

Specification for Approval

Date: 2022/08/08

Customer : _____

TAI-TECH P/N: ACM4532F2NV-SERIES-D-HD

CUSTOMER P/N: _____

DESCRIPTION: _____

QUANTITY: _____ pcs

| | | |
|----------------------------|--|--|
| REMARK: | | |
| Customer Approval Feedback | | |
| | | |

西北臺慶科技股份有限公司
 TAI-TECH Advanced Electronics Co., Ltd
Headquarter:
 NO.1 YOU 4TH ROAD, YOUTH INDUSTRIAL DISTRICT, YANG-MEI,
 TAO-YUAN HSIEN, TAIWAN, R.O.C.
 TEL: +886-3-4641148 FAX: +886-3-4643565
 http://www.tai-tech.com.tw
 E-mail: sales@tai-tech.com.tw

Office:
 深圳辦公室
 11BC, Building B Fortune Plaza, NO.7002, Shennan Avenue, Futian
 District Shenzhen
 TEL: +86-755-23972371 FAX: +86-755-23972340

臺慶精密電子(昆山)有限公司
 TAI-TECH ADVANCED ELECTRONICS(KUNSHAN) CO., LTD
 SHINWHA ROAD, KUNJIA HI-TECH INDUSTRIAL PARK, KUN-SHAN,
 JIANG-SU, CHINA
 TEL: +86-512-57619396 FAX: +86-512-57619688
 E-mail: sales@tai-tech.cn

慶邦電子元件(泗洪)有限公司
 TAIPAQ ELECTRONICS (SIHONG) CO., LTD
 Sihong development zone Suqian City, Jiangsu , CHINA.
 TEL: +86-527-88601191 FAX: +86-527-88601190
 E-mail: sales@taipaq.cn

Sales Dep.

| APPROVED | CHECKED |
|----------|---------|
| 管哲頌 | 張萌萌 |

R&D Center

| APPROVED | CHECKED | DRAWN |
|------------------|---------------------|----------------|
| 楊祥忠 Mike Yang | 林志鴻 Zhi-Hong Lin | 何玉蓮 Anna Ho |

Wire Wound Type Common Mode Filter ACM4532F2NV-SERIES-D-HD

| ECN HISTORY LIST | | | | | |
|-------------------------|----------|-------------|----------|---------|-------|
| REV | DATE | DESCRIPTION | APPROVED | CHECKED | DRAWN |
| 1.0 | 22/08/08 | 新發行 | 楊祥忠 | 林志鴻 | 何玉蓮 |
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| 備 註 | | | | | |
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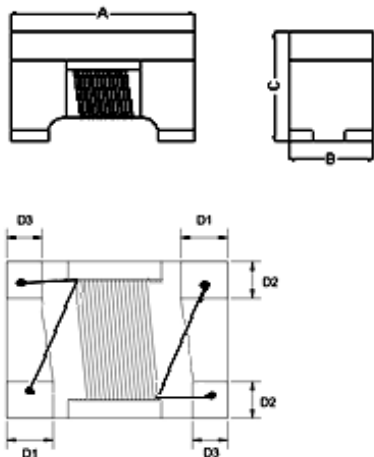
Wire Wound Type Common Mode Filter ACM4532F2NV-SERIES-D-HD

1. Features

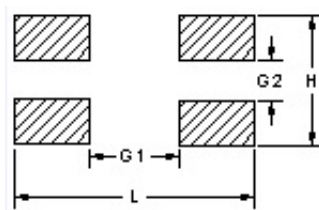
1. High common mode impedance at high frequency effects excellent noise suppression performance.
2. ACM4532F2NV series realizes small size and low profile. 4.5x3.2x2.8 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. High reliability -Reliability tests comply with AEC-Q200
5. Operating temperature -55~+150°C (Including self - temperature rise)



2. Dimension



Recommended PC Board Pattern



| Series | A(mm) | B(mm) | C(mm) | D1(mm) | D2(mm) | D3(mm) | L(mm) | H(mm) | G1(mm) | G2(mm) |
|----------|---------|---------|---------|----------|----------|----------|-------|-------|--------|--------|
| 4532F2NV | 4.5±0.2 | 3.2±0.2 | 2.8±0.2 | 0.75±0.2 | 0.85±0.2 | 0.60±0.2 | 5.0 | 3.6 | 3.4 | 1.7 |

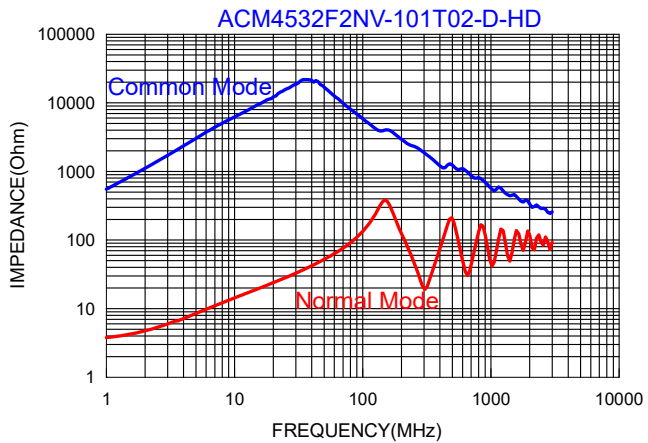
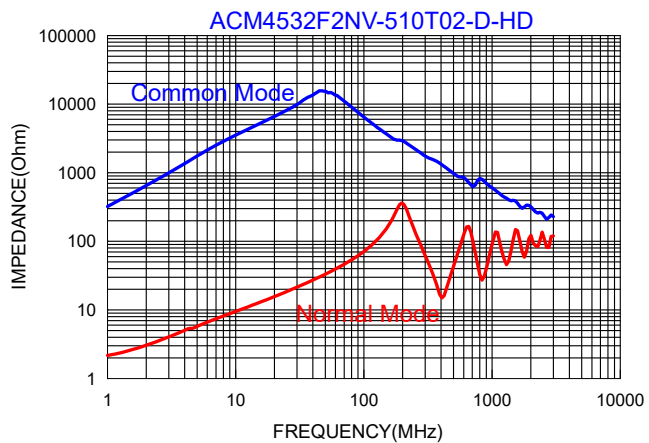
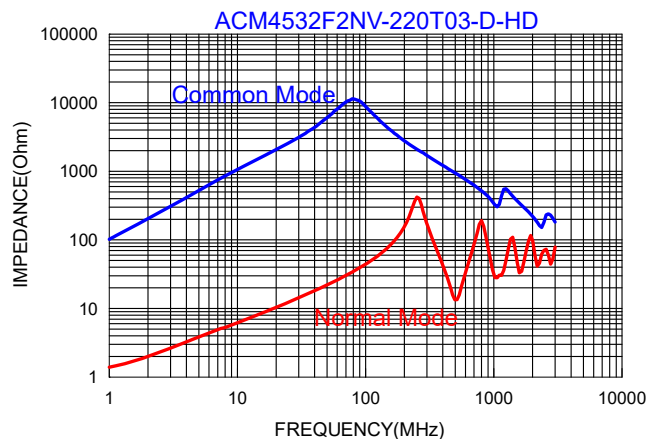
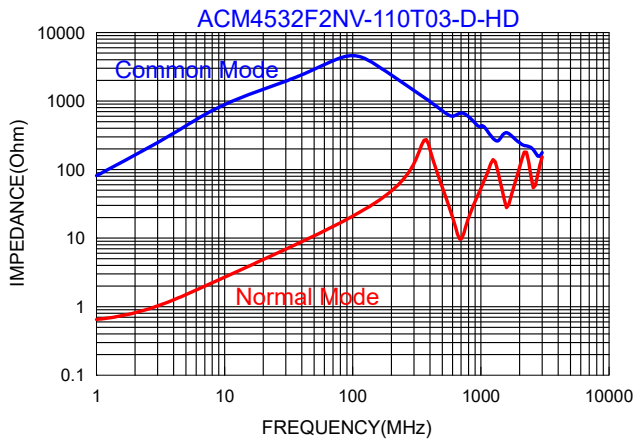
3. Part Numbering



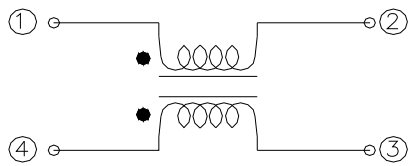
- A: Series
- B: Dimension
- C: Material Ferrite Core
- D: Number of Lines 2=2 lines
- E: Type N45
- F: Category Code V=Vehicle
- G: Inductance 101=100uH
- H: Packaging T=Taping and Reel
- I: Rated Current 02=200mA
- J: Control S/N
- K: Control S/N

4. Specification

| TAI-TECH Part Number | Common mode Impedance (Ω) [10MHz] | | Inductance (μH)+50/-30% [100kHz/0.1V] | DC Resistance (Ω) max. | Rated Current (mA) | Withstand Volt. (Vdc) Max. | Rated Volt. (Vdc) max. | IR (MΩ) min. |
|-------------------------|-----------------------------------|-----------|---------------------------------------|------------------------|--------------------|----------------------------|------------------------|--------------|
| | 300 min. | 600 typ. | | | | | | |
| ACM4532F2NV-110T03-D-HD | 300 min. | 600 typ. | 11 | 0.6 | 360 | 125 | 50 | 10 |
| ACM4532F2NV-220T03-D-HD | 500 min. | 1200 typ. | 22 | 1.0 | 310 | 125 | 50 | 10 |
| ACM4532F2NV-510T02-D-HD | 1000 min. | 2800 typ. | 51 | 1.0 | 230 | 125 | 50 | 10 |
| ACM4532F2NV-101T02-D-HD | 2000 min. | 5800 typ. | 100 | 2.0 | 200 | 125 | 50 | 10 |

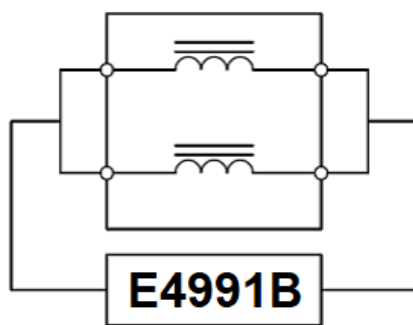


5. Schematic Diagram

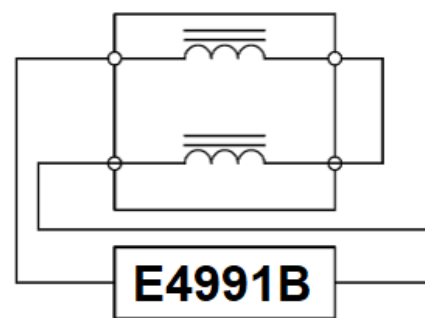


6. MEASURING CIRCUITS 2LINE

Common mode

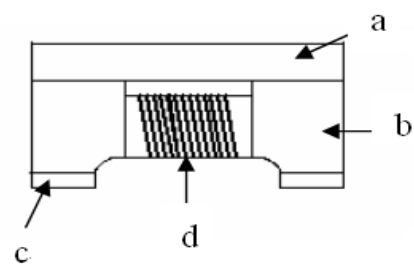


Differential mode

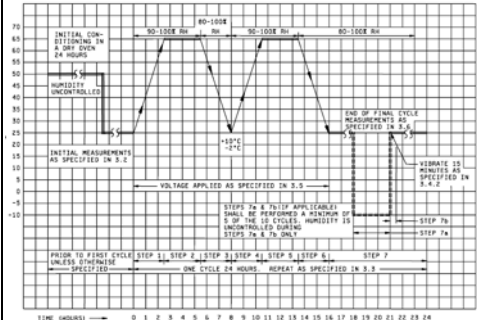


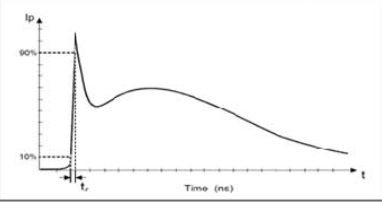
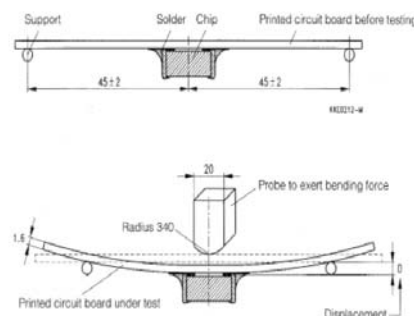
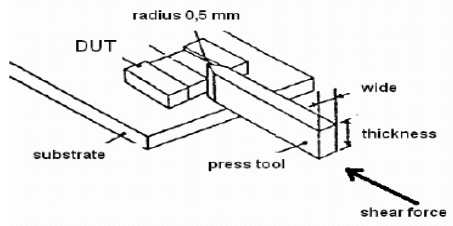
7. Materials

| No. | Description | Specification |
|-----|-------------|----------------------|
| a. | Upper Plate | Ferrite |
| b. | Core | Ferrite Core |
| c. | Termination | Ag/Ni/Sn |
| d. | Wire | Enameled Copper Wire |



8. Reliability and Test Condition

| Item | Performance | Test Condition | | | | | | | | | | | | | | | |
|---|---|--|-----------|---------------------------|--------------------------|-----------|---------------------------|-----|-----|---|-----------|------|------|-----|---|-----------|------|
| Operating temperature | -55~+150°C (Including self - temperature rise) | | | | | | | | | | | | | | | | |
| Storage temperature | -55~+125°C (on board) | | | | | | | | | | | | | | | | |
| Electrical Performance Test | | | | | | | | | | | | | | | | | |
| L(common mode) | Refer to standard electrical characteristics list. | Keysight –E4980AL+ Keysight t -16334A | | | | | | | | | | | | | | | |
| DCR | | Agilent-34420A Agilent-4338B | | | | | | | | | | | | | | | |
| I.R. | | Chroma 19073 | | | | | | | | | | | | | | | |
| Temperature Rise Test | Rated Current ΔT 40°C Max | 1.Applied the allowed DC current. 2.Temperature measured by digital surface thermometer | | | | | | | | | | | | | | | |
| Reliability Test | | | | | | | | | | | | | | | | | |
| High Temperature Exposure(Storage) AEC-Q200 | Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value RDC : within ±15% of initial value and shall not exceed the specification value | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Temperature : 150±2°C Duration : 1000hrs Min. Measured at room temperature after placing for 24±4 hrs. | | | | | | | | | | | | | | | |
| Temperature Cycling AEC-Q200 | | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Condition for 1 cycle Step1 : -55±2°C 30min Min. Step2 : 150±2°C transition time 1min MAX. Step3 : 150±2°C 30min Min. Step4 : Low temp. Transition time 1min MAX. Number of cycles : 1000 Measured at room temperature after placing for 24±4 hrs. | | | | | | | | | | | | | | | |
| Moisture Resistance (AEC-Q200) | | t=24 hours/cycle. Note: Steps 7a & 7b Unpowered.  | | | | | | | | | | | | | | | |
| Biased Humidity (AEC-Q200) | | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Humidity : 85±3% R.H, Temperature : 85°C±2°C Duration : 1000hrs Min Measured at room temperature after placing for 24±4hrs | | | | | | | | | | | | | | | |
| High Temperature Operational Life (AEC-Q200) | | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Temperature : 150±2°C Duration : 1000hrs Min. with 100% rated current. Measured at room temperature after placing for 24±4hrs | | | | | | | | | | | | | | | |
| External Visual | Appearance : No damage. | Inspect device construction, marking and workmanship. Electrical Test not required. | | | | | | | | | | | | | | | |
| Physical Dimension | According to the product specification size measurement | According to the product specification size measurement | | | | | | | | | | | | | | | |
| Resistance to Solvents | Appearance : No damage. | Add aqueous wash chemical - OKEM clean or equivalent. | | | | | | | | | | | | | | | |
| Mechanical Shock | Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value RDC : within ±15% of initial value and shall not exceed the specification value | <table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (V)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> <tr> <td>Lead</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> </tbody> </table> <p>3 shocks in each direction along 3 perpendicular axes. (18 shocks).</p> | Type | Peak value (g's) | Normal duration (D) (ms) | Wave form | Velocity change (V)ft/sec | SMD | 100 | 6 | Half-sine | 12.3 | Lead | 100 | 6 | Half-sine | 12.3 |
| Type | Peak value (g's) | Normal duration (D) (ms) | Wave form | Velocity change (V)ft/sec | | | | | | | | | | | | | |
| SMD | 100 | 6 | Half-sine | 12.3 | | | | | | | | | | | | | |
| Lead | 100 | 6 | Half-sine | 12.3 | | | | | | | | | | | | | |

| Item | Performance | Test Condition | | | | | | | | |
|------------------------------|---|---|-----------------------|---------|--|-----------------------|----------------------|-------|----------------|---|
| Vibration | | PC/JEDEC J-STD-020E Classification Reflow Profiles Oscillation Frequency:10Hz~2KHz~ 10Hz for 20 minute Equipment : Vibration checker Total Amplitude:5g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations) ° | | | | | | | | |
| Resistance to Soldering Heat | Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value RDC : within ±15% of initial value and shall not exceed the specification value | Test condition : <table border="1" data-bbox="965 376 1428 495"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table> | Temperature(°C) | Time(s) | Temperature ramp/immersion and emersion rate | Number of heat cycles | 260 ±5 (solder temp) | 10 ±1 | 25mm/s ±6 mm/s | 1 |
| Temperature(°C) | Time(s) | Temperature ramp/immersion and emersion rate | Number of heat cycles | | | | | | | |
| 260 ±5 (solder temp) | 10 ±1 | 25mm/s ±6 mm/s | 1 | | | | | | | |
| Thermal shock (AEC-Q200) | | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Condition for 1 cycle Step1 : -55±2°C 15±1min Step2 : 150±2°C within 20Sec. Step3 : 150±2°C 15±1min Number of cycles : 300 Measured at room temperature after placing fo24±4hrs | | | | | | | | |
| ESD | Appearance : No damage. |  <p>Direct Contact and Air Discharge PASSIVE COMPONENT HBM ESD Discharge Waveform to a Coaxial Target Test method: AEC-Q200-002 Test mode : Contact Discharge Discharge level : 4 KV (Level: 2)</p> | | | | | | | | |
| Solderability | More than 95% of the terminal electrode should be covered with solder ° | a. Method B, 4 hrs @155°C dry heat @235°C±5°C Testing Time :5 +0/-0.5 seconds b. Method D category 3. (8hours ± 15 min)@ 260°C±5°C Testing Time :30 +0/-0.5 seconds | | | | | | | | |
| Electrical Characterization | Refer Specification for Approval | Summary to show Min, Max, Mean and Standard deviation. | | | | | | | | |
| Flammability | Electrical Test not required. | V-0 or V-1 are acceptable. | | | | | | | | |
| Board Flex | Appearance : No damage | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Place the 100mm X 40mm board into a fixture similar to the one shown in below Figure with the component facing down. The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. The duration of the applied forces shall be 60 (+ 5) sec. The force is to be applied only once to the board.  | | | | | | | | |
| Terminal Strength(SMD) | Appearance : No damage | Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force 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.  | | | | | | | | |

9. Soldering and Mounting

9-1. Soldering

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

9-1.1 IR Soldering Reflow:

Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1&1.2 (J-STD-020E)

9-1.2 Soldering Iron:

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. (Figure 2.)

- 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
- 350°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.

Fig.1 IR Soldering Reflow

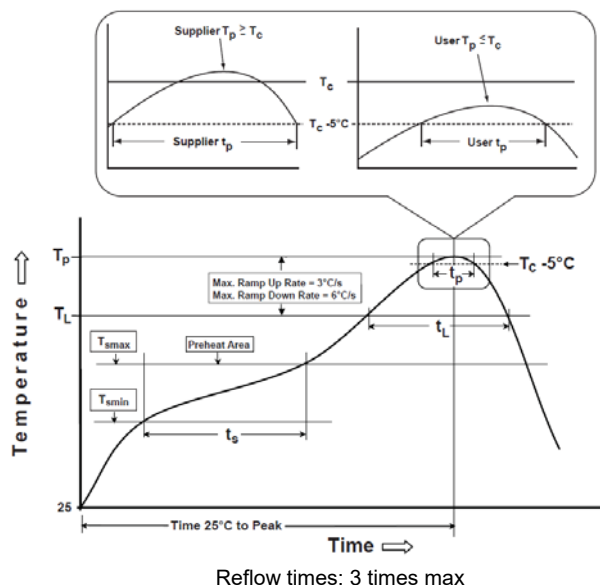


Fig.2 Iron soldering temperature profiles

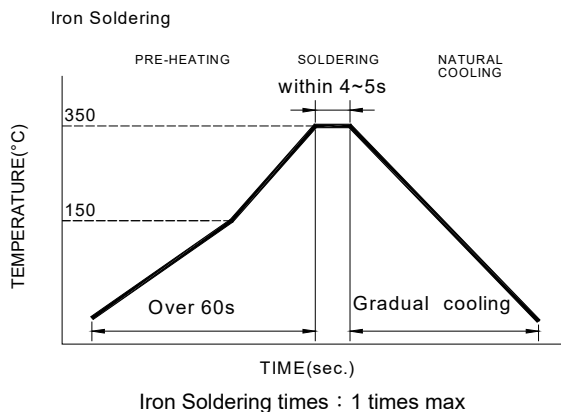


Table (1.1): Reflow Profiles

| | |
|---|---------------------------------|
| Profile Type: | Pb-Free Assembly |
| Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(t_s)from(T_{smin} to T_{smax}) | 150°C 200°C 60-120seconds |
| Ramp-up rate(T_L to T_p) | 3°C/second max. |
| Liquidus temperature(T_L) Time(t_L)maintained above T_L | 217°C 60-150 seconds |
| Classification temperature(T_c) | See Table (1.2) |
| Time(t_p) at $T_c - 5^\circ\text{C}$ (T_p should be equal to or less than T_c .) | < 30 seconds |
| Ramp-down rate(T_p to T_L) | 6°C /second max. |
| Time 25°C to peak temperature | 8 minutes max. |

T_p: maximum peak package body temperature, **T_c**: the classification temperature.

For user (customer) **T_p** should be equal to or less than **T_c**.

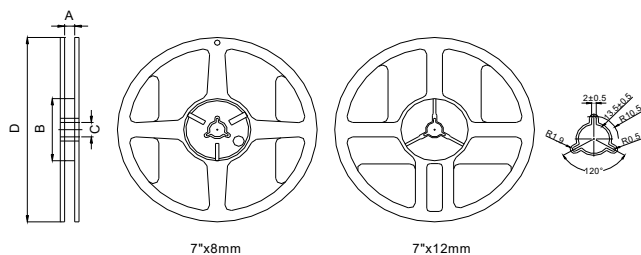
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

| | Package Thickness | Volume mm ³ <350 | Volume mm ³ 350-2000 | Volume mm ³ >2000 |
|------------------|-------------------|--------------------------------|------------------------------------|---------------------------------|
| PB-Free Assembly | <1.6mm | 260°C | 260°C | 260°C |
| | 1.6-2.5mm | 260°C | 250°C | 245°C |
| | ≥2.5mm | 250°C | 245°C | 245°C |

Reflow is referred to standard IPC/JEDEC J-STD-020E ◦

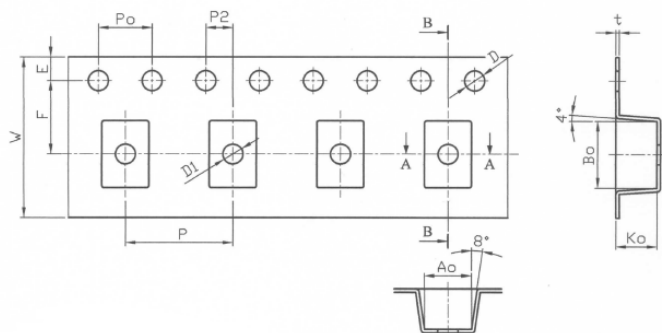
10. Packaging Information

10-1. Reel Dimension



| Type | A(mm) | B(mm) | C(mm) | D(mm) |
|---------|----------|----------|----------|-----------|
| 7"x12mm | 13.5±0.5 | 60.0±2.0 | 13.5±0.5 | 178.0±2.0 |

10-2. Tape Dimension / 12mm

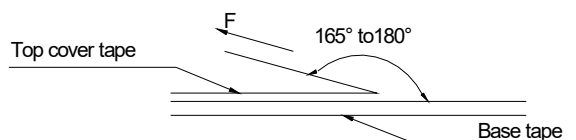


| Series | P(mm) | Po(mm) | P2(mm) | Bo(mm) | Ao(mm) | Ko(mm) | D(mm) | E(mm) | F(mm) | W(mm) | t(mm) | D1(mm) |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|-----------|-----------|------------|-----------|-----------|
| ACM4532F2N | 8.00±0.10 | 4.00±0.10 | 2.00±0.05 | 4.90±0.10 | 3.60±0.10 | 3.00±0.10 | 1.50+0.10/-0.00 | 1.75±0.10 | 5.50±0.05 | 12.00±0.10 | 0.26±0.05 | 1.50±0.10 |

10-3. Packaging Quantity

| Chip size | Chip/Reel | Inner Box | Middle Box | Carton |
|------------|-----------|-----------|------------|--------|
| ACM4532F2N | 500 | 2000 | 10000 | 20000 |

10-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

| Room Temp. (°C) | Room Humidity (%) | Room atm (hPa) | Tearing Speed mm/min |
|-----------------|-------------------|----------------|----------------------|
| 5~35 | 45~85 | 860~1060 | 300 |

Application Notice

- Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

 - TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
 - Temperature and humidity conditions: Less than 40°C and 60% RH.
 - Recommended products should be used within 12 months form the time of delivery.
 - The packaging material should be kept where no chlorine or sulfur exists in the air.
- Transportation
 - Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
 - The use of tweezers or vacuum pick up is strongly recommended for individual components.
 - Bulk handling should ensure that abrasion and mechanical shock are minimized.



測試報告 Test Report

號碼(No.): ETR22303152

日期(Date): 18-Mar-2022

頁數(Page): 1 of 15

西北臺慶科技股份有限公司 (TAI-TECH ADVANCED ELECTRONICS CO., LTD.)
臺慶精密電子 (昆山) 有限公司 (TAI-TECH ADVANCED ELECTRONICS (KUN-SHAN) CO., LTD.)
慶邦電子元器件 (泗洪) 有限公司 (TAIPAQ ELECTRONICS (SI-HONG) CO., LTD.)
桃園市楊梅區幼獅工業區幼四路1號 (NO. 1, YOU 4TH ROAD, YOUTH INDUSTRIAL DISTRICT, YANG-MEI, TAO-YUAN CITY, TAIWAN R. O. C.)
江蘇省昆山市蓬朗昆嘉高科技工業區郭澤路 (GUO-ZE ROAD, KUNJIA HI-TECH INDUSTRIAL PARK, KUN-SHAN, JIANG-SU, CHINA)
中國·江蘇省·宿遷市·泗洪縣·經濟開發區杭州路南側·建設北路東側 (THE SOUTH HANGZHOU ROAD AND THE EAST JIANSHE ROAD · ECONOMIC DEVELOPMENT ZONE · SIHONG COUNTY · SUQIANCITY · JIANGSU PROVINCE · P.R. · CHINA)

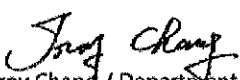
以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by the applicant as) :

樣品名稱(Sample Name) : WIREWOUND SERIES
樣品型號(Style/Item No.) : WCM(YCW) · WCL · HSF · HDMI · DVI · BCM · PCM · TCM · LCM · LPF · TXF · ACM · DCM(YLW) · WIH · BPH · TNH · YCM · STF · APO · QLL · FGO · APOC SERIES

收件日(Sample Receiving Date) : 11-Mar-2022
測試期間(Testing Period) : 11-Mar-2022 to 18-Mar-2022

測試需求(Test Requested) : 依據客戶要求進行測試· 測試項目請參閱測試結果表格· (Testing item(s) is/are specified by client. Please refer to result table for testing item(s).)

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)


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



PIN CODE: 29D6F7D2

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測試報告

Test Report

號碼(No.): ETR22303152

日期(Date): 18-Mar-2022

頁數(Page): 2 of 15

西北臺慶科技股份有限公司 (TAI-TECH ADVANCED ELECTRONICS CO., LTD.)

臺慶精密電子(昆山)有限公司 (TAI-TECH ADVANCED ELECTRONICS (KUN-SHAN) CO., LTD.)

慶邦電子元器件(泗洪)有限公司 (TAIPAQ ELECTRONICS (SI-HONG) CO., LTD.)

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中國·江蘇省·宿遷市·泗洪縣·經濟開發區杭州路南側·建設北路東側 (THE SOUTH HANGZHOU ROAD AND THE EAST JIANSHE ROAD · ECONOMIC DEVELOPMENT ZONE · SIHONG COUNTY · SUQIANCITY · JIANGSU PROVINCE · P.R · CHINA)

測試部位敘述 (Test Part Description)

No.1 : 整體混測 (MIXED ALL PARTS)

測試結果 (Test Results)

| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) |
|---|--|--------------|-----|----------------|
| | | | | No.1 |
| 鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9) | 參考IEC 62321-5: 2013 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. |
| 鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1) | 參考IEC 62321-5: 2013 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. |
| 汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6) | 參考IEC 62321-4: 2013+ AMD1: 2017 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. |
| 六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI)) (CAS No.: 18540-29-9) | 參考IEC 62321-7-2: 2017 · 以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.) | mg/kg | 8 | n.d. |

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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司

新北市五股區新北產業園區五權七路 25 號 t+886(02)2299 3939 f+886(02)2299 3237
25, Wu Chyuan 7th Road, New Taipei Industrial Park, Wu Ku District, New Taipei City, Taiwan

Member of the SGS Group



測試報告

Test Report

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| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) |
|----------------------------------|--|--------------|-----|----------------|
| | | | | No.1 |
| 一溴聯苯 (Monobromobiphenyl) | 參考IEC 62321-6: 2015 · 以氣相層析儀/質譜儀分析 · (With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.) | 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. |
| 多溴聯苯總和 (Sum of PBBs) | | 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. |
| 多溴聯苯醚總和 (Sum of PBDEs) | | mg/kg | - | n.d. |

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| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) |
|--|--|--------------|-----|----------------|
| | | | | No.1 |
| 鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7) | 參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析 · (With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.) | mg/kg | 50 | n.d. |
| 鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (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 (DEHP)) (CAS No.: 117-81-7) | | mg/kg | 50 | n.d. |
| 鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5) | | mg/kg | 50 | n.d. |
| 鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1) | | mg/kg | 50 | n.d. |
| 鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (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 (DNOP)) (CAS No.: 117-84-0) | | mg/kg | 50 | n.d. |
| 鄰苯二甲酸二正戊酯 (DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0) | | mg/kg | 50 | n.d. |
| 鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3) | | mg/kg | 50 | n.d. |

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| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) |
|--|---|--------------|------|----------------|
| | | | | No.1 |
| 六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)) | 參考IEC 62321-9: 2021 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.) | mg/kg | 20 | n.d. |
| 氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8) | 參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.) | mg/kg | 50 | n.d. |
| 氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1) | | mg/kg | 50 | n.d. |
| 溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2) | | mg/kg | 50 | n.d. |
| 碘 (I) (Iodine (I)) (CAS No.: 14362-44-8) | | mg/kg | 50 | n.d. |
| 全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts) | 參考CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.) | mg/kg | 0.01 | n.d. |
| 全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts) | 參考CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.) | mg/kg | 0.01 | n.d. |

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| 測試項目 (Test Items) | 測試方法 (Method) | 單位 (Unit) | MDL | 結果 (Result) |
|--|---|--------------|-----|----------------|
| | | | | No.1 |
| 聚氯乙烯 (Polyvinyl chloride) (PVC) | 參考ASTM E1252: 2013 · 以傅立葉轉換紅外線光譜儀及焰色法分析。(With reference to ASTM E1252: 2013, analysis was performed by FT-IR and Flame Test.) | ** | - | Negative |
| 銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0) | 參考US EPA 3052: 1996 · 以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.) | mg/kg | 2 | 721 |
| 鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7) | 參考US EPA 3052: 1996 · 以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.) | mg/kg | 2 | n.d. |

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出) ; 小於MDL / Less than MDL
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. 全氟辛烷磺酸及其鹽類包含 (PFOS and its salts including) :
CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
8. 全氟辛酸及其鹽類包含 (PFOA and its salts including) :
CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
9. 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 sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value.

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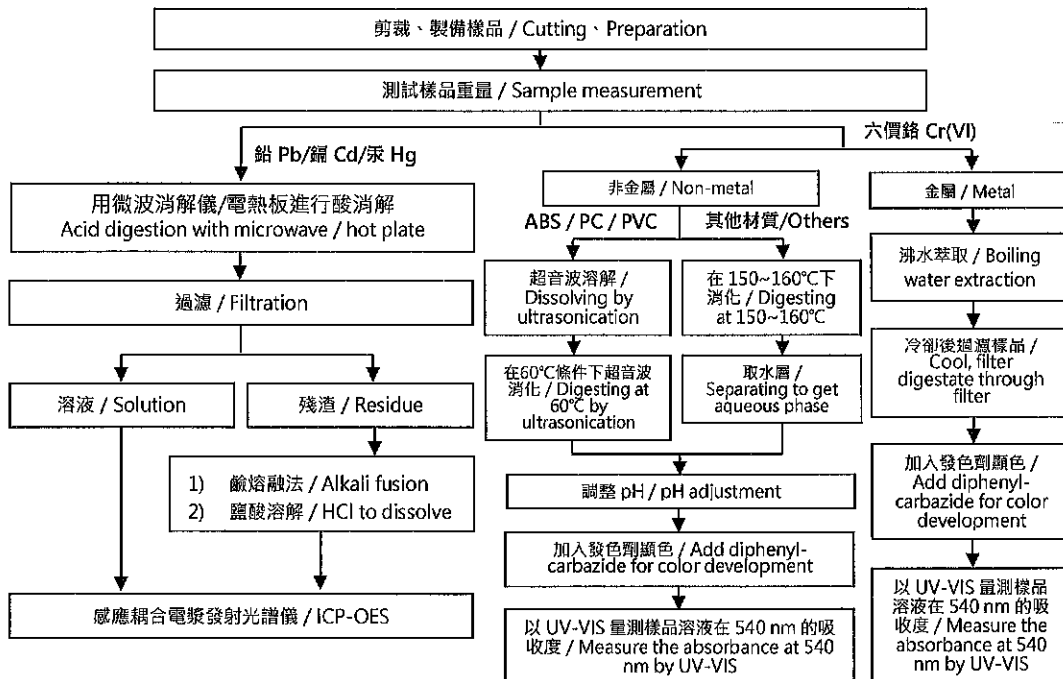
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重金屬流程圖 / Analytical flow chart of Heavy Metal

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)



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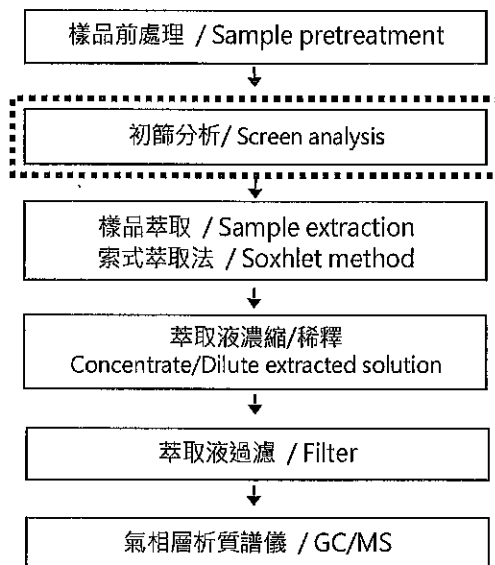
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多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs

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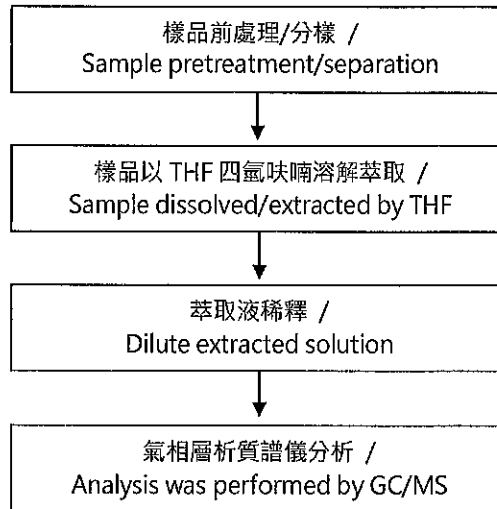
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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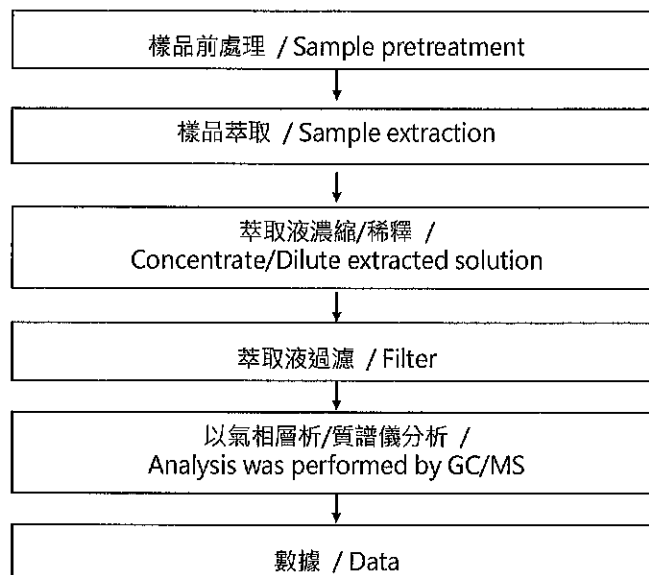
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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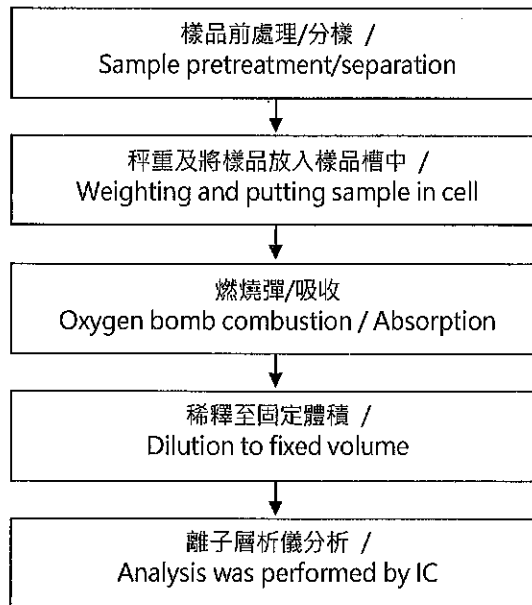
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鹵素分析流程圖 / Analytical flow chart - Halogen



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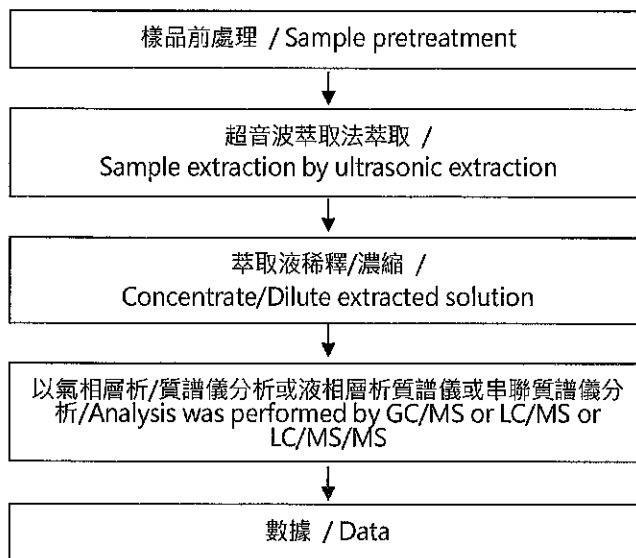
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全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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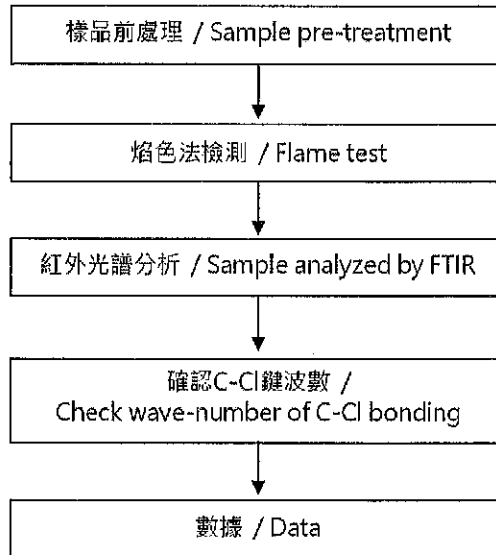
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聚氯乙烯物質判定分析流程圖 / Analysis flow chart - PVC



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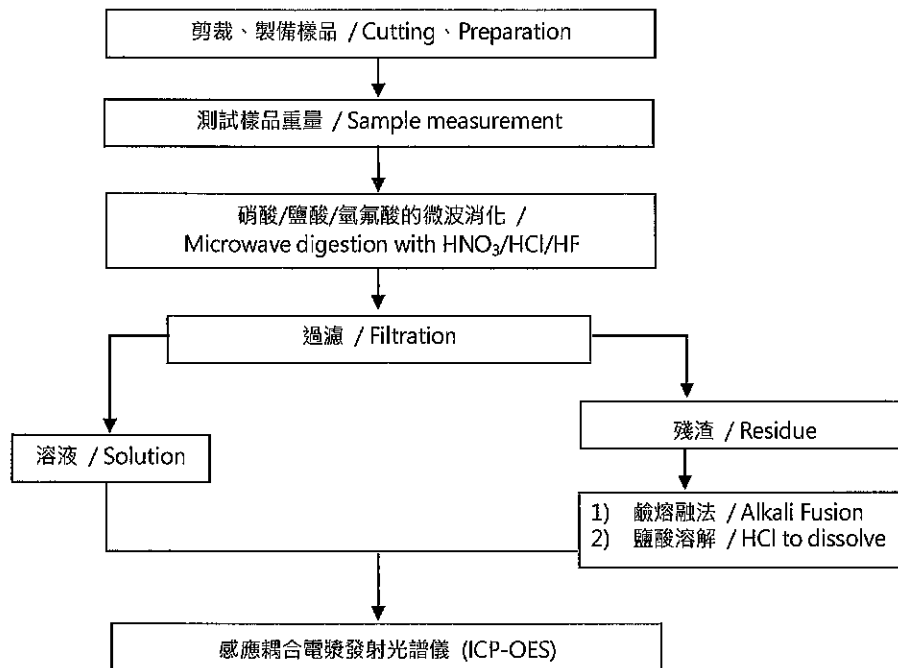
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元素(含重金屬)分析流程圖 / Analytical flow chart of Elements (Heavy metal included)

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.

【參考方法/Reference method : US EPA 3051A · US EPA 3052】



* US EPA 3051A 方法未添加氫氟酸 / US EPA 3051A method does not add HF.

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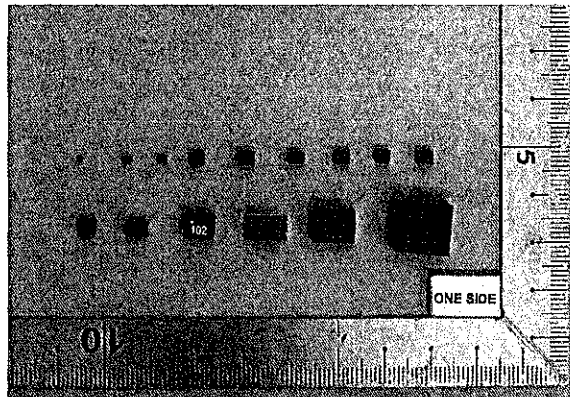
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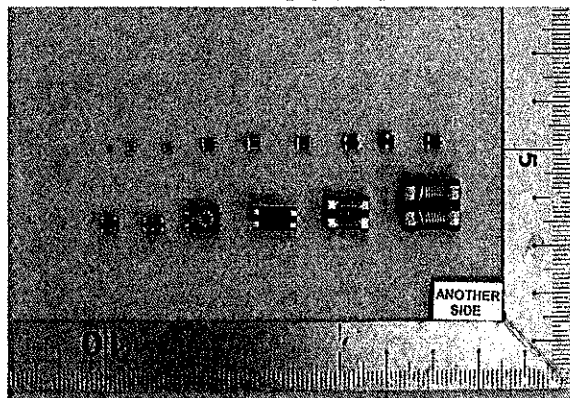
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* 照片中如有箭頭標示 · 則表示為實際檢測之樣品/部位. *
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR22303152



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