规　格　承　认　书
SPECIFICATIONS FOR APPROVAL

客　戶 CUSTOMER	：	TR
项　目 ITEM	：	METALIZED POLYESTER FILM CAPACITORS
客　戶　料　号 CUSTOMER'S PART NO.	：	
江　森　料　号 JIANGSEN 'S P/N	：	JGS32 SERIES （CL21） （ROHS环保产品）
日　期 ISSUED DATE	：	2020-4-23
版　本 EDITION	：	A

CUSTOMER'S APPROVAL :

PRODUCT SPECIFICATIONS

ISSUED DATE : **2020-4-23**

CUSTOMER	:	TR
CUSTOMER'S REFERENCE	:	
DESCRIPTIONS	:	**METALLIZED POLYESTER FILM CAPACITOR**
JIANGSEN TYPE	:	**JGS32 SERIES （CL21） （ROHS环保产品）**

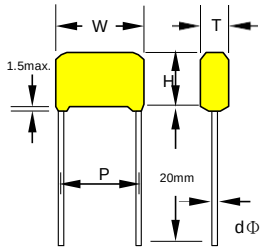


Fig. 1

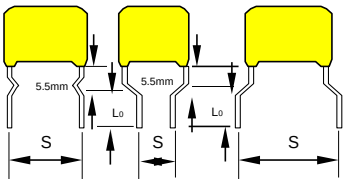


Fig. 2 Fig. 3 Fig. 4

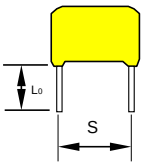


Fig. 5

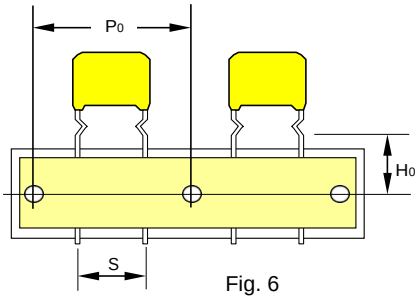


Fig. 6

1. PRODUCT DIMENSIONS :

unit : mm

CUSTOMER'S PART NO.	CAP uF	Tol. +/-(%)	R.V. VDC	T.V. VDC	W +/-0.5	H +/-0.5	T +/-0.5	P +/-1.0	S +/-0.5	dΦ +/-0.05	L0 +/-1		Fig.	JIANGSEN PART NO.
	0.1	5	63	100	12	9.4	5.2	10		0.6			1	JGS32 104J1JL10LL
	0.22	5	100	160	12	10.3	5.4	10		0.6			1	JGS32 224J2AL10LL
	0.47	10	100	160	12	8.9	4	10		0.6			1	JGS32 474K2AL10LL
	0.68	10	100	160	12	9.3	6	10		0.6			1	JGS32 684K2AL10LL
	0.01	5	250	400	11.5	7.4	4	10		0.6			1	JGS32 103J2EL10LL
	0.047	5	250	400	11.5	8.5	5.2	10		0.6			1	JGS32 473J2EL10LL
	0.1	10	250	400	12	7.7	3.6	10		0.6			1	JGS32 104K2EL10LL
	0.22	10	250	400	12	8.5	4.3	10		0.6			1	JGS32 224K2EL10LL
	0.033	10	400	640	12	7.6	4.2	10		0.6			1	JGS32 333K2GL10LL
	0.1	10	400	640	12	7.9	3.8	10		0.6			1	JGS32 104K2GL10LL
	0.15	10	400	640	12	9.8	4.8	10		0.6			1	JGS32 154K2GL10LL
	0.15	5	400	640	12	9.9	4.9	10		0.6			1	JGS32 154J2GL10LL
	0.01	5	630	1000	12	7.7	4.4	10		0.6			1	JGS32 103J2JL10LL
	0.01	10	630	1000	12	7.2	3.9	10		0.6			1	JGS32 103K2JL10LL
	0.022	10	630	1000	12	7.7	4.3	10		0.6			1	JGS32 223K2JL10LL
	0.033	10	630	1000	12	7.6	4.2	10		0.6			1	JGS32 333K2JL10LL
	0.047	10	630	1000	12	10.5	4.8	10		0.6			1	JGS32 473K2JL10LL
	0.1	10	630	1000	12	8.7	5.4	10		0.6			1	JGS32 104K2JL10LL
	1.0	5	63	100	17	11.8	6.9	15		0.6			1	JGS32 105J1JL15LL
	1.0	10	100	160	17	9.5	4.6	15		0.8			1	JGS32 105K2AL15LL
	0.33	5	250	400	17	10.2	5..3	15		0.8			1	JGS32 334J2EL15LL
	0.33	10	250	400	17	10.2	5.3	15		0.8			1	JGS32 334K2EL15LL
	0.47	10	250	400	17	9.5	4.6	15		0.8			1	JGS32 474K2EL15LL
	0.68	10	250	400	17	10.5	5.6	15		0.8			1	JGS32 684K2EL15LL

CUSTOMER'S PART NO.	CAP uF	Tol. +/-(%)	R.V. VDC	T.V. VDC	W +/-0.5	H +/-0.5	T +/-0.5	P +/-1.0	S +/-0.5	dΦ +/-0.05	L_0 +/-1		Fig.	JIANGSEN PART NO.
	1.0	10	250	400	17	11	6.1	15		0.6			1	JGS32 105K2EL15LL
	0.22	10	400	640	17	8.2	4	15		0.7			1	JGS32 224K2GL15LL
	0.33	5	400	640	17	11.7	6.8	15		0.6			1	JGS32 334J2GL15LL
	0.33	10	400	640	17	10.2	5.3	15		0.8			1	JGS32 334K2GL15LL
	0.47	10	400	640	17	10.6	5.7	15		0.8			1	JGS32 474K2GL15LL
	1.0	10	400	640	17	13	8.9	15		0.8			1	JGS32 105K2GL15LL
	0.1	5	630	1000	17	11.4	4.9	15		0.6			1	JGS32 104J2JL15LL
	0.15	10	630	1000	17	9.3	4.4	15		0.8			1	JGS32 154K2JL15LL
	1.5	5	250	400	22	14.8	8.3	20		0.8			1	JGS32 155J2EL20LL
	0.47	5	400	640	22	13.2	5.1	20		0.8			1	JGS32 474J2GL20LL
	1.5	5	400	640	22	15.6	9.1	20		0.8			1	JGS32 155J2GL20LL
	0.33	5	630	1000	22	10.4	5.5	20		0.8			1	JGS32 334J2JL20LL
	0.33	10	630	1000	22	10.4	5.5	20		0.8			1	JGS32 334K2JL20LL
	0.47	10	630	1000	22	14.9	8.4	20		0.8			1	JGS32 474K2JL20LL
	2.2	10	160	250	24	10.8	5.9	22.5		0.8			1	JGS32 225K2CL22LL
	1.0	5	630	1000	28	15.8	9.3	26		0.8			1	JGS32 105J2JL26LL
	2.7	10	400	640	29	16.9	10.3	27.5		0.8			1	JGS32 275K2GL27LL
	0.68	10	630	1000	29	12.7	6.1	27.5		0.8			1	JGS32 684K2JL27LL
	1.0	10	630	1000	29	14.2	7.6	27.5		0.8			1	JGS32 105K2JL27LL
	4.7	5	630	1000	33	24.6	14.9	31		0.8			1	JGS32 475J2JL31LL

PREPARED BY: 储丽艳	CHECKED BY : 汤建军	APPROVED BY : 冯建勋

PART NUMBERING

TYPE : JGS32 CL21

訂 購 基 本 規 格

EXAMPLE : JGS32 0.02uF ±10% 100 VDC Lead Space:10mm

JGS32	103	K	2A	L	10	L	L
1	2	3	4	5	6	7	8

1. TYPE OF CAPACITOR(电容型号) : Expressed in 4-letter code

TYPE	JGS33	JGS34	JGS32	JGS35	JGS36	JGS37	JGS31	JGS30	JGS11	JGS13	JGS51	JGS52	JGS82	JGS84
CODE	CL21X	CL21-B	CL21	CL21-B	CL19	CL20	CL11	CH11	QC	QB	CBB81	CBB81-B	CBB81-H	CBB81-HH
TYPE	JGS43	JGS42	JGS47	JGS48	JGS44	JGS71	JGS72	JGS73	JGS70	JGS45		JGS46	JGS60	JGS61
CODE	CBB21	CBB13	CBB19	CBB20	CBB28	X1	X2	X2Y2	RC	CBB21X-B		CBB-B	CBB60	CBB61

2. CAPACITANCE (EIA Code) : Expressed in 3-digit code

The first 2 digits indicate significant figures, and the third digit specifies the number of zero to follow. This gives the capacitance in picofarads. For examples: 102 = 1,000pF =1.0nF = 0.001uF 103 = 10,000pF =10nF = 0.01uF

104 = 100,000pF =100nF = 0.1uF 105 = 1,000,000pF =1,000nF= 1.0uF 106 = 10,000,000pF =10,000nF = 10uF

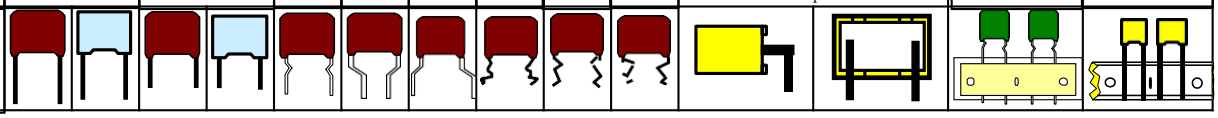
3. TOLERANCE (EIA Code) : Expressed in 1-letter code

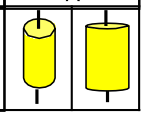
TOLERANCE	± 1%	± 2%	± 3%	± 5%	± 10%	± 20%	+80%-20%	+100%-0%
CODE	F	G	H	J	K	M	Z	P

4. RATED VOLTAGE : Expressed in 1digit-1-letter code for VDC and 2-digit code for VAC

VDC	4.0V	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	160V	200V	250V	300V	350V	400V	450V	500V
CODE	0G	0J	1A	1C	1E	1V	1H	1J	1K	2A	2C	2D	2E	2F	2V	2G	2W	2H
VDC	520V	550	600	630V	700V	800V	850V	900V	1000V	1200V	1250V	1500V	1600V	1800V	2000V	2500V	3000V	3500V
CODE	2X	2Y	2R	2J	2S	2K	2T	2U	3A	3M	3B	3N	3C	3Q	3D	3E	3F	3V
VAC	125	180	200	220	230	250	275	280	305	320	350	370	400	440	450	500	600	700
CODE	12	18	20	22	23	25	27	28	30	32	35	37	40	44	45	50	60	70
VAC	800	900																
CODE	80	90																

5. LEAD CONFIGURATION : Expressed in 1-letter code

CODE	L	B	C	D	E	F	G	H	Y	T	U
LEAD TYPE											

CODE	A
LEAD TYPE	

6. LEAD SPACE : Expressed in 2-digit or 1-digit-1-letter code Unit : mm

LEAD SPACE	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	12.5	15.0
CODE	03	3P	04	4P	05	5P	06	6P	07	7P	08	8P	09	9P	10	12	15
LEAD SPACE	17.5	20.0	22.5	25.0	27.5	30.0	32.5	35.0	37.5	36.5	42.5	52.5					
CODE	17	20	22	25	27	30	32	35	37	36	42	52					

7. LEAD FORMING PITCH : Expressed in 1-letter code

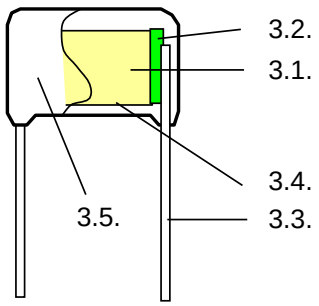
LEAD PITCH	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0	35.0	37.5	Others	N/A
CODE	A	H	B	G	C	N	D	W	E	F	U	V	Z	X	L

8. LEAD LENGTH (Straight): Expressed in 1-letter code Taping Unit : mm

LEAD LENGTH	3.1	3.5	4.0	4.5	5.0	5.5	7.5	8.0	9.0	3.2	2.2	3.7	6.0	7.0	11.5	12.0	4.1
CODE	1	2	3	4	5	6	7	8	9	X	A	B	C	D	E	F	G
LEAD LENGTH	15.0	22.0	25.0	30.0	35.0	28.0	2.7	40.0	29.0	45.0	20.0	26.0	6.5	3.4	Taping	N/A	其他
CODE	H	J	K	M	N	P	Q	R	S	T	U	V	W	Y	T	L	0

PRODUCT **TYPE** **JGS32 CL21**

NO.	ITEM	DESCRIPTIONS
1.	**SCOPE**	This specifications cover the requirements of JIANGSEN TECHNOLOGY's MINIATURE METALLIZED POLYESTER FILM CAPACITOR Type : JGS32 CL21
2.	**STANDARD ATMOSPHERIC CONDITIONS FOR MAKING MEASUREMENTS**	
2.1.	AMBIENT TEMPERATURE	15℃ to 35℃ (If there is any doubt on the results, the measurements shall be made at +20 +/- 5℃.)
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	Operating temperature range to capacitors shall be -40℃~105℃(Voltage derating in case of over 85℃)
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	Epoxy Resin
4.	**MARKING**	
4.1.	MANUFACTURER'S SYMBOL (P=7.5mm)	in EIA 3-digit code (Please refer to "PART NUMBERING"）.
4.2.	NOMINAL CAPACITANCE	in EIA 3-digit code (Please refer to "PART NUMBERING"）.
4.2.	TOLERANCE	in EIA 1-letter code (Please refer to "PART NUMBERING"）.
4.3.	RATED VOLTAGE	in VDC rating, unless otherwise indicated.



PRODUCT **TYPE** **JGS32 CL21**

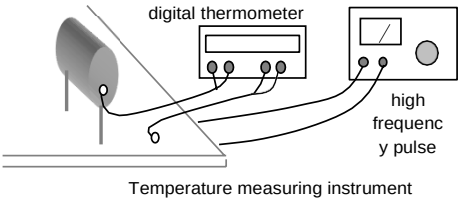
5.	**ELECTRICAL CHARACTERISTICS**			
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
5.1.	Withstand Voltage (TV)	Between Terminals	Shall be no abnormality.	Apply 150% of rated voltage for 60 +/- 5 sec., or175% of rated voltage for 2 sec. at +20 +/- 5℃. Withstanding (DC) voltage (cut off current 10mA), rise time 100V/S .
		Between Terminals & Enclosure	Shall be no abnormality.	Apply 200% of rated voltage for 2 to 5 sec.
5.2.	Insulation Resistance (I.R.)		>= 10,000 MOhm (C <= 0.33 uF) >= 3,300 MOhm*uF/C (C > 0.33 uF)	Apply Vt +/- 15% for 60 +/- 5 sec. at +20 +/-5℃. Vt = 10 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℃).	Measuring Frequency : 1 KHz +/- 10%. Measuring Voltage : <= 1 Vrms.
5.4.	Dissipation Factor (DF)		<= 0.001 (0.10%) at 1 KHz.	Measuring Frequency : +/- 2% Measuring Voltage : <= 1 Vrms.
5.5.	Connection of Element		Shall be no open nor short-circuiting. The connection shall be stable. DF shall be <= 0.0010 (0.10%) at 1 KHz.	Apply 200% of rated voltage for 10 times.
5.6.	Solderability		More than 95% of circumferential surface of lead wire shall be covered with new solder.	Testing method per IEC 68-2-20 Ta. Soldering temperature : +245 +/- 2℃. Immersion duration : 2 +/- 0.5 sec.

6.	**MECHANICAL CHARACTERISTICS**			
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
6.1.	Terminal Strength	Tensile	Shall be no abnormality.	Testing method per IEC 68-2-21. Apply 1.0 kg for 10 +/- 2 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℃ for 3 min. 2. -40 +/-2℃ for 30 min. 3. +20 +/- 2℃ for 3 min. 4. +85 +3/-0 ℃ for 30 min. 5. +20 +/- 2℃ for 3 min.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (△C/C)	Within +/- 5% of the value before test.	
		Dissipation Factor change (△DF)	Tanδ:1.0% max. (1KHz)	
		Insulation Resistance (I.R.)	>= 10% of the limit value of No. 5.2.	

PRODUCT **TYPE JGS32 CL21**

NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.2.	High Temperature Loading	Appearance	Shall be no remarkable change.	Testing method per IEC 60384-2. Refer to JIS C 5102-1994. Test Temperature : +85 +/-2 ℃. Apply 125% of rated voltage for 1,000 +24/-0 hrs; After test, allow it stay alone for 4hrs at standard temperature and humidity before making measurements.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (△C/C)	Within +/- 5% 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.	
7.3.	Humidity Resistance	Appearance	Shall be no remarkable change.	Testing method per IEC 60068-2-3 Ca. Refer to JIS C 0022. Test Temperature : +40 +/- 2℃. Test Humidity : 90% to 95% R.H. Test Duration : 500 +24/-0 hrs After test, allow it stay alone for 4 hrs at standard temperature and humidity before making measurements.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (△C/C)	Within +/- 5% of the value before test.	
		Dissipation Factor	Tanδ:1.0% max. (1KHz)	
		Insulation Resistance	>= 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.	Preheat temp 100～120℃ Preheat Duration :60sec.max. Temperature increase by 3℃/sec.max. Soldering Temperature : +260 +/- 5℃. Immersion Duration : 10 +/- 1 sec. Immersion Depth : 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 (△C/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.	Testing method per IEC 60068-2-2. Test Temperature : +85 +/- 2℃ Test Duration : 16 +1/-0 hrs.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (△C/C)	Within +/-5% 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.	
7.6.	Cold Resistance	Appearance	Shall be no remarkable change.	Testing method per IEC 60068-2-1. Test Temperature : -40 +/-3 ℃ Test Duration : 2 +1/-0 hrs.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (△C/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.	

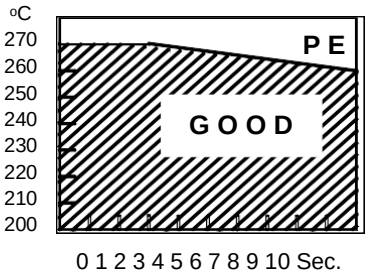
NO.	ITEM		PERFORMANCE	TEST CONDITIONS
7.7.	Vibration Resistance	Connection Strength	Shall be no open nor short-circuiting. The connection shall be stable.	Testing method per IEC 60068-2-6 Fc. Frequency Change : 10--55--10 Hz. Vibration Distance : 1.5 mm. Test Direction : X, Y, Z. Test Duration : 2 +1/-0 hrs each direction.
		Appearance	Shall be no mechanical damage.	
7.8.	Rapid Temperature Change	Appearance	Shall be no remarkable change.	Testing method per IEC 60068-2-14 Na. Test Temperature Cycle : Total 5 cycles. High Temperature : +85 +/-5 ℃ Low Temperature : -40 +/-5℃ 30 min +/- 10% for each temperature.
		Withstand Voltage	Shall satisfy No. 5.1.	
		Capacitance Change Rate (△C/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.	
7.10.	Inherent Temperature Rise	Temperature rise (△T)	<= 8 ℃	Test temperature : normal room temperature. Attach thermocouples to the capacitor as shown below. Measurement shall be down by soldering the capacitor on the opposite side of the printed circuit board etc. in case of being influenced by heat of surrounding components. besides, they shall be measured in calm condition by putting capacitor into box etc. In case of being influence by convection or wind. Shall avoid from heat influence of surrounding components when taking measurement. 

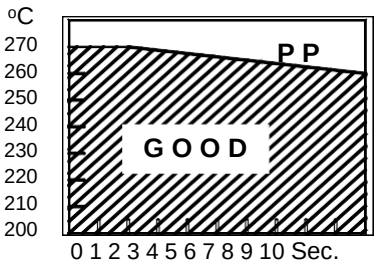
8. ACCEPTABLE QUALITY LEVEL (AQL)

NO.	ITEM	AQL	SAMPLING PLAN
8.1.	Appearance AQL	0.65	According to MIL-STD-105E level II GB2828-2003 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	

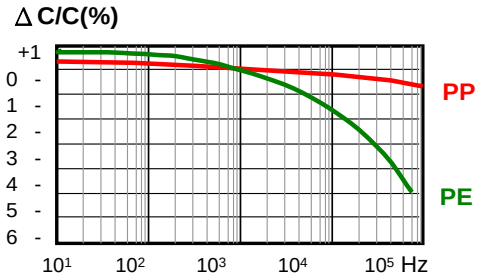
CHARACTERISTICS REFERENCE

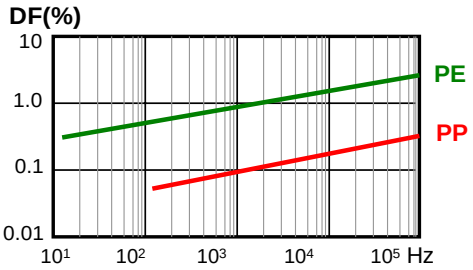
Soldering Temperature VS Time





Frequency Characteristics





Temperature Characteristics