



SPECIFICATION FOR APPROVAL

Customer:

Description: Mini-box metallized polyester film capacitor (P=5) (CL23B/MEM)

Series/Type: CL23B/MEM 0.47uF±5% 63V.dc P=5 W7.2*H7.5*T3.5

Product Code: MEM474J1JM20YC3F0ZR

Customer's P/N:

Spec sheet No.: CX-MEM-251114-01

Issue Date.: 2025-11-14

Supplier Recognized			Customers Approved		
Drafted by	Checked by	Approved by	Tested by	Checked by	Approved by
傅映霞 2025-11-14	李丹 2025-11-14	刘愿新 2025-11-14			



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0. Updated History

[illegible]

1. Product Code system

(Example)

M	E	M	1	0	4	J	2	A	M	2	0	G	B	1	8	0	0	R
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Digit 1 to 3 Type code of film capacitor MEM= CL23B series

Digit 4 to 6 Rated capacitance value code For example: 104=10×10⁴pF=0.1uF

Digit 7 Capacitance tolerance code

Tolerance	±1%	±2%	±2.5%	±5%	±10%	±20%
Code	F	G	H	J	K	M

Digit 8 to 9 D.C rated voltage code

U _R (VDC)	63	100	160	250	400	450	520	630	800	1000	1200
Code	1J	2A	2C	2E	2G	2S	2T	2J	2K	3A	3V
U _R (VDC)	1250	1600	2000	2500	3000						
Code	3B	3C	3D	3E	3F						

Digit 10 to12 Plastic box type No. code

Pith (mm)	5.0	7.5	10.0	12.5	15.0	22.5	27.5	31.0	37.5	41.0	52.5
Box type No.	M●●	B●●	C●●	K●●	D●●	E●●	F●●	T●●	H●●	S●●	J●●

Digit 13 Plastic box colour

Box colour	yellow	gray	red	black	green	blue	white	orange
Code	Y	G	R	K	E	B	W	J

Digit 14 Lead forming type code

Forming type	Long Lead	Straight cutting	Kinked	Inward kinked	Outward kinked	90° bending	Taping
Code	B	C	K	N	M	L	T

Digit 15 to16 Lead length and Taping style code

Lead length	3.0	3.3	3.5	4.0	4.5	5.0	5.5
Code	03	3T	3F	04	4F	05	5F
Lead length	6.0	10	15	20	25	30	35
Code	06	10	15	20	25	30	35

Taping style	Straight & hole pith 12.7	Straight & hole pith 15	Kinked&hole pith 12.7	Kinked&hole pith 15
code	S0	S1	K0	K1

Digit 17 to 18 Internal use

Digit 19 Environmental product code

Environmental product	Meeting RoHS&REACH	Meeting Halogen Free
Code	R	H

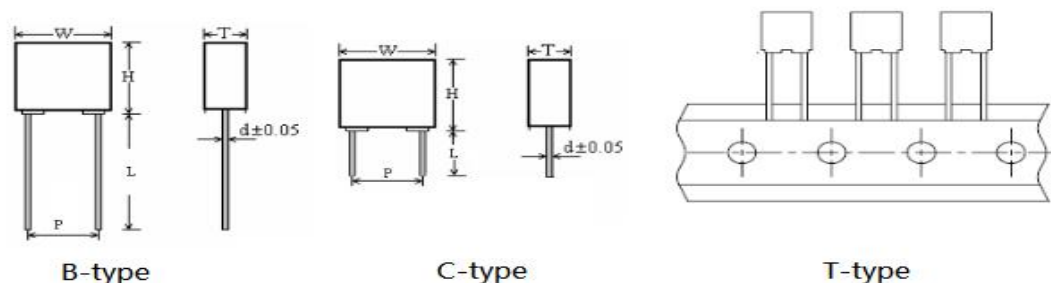
Specification for Mini box metallized polyester film capacitor (P=5)

Type: CL23B/MEM

2. Scope

This specification applies to used in electronic equipment, encapsulated in plastic mini-case metallized polyester film capacitors, type name CL23B (code MEM).

3.Dimension Sheet



No	P/N	Cap (uF)	Tol. ± %	R.V VD C	DF (1KHz) %	DIMENSIONS (mm)						FIG
						W ±0.5	H ±0.5	T ±0.5	P ±0.5	L ±0.5	Ød ±0.05	
1	MEM474J1JM20YC3F0ZR	0.47	5	63	1.0	7.2	7.5	3.5	5.0	3.5	0.5	C
Designed by		傅映霞		Checked by		李丹		Approved by		刘愿新		

4. Type Introduction And Applications

4.1 CL23B/MEM is wound with metallized polyester film non-inductive construction, weld with tinned copper-clad steel wire, plastic case and flame retardant epoxy resin sealing.

4.2 Typical Application

Widely used in DC circuits , such as blocking、coupling、decoupling、by-pass、timing application.

5. Features

5.1 Metalized polyester film, Non-inductive wound construction.

5.2 Uniform and mini size, especially designing for Pith 5mm.

5.3 High volume/capacitance ratio.

6. Electrical Specifications

Unless otherwise specified, electric characteristics shall refer to IEC 60384-2.

Item	Specification	
Operating Temperature Range	-55~+105℃ (+85℃~+105℃: derating factor 1.25% per℃ for U _R)	
Rated Temperature	+85℃	
Capacitance Range	0.001μF~1.5μF	
Capacitance Tolerance	±5%(J); ±10%(K)	
Rated Voltage	63Vdc~630Vdc	
Dissipation Factor	≤ 1.0%(1KHz) ; ≤ 1.5%(10KHz) at 20~25℃	
Insulation Resistance	U _R <100V	≥ 10,000MΩ for C ≤ 0.33uF (10VDC , 60s)
		≥ 1250MΩ*uF for C>0.33uF (10VDC , 60s)
	U _R ≥100V	≥ 15,000MΩ for C ≤ 0.33uF (100VDC , 60s)
		≥ 3000MΩ*uF for C>0.33uF (100VDC , 60s)
Voltage Proof	(Pattern I) 1.6U _R 5s ; (Pattern II) 1.4U _R 5s	
Maximum Pulse Rise Time(dV/dt) If the working voltage(U) is lower than the rated voltage(U _R), the capacitor can be worked at a higher dv/dt. In this case, the maximum allowed dv/dt is obtain by multiplying the right value with U _R /U	U _R (Vdc)	dV/dt(V/us)
		P=5mm
	63	15
	100	20
	250	50
	400	80
	630	90

7. Marking:

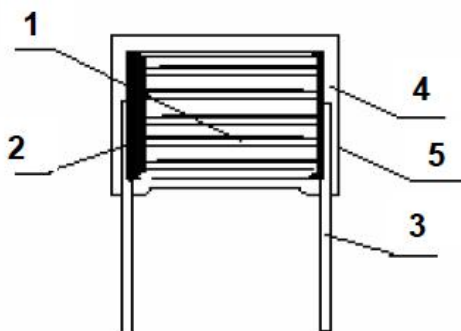
(Example)

474J63

474	Capacitance
J	Tolerance
63	Rated voltage (63VDC)

8. Construction and main materials of products

CL23B(MEM) Type:



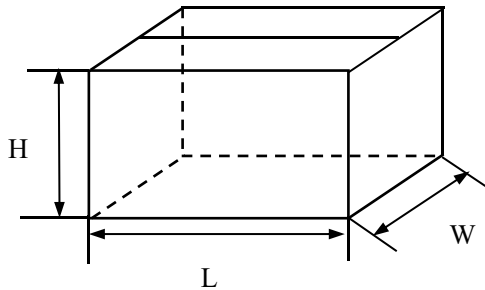
No.	Main Material	Describe	Note
1	Metallized polyester film	MPEA00	-/-
2	Metal spray layer	Zn&Sn alloy wires	-/-
3	Lead wire	Tinned copper-clad steel wires	-/-
4	Potting material	Epoxy resin	Flame retardant
5	Outside protection material	PBT plastic box	Flame retardant

Note : All of the materials and the finished products are all in compliance with the requirements of RoHS.

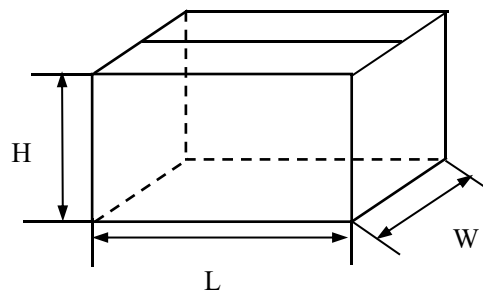
9. Packing

Package bag and Carton

Inside Carton the box



Inside Carton the box



9.1 Inside Carton the box $L*W*H=34.5*23.5*24.5$ cm

Outside Carton the box $L*W*H=49*36*27$ cm

9.2 The detail of the carton

9.2.1 Packing list card, including

Part number of manufacturer.

Total quantity of bags and unit , lot No.

9.2.2 Packing capacitors with PVC Sellotape. Do moisture proof and dust proof well

9.2.3 Marking or table for RoHS ;

9.2.4 Other marking customer required .

10.Storage Conditions

10.1 It should be noted that the solder ability of the terminals may be deteriorated when
Stored barely in an atmosphere for a long periods .

10.2 It shouldn't be located in particularly high temperature and high humidity ,it must
Submit to the following conditions(keeping in the original package):

Temperature 35°C Max, Relative humidity 80% Max

10.3 Storage period:(from the manufacturing date marked on the label in package bag)

Loose :12 months max.

11.The Compliance With Environment Requirement

11.1 Compliance with the requirement of RoHS.

11.2 Compliance with the requirement of REACH.

11.3 Without Halogen (as required).

12. Characteristics and test conditions

12.1 Test condition: Unless otherwise specified, the standard range of atmospheric

Conditions for marking measurements and test is as follows Ambient

Temperature :15℃~35℃

Relative humidity:25%~75%

If there may be any doubt on the results, measurements shall be made within the

Following limits:

Ambient temperature :20±2℃

Relative humidity :60%~70%

12.2 Electrical Characteristics

No	Item		Characteristics	Test Method
1	Terminal Strength	Pull Strength	There shall be no such mechanical damage as terminal damage etc.	Wire diameter: 0.6&0.8mm Load:10N , Time: 10sec Wire diameter: 1.0&1.2mm Load:20N , Time: 10sec
		Bending Strength		Wire diameter : 0.6&0.8mm Load :5N , 90°×2times Wire diameter : 1.0&1.2mm Load :10N , 90°×2times
2	Solderability		At least 95% of the Circumference of the lead wire . Around load surface dipped into with new solder.	Solder Temp: 245±5℃ Immersion time: 2.5±0.5sec
3	Resistance to soldering heat	Appearance	No visible damage	Solder temp: 260±5℃ Immersion time :10±1sec. Then recovery at ordinary Condition 1~2 hours
		Increase of tan δ	≦ 0.005 (C≦ 1.0μF, 10kHz) ≦ 0.003 (C>1.0μF, 1kHz)	
		Capacitance Variation	ΔC/C ≦ ± 2%	
4	Initial measurement	Capacitance tgδ C _R ≤1μF: 10kHz, C _R >1μF: 1kHz		
	Rapid change of temperature	There shall be no evidence of deterioration.		θ _A =-40℃, θ _B =+105℃ 5 cycles Duration: t=30min
	Vibration	There shall be no evidence of deterioration		Amplitude 0.75mm or acceleration 98m/s ² (whichever is the smaller severity), f:10Hz to 500Hz.Three perpendicular directions, 2h for each direction,total 6h
	Bump	There shall be no evidence of deterioration		4000 times,Acceleration:390m/s ² , Pulse duration,6ms

12.2 Electrical Characteristics

No	Item		Characteristics	Test Method
4	Final measurement	Appearance	No visible damage	
		Increase of $\tan \delta$	≤ 0.003 ($C \leq 1.0\mu F$, 10kHz) ≤ 0.002 ($C > 1.0\mu F$, 1kHz)	
		Appearance	No visible damage	
		Capacitance Variation	$\Delta C/C \leq \pm 5\%$	
5	Initial measurement	Capacitance $\tan \delta$ $C_R \leq 1\mu F$: 10kHz, $C_R > 1\mu F$: 1kHz		
	climate sequence	Dry heat		+110, 16h
		Damp heat, Cyclic		Test Db, Severity: b, the first cycle
		Cold		-40, 2h
		Damp heat, cyclic other		Test Db, Severity b, the other cycles,
	Final measurement	Appearance	No visible damage	
		Increase of $\tan \delta$	≤ 0.005 ($C \leq 1.0\mu F$, 10kHz) ≤ 0.003 ($C > 1.0\mu F$, 1kHz)	
		Capacitance Variation	$\Delta C/C \leq \pm 5\%$	
		Insulation Resistance	$\Delta IR/IR \leq 50\%$	
6	Damp heat Steady state	Appearance	No visible damage	Humidity : 90~95%RH Temp: 40 $\pm$ 2 $^{\circ}$ C No load Duration: 21days Then recovery at ordinary condition 1~2 hours。
		Increase of $\tan \delta$	≤ 0.005	
		Capacitance Variation	$\Delta C/C \leq \pm 5\%$	
		Insulation Resistance	$\Delta IR/IR \leq 50\%$	
7	Endurance	Appearance	No visible damage	Temperature: +85 $^{\circ}$ C, Applied voltage: 1.25U _R Va.c. Duration: 1 000h
		Increase of $\tan \delta$	≤ 0.003 ($C \leq 1.0\mu F$, 10kHz) ≤ 0.002 ($C > 1.0\mu F$, 1kHz)	
		Capacitance Variation	$\Delta C/C \leq \pm 8\%$	
		Insulation Resistance	$\Delta IR/IR \leq 50\%$	

12.2 Electrical Characteristics

8	Temperature characteristic	Measuring capacitance at test point b, d, f Characteristic at lower category temperature-40℃ $0 \leq (C_b - C_d) / C_d \leq +3\%$ Characteristic at upper category temperature+105℃ $-4.0\% \leq (C_f - C_d) / C_d \leq 0$		Static method: The Capacitors should be kept at the following temperature in turn: a(20±2) °C, b(-40±3) °C, d(20±2) °C, f(105±2) °C, g(20±2) °C
9	Charging and discharging	Capacitance Variation	$\Delta C / C \leq \pm 5\%$	times: 10 000 Duration of charging: 0.5s Duration of discharging: 0.5s Charging voltage: rated voltage U_R Charging resistance: $220 / C_R (\Omega)$ Discharging resistance $R = 10 / C_R (\Omega)$ or 20Ω (whichever is the greater) C_R : Rated capacitance (uF)
		Increase of $\tan \delta$	$\leq 0.003 (C \leq 1.0\mu F, 10kHz)$ $\leq 0.002 (C > 1.0\mu F, 1kHz)$	
		Insulation Resistance	$\Delta IR / IR \leq 50\%$	

13. Regulation in usage

13.1 Permissible conditions:

13.1.1 Do not exceed upper category temperature.

13.1.2 Avoid overload of capacitors

13.1.3 Pulse current should be within the figures

calculated by dv/dt .

13.2 Handling cautions:

13.2.1 Do not apply excessive force to the lead wire root area.

13.2.2 Be careful to lead cusp.

13.3 Soldering:

When soldering a capacitor, heat in soldering is conducted to the element of the capacitor from wire lead and and enclose, and hence it should be noted that solder under high temperature and a long period may cause deterioration of characteristic or breakdown of capacitors, be sure to solder within the following temperature condition range.

13.3.1 Flow soldering:

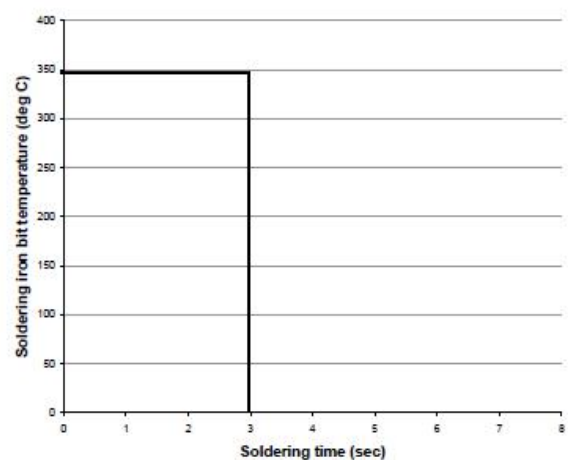
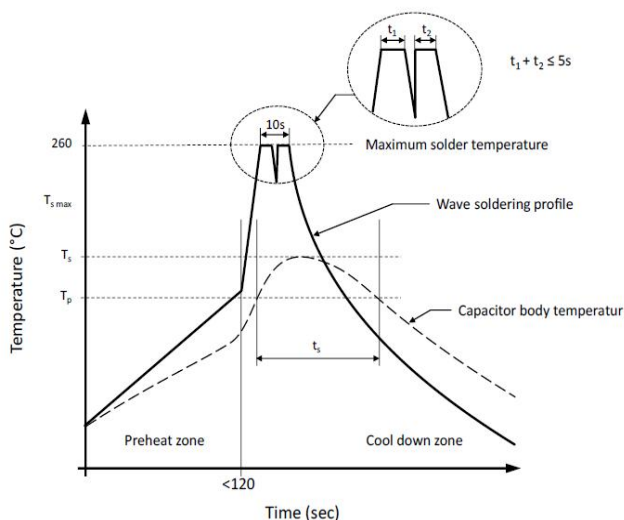
Metallized polyester dielectric film capacitor

During pre-heating: $T_p \leq 120^\circ\text{C}$, 120s ;

During soldering: $T_s \leq 160^\circ\text{C}$, $t_s \leq 45\text{s}$,

13.3.2 When using soldering Iron tip less than 350°C . Soldering time (sec.) within 3 seconds.

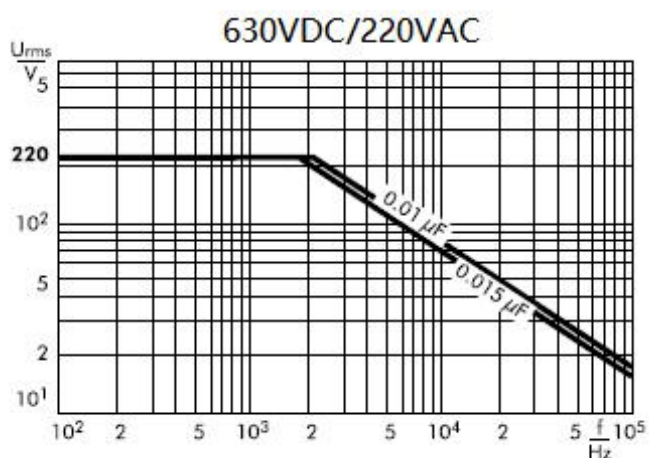
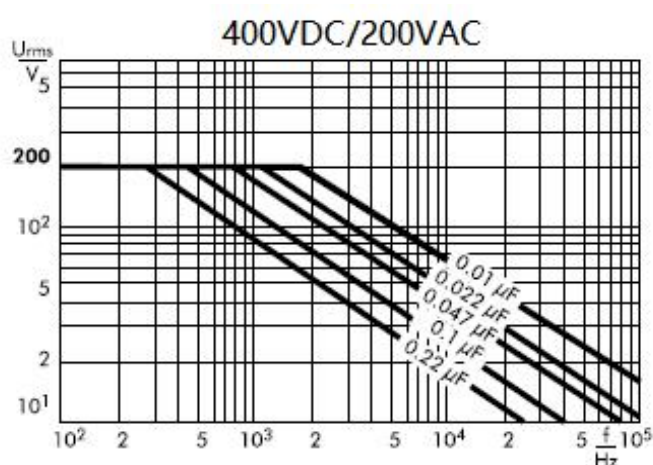
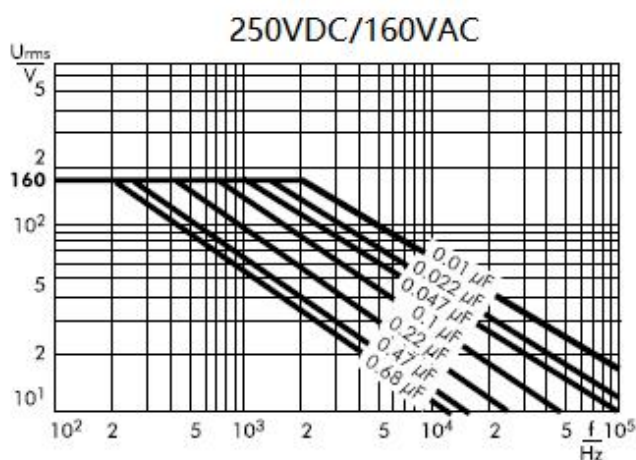
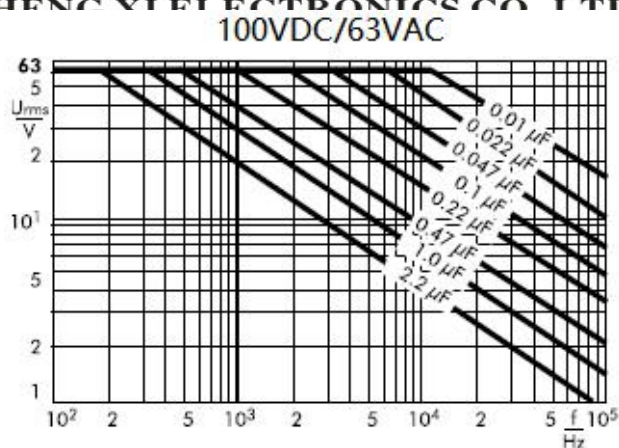
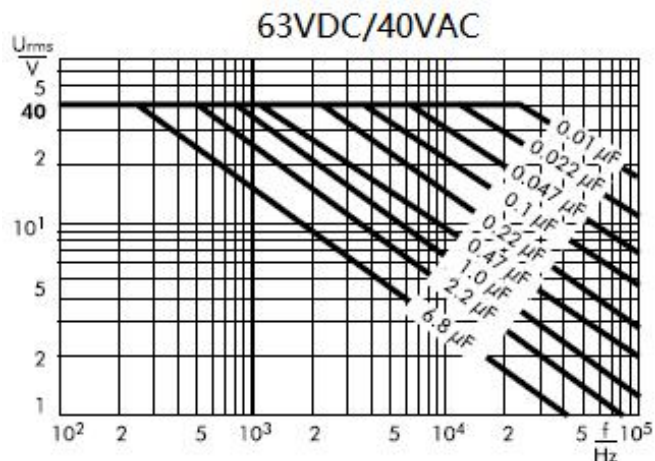
13.3.3 Leaded film capacitors are not suitable reflow soldering



T_s : Capacitor body maximum temperature at wave soldering

T_p : Capacitor body maximum temperature at pre-heating

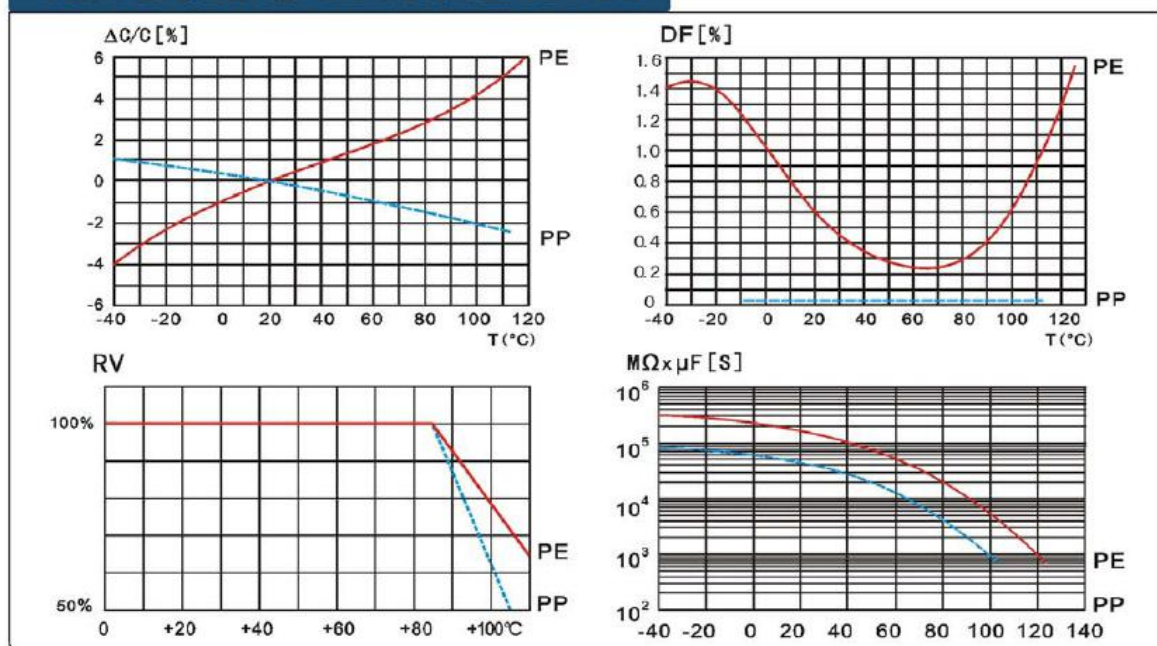
14. Max. Voltage($V_{r.m.s}$) VS. Frequency



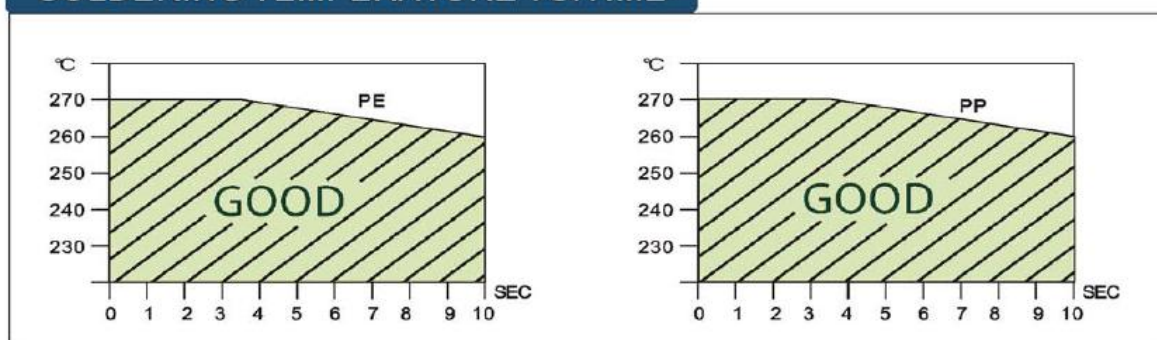
ature $\leq 85^{\circ}\text{C}$, internal temperature rise

15. Product Electrical Characteristic Graph

TEMPERATURE CHARACTERISTICS



SOLDERING TEMPERATURE VS.TIME



FREQUENCY CHARACTERISTICS

