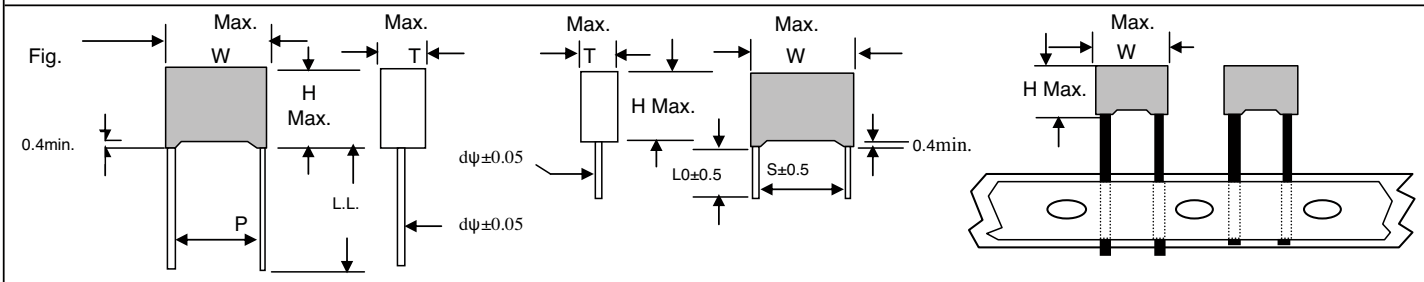
PRODUCT SPECIFICATIONS

CUSTOMER :

CUSTOMER'S REFERENCE : **3/32xx Series**

DESCRIPTIONS : **Minibox METALLIZED POLYESTER FILM CAPACITOR**

SHENGXIN TYPE : **CL21X-B series**



(1) (2) (3)

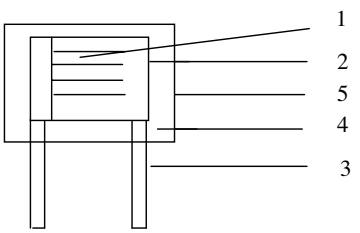
1. PRODUCT DIMENSIONS :

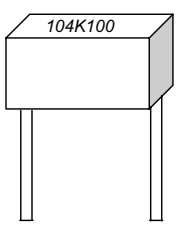
unit : mm

CUSTOMER'S PART NO.	CAP nF	Tol. ±%	R.V. VDC	T.V. VDC	W max.	H max.	T max.	P ±1.0	S ±0.5	d? ±0.05	L0 ±0.5	LL MIN	Fig.	SHENGXIN PART NO.
3/3250	1,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 102K100VDC
3/3252	1,5	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 152K100VDC
3/3254	2,2	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 222K100VDC
3/3256	3,3	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 332K100VDC
3/3258	4,7	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 472K100VDC
3/3260	6,8	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 682K100VDC
3/3262	10,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 103K100VDC
3/3264	15,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 153K100VDC
3/3266	22,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 223K100VDC
3/3268	33,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 333K100VDC
3/3270	47,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 473K100VDC
3/3272	68,0	10	100	175	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 683K100VDC
3/3273	100,0	10	63	110	7,2	6,5	2,5	5,0		0,5		15,0	1	CL21X-B 104K63VDC
3/3274	100,0	10	100	175	7,2	7,5	3,5	5,0		0,5		15,0	1	CL21X-B 104K100VDC
3/3275	150,0	10	63	110	7,2	7,5	3,5	5,0		0,5		15,0	1	CL21X-B 154K63VDC
3/3276	150,0	10	100	175	7,2	9,5	4,5	5,0		0,6		15,0	1	CL21X-B 154K100VDC
3/3277	220,0	10	63	110	7,2	7,5	3,5	5,0		0,5		15,0	1	CL21X-B 224K63VDC
3/3278	220,0	10	100	175	7,2	10,0	5,0	5,0		0,6		15,0	1	CL21X-B 224K100VDC
3/3280	330,0	10	63	110	7,2	9,5	4,5	5,0		0,6		15,0	1	CL21X-B 334K63VDC
3/3282	470,0	10	63	110	7,2	10,0	5,0	5,0		0,6		15,0	1	CL21X-B 334K63VDC
3/3284	680,0	10	63	110	7,2	11,0	6,0	5,0		0,6		15,0	1	CL21X-B 684K63VDC
3/3286	1000,0	10	63	110	7,2	11,0	6,0	5,0		0,6		15,0	1	CL21X-B 105K63VDC

PRODUCT SPECIFICATIONS **TYPE : CL21x-B**

NO.	ITEM	DESCRIPTIONS
1.	**SCOPE**	This specifications cover the requirements of SHENGXIN's Minibox Metallized Polyester Film Capacitor Type : CL21x-B
2.	**STANDARD ATMOSPHERIC CONDITIONS FOR MAKING MEASUREMENTS**	
2.1.	AMBIENT TEMPERATURE	15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C.)
2.2.	RELATIVE HUMIDITY (R.H.)	45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%.)
2.3.	AIR PRESSURE	86 kpa to 106 kpa.
2.4.	OPERATING TEMPERATURE RANGE	-55°C to +105°C fo which the capacitor can be operated continuously at rated voltage.
3.	**CONSTRUCTION**	
3.1.	DIELECTRIC	Metallized Polyester Film
3.2.	METAL SPRAY	Special Solder
3.3.	LEAD WIRE	Copper-clad Steel Wire
3.4.	INNER COATING	Epoxy Resin
3.5.	OUTER COATING	PLastic Case
4.	**MARKING**	
4.1.	CAPACITANCE	"104" to "100nF"
4.2.	TOLERANCE	"K" to "±10%"
4.3.	RATED VOLTAGE	"100" to "100VDC"
4.4.	MARKING COLOR	Black





5.	ELECTRICAL CHARACTERISTICS			
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
5.1.	Withstand Voltage (TV)	Between Terminals	Shll be no abnormality.	Apply 150% of rated voltage for 60 sec., or 175% of rated voltage for 1~5 sec. at +20 +/- 5°C. The charging current must be <= 1 Amp.
		Between Terminals & Enclosure	Shll be no abnormality.	Apply 200% of rated voltage for 2 to 5 sec.
5.2.	Insulation Resistance (I.R.)		>= 7,500 MOhm (C <= 0.33 uF) >= 2,500 MOhm*uF/C (C > 0.33 uF)	Apply Vt +/- 15% for 60 +/- 5 sec. at +20 +/- 5°C. Vt = 50 VDC if rated voltage <= 100 VDC; Vt = 100 VDC if 100 VDC < rated voltage <= 500 VDC; Vt = 500 VDC if rated voltage > 500 VDC.
5.3.	Capacitance (CAP)		Within the tolerance specified. (at +20 +/- 5°C).	Measuring Frequency : 1 KHz +/- 10%. Measuring Voltage : <= 1 Vrms.max.

5.4.	Dissipation Factor (DF)		<= 0.010 (1.0%) at 1 KHz.	Measuring Frequency : 1KHz+/- 10% Measuring Voltage : <= 1 Vrms.max.
5.5.	Connection of Element		Shall be no open nor short-circuiting. The connection shall be stable. DF shall be <= 0.010 (1.0%) at 1 KHz.	Apply 200% of rated voltage for 10 times.
5.6.	Solderability		More than 90% of circumferential surface of lead wire shall be covered with new solder.	Testing method per IEC 68-2-20 Ta. Soldering temperature : +235 +/- 5°C. Immersion duration : 2 +/- 0.5 sec.
6.	**MECHANICAL CHARACTERISTICS**			
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
6.1.	Terminal Strength	Tensil	Shall be no abnormality.	Testing method per IEC 68-2-21. Apply 1.0 kg for 10 +/- 1 sec. to the terminal in the axial direction, and acting in a direction away from the body.
		Bending	Shall be no abnormality.	Apply 0.5 kg for 2 cycles. Each cycle includes: 90° once, return to its initial position for 2-3 sec., and then to the opposite direction once.
7.	**ENDURANCE CHARACTERISTICS**			
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.1.	Temperature Cycle	Appearance	Shall be no remarkable change.	Test Temperature Cycle : Total 5 cycles. Each cycle includes : 1. +20 +/- 2°C for 3 min. 2. -40 +0/-3 °C for 30 min. 3. +20 +/- 2°C for 3 min. 4. +85 +3/-0 °C for 30 min. 5. +20 +/- 2°C for 3 min.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (? C/C)	Within +/- 3% of the value before test.	
		Dissipation Factor	Tanδ:1.2% max.(1KHz)	
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	

NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.2.	High Temperature Loading	Appearance	Shall be no remarkable change.	Testing method per IEC 6038-17. Refer to JIS C 5102-1994. Test Temperature: +85 +/-2°C. Apply 140% of rated voltage for 240 +8/-0hrs; After test, allow it stay alone for 1.5+/- 0.5 hrs at standard temperature and humidity before making measurements.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +/-8% of the value before test.	
		Dissipation Factor	Tanδ:1.2% max.(1KHz)	
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	
7.3.	Damp Heat Loading	Appearance	Shall be no remarkable change. The marking shall be legible.	Refer to JIS C 0022. Test temperature :+40 +/- 2℃ Test humidity : 90% to 95% R.H. Test voltage : rated voltage. Test duration : 500 +24/-0 hrs. After test, allow it stay alone for 1.5+/- 0.5 hrs at standard temperature and humidity beforemaking measurements.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +/- 10% of the value before test.	
		Dissipation Factor	Tanδ:1.2% max.(1KHz)	
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	
7.4.	Soldering Heat Resistance	Appearance	Shall be no remarkable change. The marking shall be legible.	Testing method per IEC 68-2-20 Tb. Soldering Temperature: +270 +/- 5°C. Immersion Duration : 3 +/- 0.5 sec. Immersion Deepth : 4 +/- 0.8 mm from roots. After test, allow it stay alone for 1.5 +/- 0.5 hrs. at standard temperature and humidity before making measurements.
		Withstand Voltage Between Terminals	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +/- 3% of the value before test.	
		Dissipation Factor	Tanδ:1.0% max.(1KHz)	

		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	
		Connection of Element	Shall be stable.	
7.5.	Dry Heat Resistance	Appearance	Shall be no remarkable change.	Test Temperature : +85 +/- 2°C Test Duration : 16 +1/-0 hrs.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +/- 5% of the value before test.	
		Dissipation Factor	Tanδ:1.2% max.(1KHz)	
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	
7.6.	Cold Resistance	Appearance	Shall be no remarkable change.	Test Temperature : -40 +/-2 °C Test Duration : 2 +/-1 hrs.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +0/- 10% of the value before test.	
		Dissipation Factor	Tanδ:1.0% max.(1KHz)	
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	

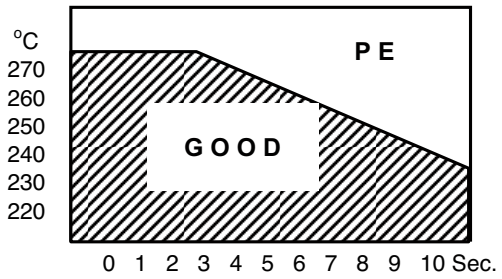
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.7.	Humidity Resistance	Appearance	Shall be no remarkable change.	Testing method per IEC 68-2-3 Ca. Refer to JIS C 0022. Test Temperature : +40 +/- 2°C. Test Humidity : 90% to 95% R.H. Test Duration : 500 +24/-0 hrs After test, allow it stay alone for 1.5 +/- 0.5 hrs at standard temperature and humidity before making measurements.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +/- 10% of the value before test.	
		Dissipation Factor	Tanδ:1.2% max.(1KHz)	
		Insulation Resistance	>= 50% of the limit value of No. 5.2.	
7.8.	Vibration Resistance	Connection Strength	Shall be no open nor short-circuiting. The connection shall be stable.	Testing method per IEC 68-2-6 Fc. Frequency Change : 10--55--10 Hz. Vibration Distance : 1.5 mm. Test Direction : X, Y, Z. Test Duration : 2 hrs +1/-0 each direction.
		Appearance	Shall be no mechanical damage.	
7.9.	Rapid Temperature Change	Appearance	Shall be no remarkable change.	Testing method per IEC 68-2-14 Na. Test Temperature Cycle : Total 5 cycles. High Temperature : +105 +5/-5 °C Low Temperature : -55 +5/-5°C 30 min +/- 10% for each temperature.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (ΔC/C)	Within +/- 3% of the value before test.	
		Dissipation Factor	Tanδ:1.0% max.(1KHz)	
		Insulation Resistance	>= 50% of the limit value of No. 5.2.	

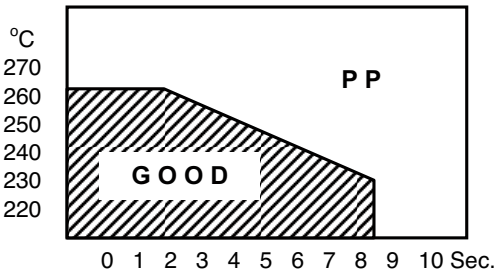
8. ACCEPTABLE QUALITY LEVEL (AQL)

NO.	ITEM	AQL	SAMPLING PLAN
8.1.	Appearance AQL	0,65	According to MIL-STD-105E level II. By lot outgoing inspection.
8.2.	Dimension AQL	0,65	
8.3.	Mechanical Characteristics AQL	0,40	
8.4.	Electrical Characteristics AQL		
	CAP, DF,	0,04	
	TV, IR,	Zero Defect	

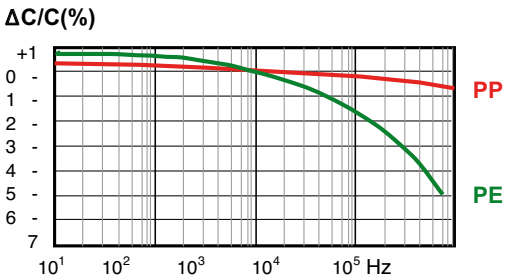
CHARACTERISTICS REFERENCE

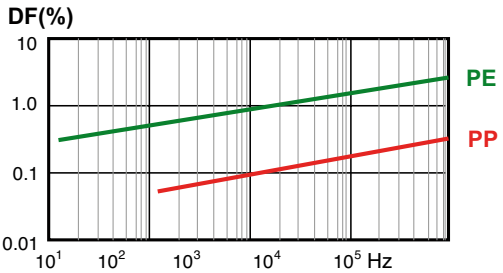
Soldering Temperature VS Time





Frequency Characteristics





Temperature Characteristics