temperature	-40~+125°C (on board)	
Electrical Performance Test		
Z(common mode)	Refer to standard electrical characteristics list.	Agilent-4291A+ Agilent -16197A
DCR		Agilent-4338B
I.R.		Agilent4339
Temperature Rise Test	Rated Current < 1A ΔT 20°C Max Rated Current \geq 1A ΔT 40°C Max	1.Applied the allowed DC current. 2.Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within \pm 10% of initial value Impedance : within \pm 15% of initial value RDC : within \pm 15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DCClassification Reflow Profiles) Temperature : 125 \pm 2°C Applied current : rated current Duration : 1000 \pm 12hrs Measured at room temperature after placing for 24 \pm 2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DCClassification Reflow Profiles) Humidity : 85 \pm 2%R.H, Temperature : 85°C \pm 2°C Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24 \pm 2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DCClassification Reflow Profiles) 1. Baked at50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65 \pm 2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to 65 \pm 2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs,keep at 25°C for 2 hrs then keep at -10°C for 3 hrs 4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DCClassification Reflow Profiles) Condition for 1 cycle Step1 : -40 \pm 2°C 30 \pm 5min Step2 : 25 \pm 2°C \leq 0.5min Step3 : 125 \pm 2°C 30 \pm 5min Number of cycles : 500 Measured at room temperature after placing for 24 \pm 2 hrs
Vibration		Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:1.52mm \pm 10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).

Item	Performance	Test Condition															
Shock	Appearance : No damage. Inductance : within±10% of initial value Q : Shall not exceed the specification value.	<table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g² s)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vt)/ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value (g ² s)	Normal duration (D) (ms)	Wave form	Velocity change (Vt)/ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
Type	Peak value (g ² s)	Normal duration (D) (ms)	Wave form	Velocity change (Vt)/ft/sec													
SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Bending	RDC : within ±15% of initial value and shall not exceed the specification value	Shall be mounted on a FR4 substrate of the following dimensions: >=0805:40x100x1.2mm <0805:40x100x0.8mm Bending depth: >=0805:1.2mm <0805:0.8mm duration of 10 sec.															
Soderability	More than 95% of the terminal electrode should be covered with solder.	Preheat: 150°C,60sec. Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5°C. Flux for lead free: Rosin. 9.5%. Dip time: 4±1sec. Depth: completely cover the termination															
Resistance to Soldering Heat	Appearance : No damage. Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Number of heat cycles: 1 <table border="1"> <thead> <tr> <th>Temperature (°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> </tr> </thead> <tbody> <tr> <td>260 ±5(solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> </tr> </tbody> </table>	Temperature (°C)	Time(s)	Temperature ramp/immersion and emersion rate	260 ±5(solder temp)	10 ±1	25mm/s ±6 mm/s									
Temperature (°C)	Time(s)	Temperature ramp/immersion and emersion rate															
260 ±5(solder temp)	10 ±1	25mm/s ±6 mm/s															
Terminal Strength		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force (>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested. 															

8. Soldering and Mounting

8-1. Soldering

Mildly activated rosin fluxes are preferred. TAI-TECH terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

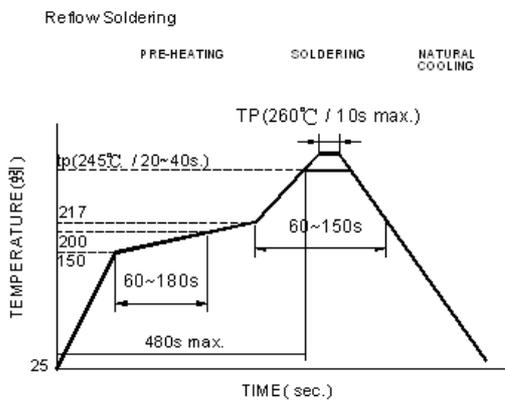
8-1.1 Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

8-1.2 Soldering Iron(Figure 2):

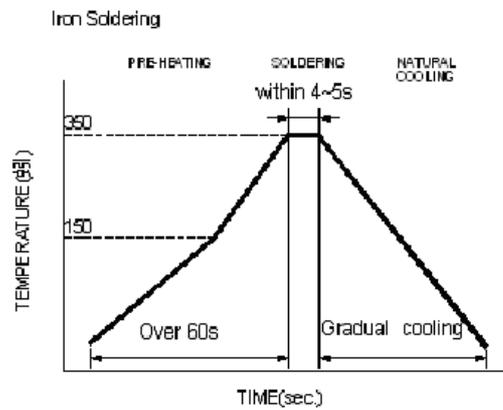
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150°C
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 355°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5 sec.



Reflow times: 3 times max.

Fig.1



Iron Soldering times: 1 times max.

Fig.2

測試報告

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以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as) :

樣品名稱(Sample Description) : WIREWOUND SERIES

樣品型號(Style/Item No.) : WCM、WCL、HSF、HDMI、DVI、BCM、PCM、TCM、LCM、LPF、TXF、ACM、DCM、WIH SERIES

收件日期(Sample Receiving Date) : 2016/10/07

測試期間(Testing Period) : 2016/10/07 TO 2016/10/14

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

Troy Chang, Manager, Tech
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



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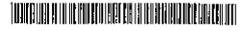
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測試結果(Test Results)

測試部位(PART NAME)No. 1 : 整體混測 (MIXED ALL PARTS)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				No. 1
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321-5 (2013), 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n. d.
鉛 / Lead (Pb)	mg/kg	參考IEC 62321-5 (2013), 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n. d.
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4 (2013), 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4 (2013) and performed by ICP-AES.	2	n. d.
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	參考IEC 62321 (2008), 以UV-VIS檢測. / With reference to IEC 62321 (2008) and performed by UV-VIS.	2	n. d.
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	參考IEC 62321 (2008), 以氣相層析/質譜儀檢測. / With reference to IEC 62321 (2008). Analysis was performed by GC/MS.	5	n. d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				No. 1
多溴聯苯總和 / Sum of PBBs	mg/kg	參考IEC 62321-6 (2015), 以氣相層析 / 質譜儀檢測。 / With reference to IEC 62321-6 (2015) and performed by GC/MS.	-	n. d.
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n. d.
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n. d.
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n. d.
四溴聯苯 / Tetrabromobiphenyl	mg/kg		5	n. d.
五溴聯苯 / Pentabromobiphenyl	mg/kg		5	n. d.
六溴聯苯 / Hexabromobiphenyl	mg/kg		5	n. d.
七溴聯苯 / Heptabromobiphenyl	mg/kg		5	n. d.
八溴聯苯 / Octabromobiphenyl	mg/kg		5	n. d.
九溴聯苯 / Nonabromobiphenyl	mg/kg		5	n. d.
十溴聯苯 / Decabromobiphenyl	mg/kg		5	n. d.
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		-	n. d.
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg		5	n. d.
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n. d.
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n. d.
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg		5	n. d.
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5	n. d.
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		5	n. d.
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg		5	n. d.
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg		5	n. d.
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg	5	n. d.	
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg	5	n. d.	

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				No. 1
鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No. : 85-68-7)	mg/kg	參考IEC 62321-8/CD (2013), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-8/CD (2013). Analysis was performed by GC/MS.	50	n. d.
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No. : 84-74-2)	mg/kg		50	n. d.
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No. : 117-81-7)	mg/kg		50	n. d.
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No. : 84-69-5)	mg/kg		50	n. d.
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No. : 26761-40-0; 68515-49-1)	mg/kg		50	n. d.
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No. : 28553-12-0; 68515-48-0)	mg/kg		50	n. d.
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No. : 117-84-0)	mg/kg		50	n. d.
鄰苯二甲酸二正己酯 / DNHP (Di-n-hexyl phthalate) (CAS No. : 84-75-3)	mg/kg		50	n. d.
鄰苯二甲酸二戊酯 / Di-n-pentyl phthalate (CAS No. : 131-18-0)	mg/kg		50	n. d.
聚氯乙烯 / PVC	**	以紅外光譜分析及焰色法檢測. / Analysis was performed by FTIR and FLAME Test.	-	Negative

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				No. 1
鹵素 / Halogen				
鹵素(氟) / Halogen-Fluorine (F) (CAS No. : 14762-94-8)	mg/kg	參考BS EN 14582 (2007), 以離子層析儀分析. / With reference to BS EN 14582 (2007). Analysis was performed by IC.	50	n. d.
鹵素(氯) / Halogen-Chlorine (Cl) (CAS No. : 22537-15-1)	mg/kg		50	n. d.
鹵素(溴) / Halogen-Bromine (Br) (CAS No. : 10097-32-2)	mg/kg		50	n. d.
鹵素(碘) / Halogen-Iodine (I) (CAS No. : 14362-44-8)	mg/kg		50	n. d.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考US EPA 3550C (2007), 以液相層析/質譜儀檢測. / With reference to US EPA 3550C (2007). Analysis was performed by LC/MS.	10	n. d.
全氟辛酸 / PFOA (CAS No. : 335-67-1)	mg/kg	參考US EPA 3550C (2007), 以液相層析/質譜儀檢測. / With reference to US EPA 3550C (2007). Analysis was performed by LC/MS.	10	n. d.
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052 (1996), 以感應耦合電漿原子發射光譜儀檢測. / With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n. d.
鈹 / Beryllium (Be)	mg/kg	參考US EPA 3052 (1996), 以感應耦合電漿原子發射光譜儀檢測. / With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES.	2	n. d.

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備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n. d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)
5. ** = Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. 樣品的測試是基於申請人要求混合測試, 報告中的混合測試結果不代表其中個別單一材質的含量. (The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

PFOS參考資訊(Reference Information) : 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm), 在半成品、成品或零部件中不得超過0.1%(1000ppm), 在紡織品或塗層材料中不得超過 $1\mu\text{g}/\text{m}^2$ 。

(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above $1\mu\text{g}/\text{m}^2$.)

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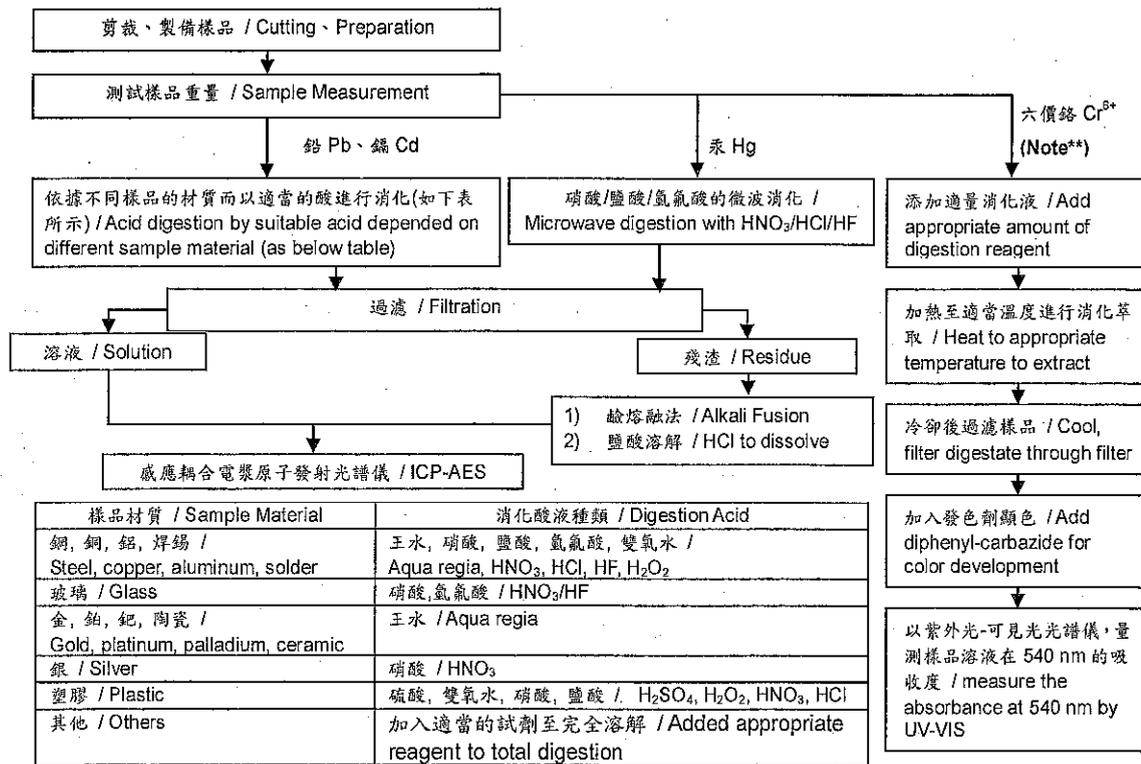
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重金屬流程圖 / Analytical flow chart of Heavy Metal (IEC 62321)

根據以下的流程圖之條件, 樣品已完全溶解。(六價鉻測試方法除外) /
 These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

- 測試人員: 王志瑋 / Technician: JR Wang
- 測試負責人: 張啟興 / Supervisor: Troy Chang



Note**: (1) 針對非金屬材料加入鹼性消化液, 加熱至 90~95°C 萃取。 / For non-metallic material, add alkaline digestion reagent and heat to 90~95°C.
 (2) 針對金屬材料加入純水, 加熱至沸騰萃取。 / For metallic material, add pure water and heat to boiling

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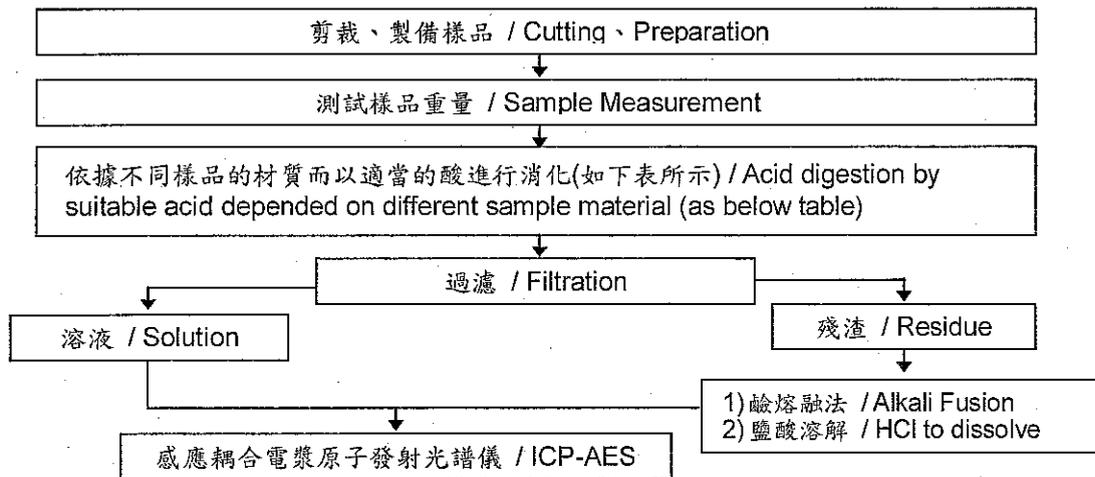
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根據以下的流程圖之條件, 樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.

- 測試人員: 王志璋 / Technician: JR Wang
- 測試負責人: 張啟興 / Supervisor: Troy Chang

元素以 ICP-AES 分析的消化流程圖
(Flow Chart of digestion for the elements analysis performed by ICP-AES)



鋼, 銅, 鋁, 焊錫 / Steel, copper, aluminum, solder	王水, 硝酸, 鹽酸, 氫氟酸, 雙氧水 / Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
玻璃 / Glass	硝酸, 氫氟酸 / HNO ₃ /HF
金, 鉑, 鈀, 陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO ₃
塑膠 / Plastic	硫酸, 雙氧水, 硝酸, 鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion

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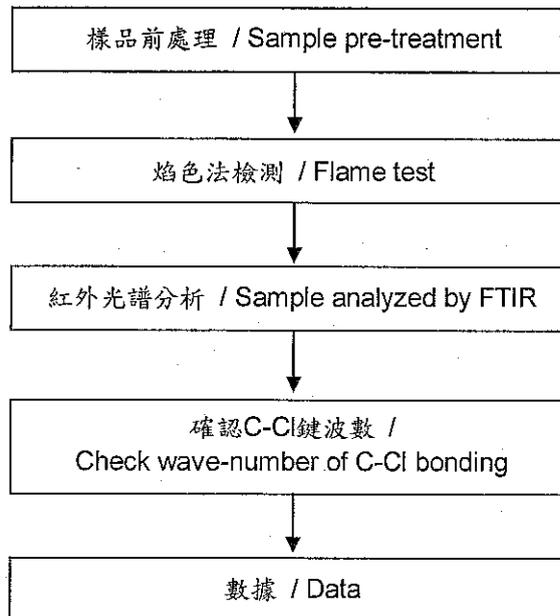
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聚氯乙稀物質判定分析流程圖 / Analysis flow chart - PVC

- 測試人員: 涂雅苓 / Technician: Yaling Tu
- 測試負責人: 張啟興 / Supervisor: Troy Chang



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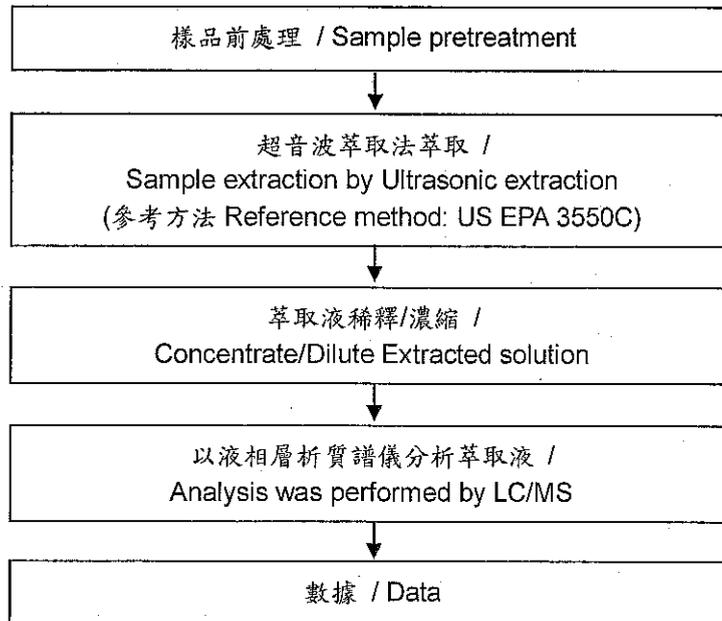
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS

- 測試人員: 涂雅苓 / Technician: Yaling Tu
- 測試負責人: 張啟興 / Supervisor: Troy Chang



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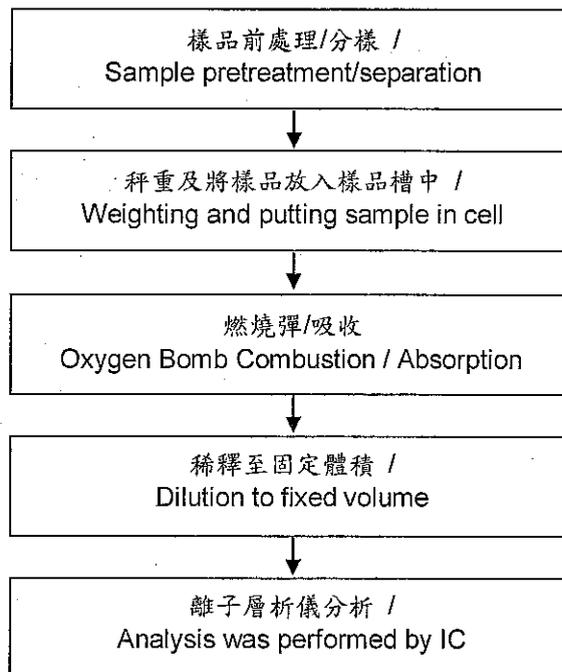
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鹵素分析流程圖 / Analytical flow chart - Halogen

- 測試人員：陳恩臻 / Technician: Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang



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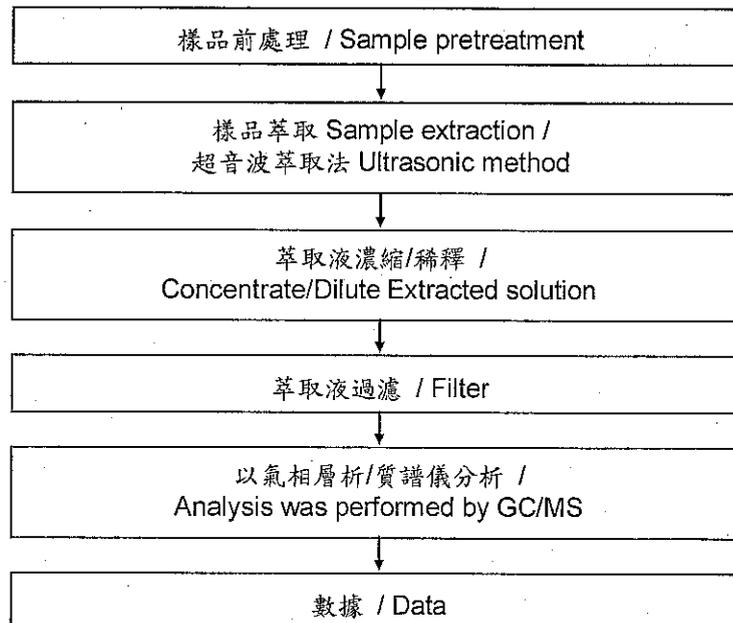
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD

- 測試人員: 涂雅苓 / Technician: Yaling Tu
- 測試負責人: 張啟興 / Supervisor: Troy Chang



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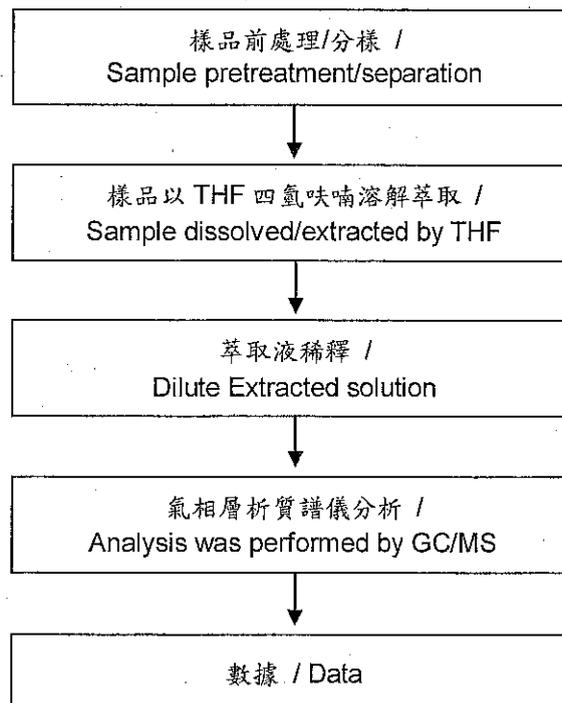
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

- 測試人員：徐毓明 / Technician: Andy Shu
- 測試負責人：張啟興 / Supervisor: Troy Chang

【測試方法/Test method: IEC 62321-8】



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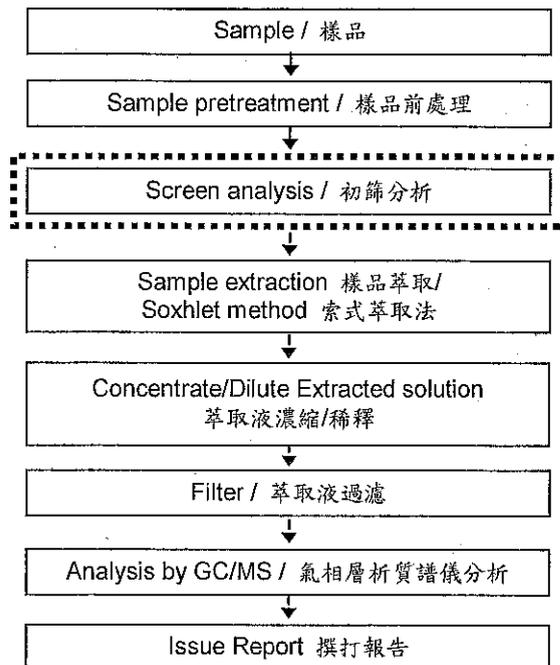
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多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBB/PBDE

- 測試人員: 涂雅苓 / Technician: Yaling Tu
- 測試負責人: 張啟興 / Supervisor: Troy Chang

初次測試程序 / First testing process —————>
 選擇性篩檢程序 / Optional screen process
 確認程序 / Confirmation process - - ->



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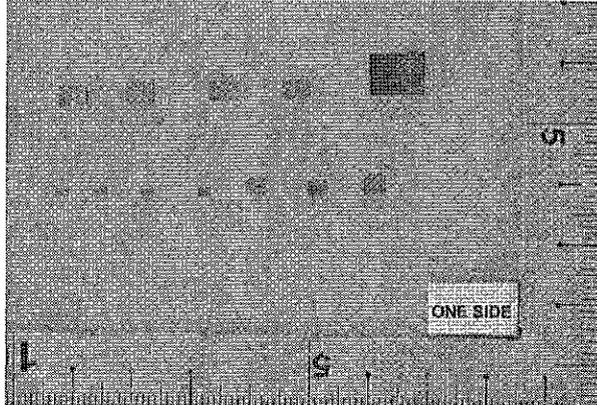
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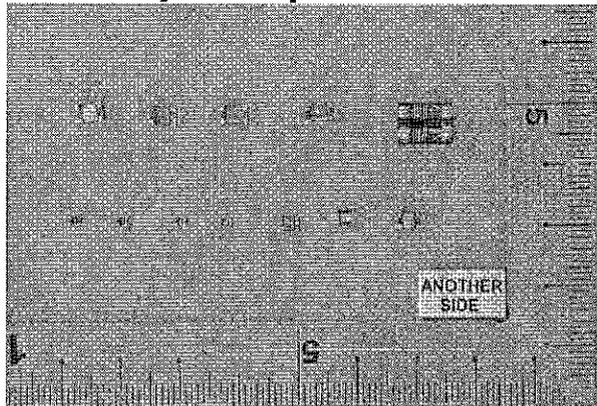
* 照片中如有箭頭標示, 則表示為實際檢測之樣品/部位. *

(The tested sample / part is marked by an arrow if it's shown on the photo.)

CE/2016/A1220



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** 報告結尾 (End of Report) **

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製 品 規 格 書

製定日期 : 2016/10/20

編 號	TAR3-001344	版 本: A4 版	頁 次: 1
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1.北欣(S00003)指送和碩 製品稱呼法:

例: 圖(一)

臺慶品名: HSF 1210 F 2 S F -900 T 02

(1) (2) (3) (4) (5) (6) (7) (8) (9)

客戶品名:

客戶料號:

(1) 品名

(2) 尺寸

(3) 材質 Ferrite

(4) Number of Lines 2=2 lines

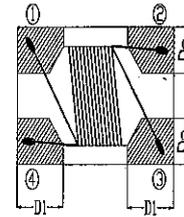
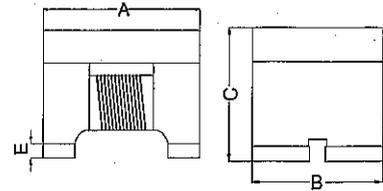
(5) TYPE S=One Circuit Type

(6) F 無鉛

(7) 阻抗值

(8) 包裝方式 T=Taping and Reel B=BULK

(9) Rated Current 250mA



2.尺寸檢驗規範

Series	A(mm)	B(mm)	C(mm)	D1(mm)	D2(mm)	E(mm)
1210F2SF	1.2±0.2	1.0±0.2	0.9 max.	0.35±0.1	0.35±0.1	0.03 min.

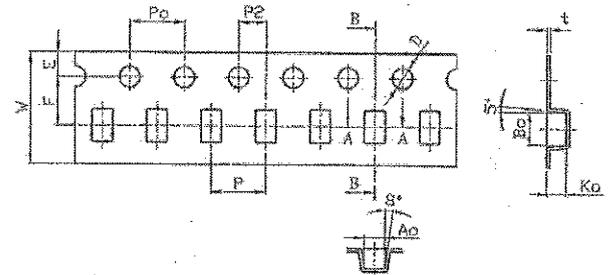
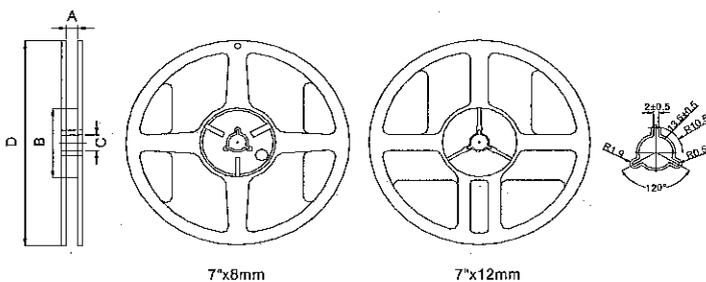
3.特性檢驗規範

TAI-TECH Part Number	Common mode Impedance (Ω)	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA)	Rated Volt. (Vdc)	Withstand Volt. (Vdc)	IR (Ω) min.	Cut off Freq. (Hz) typ.
HSF1210F2SF-900T02	90±25%	100	0.40	200	50	125	10M	10G

4.檢驗規範:

- 1.產品電氣特性是否與特性檢驗規範相符合。
- 2.核對產品大小尺寸是否與尺寸檢驗規範相符合。
- 3.依外觀檢驗標準檢視產品外觀,不得有任何破損,刮傷或氧化。
- 4.若為 13" 以上卡桿捲軸,卡桿位置需點滿膠。

5.包裝方式:



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60±2	13.5±0.5	178±2

Chip size	Chip/Reel	Inner Box	Middle Box	Carton
HSF1210F2S	3000	15000	75000	150000

Series	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	P0(mm)	A0(mm)	B0(mm)	K0(mm)	t(mm)
HSF1210F2S	8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.1/-0	4.00±0.10	1.12±0.10	1.40±0.10	1.05±0.10	0.22±0.05

變更履歷	發行日期	版本	變更內容	發行日期	版本	變更內容
	2016/10/20	A4	新發行(增訂 Cut off Freq.)			

發行:

承認:

確認:

製表: