Manufacturer : Anshan Kei	fat Electronic Ceramic	Technical Co.,Ltd.	No:					
Approval	Sheet for P	Product Spec	cification					
Customer:								
Product: Lead type 4	Product: Lead type 400VAC-Y1 cap							
PART No.:								
Mfr. P/N:								
Date: 年 月	日							
Manufa	acturer	Custom	er Confirm					
Prepared by	薛志豪	合格OK□ 不合格NG□	_					
Checked by	于金龙	Checked by						
Approved by	范垂旭	Approved by						
Address : No. 177 X Tel. : 86-412-8234566	ingsheng Road Tiexi ا Fax : 86-412	District Anshan, China -8200366	· · ·					

E-mail: asaec111@126.com

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d +		Edition	Page
ia type	e 400VAC-Y1 cap	А	2
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No.	Item		Page
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2	Revision History		
3	Features		
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5	Part Number Designation		
6	Appearance and Dimension		
7	Marking、Safety Certification、Structure		
8	Capacity—Temperature curve, capacity、 dielectric loss—	frequency	
	curve		
9	Specification and Test Method		
10	Package Description		
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Lead	l type 400VAC	А	3	
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Edition	Date	Contents of formulation / modification / repeal	Formulatio	n Approval
А		New edition released	薛志豪	于金龙

					PART	NO.	
T 1 /	400040 11				Edit	ion	Page
Lead type	e 400VAC-Y1 cap				A		4
 Small siz High perf High insu High brea Operating Fully syn Class X1/ Coated w AC250V App 1. Use as adapted 2. Ideal a 3. Suitab Part 	formance alation resistance akdown strength g temperature range -40~+12 metric full copper electrode Y1 capacitors certified by UL/ ith flame-retardant epoxy res & AC400V Rated Voltage ite lication s X/Y capacitors for AC line : ers. applications are D-A insulation ble for all kinds of filter, bypas c Number Designation VAC - Y1 - B - 101 K	CQC/VDE/ENEC/ in (conforming to m are available. filter and primary n and noise reducts and coupling c	> UL94 -second ction for ircuit	lary cou	dard). pling on switc merless DAA	hing power	
	T D ' ''	1		Code	Rated	Vol. (AC	;)
Code CT7 Safe	Type Designation ty Standard Certified		40	00VAC		400V	
3Class Code			④Ten	nperatur	e Characteris	tic	
Code	Class Code		GB	EIA	Temp. range	Cap.	Change
Y1	Y1		s	SL	+25∼+85℃	+350~-1	000 ppm/℃
			в	Y5P	−25∼+85℃	±	:10%
			E	Y5U	−25 ~+85℃	-56%	~ +22%
			F	Y5V	−25∼+85° C	-82%	~ +22 %
5 Capacitance			©To	lerance			
Code	Capacitance		C	ode	Tol	erance	
22	22 pF			J	:	<u>+</u> 5%	
101	100 pF			К	<u>±</u>	±10%	
102	1000 pF		I	М	=	±20%	

						PART	Г NO.	
I and true	- 400VAC V1					Edi	tion	Page
Lead type	e 400VAC-Y1 cap	A	4	5				
⑦Lead Shape			(8) Lead Spa	ace			
Code	Shape			Code		Le	ad Spa	ce
b	Straight			10		10.0	0±1.0r	nm
Y	Vertical Kink			12.5		12.	5±1.0r	nm
■ App	pearance and Structure							
CODE	CODE NO.	D _{max}	T _{max}	L	F	d		STYLE
		(mm)	(mm)	(mm)	(mm)	(mm) 0.6	b 式	
	CT7-400VAC-Y1-SL-020~101K b**	01K b** See specific specification						<u>л</u> т
	CT7-400VAC-Y1-B-101~681K b10	See s	specific	ecific specification			4 (Phox.	
	CT7-400VAC-Y1-E-102~472M b10	See s	specific	specificati	ion	0.6		
	CT7-400VAC-Y1-F-102~103M b10	See s	specific	specificati	ion	0.6	Y 式	F
								Dnax.
							4.0mox.	
							ŕ	

				PART NO.	
Lood turno				Edition	Page
Lead type 4	100VAC-Y1 cap			A	6
■ 标志					
		And	Manufactur	er's Marking	
	\overline{A}	CT7	Type Desig	nation	
		В	Temperatur	e Characteristic	
(CT7	B 471K	471	Nominal Ca	pacitance	
COC		K	Capacitance	e Tolerance	
\square		QD	CQC Appro	val Mark	
	Y1 400~/	æ	VDE Approv	val Mark	
	08B3	91	UL Approva	l Mark	
		СВ	CB Mark		
		Y1	Class code		
		400~	Rated Volta	ge Mark	
		08B3	Manufactur	ed Date Code (0: Year, 8:	Month, B:
			date, 3: S	equence code)	
	Certification	1			
No	Certificate authority	Certificate N		Rated voltage	
1	CQC	1400111294		400VAC-Y1	
2	CQC ENEC	0800102464	4/	400VAC-X1 400VAC-Y1/X1,250\	
4	VDE	40036847		400VAC-Y1/X1,250	
5	UL	E232980		400VAC-Y1/X1,250	
■ Structu 包封层 Coating 介质 Dielectric 电极 Electrode 焊料 Solder 引线	1 C 2Die 3Ele 4Sol	ectrode : Co Ider : A	eramic	/er	

PART NO.	
Edition	
A	ead type 400VAC-Y1 cap
	• Temperature Characteristic Curve 000000000000000000000000000000000000

						PAI	RT NC).		
lead t	ype 400VA	C-Y1	can			E	lition		Pa	age
Dedd t		.0 11	cap				Α			8
	Specification a	and Tes	st Met	hod						
It	tem		S	pecifications		Test Method				
1 Operating	Temp. Range	-40°C∕	~+125°	ЭС О						
2 Appearance	e	No defects or abnormalities			Visual inspecti	on				
3 Dimensions	3	Within 1	the spe	cified dimensions	Dimension be	measured	by cali	per		
4 Marking		To be o	easily l	egible	The capacitor	should be	visuall	y inspecte	ed.	
5 Capacitar	nce	In spec	cified to	blerance	Temp. 20℃±2	2℃,				
		Ch	ar.	Specifications	Vol. AC 5Vrn	ns Max.				
		S	L	≪0.15%	Freq. SL: 1±0	.1MHz ,	Β、Ε、	F:1±0.1	≺Hz,	
6 Dissipation	Factor(D.F.)/Q	Β.	Е	≤2.5%	The capacitan					
		F	-	≪3.5%		20 $^\circ\!\!\mathbb{C}$ with 1±0.1KHz (char. SL: 1±0.1MHz) and AC				
					5Vrms Max.					
		10000MΩ min			The insulation resistance should be measured with DC					
7 Insulation I	Resistance (I.R.)					$500\pm50V$ within 60 ± 5 sec. of charging.				
					_	The voltage should be applied to the capacitor through a resistor of $1M\Omega$.				
		No			Apply a volta Wires.(Charge/	ge of Tal			betwee	n the lead
					wires.(Onarge/	uischarge	currer	IL-SUIIA)		
	Between Lead					Туре		Te	st Volta	ge
	Wires				<table 1=""></table>	X1Y1			000V(rr	
						X1Y2		AC2	2500V(rr	ns)
		No			First, the term				V	2
8 Dielectric					should be conr as shown in fi				2	
Strength					foil should l	0	•			about
					around the bo				Section 1	3 to 4mm
					the distance of about 3 to 4mm form each terminal. Then, the capacitor				Balls	
	Body Insulation					should be inserted into a container filled with metal balls of				
					about 1mm dia 60 sec. Betwe					
					<table 2=""></table>	X1Y	Type Test Voltage X1Y1 AC4000V(r.m.s.)			
						X1Y			500V(r.n	
	<u> </u>		Char.	Capacitance Change	The capacitan					
		-	onur.	+350~-1000ppm/℃	table.					-
9 Temperatu	re Characteristic		SL	(+20°C~+85°C)	Step	1	2	3	4	5
,		-	в	±10%	Temp.(°C)	20±2	-25±		85±2	20±2
		-	E							<u> </u>
		-	F	-82%~+22%	-					

					PART NO.			
I and true		71			Edition	Page		
Lead typ	Lead type 400VAC-Y1 cap					9		
Ite	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Sac	cifications		Test Method			
100	Appearance	· ·	arked defect	The capacitor shou		Capacitor		
	Capacitance		sified tolerance	firmly soldered to t	(
	Capacitance	Char.	Specifications	supporting lead wir	PCB	3±1		
10 Vibration		SL	≤0.15%	vibrated at a freque				
Resistance	Dissipation	 B、E	<u>≤0.13%</u>	of 10 to 55Hz. 1.5m		Ш		
Resistance	Factor(D.F.)/Q	F	≤3.5%		out a 1 minute rate of	vibration change		
			0.0 //	-	and back to 10Hz.App	_		
					mutually perpendicula			
				Fix the body of the	capacitor and apply	III/HKIII		
				a tensile weight gradually to each lead wire in the radial direction of capacitor				
11. Strength of			ould not be cut off r should not be	up to 10N,and keep for 10 ± 1 sec.				
Lead wires		broken.		Each lead wire sho	uld be subjected to 5N	weight and then a		
	Bending			90° bend, at the point of egress ,in one direction return to				
	Dending			original position, a	original position, and then a 90 $^\circ$ bend in the opposite			
				direction at the rat	e of one bend in 2 to	3s for 2 times.		
		Lead wire sho	ould be soldered With	The lead wires of	the capacitor shou	ld be dipped into		
12. Solderability	ofloads	uniform coa	ating on the axial	alcohol Solution of	25% wt rosin and then	into molten solder		
12. Solderability	or leaus	direction o	ver 95% of the	of 245°C within 2.0	sec.In both case the	depth of dipping is		
		circumfere	ntial direction.		2.5mm from the root o	of the lead wires.		
	Appearance	No m	arked defect	The lead wires shou in solder of 260±				
	Capacitance	In	oified tolerance	to 2.0mm from the for 3+1/-0sec.				
12 Soldaring	Change	in spe	cified tolerance	Pre-treatment: The	· · · · · · · · · · · · · · · · · · ·			
13. Soldering Effect	I.R.	10	OOM Ω min	should be placed at hour, then placed a		Solds		
	Dielectric	_	t i 0		apacitor should be sto			
	Strength	P	er Item 8.	hours at room cond	•			

					PART NO.				
Load typ	e 400VAC-Y	'1 can			Edition	Page			
Leau typ		i cap			А	10			
Ite	m	Sp	pecifications		Test Method				
	Appearance	No	marked defect	-					
14. Humidity	$\begin{array}{c c} & Capacitance \\ Capacitance \\ Change \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$				Set the capacitor for 500+24/-0 hrs. at $40\pm2^{\circ}$ C in 90 to 95% relative humidity . Pre-treatment: The capacitor should be placed at $85\pm2^{\circ}$ C				
(under Steady State)	Dissipation Factor(D.F.)/Q I.R.	Char. SL Β、Ε F 3000MΩ m	Specifications ≤0.3% ≤5.0% ≤7.0%	for 1 hour, then, placed at room condition for 24±2 h before initial measurement. Post-treatment: Capacitor should be stored for 2 hours at room condition.					
	Dielectric Strength	Per Item 8.		-					
15. Humidity	Appearance Capacitance Change	Char. SL B	marked defect Capacitance Change ±5% or ±0.5pF (whichever is larger) ±10%		bly the rated voltage for 500(+24/-0) hrs. at 40 $\pm2^\circ$ to 95% relative humidity . (Charge/discharge current				
Cycling	Dissipation Factor(D.F.)/Q	E、F Char. SL B、E F	±20% Specifications ≤0.3% ≤5.0% ≤7.0% 	 Pre-treatment: The capacitor should be placed at 85± for 1 hour, then, placed at room condition for 24±2 h before initial measurement. Post-treatment: Capacitor should be stored for 24 hours at room condition. 					
	I.R. Dielectric	3000MΩ m Per Item 8.	in						
	Strength Appearance		marked defect						
16. Life Test	Capacitance Change	Char. SL B E、F	$\frac{\text{Capacitance Change}}{\pm 5\% \text{ or } \pm 0.5\text{pF}}$ (whichever is larger) $\frac{\pm 10\%}{\pm 20\%}$		[:] 1.7U _R for 1000hrs. at 125°C e current≤50mA) and relative humidity of				
	Dissipation Factor(D.F.)/Q I.R.	E、F Char. SL B、E F 3000MΩ m	Specifications ≤0.3% ≤5.0% ≤7.0%	Pre-treatment: The for 1 hour, then, pl before initial measu Post-treatment: C hours at room cond	on for 24 ± 2 hours				
	Dielectric Strength	Per Item 8.							

						PAR	T NO.		
I and true		/1				Ed	ition	Page	
Lead type	e 400VAC-Y	гсар					А	11	
							L. L		
Ite	m	Spe	ecifications			Τe	est Metho	d	
17. Flame test		as follows.	or flamediscontinuedOycleTime(sec.)I \ 230max.360max.	subjected to applied flame for 15 sec. And then removed for 15 sec. Until 3 cycles are completed.			中国容器 火焰 雪烧器:内径9.		
	Appearance	No n	narked defect	The capa	acitor sh	nould be	subjected to	o 5 temperature cycles	
	Capacitance	SL =	Capacitance Change ±5% or ±1.0pF	then consecutively to			immersion c mperature C		
	Change	B、E、F	whichever is larger) ±20%		Step		erature(°C)	Time(min)	
		Char.		-	1 2		0+0/-3 om temp.	30	
	Dissingtion	SL	Specifications	-	3		5+3/-0	30	
	Dissipation Factor(D.F.)/Q	 B、E	≤5.0%		4	Roo	m temp.	3	
18 Temperature		<u> </u>	≤7.0%			Cyc	le time:5 cycl	es	
and immersion	I.R.	Γ 3000MΩmir		<immersion< td=""><td>nersion Cyc</td><td colspan="2">ycle></td></immersion<>			nersion Cyc	ycle>	
Cycle	1.17.	300010132 11111	I	Step	Temp.	(°C) T	Time(min)	Immersion Water	
				1 2	65+5. 0±		15 15	Clean water Salt water	
	Dielectric Strength	Per Item 8.		placed a Post-tre	or should t room d atment: or should	d be stor condition	n for 24±2	2°C for 1 hr., then,	

·					
				PART NO.	
Lood turns		b		Edition	Page
Lead type	400VAC-Y1 ca	þ		A	12
■ Package					
Bulk					
packing bag					
Inner packag	e				
W	Can destination	Н			
	Dimension: mm		MPQ (Kpcs)	Inner package	
L±10	W±5	H±5 120		(Крся	s)
330	240	120	1(短脚) 0.5(长脚)		· · · · · · · · · · · · · · · · · · ·

						PART NO.	
				Edition	Page		
Lead type 400VAC-Y1 cap					А	13	
Tapir							13
符号 P0 P F P1 H0 H1 W		尺寸(mm) 12.7±0.3 25.4±1.0 12.5±0.5 7.7±0.5 20.0±1.0 16.5±1.0 18.0±0.5	符号 W2 t1 D D0 d T △S		3 0. 9 0. 6	式寸(mm) . Omax. 6±0.3 . Omax. 4±0.2 6±0.05 . Omax. 0±1.0	
WO		10.0 ± 1.0	∆h		<u>±</u>	1.0max.	
W1		9. $0_{-0.5}^{+0}$					
Product Label 1 - COD 2 - ITEN 3 - SPEC 4 - QTN 5 - REN		M SMD Y1-cap C C17-250VAC-Y1-E-1 Y 50 PCS	TEST 102M SMI DATH LOT	BY QC05			
Γ	No.	Descr	ption	No.		Description]
-	1	Code Number	•	5	Remark		
ł	2	ITEM		6	Check		
-	3	SPEC		7	Produce Da	ate	
-	4	Quantity		8	Batch		

	PART NO.	
Lood type 400VAC-V1 con	Edition	Page
Lead type 400VAC-Y1 cap	A	14

Caution (Rating)

1. Operating Voltage

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the V p-p value of the applied voltage or the Vo-p that contains DC bias within the rated voltage range.

When the voltage is applied to the circuit, starting or stopping may generate irregular voltage for a transit period because of resonance or switching. Be sure to use a capacitor with a rated voltage range that includes these irregular voltages.

Voltage	Voltage DC Voltage		AC Voltage	Pulse Voltage (1)	Pulse Voltage (2)
Positional Measurement	Vu-p		Vp-p	Vp-p	Vp-p

2. Operating Temperature and Self-generated Heat (Apply to B/E Char.)

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself. When the capacitor is used in a high-frequency current, pulse current or similar current, it may have self-generated heat due to dielectric loss. Applied voltage load should be such that self-generated heat is within 20 $^{\circ}$ C under the condition where the capacitor is subjected to an atmospheric temperature of 25 $^{\circ}$ C. When measuring, use a thermocouple of small thermal capacity-K of Φ 0.1mm under conditions where the capacitor is not affected by radiant heat from other components or wind from surroundings. Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. (Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

- 3. Test Condition for Withstanding Voltage
 - (1) Test Equipment

Test equipment for AC withstanding voltage should be used with the performance of the wave similar to 50/60Hz sine wave.

If the distorted sine wave or overload exceeding the specified voltage value is applied, a defect may be caused.

(2) Voltage Applied Method

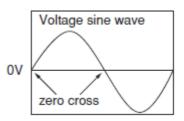
When the withstanding voltage is applied, the capacitor's lead or terminal should be firmly connected to the output of the withstanding voltage test equipment, and then the voltage should be raised from near zero to the test voltage.

^{*y*} Anshan Keifat Electronic Ceramic Technical Co., Ltd.

	PART NO.	
Lood type 400VAC-V1 con	Edition	Page
Lead type 400VAC-Y1 cap	А	15

If the test voltage without the raise from near zero voltage would be applied directly to capacitor, test voltage should be applied with the zero cross.* At the end of the test time, the test voltage should be reduced to near zero, and then capacitor's lead or terminal should be taken off the output of the withstanding voltage test equipment. If the test voltage without the raise from near zero voltage would be applied directly to capacitor, the surge voltage may rise, and therefore, a defect may be caused.

*ZERO CROSS is the point where voltage sine wave passes 0V. See the figure at below.



4. Fail-Safe

When the capacitor is broken, failure may result in a short circuit. Be sure to provide an appropriate fail-safe function like a fuse on your product if failure could result in an electric shock, fire or fuming.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

Caution (Storage and Operating Condition)

The insulating Epoxy molded capacitors does not form a perfect seal; therefore, do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. And avoid exposure to moisture. Before cleaning, bonding or molding this product, verify that these processes do not affect produce quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed -40 to 85 degrees centigrade and 15 to 85%. Use capacitors within 6 months after delivery.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHOCT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

Caution (Soldering, Mounting and Handing)

1. Vibration and Impact

Do not expose a capacitor or its pins to excessive shock or vibration during use.

Excessive shock or vibration may cause fatigue destruction of lead wires mounted on the circuit board. Please take measures to hold a capacitor on the circuit boards by adhesive, molding resin or another coating. Please confirm there is no influence of holding measures on the product with the intended equipment.

	PART NO.	
Lood type 400VAC V1 con	Edition	Page
Lead type 400VAC-Y1 cap	А	16

2. Soldering

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specifications of the capacitor. Subjecting this product to excessive heating could melt the internal junction solder and may result in thermal shocks that can crack the ceramic element.

Soldering the capacitor with a soldering iron should be performed in the following conditions.

Temperature of iron-tip: 400 degrees C. max.

Soldering iron wattage: 50W max.

Soldering time: 3.5 sec. max.

3. Bonding, Resin Molding and Coating

Before bonding, molding or coating this product, verify that these processes do not affect the quality of capacitor by testing the performance of the bonded, molded or coated product in the intended equipment.

In case the amount of applications, dryness/hardening conditions of adhesives and molding resins containing organic solvents (ethyl acetate, methyl ethyl ketone, toluene, etc.) are unsuitable, the outer coating resin of a capacitor is damaged by the organic solvents and it may result, worst case, in a short circuit.

The variation in thickness of adhesive, molding resin or coating may cause outer coating resin cracking and/or ceramic element cracking of a capacitor in a temperature cycling.

4. Treatment after Bonding, Resin Molding and Coating

When the outer coating is hot (over 100 degrees C.) after soldering, it becomes soft and fragile. Therefore, please be careful not to give it mechanical stress.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHOCT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

Notice (Soldering and Mounting)

Cleaning (ultrasonic cleaning)

To perform ultrasonic cleaning, observe the following conditions.

Rinse bath capacity: Output of 20 watts per liter or less. Rinsing time: 5 min. max.

Do not vibrate the PCB/PWB directly. Excessive ultrasonic cleaning may lead to fatigue destruction of the pins.

Notice (Rating)

1. Capacitance Change of Capacitors

(1) For CH/SL/DL char.

Capacitance might change a little depending on a surrounding temperature or an applied voltage.

Please contact us if you use a strict constant time circuit.

	PART NO.	
Lood type 400VAC-V1 con	Edition	Page
Lead type 400VAC-Y1 cap	A	17

(2) For B/E /Fchar.

Capacitors have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor is left on for a long time. Moreover, capacitance might change greatly depending on the surrounding temperature or an applied voltage. Therefore, it is not likely to be suitable for use in a constant time circuit. Please contact us if you need detailed information.

2. Performance Check by Equipment

Before using a capacitor, check that there is no problem in the equipment's performance and the specifications.

Generally speaking, CLASS 2 (B/E char.) ceramic capacitors have voltage dependence characteristics and temperature dependence characteristics in capacitance, so the capacitance value may change depending on the operating condition in the equipment. Therefore, be sure to confirm the apparatus performance of receiving influence in the capacitance value change of a capacitor, such as leakage current and noise suppression characteristic.

Moreover, check the surge-proof ability of a capacitor in the equipment, if needed, because the surge voltage may exceed specific value by the inductance of the circuit.