ARCOTRONICS BAUELEMENTE GmbH
A Kemet Company

Rudolf-Diesel-Straβe 21
D-86899 Landsberg am Lech – Germany

ニッセイ電機株式会社

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JSP ZAA2R シリーズ仕様書

Technical Information
Reference DATA
JSPZW5470ZAA2R (量産 Series parts)

Customer 顧客: Sanden Corporation

Ver.04

July 2008

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改定履歴　Revision history of specification

版数 Revision number	改定日 Date of revision	改定内容 Description of revision	作成 Written by	承認 Authoriz-ed by
T-01	12th June 2007	First edition.	D.Zeidler	A.Floegel
T-02	5th June 2007	*実効値電流再見直し（端子冷却無しの条件にて） Irms values has was changed again by the conditon without cooling of terminals. *周波数　VS　許容電流のグラフを追加 Graph of Irms vs frequency was added.	D.Zeidler	A.Floegel
T-03	21st Nov 2007	*許容電流の冷却条件明確化の為に“冷却”を“強制冷却”に変更。 At the section of Max RMS current, “cooling” was replaced by “forced cooling” to make the definition of cooling more clear. *許容電流の条件に”上記誘電正接の範囲内”を追記。 At the section of Max RMS currenrt, added the sentence of “Valid within the dissipation factor above defined.” *tan δ 上限値の変更 Changed max tdg value definition. *ウレタン樹脂種類を変更（シリコン樹脂未硬化対策） Changed ulethan resin to avoid uncured silicon resin phenomina. *樹脂変更に伴い品名変更 Changed P/N in accordance with replacement of ulethan resin. 旧 old：JSPZW5470ZA00Z　→　新 new：JSPZW5470ZA01R *端子角の曲率変更 Changed curvature at the corner of terminals *蒸着金属種別の誤りを訂正 Corrected the metalization type. *ロゴ表記情報の誤りを訂正 Corrected the information about logo.	D.Zeidler	A.Floegel
	04	暫定を廃止、正式版とする。Get rid of “Tentarive ” to be official version.		

		*一般情報追加　Added the content of ”General information”. *適用を追加　Added the “scope”. *捺印情報を追加　Added “Marking” *テーピング、梱包仕様追加　Taping and packaging was added. *信頼性試験項目の暫定を削除。　Get rid of “tentative” in test plan. *10Khz, 20Khz における静電容量許容差の定義を変更 Definition of capacitance tolerance at 10kHZ and 20Khz was changed *1Khz より高い周波数ではラインでせいで全数計測を行わない事とした Decided not to do monuments at more than 1Khz at production line * 端子ケース間耐圧の条件を変更 Condition of “withstand voltage between connected terminals and case “ was changed to DC voltage test – for equipment reasons *耐久性試験の温度と時間を変更　Time and temperature of endurance test was changed. 125℃1000Hr→1000h(125°C)+ 1000h(105°C) *熱衝撃試験の時間を変更　Time of rapid change of temperature was reduced.　1000Hr → 500Hr *期待寿命の定義を変更　Definition of expected life time was changed. *信頼性試験データを追加　Add the reliability test data. *樹脂を非耐シリコン樹脂の通常品に変更　Changed the resin to normal type that is not until-silicon-resin.		

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		*暫定版との区別をつける為、品名を以下の通り変更 P/N has been changed to distinguish with tentative version as following. JSPZW5470ZA01R ➔JSPZW5470ZAA2R *一般性能と試験方法の項目を削除 Performance and test method was deleted.		

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I-1 技術情報　Techinical Informaiton

１．一般情報　General Information

自動車用大電流 DC リンクコンデンサ

High current DC- link capacitor for automotive usage

２．適用　　Scope

自動車用電動コンプレッサーに適用する。

Applied to the electrically driven compressor on automotive.

３．品名付与基準及び一般技術仕様

(Arcotronics parts number and General techinical data)

1	誘電体 Dielectric	耐熱金属化ポリプロピレンフィルム Heat resistance metallized PP film
2	蒸着 Metallization	安全機構（セグメント）付きアルミ合金蒸着 Metallization by Aluminum alloy
3	内部構造 Inner construction	積層素子、ボックス樹脂封入 Stacked element capsulated in box with protection by resin filling.
4	ボックス Box	UL 94 V0 難燃性 PPS UL 94 V0 flame retardant PPS 厚み(Thickness of box wall) > 0,7ｍｍ
5	樹脂 Resin	UL 94 V0 難燃性熱硬化ポリウレタン樹脂 UL 94 V0 flame retardant thermosetting PU resin
6	電極 Terminals	スズメッキ銅電極 Tinned copper terminals
7	動作温度範囲 Operating temp range	－５５℃～＋１２５℃
8	捺印 Marking	製造社ロゴ、シリーズ名（JSP)、公称静電容量、静電容量許容差、DC 定格電圧、製造日コードを捺印表示をボックス表面に捺印。 Manufacture's logo, series (JSP), nominal capacitance, capacitance tolerance, DC-rated voltage and date code are printed on a box.

9	対候性カテゴリー Climatic Category	55/125/56　IEC 60068-1
１０	保存温度範囲 Storage	０℃～＋４０℃

4. 電気的仕様（Electrical Characteristics）

1	定格電圧 Rated Voltage	500Ｖｄｃ-125°C 600Vdc – 105°C
2	定格温度 Rated temp	125℃（500Vdc) 105°C (600Vdc)
3	公称静電容量値 Nominal capacitance value	47uF (@１ｋＨｚ, 10kHz and 20 kHz)
4	静電容量許容差 Capacitance Tolerance	＋0%～＋10%（@１ｋＨｚ）– 全数測定 100% Measurement in a produciton line ＋0%～＋13%（@10kHz and 20ｋＨｚ）ラインで測定せず No measurement in the production line
5	誘電正接 Dissipation factor	≦0.002　＠１ｋＨｚ、２５℃±５℃ ≦0.010 ＠１０ｋＨｚ、２５℃±５℃
6	許容最大実効値電流（上記誘電正接の範囲内）（端子強制冷却無し） Max RMS current **(Valid within the dispation factor avove defined.) (Without forced cooling of terminals)** [Arms]	@100degC / @105degC / @115degC / @125degC 10Khz / 20Khz / 10Khz / 20Khz / 10Khz / 20Khz / 10Khz / 20Khz **29 / 35 / 29 / 35 / 22 / 25 / 11 / 12**
7	絶縁抵抗値 Insulation resistance	端子間　Between 2 electrical terminals IR≥200 MΩ T=25°C±5°C 充電時間(Charge time) : 1 min 充電電圧(Charge voltage): 500Vdc

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8	許容最大電圧勾配 Permissible dV/dT	15V/us
9	端子間耐圧 Withstand voltage between terminals	1.2 x V_R , 2sec @ T=25°C±5
10	端子ケース間耐圧 Withstand voltage between connected terminals and case	2200Vdc, 1min @T=25°C±5° (DC voltage) 絶縁破壊無き事 No break down. Just sample check 5 pieces / lot

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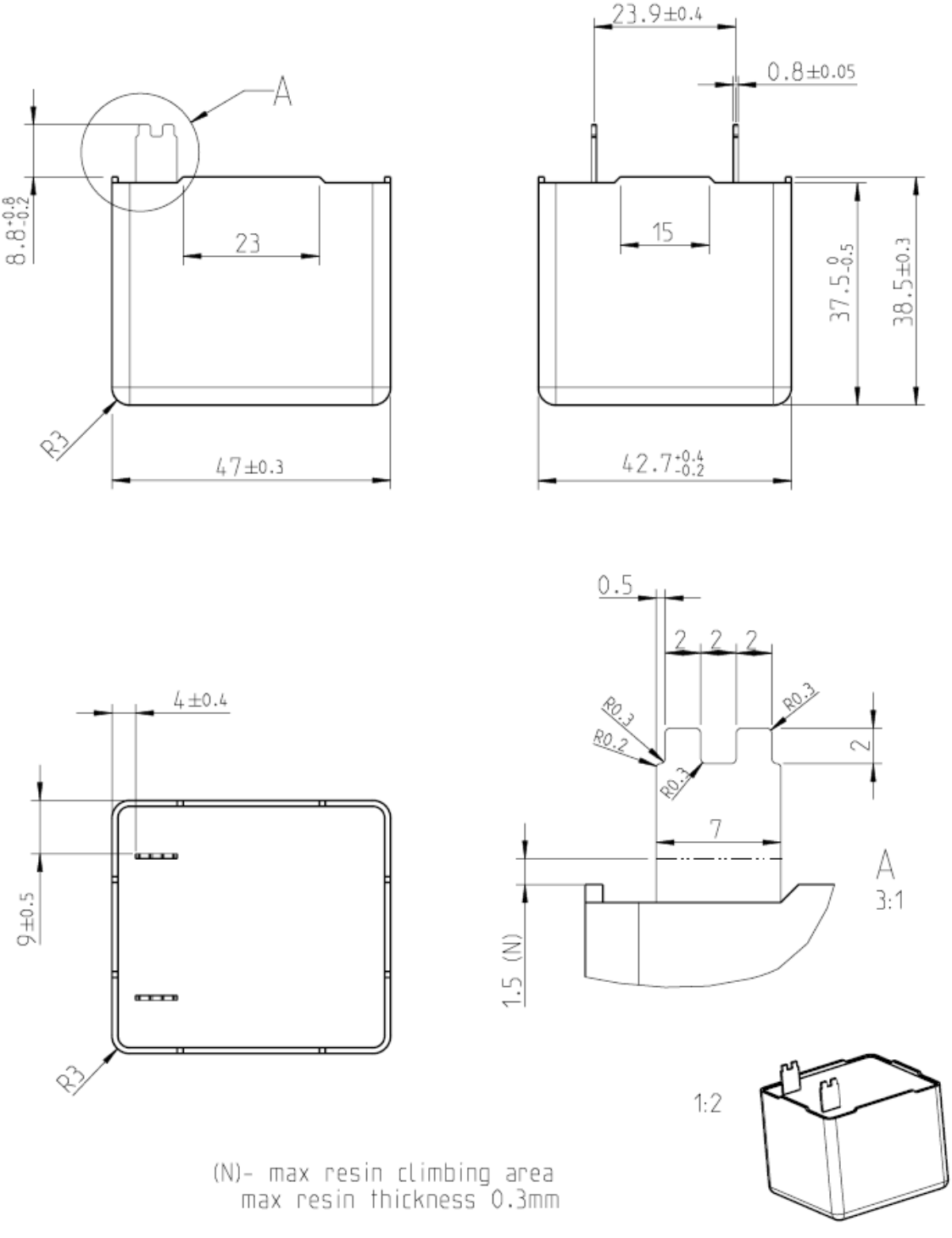
５．静電容量範囲と寸法 Capacitor range and dimension



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6 捺印 Marking

JSP
47µF R 500Vdc
55/125/56 Datecode QA-Number.

定義 definition:

データコード datacode: EN 60062 に準拠して製造年と製造月を示す。

datecode according EN 60062 – code letter for year code letter for month

例 example: VD – 2007 December

表４ Table-4

年 Year	記号 Code
2007	V
2008	W
2009	X

月 Month	記号 Code
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	O
11	N
12	D

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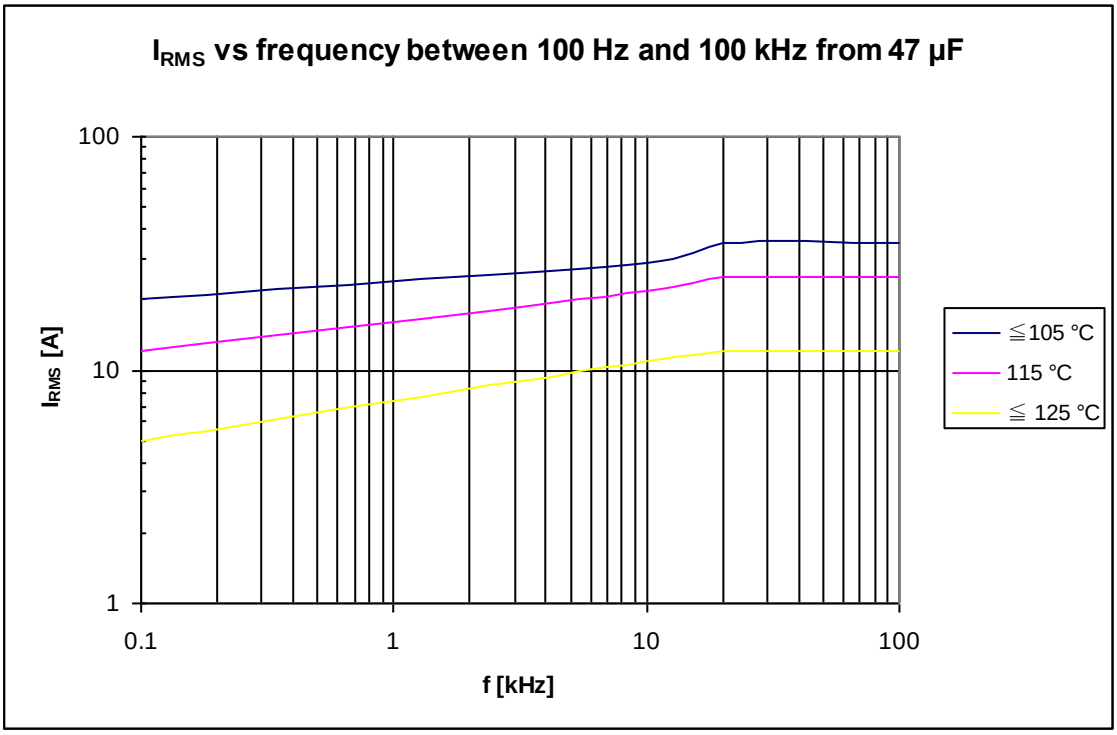
7. 電圧、電流 ｖｓ 周波数特性 Rated voltage and Irms vs frequency



8 テーピング、梱包仕様 Taping and packaging

	寸法 Dimension	製品収納数 Numbers of capacitors loaded	満載時総重量 Total weight including capacitors fully loaded
プラスティックトレー Plastic tray	263 x 163mm	18pcs	1,8 kg
化粧箱 Cardboard	282x184x150mm	54pcs	5,6 kg

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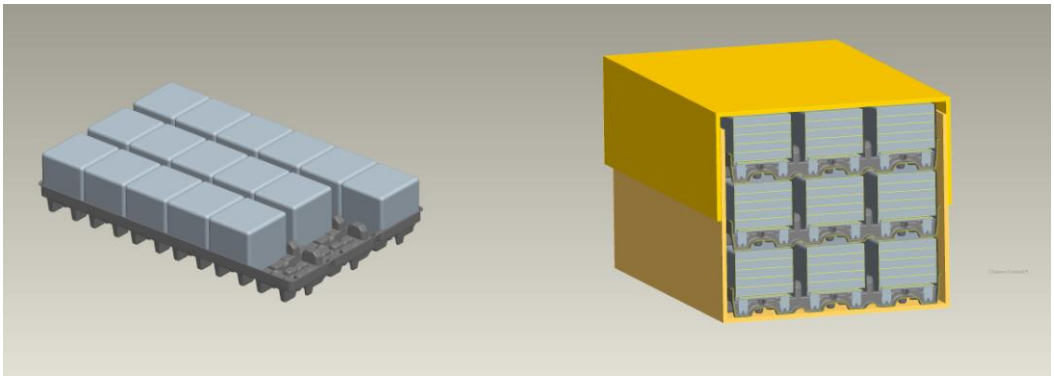

Fig 9-1 Plastic Tray

Fig 9-2 Cardboard

I-2 製造工程 Production flow chart

1. QC 工程図 Quality Plan

巻末別紙参照 Additional documents in annex

I-3 信頼性試験データ Test data

1. ５００Vdc、47uF の信頼性試験項目 Test Plan

IEC384-16, DIN 45910T23 準拠(Reference)

1	耐湿性試験 Damp heat, steady state	**[試験条件 Test condition]** 温度(Temp): 40°C ±2°C 相対湿度(Relative humidity): 93%RH 試験期間(Test period): 56 days **[性能 Performance]** 静電容量変化率 |ΔC/C| ≤ 5% 誘電正接変化 |Δtgδ| ≤ 50x10^{-4} at 1kHz 絶縁抵抗値 IR ≥定格の 50% (50% of limit value)
2	耐湿負荷試験 Damp heat, with load	**[試験条件 Test condition]** 温度(Temp): 85°C ±2°C 相対湿度(Relative humidity): 85%RH 試験期間(Test period): 360Hr 印加電圧(Applied voltage): 300Vdc **[性能 Performance]** 静電容量変化率 |ΔC/C| ≤ 10% 誘電正接変化 |Δtgδ| ≤ 50x10^{-4} at 1kHz 絶縁抵抗値 IR ≥定格の 50% (50% of limit value)
3	耐久性試験 Endurance Test	**[試験条件 Test condition]** 温度(Temp): 125°C ±2°C + 105 °C 試験時間(Test period): 1000 h(125°C) + 1000h(105°C) 印加電圧(Applied voltage: 500 Vdc **[性能 Performance]**

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		静電容量変化率|ΔC/C| ≤ 10% 誘電正接変化 |Δtgδ| ≤ 50x10^{-4} at 1kHz 絶縁抵抗値: IR ≥定格の 50% (50% of limit value)
4	熱衝撃試験 Rapid change of temperature	**[試験条件 Test condition]** 温度(Temp): 0,5 h at –40°C; 0,5 h at +125°C 試験時間(Test period): 500 h **[性能 Performance]** 静電容量変化率|ΔC/C| ≤ 5% 誘電正接変化 |Δtgδ| ≤ 1x10^{-2} at 1kHz 絶縁抵抗値: IR ≥ 定格 50% of limit value 外観(Appearance):異常無きこと(No mechanical damage)
5	長期安定性（２年） Long term stability (2 Years)	**[保存条件 storage condition]** 通常雰囲気 standard environmental conditions **[性能 Performance]** 静電容量変化率|ΔC/C| ≤ 3%
6	信頼性試験 Reliability test	[期待寿命 Expected Life] : 12,000 Hr or more by the conditon in table 1-3-1 [故障判定基準 Criteria] ショート又はオープン short or open circuit 静電容量変化率|ΔC/C|= -13% or less 誘電正接変化 (Δtgδ.>定格の２倍) (Δtgδ.>2xinitial limit) 絶縁抵抗値:< 0.005 x 初期値 (initial value)

雰囲気温度 Ambient temperature [℃]	相対湿度 Rated Humidity [%RH]	印加電圧 Voltage [VDC]	リップル電流 Ripple Current [Arms]@10Khz	全寿命時間における占有率 Time occupation during total life time	占有時間 Time [Hr]	最大静電容量変化率 total max. change of capacitance value
	< 1	600	29	3.6%	432	-0.2%
-40	<1	600	0	2.4%	288	-0.1%
	<80	600	29	6.0%	720	-0.4%
23	<80	600	0	4.0%	480	-0.1%
	<20	600	29	6.0%	720	-0.9%
75	<20	600	0	4.0%	480	-0.1%
	<5	600	29	39.0%	4680	-7.5%
90	<5	600	0	26.0%	3120	-0.6%
	0	500	11	4.8%	576	-2.3%
125	0	500	0	3.2%	384	-0.1%
	0	175	0	0.6%	72	-0.3%
135	0	175	0	0.4%	48	-0.1%
Total					**12,000**	**-13%**

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Table 1-3-1 Condition of reliability test

２．５００Vdc、47uF の信頼性試験項データ　Reliability Test data

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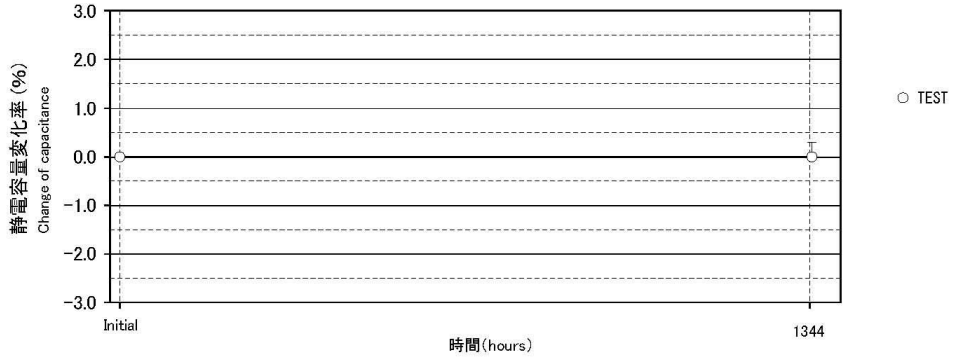
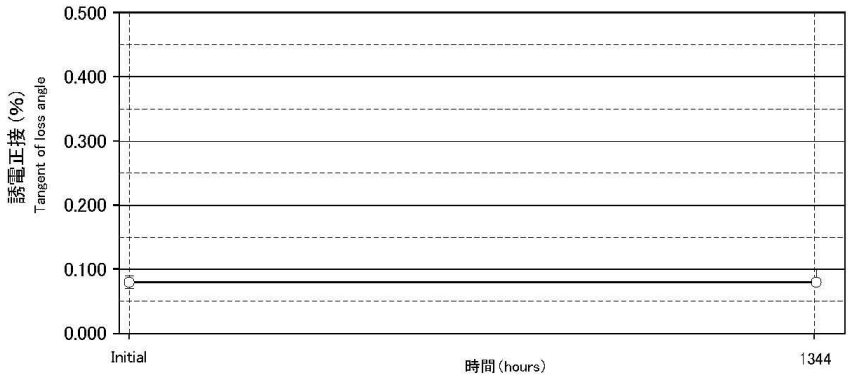
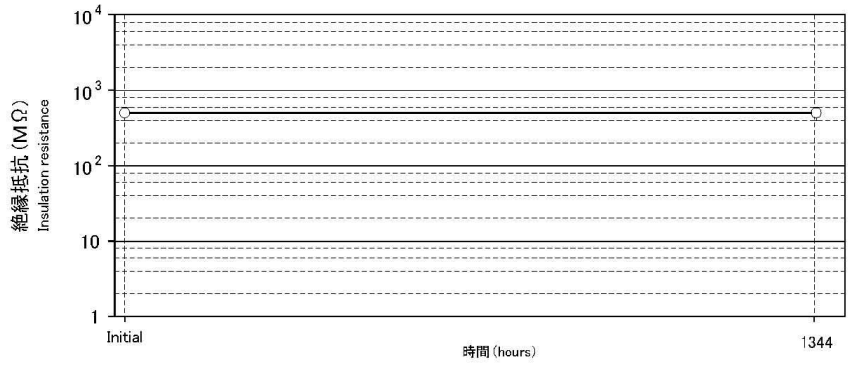
耐 湿 性 試 験
Dump Heat, Steady State

Ｔｙｐｅ	JSP600V	Ｃａｐ=47uF	n =	July, 2,2008
試験条件 Test condition	温度40℃ Temperature	湿度 93%RH humidity		
測定器名 Measuring device				



mesuring frequency=1kHz





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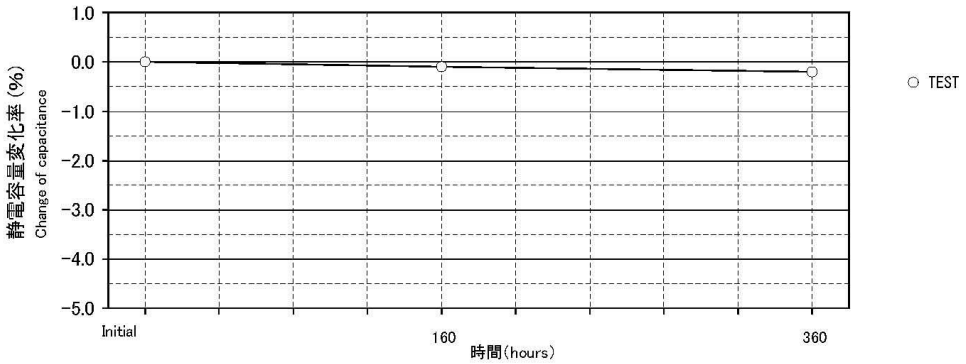
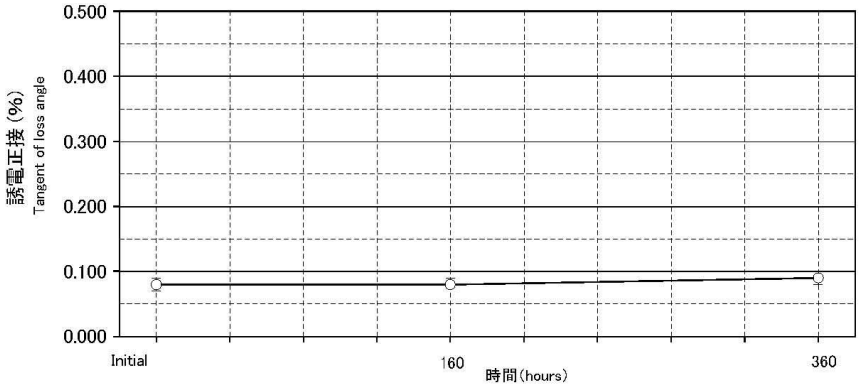
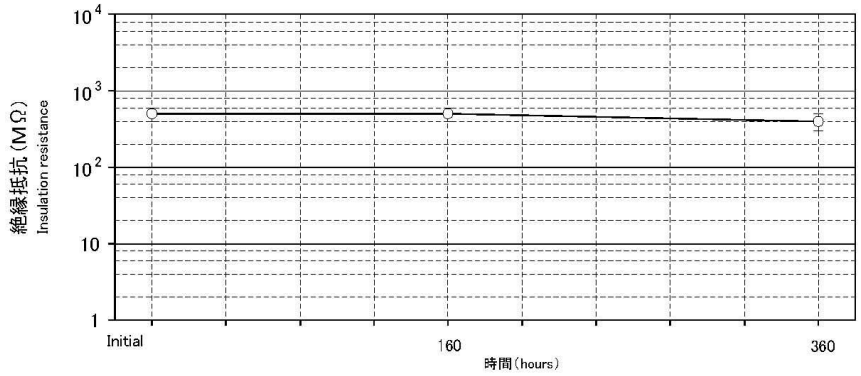
耐 湿 負 荷 試 験
Dump Heat with Load

Ｔ ｙ ｐ ｅ	JSP600V	Ｃ ａ ｐ =47uF	n =	July, 2,2008
試験条件 Test condition	温度 85℃ Temperature	湿度 85%RH Humidity	電圧 300V.dc Voltage	
測定器名 Measuring device				



mesuring frequency=1kHz





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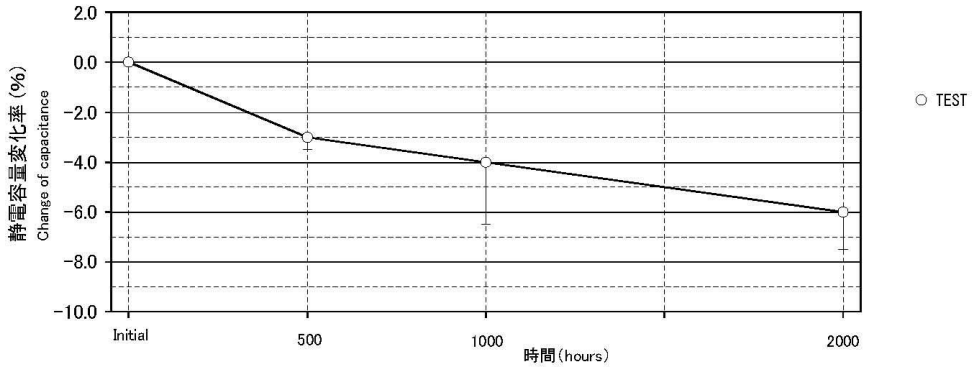
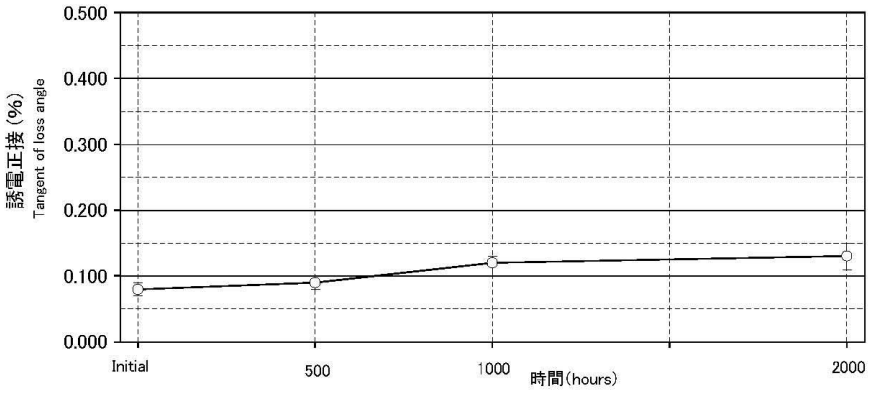
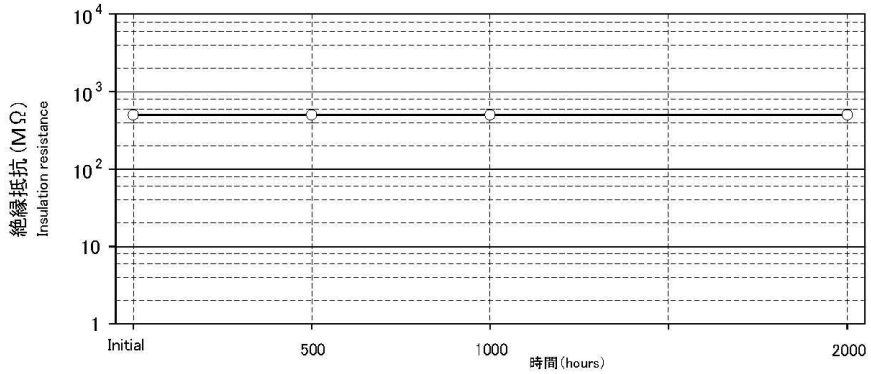
耐 久 性 試 験
ENDURANCE TEST

Ｔ ｙ ｐ ｅ	JSP600V	Ｃ ａ ｐ =47uF	n =	July. 2, 2008
試験条件 Test condition	温度 125℃ Temperature	電圧 500V.dc Voltage		
測定器名 Measuring device				



mesuring frequency=1kHz





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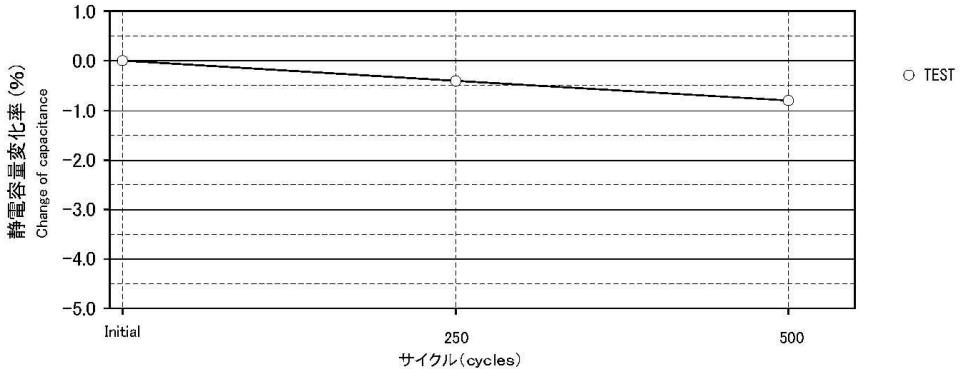
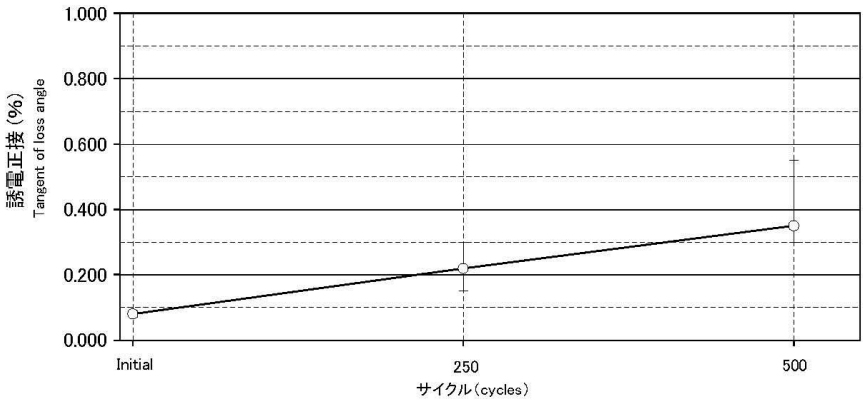
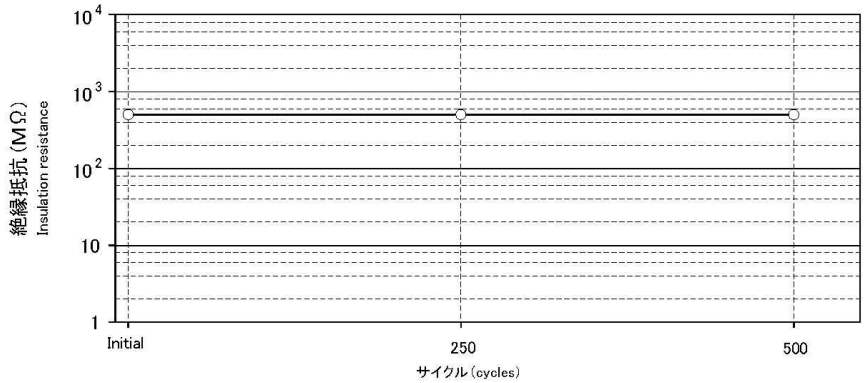
熱 衝 撃 試 験
Rapid change of temperature

Ｔｙｐｅ	JSP600V	Ｃａｐ=47uF	n =	July, 2, 2008
試験条件 Test condition	-40℃ 30min ⇔ +25℃ 3min ⇔ +125℃ 30min (1cycle)			
測定器名 Measuring device				



mesuring frequency=1kHz





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