

PRODUCT SPECIFICATIONS

CUSTOMER :
CUSTOMER'S REFERENCE : 3/33xx 3/34xx Series
DESCRIPTIONS : METALLIZED POLYESTER FILM CAPACITOR-BOX
SHENGXIN TYPE : CL21-B series

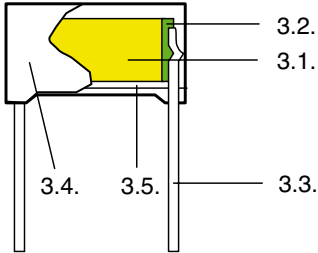

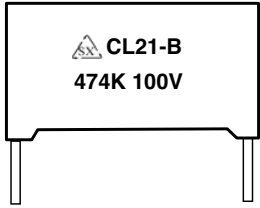
1. PRODUCT DIMENSIONS :

unit : mm

CUSTOMER'S PART NO.	CAP nF	Tol. ±%	R.V. VDC	T.V. VDC	W ±0.5	H ±0.5	T ±0.5	P ±1.0	S ±0.5	d? ±0.05	L0 ±0.5	LL MIN	Fig.	SHENGXIN PART NO.
3/3308	4,7	10	630	1100	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 472K630VDC
3/3310	6,8	10	630	1100	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 682K630VDC
3/3312	10,0	10	630	1100	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 103K630VDC
3/3314	15,0	10	630	1100	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 153K630VDC
3/3316	22,0	10	400	700	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 223K400VDC
3/3318	22,0	10	630	1100	13,0	11,0	5,0	10,0		0,6		20,0	1	CL21-B 223K630VDC
3/3348	33,0	10	630	1100	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 333K630VDC
3/3352	68,0	10	250	440	13,0	11,0	5,0	10,0		0,6		20,0	1	CL21-B 683K250VDC
3/3356	100,0	10	250	440	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 104K250VDC
3/3358	100,0	10	400	700	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 104K400VDC
3/3360	150,0	10	250	440	13,0	11,0	5,0	10,0		0,6		20,0	1	CL21-B 154K250VDC
3/3362	220,0	10	160	280	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 224K160VDC
3/3364	220,0	10	250	440	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 224K250VDC
3/3366	330,0	10	100	175	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 334K100VDC
3/3370	330,0	10	250	440	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 334K250VDC
3/3374	470,0	10	100	175	13,0	11,0	5,0	10,0		0,6		20,0	1	CL21-B 474K100VDC
3/3380	680,0	10	100	175	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 684K100VDC
3/3382	1000,0	10	63	110	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 105K63VDC
3/3400	33,0	10	400	700	13,0	9,0	4,0	10,0		0,6		20,0	1	CL21-B 333K400VDC
3/3402	47,0	10	400	700	13,0	11,0	5,0	10,0		0,6		20,0	1	CL21-B 473K400VDC
3/3404	68,0	10	400	700	13,0	12,0	6,0	10,0		0,6		20,0	1	CL21-B 683K400VDC

PRODUCT SPECIFICATIONS

TYPE : CL21-B

NO.	ITEM	DESCRIPTIONS	
1.	SCOPE	This specifications cover the requirements of SHENGXIN's Metallized Polyester Film Capacitor-BOX, Type : CL21-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 for 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.	MANUFACTURER'S SYMBOL		stands for SHENGXIN.
4.2.	NOMINAL CAPACITANCE	"474" for "470nF"	
4.3.	TOLERANCE	"K" for "±10%"	
4.4.	RATED VOLTAGE	in VDC rating, unless otherwise indicated.	
4.5.	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.

PRODUCT SPECIFICATIONS

TYPE : CL21-B

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. -55 +/- 3°C for 30 min. 3. +20 +/- 2°C for 3 min. 4. +105 +/- 3°C for 30 min. 5. +20 +/- 2°C for 3 min.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 3% of the value before test.	
		Dissipation Factor	Tan δ :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 : +105 +/-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 ($\Delta C/C$)	Within +/-8% of the value before test.	
		Dissipation Factor	Tan δ :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 ($\Delta C/C$)	Within +/- 10% of the value before test.	
		Dissipation Factor	Tan δ :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 ($\Delta C/C$)	Within +/- 3% of the value before test.	
		Dissipation Factor	Tan δ :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 : +105 +/- 2°C Test Duration : 16 +/-0 hrs.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 5% of the value before test.	
		Dissipation Factor	Tan δ :1.2% max.(1KHz)	
		Insulation Resistance (I.R.)	>= 50% of the limit value of No. 5.2.	

PRODUCT SPECIFICATIONS

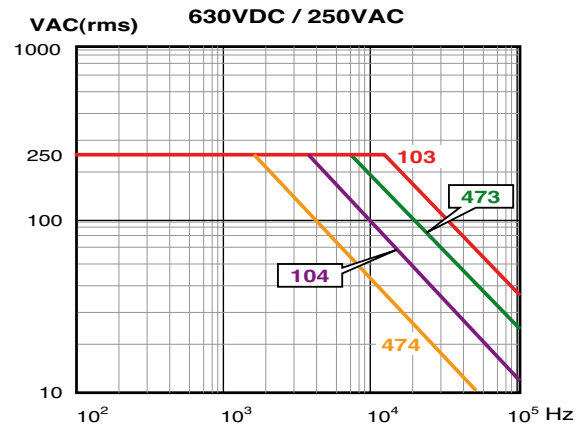
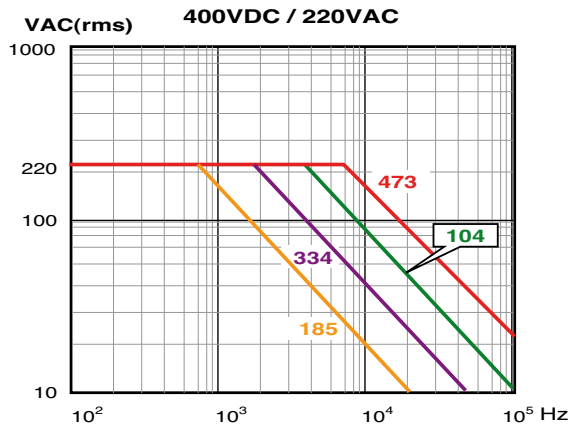
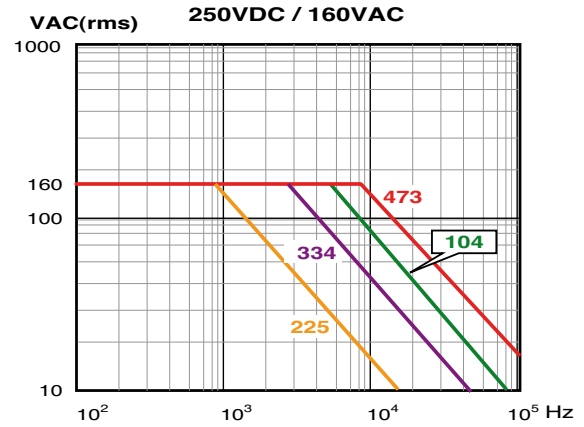
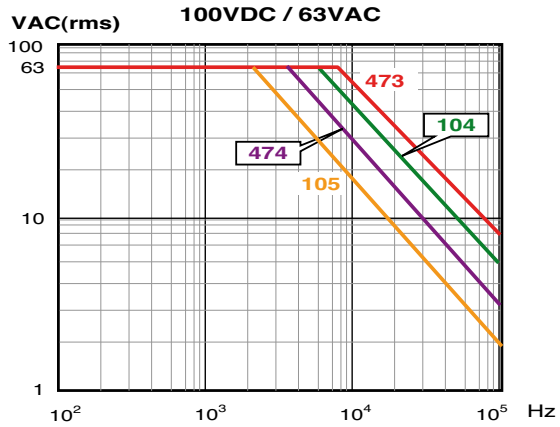
TYPE : CL21-B

7.6.	Cold Resistance	Appearance	Shall be no remarkable change.	Test Temperature : -55 +/-2 °C Test Duration : 2 +/-1 hrs.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate ($\Delta C/C$)	Within +0/- 10% of the value before test.	
		Dissipation Factor	Tan δ :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.
		Withstand Voltage	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 10% of the value before test.
		Dissipation Factor	Tan δ :1.2% max.(1KHz)
		Insulation Resistance	\geq 50% of the limit value of No. 5.2.
		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.	
7.8.	Vibration Resistance	Connection Strength	Shall be no open nor short-circuiting. The connection shall be stable.
		Appearance	Shall be no mechanical damage.
		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.	
7.9.	Rapid Temperature Change	Appearance	Shall be no remarkable change.
		Withstand Voltage	Shall satisfy No. 5.1.
		Capacitance Change Rate ($\Delta C/C$)	Within +/- 3% of the value before test.
		Dissipation Factor	Tan δ :1.0% max.(1KHz)
		Insulation Resistance	\geq 50% of the limit value of No. 5.2.
		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.	
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, TV, IR,	0,04 Zero Defect	

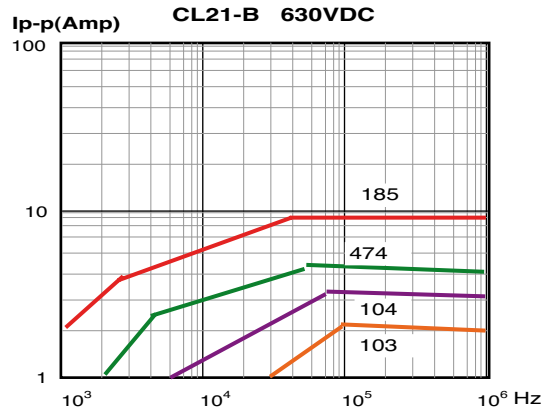
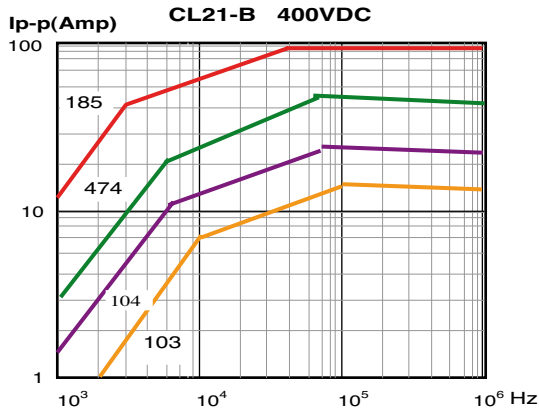
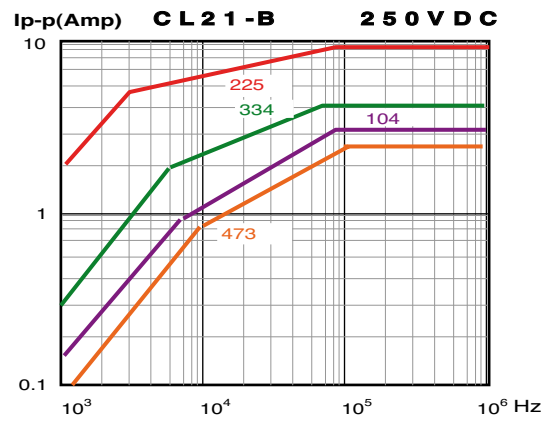
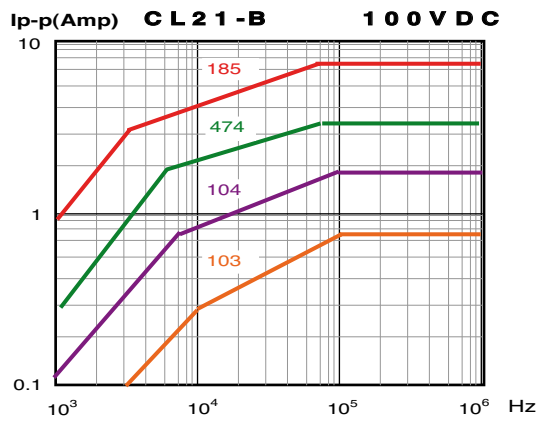
Permissible AC Voltage VS Frequency Curve

CL21-B



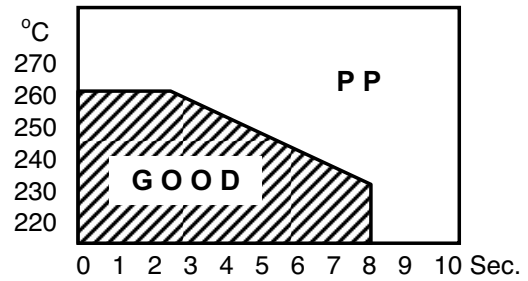
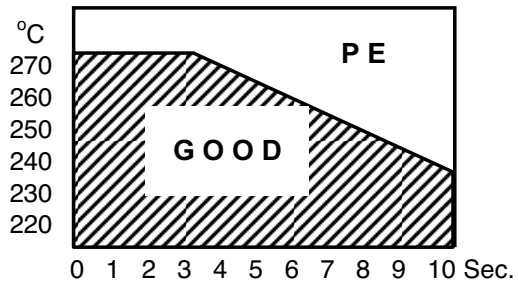
Permissible Pulse Current VS Frequency Curve

CL21-B

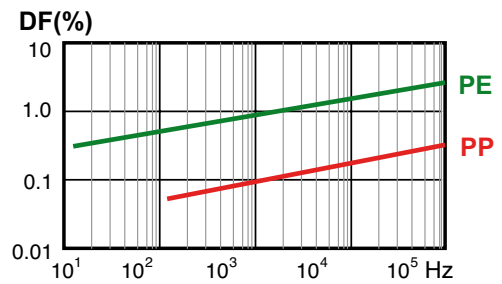
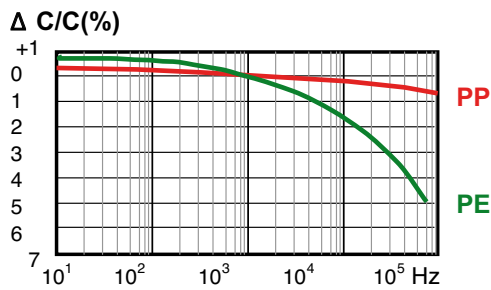


CHARACTERISTICS REFERENCE

Soldering Temperature VS Time



Frequency Characteristics



Temperature Characteristics

