

SPECIFICATION

納入仕様書

《 New • Change 》

DWG. NO. X14363-2-(01)
仕様書番号

DATE 2015 06 01
発行日: 年 月 日

MESSRS. Haier

御 中

CUSTOMER'S PRODUCT NAME 貴社品名

TDK PRODUCT NAME 弊社品名

SRW10EE-X31V004

THIS SPECIFICATION IS RECEIVED 受領印欄

脚长 3.2 ± 0.5 mm 确认.

智能站: 王解 2015.6.4

TDK Corporation
TDK株式会社

SALES 販売部門

Electronic Components Sales & Marketing Group
電子部品営業グループ

APPROVED 責任者	Person in Charge 担当者

DATE: YEAR MONTH DAY
受領日 年 月 日

Engineering 技術部門

TDK Corporation TDK株式会社
Magnetics Business Group マグネティクスビジネスグループ
TDK Xiamen Co., Ltd. 廈門TDK有限公司
Magnetics Grp 磁性 Grp
Ferrite Core and Transformer BU 變壓器磁鐵芯 BU

APPROVED 責任者	CHECKED 確認者	Person in Charge 担当者
15.6.3	張相丽 15.6.1	周小强 2015.6.1

REVISION TABLE 來歷表

[illegible]

Product name Transformer & Coil	製品名 變壓器以及線圈		
Title Specifications (An attention matter on use)	題名 納入仕様書(使用上の注意事項)		
【An attention matter on use】 Please read this specifications before using this product by all means.	【使用上の注意事項】 使用本產品前請一定閱讀本規格書。		
【An attention matter on security】 I undertake use with this product, and it is paid attention enough, and please design an attention matter safely.	【安全上の注意事項】 使用本產品時，充分留意注意事項進行安全設計。		
【Attention】	【注意】		
<p>The products listed on this specification sheet are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.</p> <p>The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.</p> <p>If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in this catalog, please contact us.</p> <p>(1) Aerospace/Aviation equipment (2) Transportation equipment (cars, electric trains, ships, etc.) (3) Medical equipment (4) Power-generation control equipment (5) Atomic energy-related equipment (6) Seabed equipment (7) Transportation control equipment (8) Public information-processing equipment (9) Military equipment (10) Electric heating apparatus, burning equipment (11) Disaster prevention/crime prevention equipment (12) Safety equipment (13) Other applications that are not considered general-purpose applications</p> <p>When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.</p>	<p>本規格書上記載的產品被使用在一般電子機器 (AV機器、通信機器、家電機器、娛樂機器、電腦機器、私人機器、事務機器、計測機器、產業用機器)</p> <p>的通用標準用途上。 而且，該當一般電子機器 是在通常操作、使用方法下使用</p> <p>本產品不適用被使用在 需要高度安全性以及信賴性的，或是機器的故障、誤動作、不良會對人的生命、身體以及財產帶來損害，或是對社會有重大影響的用途(以下特定用途)。在這樣的用途，本產品不能發揮性能，不能保證品質。</p> <p>超出本規格書的範圍、條件的，或是在特定用途下使用導致發生損害等，使用廠家自己必須負起責任。請瞭解。</p> <p>想在超出本規格書的範圍、條件的，或是在特定用途上使用的場合，請事先與弊社的聯絡者商談。</p> <p>根據客戶的用途，有關與本規格書記載的規格不一樣的規格，請允許協定。</p> <p>①航空、宇宙機器 ②輸送用機器(自動車、電車、船舶等) ③醫療用機器 ④發電制御用機器 ⑤原子力關係機器 ⑥海底機器 ⑦交通機關制禦機器 ⑧公共性高情報處理機器 ⑨軍事用機器 ⑩電熱用品、燃燒機器 ⑪防災、防犯機器 ⑫各種安全裝置 ⑬被其他特定用途承認的用途</p> <p>還有，設計使用本產品的機器時，請根據該當機器的使用用途以及形態，設計好保護回路・裝置的確保以及備份回路等。</p>		
TDK-EPC Corporation	PRODUCT NAME SRW10EE-X31V004	SPEC. No. X14363-2-(01)	PAGE: 頁 3-1

Product name Transformer & Coil		製品名 變壓器以及線圈	
Title Specifications (An attention matter on use)		題名 納入仕様書(使用上の注意事項)	
【Attention】		【注意】	
<ul style="list-style-type: none"> ● I considered the next matter, and we designed a product. Safe standard and power supply voltage and circuit drive condition, drive frequency and Duty ON-TIME. By those conditions, we decided structure and the turns number. Please avoid use in designed condition outside. There are destruction of a circuit part and fear of ignition. ● This product considered a characteristic of a component and a self temperature rise, and it was made. We select range of humidity as use temperature already. Please avoid use by range more than this. There are the damage and fear of ignition. ● Please avoid use in the environment next. The environment that trash and the dust stick to a product. There is fear to cause a fire. 		<ul style="list-style-type: none"> ● 考慮了安全規格以及電源電壓及回路驅動條件(驅動頻率以及最大ON期間)等, 決定了構造以及圈數(磁氣実装), 所以請不要在設計條件以外情況下使用。有可能會破壞, 燒損回路元器件。 ● 考慮了構成元器件的特性以及自己的溫升, 已經決定了使用溫度與濕度的範圍。超出這個範圍的, 請避免使用。因為會有燒損或是著火的隱患。 ● 請避免在容易附著灰塵, 塵土的環境下使用, 有引起火災的隱患。 	
【Attention on a design】		【設計上的注意】	
<ul style="list-style-type: none"> ● When you designs a base of an electric circuit. Please use size of the hole or pad which we recommend. ● Magnetic flux to leak out occurs. Please confirm it about influence of magnetic flux beforehand. There is fear to cause false movement of machinery. ● In a design of a base of an electric circuit. Please consider the next contents. In an applied safe standard. The trans and distance with other parts ● The product is not quakeproof structure. Accordingly please do not add vibration and a shock to it. There is fear to lose a function. 		<ul style="list-style-type: none"> ● 進行基板設計時, 請使用我司推薦的孔徑或是PAD。 ● 因為會發生漏泄磁束, 所以請事先確認有關磁束的影響。有可能會導致機器誤動作。 ● 進行基板設計時, 請依適用的安全規格確保與變壓器的距離。 ● 因為不是耐震構造, 所以不要在施加振動或是衝擊的地方使用。有損壞機能的隱患。 	
【Attention on the handling】		【操作上的注意】	
<ul style="list-style-type: none"> ● Please do not use it when you let a product drop. The product produces possibility to lose a function ● Please pay attention to the pin which had it pointed keenly. There is danger to injure. ● Please avoid the next place The place that receives a drop of water, trash, the dust, foggy influence The place where direct rays of the sun hits There is fear to cause false movement of machinery. ● Please prohibit safekeeping and use at the next place Environment to be accompanied with gas corrosion, salt, acid, alkali There is fear to lose a function. ● When you carry the product on a base of an electric circuit. Please do not use a metal tool Because impossible power is added to a product. There is fear to lose a function. 		<ul style="list-style-type: none"> ● 落下的場合請避免使用。有損壞機能的隱患。 ● 端子頭部因焊錫, 比較尖, 注意不要受傷。 ● 有關保管, 請避免塵土, 灰塵, 霧水, 水滴, 以及陽光直射。有導致機器誤動作的隱患。 ● 不在腐蝕環境(鹽、酸、堿等)下, 使用以及保管。有損壞機能的隱患。 ● 實裝時, 不使用金屬工具等對產品施加過度的力。有損壞機能的隱患。 	
TDK-EPC Corporation		PRODUCT NAME SRW10EE-X31V004	SPEC. No. X14363-2-(01)
		PAGE: 頁 3-2	

SCOPE 适用范围

This drawing defines the requirements for Transformer _____
intended for deliver to Haier

本仕様书适用于 Haier 编号为 _____ 的部品。

APPELLATION OF ARTICLE 制品名称

Appellation of article which specifies in this drawing is SRW10EE-X31V004

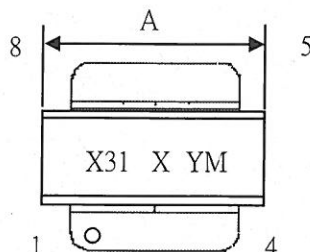
本仕様书中的制品名称为 SRW10EE-X31V004

[1] APPEARANCE & DIMENSIONS 形状及尺寸	PAGE	5
[2] SCHEMATICS 接线图	PAGE	6
[3] WINDING SPECIFICATION S 卷线仕様	PAGE	6
[4] ELECTRICAL CHARACTERISTICS 电气特性	PAGE	7
[5] MATERIAL LIST & INSULATING CONSTRUCTION 部品材料清單&絶縁结构	PAGE	8
[6] RELIABILITY TEST 可靠性试验	PAGE	9
[7] PACKAGE SPECIFICATIONS 包装仕様	PAGE	10
[8] HUMIDITY / TEMPERATURE RANGE 温度湿度范围	PAGE	11
[9] NOTE 附記	PAGE	11

[1] APPEARANCE & DIMENSIONS 形狀及尺寸 (UNIT:mm)

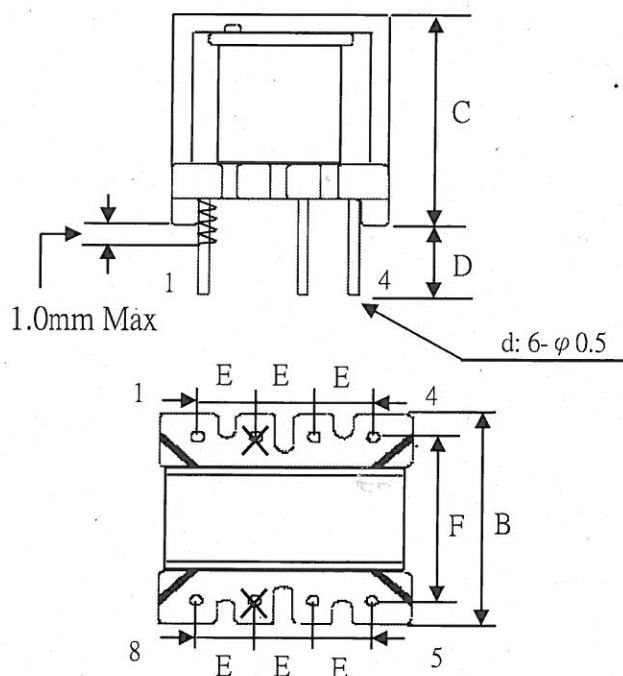
MARKING 製品表示

1. TYPE CODE(T.C.) : X31
2. COUNTRY CODE 原産国略号 : X → TDK XIAMEN (CHINA) 厦門TDK
3. LOT NO. 製造Lot號碼 : Y → YEAR [A BOTTOM 1 FIGURE NUMBER] 西曆下1桁
M → MONTH [1 FIGURE NUMBER] 月1桁
(October-X, November-Y, December-Z 10月-X、11月-Y、12月-Z)
(EX: October, 2010, → 0X)
(例: 2010年10月 18時 → 0X)
4. MARKING METHOD 捺印方式 : LASER MARKING OR INK MARKING. 鐳射捺印或者油墨捺印



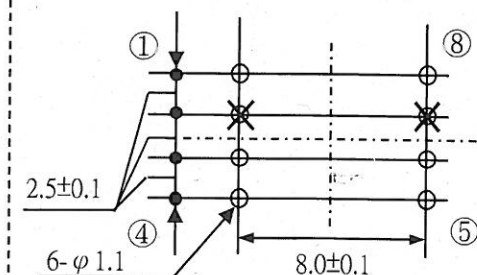
Unit in mm

- ①
- A : 11.2 Max
 - B : 10.8 Max
 - C : 12.5 Max
 - D : 3.2 ± 0.5
(不含錫尖 exclude solder spike)
 - E : 2.5 ± 0.3
 - F : 8.0 ± 0.3
 - d : 0.5 ± 0.1



治具圖:

[TOP VIEW]



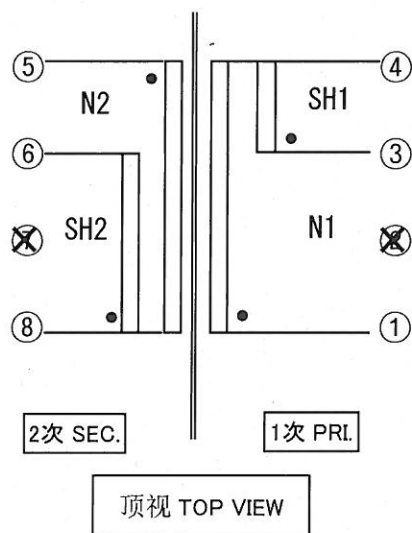
注意事項(remark):

1. 製品點膠含浸固定 All products are fixed with adhesive and varnish.
2. 組立TAPE 2.0圈以上 Fixing tape for core : 2.0 TS MIN.
3. PIN2, 7拔除 PIN2, 7 should be pulled off.
4. 製品採用無鉛焊錫 The transformer is lead-free solder corresponding product.

[2] SCHEMATICS 線路符號

Dot Mark : Polarity

● : 表示极性。



[3] WINDING SPECIFICATIONS 巻線仕様

No.	Order 巻順	Coil コイル	Terminal 端子	Turns 巻数	Wire 線材	Note 備考
1	1	S H1	3 - 4	26	2UEW 0.10*2	
2	2	N 1	1 - 4	120	2UEW 0.10	
3	3	S H2	8 - 6	11	2UEW 0.10*2	
4	4	N 2	5 - 8	20	2UEW 0.30	

[4] ELECTRICAL CHARACTERISTICS 电气特性

Test Conditions (測定条件) Temperature (温度) : 25±10℃
Relative Humidity (湿度) : 25~85%.

No.	Parameter 項目	Test Terminal 測試端子	Specification 規格	Conditions 条件	Test Instruments 測試儀器
4.1	Inductance 电感值 (L值)	1 - 4	1.8mH ± 15%	1 kHz 1Vrms	LCR Meter Agilent : 4263B or Equivalent
4.2	Leakage Inductance 泄漏电感值 (Le值)	1 - 4 (5,6,8 short)	350 μH MAX.	1 kHz 1Vrms	
4.3	DC. Resistance 直流阻抗	3 - 4	0.55 Ω ± 25%		Milli ohm meter ADEX : AX-114 or Equivalent
		1 - 4	5.72 Ω ± 20%		
		8 - 6	0.29 Ω ± 25%		
		5 - 8	132m Ω ± 25%		
4.4	Insulation Resistance 絕緣阻抗	PRI-SEC. PRI, SEC. -CORE	100 MΩ MIN.	DC 500V	Meg Ohm Meter Toa : SM-5E or Equivalent
4.5	Withstanding Voltage 耐电压	PRI - SEC.	Without Breakdown 无异常	AC 0.5kVrms 1min or AC 0.6kVrms 1s	Puncture Tester Kikusui : TOS8650 or Equivalent
		PRI, SEC. -CORE	Sense:2mA f=50or60Hz	AC 0.25kVrms 1min or AC 0.3kVrms 1s	
4.6	Polarity & Turns Ratio 极性 & 卷数比 X-X / 1 - 4	3 - 4	(0.2142) ± 5%	f=10kHz	Ratio Meter Ryowa : TRM-101A or Equivalent
		8 - 6	(0.0906) ± 6%		
		5 - 8	(0.1669) ± 6%		

检查标准 (Inspection Standard) :

全数检查 (Inspection items by all) : 4.1, 4.2, 4.5, 4.6

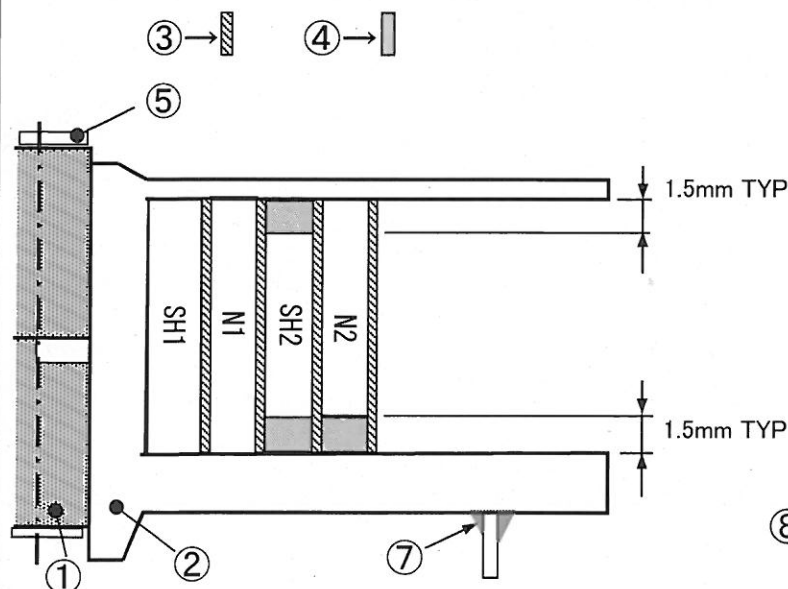
抽样检查 (Inspection items by sampling) : 4.3, 4.4

[5] MATERIAL LIST & INSULATING CONSTRUCTION(部品材料清單&絕緣結構)

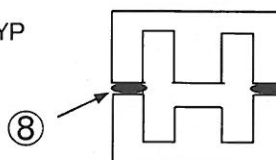
No.	ITEM & MATERIAL	MIN.THICKNESS OF 1 LAYER	UL T.I (°C)	MANUFACTURER	UL FILE NO.
①	CORE Ferrite	—	—	TDK-EPC Corporation	—
②	BOBBIN Phenol Resin:PM-9820 T200HF T375J	0.25 mm	150 94V-0	SUMITOMO BAKELITE CO.,LTD. CHANG CHUN PLASTICS CO.,LTD CHANG CHUN PLASTICS CO.,LTD	E41429 E59481 E59481
③	INSULATION TAPE Polyester Color : WHITE 1318-1 35660 CT with suffixes	0.039 mm	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD) SYMBIO INC JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E17385 E50292 E165111
④	FIXING TAPE FOR WIRE (Barrier Tape) 44D-A or 44T-A 35661 WF with suffixes	—	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD) SYMBIO INC JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E17385 E50292 E165111
⑤	FIXING TAPE FOR CORE Polyester 1318-1 or 1350F-1 35660 Color : WHITE CT with suffixes	0.039 mm	130	3M COMPANY ELECTRICAL MARKETS DIV (EMD) SYMBIO INC JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E17385 E50292 E165111
⑥	WINDING WIRE Polyurethane Enameled Copper Wire 0.10 mm DIA : N1 0.10 mm DIA X2 : SH1 , SH2 0.30 mm DIA : N2	—	130	PROSPERITY ELECTRIC WIRE & CABLE CO. HANGZHOU WEIFENG ELECTRONIC CO.,LTD. TAI-I ELECTRIC WIRE&CABLE CO LTD SHENZHEN FUJI FINE FACTORY HITACHI CABLE (JOHOR) SDN BHD THAI HITACHI ENAMEL WIRE CO LTD TAYA ZHANGZHOU WIRES CABLE CO LTD ELEKTRISOLA (MALAYSIA) SDN BHD	E196072 E229341 E85640 E303260 E215594 E137472 E354216 E143312
⑦	SOLDER (For junction of a wire and a terminal) Lead-Free	—	—	Optional	—
⑧	ADHESIVE Acrylic , Urethane or Epoxy or silicon	—	—	Optional	—
⑨	VARNISH EPOXY VARNISH NO.TVB-2024	—	—	KYOCERA CHEMICAL CORPORATION	E83702

※ 1. Tape Min. Thickness shows the total value. (Tape Base and Adhesive)

※ 2. Insulation Tape shall be able to withstand for 1 minute of 3000 Volts (r.m.s) Potential with 2 layers.



LAYERS OF INSULATION TAPE		
No.	Coil Name	Turns
1	SH1	2TS
2	N1	2TS
3	SH2	2TS
4	N2	2TS



[6] RELIABILITY TEST 信頼性試験

No.	PARAMETER 項目	TEST CONDITIONS 試験条件
1	High Temperture Storage 耐高温試験	+85±2°C 96 hours
2	Low Temperture Storage 耐低温試験	-40±3°C 96 hours
3	Humidity(Steady State) 耐濕性試験	+60±2°C 90~95% R.H. 96 hours
4	Thermal shock in air 熱衝擊試験	-40°C / +85°C Each 30MIN., Normal temp. 5MIN. 10 cycles
5	Vibration(Sinusoidal) 振動試験	Frequency: f=10~55Hz, 1.5mmP-P 1oct/min Direction: X,Y,Z each 2h, Total 6h.
6	Shock 機械衝擊試験	Peak acceleration: 1000 m/s ² , Duration of the pulse: 6ms Direction: X,Y,Z Each direction 3 time Total 18 time
7	Resistance to soulder heat 焊錫耐熱性	Soldering iron method : 380±10°C, 3+1/-0s, 2times Soldering bath method : 260±3°C, 10±1s
8	Solderability 焊錫附著試験	245±2°C 3.0±0.5s Lead's area coated with solder 90% min
9	Terminal strength 端子強度	Pull test 10N(1.02kgf) 30±5s

There shall be no damage on appearance Mechanical characteristics shall be satisfied.

外觀上無異常，滿足電氣機械性能。

After the test on above items No.1~7 Specification of insulation resistance criterid value is more than 100MΩ, when 500V DC applied.

實施上記1~7項試驗後，印加500V DC後絕緣抵抗值在100MΩ以上。

It shall be subjected to standard atmospheric conditions for 2h, after which measurement be made.

測定要求常溫常濕中放置2小時後進行。

The judgment of No.8 is carried out as the following conditions.

No.8的判定條件記錄如下。

- Solder wetting time(Zero cross time) shall be 3s or less.

焊錫覆蓋時間3秒以內

- 90% minimum observed around the terminal pin.

焊錫覆蓋面積90%以上

After the test on items No.9, Thing without loosening and movement of terminal.

實施上記No9.項試驗後，端子沒有鬆動或脫落。

[7] PACKAGE SPECIFICATIONS 包装仕様

Part to be packaged in such a manner as to keep away from humidity and physical damage, and marked as following.
制品依照如下的包装方式, 防止对制品造成损伤。

PART No.	(品名)
QUANTITY	(数量)
Lot No. of manufacture.	(製造Lot號碼)
REMARKS/ Lot No. of Marking	(注意/捺印LOT)
MANUFACTURER'S CODE	(生产者编号)
COUNTRY CODE	(生産国表示)

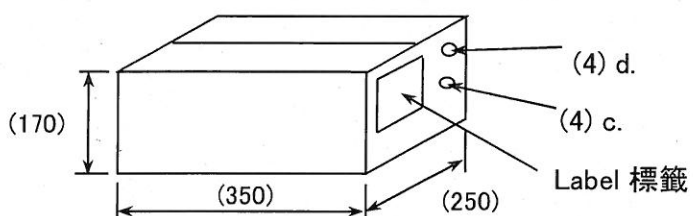
(1) The Number of contents 員数

- | | | | |
|---|---|-----|--------|
| a. The number of products per styrofoam case
每盘的制品数量 | : | 150 | pieces |
| b. The number of styrofoam cases per outer card board box
每箱装盘的数量 | : | 4 | pieces |
| c. The number of products per outer card board box (aXb)
每箱的制品数量 (aXb) | : | 600 | pieces |

(2) Mass 質量

- | | | |
|-----------------------------|---|-------------|
| a. Mass per product 每个制品的质量 | : | (2.65) g |
| b. Total Mass 总质量 | : | (2.44) kg |

(3) Package Measurements & Appearance 外箱的尺寸与外观 (Unit:mm)



(4) Indication & Notes 表示 & 注意

- Stick a "Out-Going-Inspection Data" before shipment on one of the outer boxes for each shipment lot.
每次出货均附“出货检查成绩表”于其中一箱中。
- The execution of 100% W.V. test must be described in certificate of performance.
“出货检查成绩表”中体现制品100%进行了耐电压测试。
- Indicate "INSPECTION DATA ENCLOSED" on the label side of the package which has the certificate on.
标示“INSPECTION DATA ENCLOSED”字样的箱中添附“出货检查成绩表”。
- Stick a green round label on the label side of the outer carton box to indicate that the package contains a fractional number of inner cases.
残数箱贴绿色圆点标示。

[8] TEMPERATURE HUMIDITY RANGE 温度湿度范围

- 8.1 Operation Range after the assembly (実装後の使用範囲)
Temperature (温度) : $-30^{\circ}\text{C} \sim +115^{\circ}\text{C}$
(Generation of heat by the self is contained. 包含自己發熱)
Humidity (濕度) : $10 \sim 95\% \text{ RH}$
(A maximum wet bulb temperature is 38°C . No condensation.)
(但是最大濕球溫度 38°C 沒有結露)
- 8.2 Preservative Range after the assembly (実装後の保存範囲)
Temperature (溫度) : $-25^{\circ}\text{C} \sim +80^{\circ}\text{C}$
Humidity (濕度) : $10 \sim 95\% \text{ RH}$
(A maximum wet bulb temperature is 38°C . No condensation.)
(但是最大濕球溫度 38°C 沒有結露)
- 8.3 Product storage limitation before the assembly (未実装製品の保管期限)
Please pay attention to a condition in the page of 「An attention matter on use」.
The product storage limitation before the assembly is one year in environment of temperature $5 \sim 40^{\circ}\text{C}$ and $10 \sim 75\% \text{ RH}$ in humidity.
If more then 1 year has passed, confirm the solderability before using.
注意「使用的注意事項」中的條件。
沒有實裝的製品保管期限為溫度 $5 \sim 40^{\circ}\text{C}$ 、濕度 $10 \sim 75\% \text{ RH}$ 環境下1年以內。
經過1年以上的場合, 確認焊錫性沒有問題之後使用。

[9] NOTE 附記

- 9.1 A English sentence is a priority language.
本仕様书中, 英文为优先语言。
- 9.2 Ozone Depleting Substances (破坏臭氧层物质)
This transformer and manufacturing processes do not use ozone depleting substances.
此变压器本身及其生产过程不使用破坏臭氧层物质。
- 9.3 Temperature Class (絶縁耐熱区分) : CLASS E [115°C : Resistance Method 抵抗法]
- 9.4 Applicable Safety Standard (適用安全規格) : N/A
- * Products are not approved to the above standard. But insulation construction and materials are designed in accordance with safety considerations.
* 制品未取得上述安规机构的承认, 但是, 制品在材料选取, 结构设计上可以符合上述安规要求。
- 9.5 Please return our company one stamping your receipt stamp on the cover of the specifications.
When our company cannot return it within two months from the issued day, it is thought that specifications were accepted.
請貴司在本納入仕様書の表紙上蓋章, 並返還一份給我司。
如果從我司發行日起2個月內沒有返還的場合, 我司認為本納入仕様書已被受領。
- 9.6 Please do not do the solvent washing of this product.
Moreover, please consult our company beforehand when you use the coating agent for the dampproof that contains solvents such as the acetone, toluenes, and xylenes.
對本產品不進行溶劑洗淨。還有, 使用含有丙酮, 甲苯, 二甲苯等溶劑的防濕劑的場合, 請事先與我司商談。