



SPECIFICATION FOR APPROVAL

File No.: Q/FRK 0.GS.C23-W01

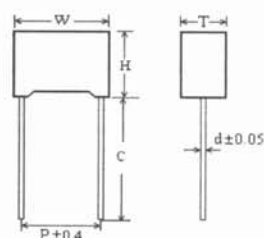
Product Name	Box-type metallized polyester film capacitor
Product Type:	C23(CL23 Series)
Product Code	
Customer	
Customer Code	
Issue Date	2008-03

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塑料外壳金属化聚酯薄膜电容器

Box-type metallized polyester film capacitor

■ 外形图 Outline Drawing



■ 特点

- 可靠性高
- 金属化聚酯膜，无感卷绕结构
- 塑料外壳（UL94 V-0），阻燃环氧填充

■ 主要用途

- 旁路，隔直，耦合，退耦
- 脉冲，逻辑，定时，振荡电路
- 低电压场合抗干扰

■ Features

- High reliability
- metallized polyester film, non-inductive wound construction
- Plastic case (UL94 V-0), Epoxy resin sealing

■ Typical application

- by-passing, blocking, coupling, decoupling,
- pulse, logic, timing, oscillator circuits.
- interference suppression in low voltage application (i.e. automotive)

■ 技术要求 Specifications

引用标准 Reference Standard	GB 7332 (IEC 60384-2)					
气候类别 Climatic Category	55/100/56					
额定温度 Rated temperature	85℃					
工作温度 Operating temperature	-55℃~105℃ (+85℃ to +105℃: decreasing factor 1.25% per ℃ for V _R (dc))					
额定电压 Rated Voltage	63V, 100V, 160V, 250V, 400V, 630V					
电容量范围 Capacitance Range	0.0015μF~68.0μF					
电容量偏差 Capacitance Tolerance	±5%(J), ±10%(K), ±20%(M)					
耐电压 Voltage Proof	1.6U _R (5s)					
损耗角正切 Dissipation Factor	测试频率 Frequency	C _R ≤ 0.1μF		C _R > 0.1μF		
	1kHz	≤1.0%		≤1.0%		
	10kHz	≤1.5%		≤1.5%		
	100kHz	≤3.0%		-		
绝缘电阻 Insulation Resistance	U _R >100V	≥30 000MΩ, ≥10 000 s,	C _R ≤0.33μF C _R >0.33μF	(20℃,100V,1min)		
	U _R ≤100V	≥15 000MΩ, ≥5 000s,	C _R ≤0.33μF C _R >0.33μF	(20℃,10V,1min)		
最大脉冲爬升速率 Maximum Pulse Rise Time(dv/dt)	U _R (V)	dv/dt (V/μs)				
若实际工作电压 U 比额定电压 U _R 低，电容器可工作在更高的 dv/dt 场合，这样 dv/dt 允许值应为右表值乘以 U _R /U。		P=7.5	P=10.0	P=15.0	P=22.5	P=27.5
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.	63	5	6	2.5	1.5	1.0
	100	6	9	3	2.0	1.5
	160	-	15	9	-	-
	250	15	20	12	8	5
	400	30	30	20	10	8.5
	630	40	40	25	12	10

产品编码说明 Part number code system

15 位产品代码如下:

The 15 digits part number is formed as follow:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C	2	3												

第 1~3 位 薄膜电容器系列代码

C23=CL23

Digit 1 to 3 Series code of film capacitor

C23=CL23

第 4~5 位 直流额定电压

1J=63V 2A=100V 2C=160V

2E=250V 2G=400V 2J=630V

Digit 4 to 5 DC rated voltage

1J=63V 2A=100V 2C=160V

2E=250V 2G=400V 2J=630V

第 6~8 位 标称容量

举例: 103=10×10³ pF= 0.01μF

Digit 6 to 8 Rated capacitance value

for example : 103=10×10³ pF= 0.01μF

第 9 位 容量偏差

J=±5%,K=±10%, M=±10%

Digit 9 Capacitance tolerance

J=±5%,K=±10%, M=±10%

第 10 位 引线脚距 P

3=7.5mm 4=10.0mm 6=15.0mm

9=22.5mm B=27.5

Digit 10 Lead pitch

3=7.5mm 4=10.0mm 6=15.0mm

9=22.5mm B=27.5

第 11 位 内部特征码

Digit 11 Internal use

第 12~15 位 引线加工和包装代码

Digit 12 to 15 Lead form and packaging code

Table 1 引线加工和包装代码 lead form and packaging code

第 12 位 Digit 12		第 13 位 Digit 13		第 14 位 Digit 14		第 15 位 Digit 15	
代码 code	说明 explanation	代码 code	说明 explanation	代码 code	说明 explanation	代码 code	说明 explanation
A	弹带包装 ammo-pack	3	F=7.5mm	0	表示直脚 straight	1	产品在连续的两个载带孔之间 each cap. among two consecutive holes P3=12.7mm,H=18.5mm (For pitch=7.5mm)
R	圆盘包装 reel-pack	4	F=10.0mm	1	表示弯脚 kinked	5	P3=25.4mm;H=18.5mm (For pitch=10/15mm)
F	引线成型 lead kinked	6	F=15.0mm				
		3	F=7.5mm	0	B=4.5mm	0	B 的长度偏差±0.5mm
		4	F=10.0mm		The length of B		B Length tolerance ±0.5mm
		6	F=15.0mm				
C	直脚 straight lead “C” in the figure above	代码 code	说明 explanation			0	引线长度偏差±0.5mm 或标准长度 Length tolerance ±0.5mm Or standard length
		00	标准的引线长度(18mm~22mm) standard lead length				
		45	引线长度 4.5mm lead length 4.5mm				

1 外形尺寸 Dimensions(mm)

63Vdc(40Vac)							100Vdc(63Vac)							160Vdc(90Vac)						
容量 (μ F)	W ± 0.4	H ± 0.4	T ± 0.4	P ± 0.4	d	产品代码 Part number	容量 (μ F)	W ± 0.4	H ± 0.4	T ± 0.4	P ± 0.4	d	产品代码 Part number	容量 (μ F)	W ± 0.4	H ± 0.4	T ± 0.4	P ± 0.4	d	产品代码 Part number
0.22	10.5	8.5	3.5	7.5	0.5	C231J224+30****	0.10	10.5	8.5	3.5	7.5	0.5	C232A104+30****	0.10	13.0	9.0	4.0	10.0	0.6	C232C104+40****
0.33	10.5	8.5	3.5	7.5	0.5	C231J334+30****	0.15	10.5	8.5	3.5	7.5	0.5	C232A154+30****	0.15	13.0	11.0	5.0	10.0	0.6	C232C154+40****
0.47	10.5	9.0	4.0	7.5	0.6	C231J474+30****	0.22	10.5	9.0	4.0	7.5	0.6	C232A224+30****	0.22	13.0	11.0	5.0	10.0	0.6	C232C224+40****
0.68	10.5	11.0	5.0	7.5	0.6	C231J684+30****	0.33	10.5	11.0	5.0	7.5	0.6	C232A334+30****	0.33	17.5	11.0	5.0	15.0	0.8	C232C334+60****
1.0	10.5	12.0	6.0	7.5	0.6	C231J105+30****	0.47	10.5	12.0	6.0	7.5	0.6	C232A474+30****	0.47	17.5	12.0	6.0	15.0	0.8	C232C474+60****
0.22	13.0	9.0	4.0	10.0	0.6	C231J224+40****	0.10	13.0	9.0	4.0	10.0	0.6	C232A104+40****	0.68	17.5	13.5	7.5	15.0	0.8	C232C684+60****
0.33	13.0	9.0	4.0	10.0	0.6	C231J334+40****	0.15	13.0	9.0	4.0	10.0	0.6	C232A154+40****	1.0	17.5	14.5	8.5	15.0	0.8	C232C105+60****
0.47	13.0	11.0	5.0	10.0	0.6	C231J474+40****	0.22	13.0	11.0	5.0	10.0	0.6	C232A224+40****							
0.68	17.5	11.0	5.0	15.0	0.8	C231J684+60****	0.33	17.5	11.0	5.0	15.0	0.8	C232A334+60****							
1.0	17.5	11.0	5.0	15.0	0.8	C231J105+60****	0.47	17.5	11.0	5.0	15.0	0.8	C232A474+60****							
1.5	17.5	12.0	6.0	15.0	0.8	C231J155+60****	0.68	17.5	12.0	6.0	15.0	0.8	C232A684+60****							
2.2	17.5	13.5	7.5	15.0	0.8	C231J225+60****	1.0	17.5	13.5	7.5	15.0	0.8	C232A105+60****							

250Vdc(160Vac)							400Vdc(200Vac)							630Vdc(220Vac)*						
容量 (μ F)	W ± 0.4	H ± 0.4	T ± 0.4	P ± 0.4	d	产品代码 Part number	容量 (μ F)	W ± 0.4	H ± 0.4	T ± 0.4	P ± 0.4	d	产品代码 Part number	容量 (μ F)	W ± 0.4	H ± 0.4	T ± 0.4	P ± 0.4	d	产品代码 Part number
0.047	10.5	8.5	3.5	7.5	0.5	C232E473+30****	0.015	10.5	8.5	3.5	7.5	0.5	C232G153+30****	0.0033	10.5	8.5	3.5	7.5	0.5	C232J332+30****
0.068	10.5	8.5	3.5	7.5	0.5	C232E683+30****	0.022	10.5	8.5	3.5	7.5	0.5	C232G223+30****	0.0047	10.5	8.5	3.5	7.5	0.5	C232J472+30****
0.10	10.5	9.0	4.0	7.5	0.6	I232E104+30****	0.033	10.5	9.0	4.0	7.5	0.6	C232G333+30****	0.0068	10.5	8.5	3.5	7.5	0.5	C232J682+30****
0.15	10.5	11.0	5.0	7.5	0.6	I232E154+30****	0.047	10.5	11.0	5.0	7.5	0.6	C232G473+30****	0.010	10.5	9.0	4.0	7.5	0.6	C232J103+30****
0.22	10.5	12.0	6.0	7.5	0.6	I232E224+30****	0.068	10.5	11.0	5.0	7.5	0.6	C232G683+30****	0.015	10.5	11.0	5.0	7.5	0.6	C232J153+30****
0.033	13.0	9.0	4.0	10.0	0.6	I232E333+40****	0.10	10.5	12.0	6.0	7.5	0.6	C232G104+30****	0.022	10.5	12.0	6.0	7.5	0.6	C232J223+30****
0.047	13.0	9.0	4.0	10.0	0.6	I232E473+40****	0.015	13.0	9.0	4.0	10.0	0.6	C232G153+40****	0.0047	13.0	9.0	4.0	10.0	0.6	C232J472+40****
0.068	13.0	9.0	4.0	10.0	0.6	I232E683+40****	0.022	13.0	9.0	4.0	10.0	0.6	C232G223+40****	0.0068	13.0	9.0	4.0	10.0	0.6	C232J682+40****
0.10	17.5	11.0	5.0	15.0	0.8	I232E104+60****	0.033	13.0	11.0	5.0	10.0	0.6	C232G333+40****	0.010	13.0	9.0	4.0	10.0	0.6	C232J103+40****
0.15	17.5	11.0	5.0	15.0	0.8	I232E154+60****	0.047	17.5	11.0	5.0	15.0	0.8	C232G473+60****	0.015	13.0	11.0	5.0	10.0	0.6	C232J153+40****
0.22	17.5	11.0	5.0	15.0	0.8	I232E224+60****	0.068	17.5	11.0	5.0	15.0	0.8	C232G683+60****	0.022	13.0	12.0	6.0	10.0	0.6	C232J223+40****
0.33	17.5	12.0	6.0	15.0	0.8	I232E334+60****	0.10	17.5	12.0	6.0	15.0	0.8	C232G104+60****	0.033	17.5	11.0	5.0	15.0	0.8	C232J333+60****
							0.15	17.5	13.5	7.5	15.0	0.8	C232G154+60****	0.047	17.5	12.0	6.0	15.0	0.8	C232J473+60****
														0.068	17.5	13.5	7.5	15.0	0.8	C232J683+60****

备注: 1.“+”表示容量偏差。 “+”=capacitance tolerance code, M=±20%,K=±10%,J=±5%

2.“****”表示引线加工和包装代码(见 table 1)。 “*****”=lead dimensions and packing mode code (refer to table 1)

3.“@”不用作跨线, 请参见抗干扰电容器。

“@” Not suitable for across-the-line applications,Pls refer to Interference Suppression Capacitors.

II 型(小尺寸) Pattern II (Reduced sizes)

63Vdc (40Vac)							100Vdc (63Vac)							250Vdc (160Vac)						
容量 (μF)	W ±0.4	H ±0.4	T ±0.4	P ±0.4	d	产品代码 Part number	容量 (μF)	W ±0.4	H ±0.4	T ±0.4	P ±0.4	d	产品代码 Part number	容量 (μF)	W ±0.4	H ±0.4	T ±0.4	P ±0.4	d	产品代码 Part number
0.47	10.5	8.5	3.5	7.5	0.5	C231J474+3S****	0.22	10.5	8.5	3.5	7.5	0.5	C232A224+3S****	0.068	10.5	8.5	3.5	7.5	0.5	C232E683+3S****
0.68	10.5	8.5	3.5	7.5	0.5	C231J684+3S****	0.33	10.5	9.0	4.0	7.5	0.5	C232A334+3S****	0.10	10.5	8.5	3.5	7.5	0.5	C232E104+3S****
1.0	10.5	11.0	5.0	7.5	0.6	C231J105+3S****	0.47	10.5	9.0	4.0	7.5	0.5	C232A474+3S****	0.15	10.5	9.0	4.0	7.5	0.6	C232E154+3S****
1.5	10.5	12.0	6.0	7.5	0.6	C231J155+3S****	0.68	10.5	11.0	5.0	7.5	0.6	C232A684+3S****	0.22	10.5	11.0	5.0	7.5	0.6	C232E224+3S****
1.8	10.5	12.0	6.0	7.5	0.6	C231J185+3S****	1.0	10.5	12.0	6.0	7.5	0.6	C232A105+3S****	0.27	10.5	12.0	6.0	7.5	0.6	C232E274+3S****
0.10	13.0	9.0	4.0	10.0	0.6	C231J104+4S****	0.10	13.0	9.0	4.0	10.0	0.6	C232A104+4S****	0.33	10.5	12.0	6.0	7.5	0.6	C232E334+3S****
0.15	13.0	9.0	4.0	10.0	0.6	C231J154+4S****	0.15	13.0	9.0	4.0	10.0	0.6	C232A154+4S****	0.033	13.0	9.0	4.0	10.0	0.6	C232E333+4S****
0.22	13.0	9.0	4.0	10.0	0.6	C231J224+4S****	0.22	13.0	9.0	4.0	10.0	0.6	C232A224+4S****	0.047	13.0	9.0	4.0	10.0	0.6	C232E473+4S****
0.33	13.0	9.0	4.0	10.0	0.6	C231J334+4S****	0.33	13.0	9.0	4.0	10.0	0.6	C232A334+4S****	0.068	13.0	9.0	4.0	10.0	0.6	C232E683+4S****
0.47	13.0	9.0	4.0	10.0	0.6	C231J474+4S****	0.47	13.0	9.0	4.0	10.0	0.6	C232A474+4S****	0.10	13.0	9.0	4.0	10.0	0.6	C232E104+4S****
0.68	13.0	9.0	4.0	10.0	0.6	C231J684+4S****	0.68	13.0	9.0	4.0	10.0	0.6	C232A684+4S****	0.15	13.0	9.0	4.0	10.0	0.6	C232E154+4S****
1.0	13.0	9.0	4.0	10.0	0.6	C231J105+4S****	1.0	13.0	11.0	5.0	10.0	0.6	C232A105+4S****	0.22	13.0	11.0	5.0	10.0	0.6	C232E224+4S****
1.5	13.0	11.0	5.0	10.0	0.6	C231J155+4S****	1.5	13.0	12.0	6.0	10.0	0.6	C232A155+4S****	0.33	13.0	11.0	5.0	10.0	0.6	C232E334+4S****
1.8	13.0	12.0	6.0	10.0	0.6	C231J185+4S****	0.33	17.5	11.0	5.0	15.0	0.8	C232A334+6S****	0.47	13.0	12.0	6.0	10.0	0.6	C232E474+4S****
2.2	13.0	12.0	6.0	10.0	0.6	C231J225+4S****	0.47	17.5	11.0	5.0	15.0	0.8	C232A474+6S****	0.10	17.5	11.0	5.0	15.0	0.8	C232E104+6S****
0.68	17.5	11.0	5.0	15.0	0.8	C231J684+6S****	0.68	17.5	11.0	5.0	15.0	0.8	C232A684+6S****	0.15	17.5	11.0	5.0	15.0	0.8	C232E154+6S****
1.0	17.5	11.0	5.0	15.0	0.8	C231J105+6S****	1.0	17.5	11.0	5.0	15.0	0.8	C232A105+6S****	0.22	17.5	11.0	5.0	15.0	0.8	C232E224+6S****
1.5	17.5	11.0	5.0	15.0	0.8	C231J155+6S****	1.5	17.5	12.0	6.0	15.0	0.8	C232A155+6S****	0.33	17.5	11.0	5.0	15.0	0.8	C232E334+6S****
1.8	17.5	11.0	5.0	15.0	0.8	C231J185+6S****	1.8	17.5	12.0	6.0	15.0	0.8	C232A185+6S****	0.47	17.5	11.0	5.0	15.0	0.8	C232E474+6S****
2.2	17.5	11.0	5.0	15.0	0.8	C231J225+6S****	2.2	17.5	12.0	6.0	15.0	0.8	C232A225+6S****	0.68	17.5	12.0	6.0	15.0	0.8	C232E684+6S****
3.3	17.5	12.0	6.0	15.0	0.8	C231J335+6S****	3.3	17.5	13.5	7.5	15.0	0.8	C232A335+6S****	1.0	17.5	13.5	7.5	15.0	0.8	C232E105+6S****
4.7	17.5	13.5	7.5	15.0	0.8	C231J475+6S****	4.7	17.5	14.5	8.5	15.0	0.8	C232A475+6S****	1.5	17.5	14.5	8.5	15.0	0.8	C232E155+6S****
6.8	17.5	14.5	8.5	15.0	0.8	C231J685+6S****	1.5	26.5	15.0	6.0	22.5	0.8	C232A155+9S****	0.47	26.5	15.0	6.0	22.5	0.8	C232E474+9S****
10.0	17.5	16.0	10.0	15.0	0.8	C231J106+6S****	1.8	26.5	15.0	6.0	22.5	0.8	C232A185+9S****	0.68	26.5	15.0	6.0	22.5	0.8	C232E684+9S****
3.3	26.5	16.0	7.0	22.5	0.8	C231J335+9S****	2.2	26.5	15.0	6.0	22.5	0.8	C232A225+9S****	1.0	26.5	15.0	6.0	22.5	0.8	C232E105+9S****
4.7	26.5	16.0	7.0	22.5	0.8	C231J475+9S****	3.3	26.5	15.0	6.0	22.5	0.8	C232A335+9S****	1.5	26.5	16.0	7.0	22.5	0.8	C232E155+9S****
6.8	26.5	16.0	7.0	22.5	0.8	C231J685+9S****	4.7	26.5	16.0	7.0	22.5	0.8	C232A475+9S****	1.8	26.5	16.0	7.0	22.5	0.8	C232E185+9S****
10.0	26.5	17.0	8.5	22.5	0.8	C231J106+9S****	6.8	26.5	18.5	10.0	22.5	0.8	C232A685+9S****	2.2	26.5	17.0	8.5	22.5	0.8	C232E225+9S****
15.0	26.5	22.0	12.0	22.5	0.8	C231J156+9S****	10.0	26.5	22.0	12.0	22.5	0.8	C232A106+9S****	3.3	26.5	22.0	12.0	22.5	0.8	C232E335+9S****
4.7	32.0	18.0	9.0	27.5	0.8	C231J475+BS****	4.7	32.0	18.0	9.0	27.5	0.8	C232A475+BS****	1.5	32.0	18.0	9.0	27.5	0.8	C232E155+BS****
6.8	32.0	18.0	9.0	27.5	0.8	C231J685+BS****	6.8	32.0	18.0	9.0	27.5	0.8	C232A685+BS****	1.8	32.0	18.0	9.0	27.5	0.8	C232E185+BS****
10.0	32.0	18.0	9.0	27.5	0.8	C231J106+BS****	10.0	32.0	20.0	11.0	27.5	0.8	C232A106+BS****	2.2	32.0	18.0	9.0	27.5	0.8	C232E225+BS****
15.0	32.0	18.0	9.0	27.5	0.8	C231J156+BS****								3.3	32.0	18.0	9.0	27.5	0.8	C232E335+BS****
22.0	32.0	22.0	13.0	27.5	0.8	C231J226+BS****								4.7	32.0	20.0	11.0	27.5	0.8	C232E475+BS****
33.0	32.0	24.5	15.0	27.5	0.8	C231J336+BS****								6.8	32.0	22.0	13.0	27.5	0.8	C232E685+BS****

备注: 1.“+”表示容量偏差。 “+”=capacitance tolerance code, M=±20%,K=±10%,J=±5%

2.“****”表示引线加工和包装代码(见 table 1)。“****”=lead form and packing code (refer to table 1)

II 型(小尺寸) Pattern II (Reduced sizes)

400Vdc (200Vac)							630Vdc (220Vac) ^②						
容量 (μF)	W ±0.4	H ±0.4	T ±0.4	P ±0.4	d	产品代码 Part number	容量 (μF)	W ±0.4	H ±0.4	T ±0.4	P ±0.4	d	产品代码 Part number
0.022	10.5	8.5	3.5	7.5	0.5	C232G223+3S****	0.0047	10.5	8.5	3.5	7.5	0.5	C232J472+3S****
0.033	10.5	8.5	3.5	7.5	0.5	C232G333+3S****	0.0068	10.5	8.5	3.5	7.5	0.5	C232J682+3S****
0.047	10.5	9.0	4.0	7.5	0.6	C232G473+3S****	0.010	10.5	8.5	3.5	7.5	0.5	C232J103+3S****
0.068	10.5	11.0	5.0	7.5	0.6	C232G683+3S****	0.015	10.5	9.0	4.0	7.5	0.6	C232J153+3S****
0.10	10.5	12.0	6.0	7.5	0.6	C232G104+3S****	0.022	10.5	11.0	5.0	7.5	0.6	C232J223+3S****
0.010	13.0	9.0	4.0	10.0	0.6	C232G103+4S****	0.033	10.5	12.0	6.0	7.5	0.6	C232J333+3S****
0.015	13.0	9.0	4.0	10.0	0.6	C232G153+4S****	0.0047	13.0	9.0	4.0	10.0	0.6	C232J472+4S****
0.022	13.0	9.0	4.0	10.0	0.6	C232G223+4S****	0.0068	13.0	9.0	4.0	10.0	0.6	C232J682+4S****
0.033	13.0	9.0	4.0	10.0	0.6	C232G333+4S****	0.010	13.0	9.0	4.0	10.0	0.6	C232J103+4S****
0.047	13.0	9.0	4.0	10.0	0.6	C232G473+4S****	0.015	13.0	9.0	4.0	10.0	0.6	C232J153+4S****
0.068	13.0	11.0	5.0	10.0	0.6	C232G683+4S****	0.022	13.0	9.0	4.0	10.0	0.6	C232J223+4S****
0.10	13.0	11.0	5.0	10.0	0.6	C232G104+4S****	0.033	13.0	11.0	5.0	10.0	0.6	C232J333+4S****
0.15	13.0	12.0	6.0	10.0	0.6	C232G154+4S****	0.047	13.0	11.0	5.0	10.0	0.6	C232J473+4S****
0.047	17.5	11.0	5.0	15.0	0.8	C232G473+6S****	0.068	13.0	12.0	6.0	10.0	0.6	C232J683+4S****
0.068	17.5	11.0	5.0	15.0	0.8	C232G683+6S****	0.033	17.5	11.0	5.0	15.0	0.8	C232J333+6S****
0.10	17.5	11.0	5.0	15.0	0.8	C232G104+6S****	0.047	17.5	11.0	5.0	15.0	0.8	C232J473+6S****
0.15	17.5	11.0	5.0	15.0	0.8	C232G154+6S****	0.068	17.5	11.0	5.0	15.0	0.8	C232J683+6S****
0.22	17.5	12.0	6.0	15.0	0.8	C232G224+6S****	0.10	17.5	12.0	6.0	15.0	0.8	C232J104+6S****
0.33	17.5	13.5	7.5	15.0	0.8	C232G334+6S****	0.15	17.5	13.5	7.5	15.0	0.8	C232J154+6S****
0.47	17.5	14.5	8.5	15.0	0.8	C232G474+6S****	0.22	17.5	16.0	10.0	15.0	0.8	C232J224+6S****
0.68	17.5	16.0	10.0	15.0	0.8	C232G684+6S****	0.33	17.5	19.0	11.0	15.0	0.8	C232J334+6S****
0.22	26.5	15.0	6.0	22.5	0.8	C232G224+9S****	0.10	26.5	15.0	6.0	22.5	0.8	C232J104+9S****
0.33	26.5	15.0	6.0	22.5	0.8	C232G334+9S****	0.15	26.5	15.0	6.0	22.5	0.8	C232J154+9S****
0.47	26.5	15.0	6.0	22.5	0.8	C232G474+9S****	0.22	26.5	16.0	7.0	22.5	0.8	C232J224+9S****
0.68	26.5	16.0	7.0	22.5	0.8	C232G684+9S****	0.33	26.5	16.0	7.0	22.5	0.8	C232J334+9S****
1.0	26.5	18.5	10.0	22.5	0.8	C232G105+9S****	0.47	26.5	17.0	8.5	22.5	0.8	C232J474+9S****
1.5	26.5	22.0	12.0	22.5	0.8	C232G155+9S****	0.68	26.5	22.0	12.0	22.5	0.8	C232J684+9S****
0.68	32.0	18.0	9.0	27.5	0.8	C232G684+BS****							
1.0	32.0	18.0	9.0	27.5	0.8	C232G105+BS****							
1.5	32.0	20.0	11.0	27.5	0.8	C232G155+BS****							

备注: 1."+"表示容量偏差。 "+"=capacitance tolerance code, M=±20%,K=±10%,J=±5%

2."****"表示引线加工和包装代码(见 table 1)。 "****"=lead form and packing code (refer to table 1)

3."@" Not suitable for across-the-line applications.pls refer to the Interference Suppression Capacitors.

2 测试方法及性能 Test Method And Performance:

序号 No.	项目 Item	性能 Performance	测试方法 Test method(GB 7332(IEC 60384-2))
1	可焊性 Solderability	镀锡良好 Good quality of tinning	焊料温度: $245^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 浸渍时间: $2.0\text{s}\pm 0.5\text{s}$ Solder temperature: $245^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Immersion time: $2.0\text{s}\pm 0.5\text{s}$
2	初始测量 Initial measurement	电容量、损耗角正切 Capacitance、 $\text{Tg}\delta$	
	引出端强度 Terminal strength	外观无可见损伤 There shall be no visible damage	拉力试验 U_{a1} : 拉力: $\phi d=0.5\text{mm}$, 5N $\phi d\geq 0.6\text{mm}$, 10N 弯曲试验 U_b : 弯力: $\phi d=0.5\text{mm}$, 2.5N $\phi d\geq 0.6\text{mm}$, 5N 每个方向上连续进行二次弯曲 Tension U_{a1} : Pull: $\phi d=0.5\text{mm}$, 5N $\phi d\geq 0.6\text{mm}$, 10N Bend U_b : The pull of bend: $\phi d=0.5\text{mm}$, 2.5N $\phi d\geq 0.6\text{mm}$, 5N The terminals shall be bent 2 times in each direction.
	耐焊接热 Resistance to solder heat	外观无可见损伤, 标识清晰 There shall be no visible damage, legible marking	焊料温度: $260^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 浸渍时间: $10\text{s}\pm 1\text{s}$ Solder temperature: $260^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Immersion time: $10\text{s}\pm 1\text{s}$
	最后测量 Final measurement	电容量: $\Delta C/C\leq$ 初始测量值的 $\pm 2\%$ 损耗角正切: $\text{tg}\delta$ 的增加 ≤ 0.003 ($C\leq 1.0\mu\text{F}$) $\text{tg}\delta$ 的增加 ≤ 0.002 ($C>1.0\mu\text{F}$) $\Delta C/C\leq \pm 2\%$ (relative to the initial value) Increase of $\text{tg}\delta$: ≤ 0.003 ($C\leq 1.0\mu\text{F}$) ≤ 0.002 ($C>1.0\mu\text{F}$)	
3	初始测量 Initial measurement	电容量、损耗角正切 Capacitance、 $\text{Tg}\delta$	
	温度快速变化 Rapid change of temperature	外观无可见损伤 There shall be no evidence of deterioration.	$\theta_A=-55^{\circ}\text{C}$, $\theta_B=+100^{\circ}\text{C}$ 5次循环 持续时间: $t=30\text{min}$ $\theta_A=-55^{\circ}\text{C}$, $\theta_B=+100^{\circ}\text{C}$ 5 cycles Duration: $t=30\text{min}$
	振动 Vibration	外观无可见损伤 There shall be no evidence of deterioration.	振幅 0.75mm 或加速度 98m/s^2 (取严酷度较小者), 频率 10Hz~500Hz 三个方向, 每个方向 2h, 共 6h Amplitude 0.75mm or acceleration 98m/s^2 (whichever is the smaller severity), f: 10Hz to 500Hz. Three directions, 2h for each direction, total 6h.
	碰撞 Bump	外观无可见损伤 There shall be no evidence of deterioration.	4000 次, 加速度 390m/s^2 , 脉冲持续时间: 6ms 4 000 times, Acceleration: 390m/s^2 , Pulse duration, 6ms

序号 No.	项目 Item	性能 Performance	测试方法 Test method(GB 7332(IEC 60384-2))
3	最后测量 Final measurement	电容量: $\Delta C/C \leq$ 初始测量值的 $\pm 5\%$ 损耗角正切: tg δ 的增加 $\leq 0.003 (C \leq 1.0\mu F)$ tg δ 的增加 $\leq 0.002 (C > 1.0\mu F)$ 绝缘电阻 IR: $\geq$ 额定值的 50% $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of tg δ : $\leq 0.003 (C \leq 1.0\mu F)$ $\leq 0.002 (C > 1.0\mu F)$ IR: $\geq 50\%$ of the rated value	
4	初始测量 Initial measurement	电容量、损耗角正切 Capacitance、Tg δ	
	干热 Dry heat		+100°C, 16h
	循环湿热 Damp heat, Cyclic		试验 Db, 严酷度 b, 第一次循环 Test Db, Severity: b, the first cycle
	寒冷 Cold		-55°C, 2h
	低气压 Low air pressure	在试验的最后 1min, 施加 U_R 无永久性击穿, 飞弧或外壳的有害变形; There shall be no permanent breakdown, flashover or other harmful deformation when applying U_R at the last 1 minute.	15°C ~ 35°C, 8.5kPa, 1h,
	循环湿热 Damp heat, cyclic other		试验 Db, 严酷度 b, 其余循环, 在试验结束后, 在试验结束后, 施加 U_R 1 分钟 Test Db, Severity b, the other cycles, Applying U_R for 1 minute after the test finished.
	最后测量 Final measurement	外观无可见损伤, 标志清晰, 电容量变化: $\Delta C/C \leq$ 初始测量值的 $\pm 5\%$, 损耗角正切 (1kHz): tg δ 的增加 $\leq 0.005 (C \leq 1.0\mu F)$ tg δ 的增加 $\leq 0.003 (C > 1.0\mu F)$ 绝缘电阻 IR: $\geq$ 额定值的 50% There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of tg δ : $\leq 0.005 (C \leq 1.0\mu F)$ $\leq 0.003 (C > 1.0\mu F)$ IR: $\geq 50\%$ of the rated value	

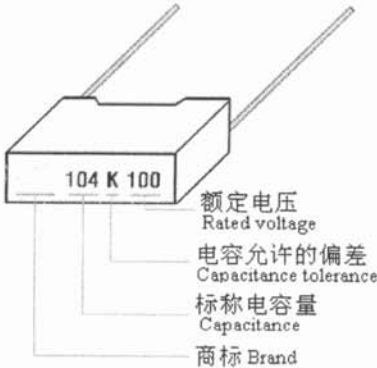
序号 No.	项目 Item	性能 Performance	测试方法 Test method(GB 7332(IEC 60384-2))
5	稳态湿热 Damp heat steady state	外观无可见损伤, 标志清晰 电容量变化: $\Delta C/C \leq$ 初始测量值的 $\pm 5\%$ 损耗角正切(1kHz): $\text{tg}\delta$ 的增加 ≤ 0.005 绝缘电阻 IR: $\geq$ 额定值的 50% There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of $\text{tg}\delta \leq 0.005$ IR: $\geq 50\%$ of the rated value	温度: $40^\circ\text{C} \pm 2^\circ\text{C}$ 湿度: $93 \pm 2\% \text{RH}$ 持续时间: 56 天 Temperature: $40^\circ\text{C} \pm 2^\circ\text{C}$ Humidity: $93 \pm 2\% \text{RH}$ Duration: 56 days
6	耐久性 Endurance	电容量变化: $\Delta C/C \leq$ 初始测量值的 $\pm 5\%$ 损耗角正切(1kHz): $\text{tg}\delta$ 的增加 ≤ 0.003 ($C \leq 1.0\mu\text{F}$), $\text{tg}\delta$ 的增加 ≤ 0.002 ($C > 1.0\mu\text{F}$) 绝缘电阻 IR: $\geq$ 额定值的 50% There shall be no evidence of deterioration and the marking shall be legible. $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of $\text{tg}\delta$: ≤ 0.003 ($C \leq 1.0\mu\text{F}$) ≤ 0.002 ($C > 1.0\mu\text{F}$) IR: $\geq 50\%$ of the rated value	温度: $+85^\circ\text{C}/+100^\circ\text{C}$ 施加电压: $1.25 \times U_R / 1.25 \times U_c$ ($U_c = 0.8U_R$) 时间: 2 000h Temperature: $+85^\circ\text{C}/+100^\circ\text{C}$ Voltage: $1.25 \times U_R / 1.25 \times U_c$ ($U_c = 0.8U_R$) Duration: 2 000h
10	随温度而定的特性 Temperature characteristic	在 b, d, f 点上电容量测量: 在下限类别温度 -55°C 时的特性: $-10\% \leq (C_b - C_d)/C_d \leq 0$ 在上限类别温度 100°C 时的特性: $0 \leq (C_f - C_d)/C_d \leq 10\%$ 在 f 点上测量绝缘电阻 $U_R \leq 100\text{V}$, $C \leq 0.33\mu\text{F}$, $\geq 75\text{M}\Omega$ $C > 0.33\mu\text{F}$, $\geq 25\text{s}$ $U_R > 100\text{V}$, $C \leq 0.33\mu\text{F}$, $\geq 150\text{M}\Omega$ $C > 0.33\mu\text{F}$, $\geq 50\text{s}$ Measuring capacitance at test point b, d, f: Characteristic at lower category temperature -55°C : $-10\% \leq (C_b - C_d)/C_d \leq 0\%$ Characteristic at upper category temperature $+100^\circ\text{C}$: $0\% \leq (C_f - C_d)/C_d \leq +10\%$ I.R. (test at point f): $U_R \leq 100\text{V}$: $\geq 75\text{M}\Omega$ ($C \leq 0.33\mu\text{F}$) $\geq 25\text{s}$ ($C > 0.33\mu\text{F}$) $U_R > 100\text{V}$: $\geq 150\text{M}\Omega$ ($C \leq 0.33\mu\text{F}$) $\geq 50\text{s}$ ($C > 0.33\mu\text{F}$)	静态法, 电容器依次保持在下述 每个温度: a. $(20 \pm 2)^\circ\text{C}$, b. $(-40 \pm 3)^\circ\text{C}$, d. $(20 \pm 2)^\circ\text{C}$, f. $(100 \pm 2)^\circ\text{C}$, g. $(20 \pm 2)^\circ\text{C}$ Static method: The Capacitors should be kept at the following temperature in turn: a. $(20 \pm 2)^\circ\text{C}$, b. $(-55 \pm 3)^\circ\text{C}$, d. $(20 \pm 2)^\circ\text{C}$, f. $(100 \pm 2)^\circ\text{C}$, g. $(20 \pm 2)^\circ\text{C}$

序号 No.	项目 Item	性能 Performance	测试方法 Test method(GB 7332(IEC 60384-2))
10	充电和放电 Charging and discharging	电容量: $\Delta C/C \leq$ 初始测量值的 $\pm 3\%$ 损耗角正切: tg δ 的增加 $\leq 0.003 (C \leq 1.0 \mu F)$ tg δ 的增加 $\leq 0.002 (C > 1.0 \mu F)$ 绝缘电阻 IR: $\geq$ 额定值的 50% $\Delta C/C \leq \pm 5\%$ (relative to the initial value) Increase of tg δ : $\leq 0.003 (C \leq 1.0 \mu F)$ $\leq 0.002 (C > 1.0 \mu F)$ IR: $\geq 50\%$ of the rated value	Ref.item 4.13 次数: 10 000 次 充电持续时间: 0.5s 放电持续时间: 0.5s 充电电压为额定电压 充电电阻: $220/C_R (\Omega)$ 或电流 $\leq 1A$ (取电流较小者) 放电电阻: $R = U_R / (10 \times C_R \times dU/dt)$ C_R 为标称电容量 (μF) $dU/dt (V/\mu s)$, 见第 2 页。 Times: 10 000 Duration of charging: 0.5s Duration of discharging: 0.5s Charging voltage: rated voltage Charging resistance: $220/C_R (\Omega)$ or current intensity $\leq 1A$ (whichever is the less current intensity) Discharging resistance: $R = U_R / (10 \times C_R \times dU/dt)$ C_R : rated capacitance (μF) $dU/dt (V/\mu s)$: as specified in Appendix page 2

3 品质保证 (产品出厂检查) 试验: Quality ensuring test (before shipment):

检 查 项 目 (每批) Inspection item (each batch)	检 查 水 平 Inspection level (GB 2828)	
	IL	AQL
外观检查 Appearance inspection	S-4	2.5%
外形尺寸 Dimensions		
电容量 Capacitance	II	1.0%
损耗角正切 Tangent of the loss angle		
耐电压 Dielectric strength		
绝缘电阻 Insulation resistance		
可焊性 Solderability	S-3	2.5%

4 印章 Marking:



5 散装包装 Packaging in bulk

- 5.1 电容先用塑料袋包装，每袋若干百只（最小包装数），袋内放有合格证。然后将若干袋塑料袋电容装入一小包装箱中，用胶带纸封口。每四个小包装箱再装入一大包装箱中包装。此外，根据客户订货数量，确定使用大或小包装箱进行包装。

A certain quantity of capacitors and the qualified bill shall be packed with a plastic bag. Then put several plastic bags into one small packing box, sealed with adhesive paper. One big packing box contains four small packing box. Packing with small or big box depends on the customer's purchase quantity.

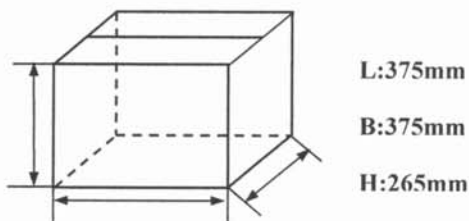
- 5.2 内、外包装箱尺寸见附图。

The dimensions of packing boxes refer to the drawing.

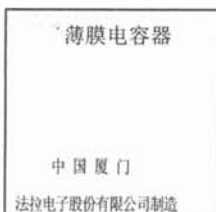
- 5.3 装有电容器的包装箱允许以任何方式运输，但应避免雨雪的直接淋浇和机械损伤。

For the packing box with capacitors, all kinds of shipments are permitted, but the sprinkle of rain or snow and mechanical damage must be avoided.

外包装箱尺寸 (Out packing box)



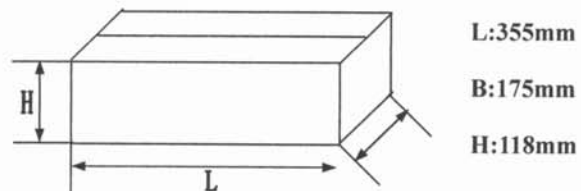
主视图 Plane drawing



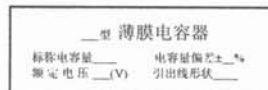
俯视图 Overlooking Drawing



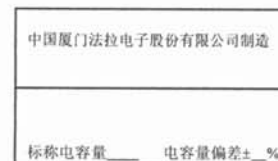
内包装箱尺寸 (Inner packing box)



主视图 Plane drawing



俯视图 Overlooking Drawing



6 径向编带包装 Taping & Packaging

6.1 编带方式及尺寸 Taping specification

6.2 编带类型及编带尺寸 Taping Dimensions: 见表 1(Refer to table 1).

6.3 径向编带图 Outline Drawing: 见图 1~ 图 5(Refer to Fig 1 ~ Fig 5).

表 1 盒式电容器径向编带尺寸表
Table 1 Taping Dimensions for box type capacitor

Unit:mm

技术指标名称 Specification	代号 Code	尺 寸 Dimensions								
		引出线间距 P=7.5		引出线间距 P=10.0			引出线间距 P=15.0		误差 Tolerance	注释 Note
弹带包装代码 Code of Ammo Tapped	—	A301	A303	A405	A315	A313	A315	A316		产品代码后 4 位 Digit 12 to 15 of P/N
圆盘包装代码 Code of Rell Tapped	—	R301	R303	R405	R315	R313	R315	R316		产品代码后 4 位 Digit 12 to 15 of P/N
编带类型 Taping type	—	图 1 Fig 1		图 2 Fig 2	图 3 Fig 3	图 4 Fig 4	图 3 Fig 3	图 5 Fig 5	——	——
电容器间距 Taping pitch	P ₃	12.7	15.0	25.4	25.4	15.0	25.4	30.0	±1.0	——
送带孔距 Feed hole pitch	P ₀	12.7	15.0	12.7	12.7	15.0	12.7	15.0	±0.3	1mm(max)/20×P ₀
引出线位置 Center of wire	P ₁	2.60	3.75	7.70	8.95	3.75	8.95	3.75	±0.70	——
电容器本体位置 Center of body	P ₂	6.35	7.50	12.70	12.70	7.50	12.70	7.50	±1.30	——
成型间距 Pitch of taping wire	F	/		/	7.5		7.5		+0.6 -0.1	——
电容器侧面倾斜 Component alignment	△S	0							±2.0	——
成型高度 Height of component from tape center	H0	/		/	16.5		16.5		±0.5	——
电容器底部至带孔中心距离 Height of crangle from tape center	H	18.5			18.5 (H－H0≤2.5)				±0.5	
纸带宽度 Carrier tape width	W	18.0							+1.0 -0.5	——
胶带纸宽度 Hold down tape width	W ₀	12min		12min			12min		——	——
送带孔位置 Hole position	W ₁	9.0							±0.5	——
胶带纸位置 Hold down tape sition	W ₂	3.0max							——	——
送带孔直径 Feed hole dia.	D ₀	4.0							±0.2	——
编带总厚度 Tape thickness	t	0.7		0.7			0.7		±0.2	——

注：非客户特殊要求,一律采用孔距 P0＝12.7 方式编带。
Note: Usually use P0=12.7.

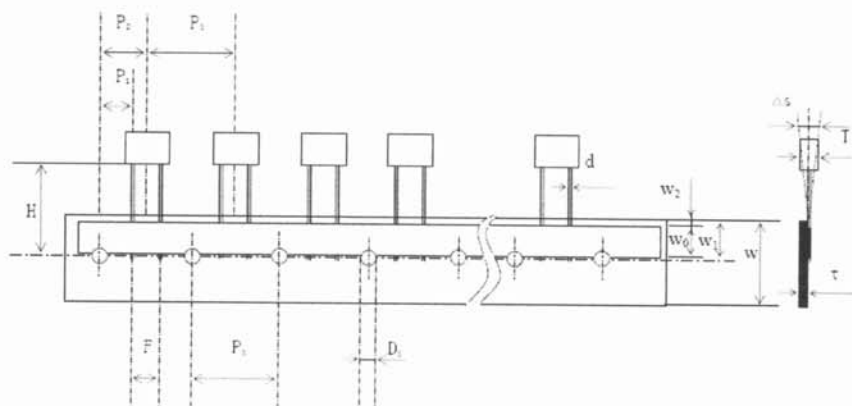


图 1 Fig 1

技术指标名称 Specification	引出线间距 P=7.5mm	引出线间距 P=7.5mm
弹带（圆盘）包装代码 Code of Ammo & Rell Tapped	A301 (R301)	A303 (R303)
送带孔距 Feed hole pitch P0 (mm)	12.7	15.0
成型间距 Pitch of taping wire F(mm)	/	/
电容器底部至带孔中心距离 Height of crankle from tape center H(mm)	18.5	18.5

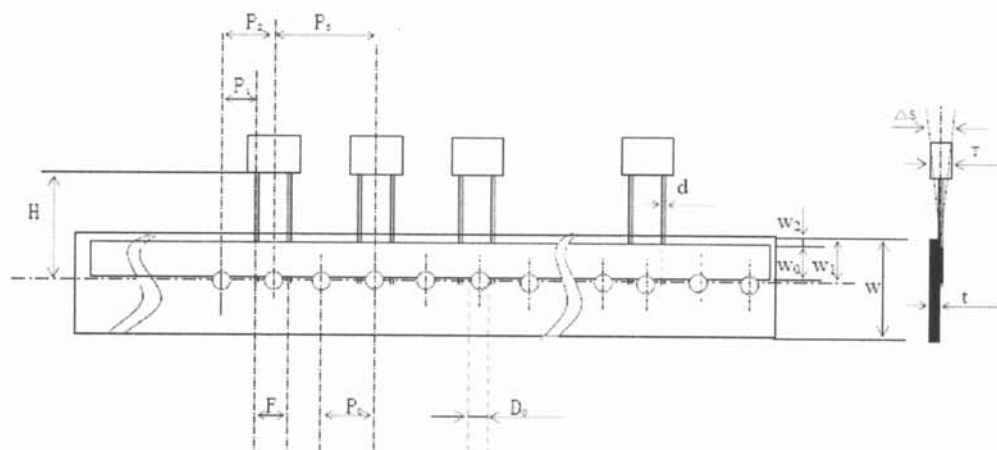


图 2 Fig 2

技术指标名称 Specification	引出线间距 P=10.0mm
弹带（圆盘）包装代码 Code of Ammo & Rell Tapped	A405(R405)
送带孔距 Feed hole pitch P0 (mm)	12.7
成型间距 Pitch of taping wire F(mm)	/
电容器底部至带孔中心距离 Height of crankle from tape center H(mm)	18.5

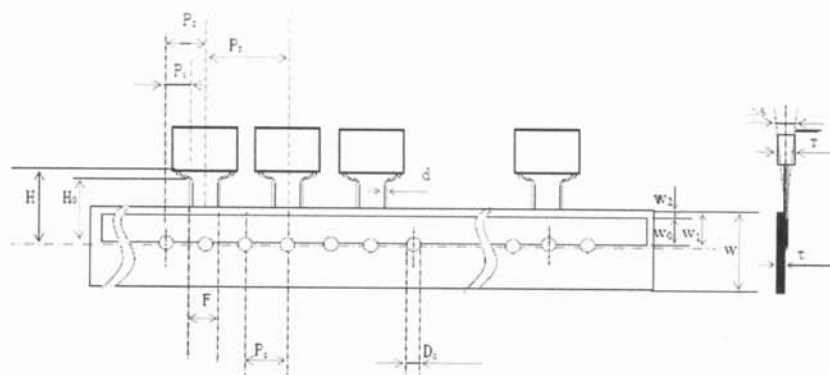


图 3 Fig3

技术指标名称 Specification	引出线间距 P=10.0mm	引出线间距 P=15.0mm
弹带（圆盘）包装代码 Code of Ammo & Rell Tapped	A315(R315)	A315(R315)
送带孔距 Feed hole pitch P0 (mm)	12.7	12.7
成型间距 Pitch of taping wire F(mm)	7.5	7.5
电容器底部至带孔中心距离 Height of crangle from tape center H(mm)	18.5	18.5

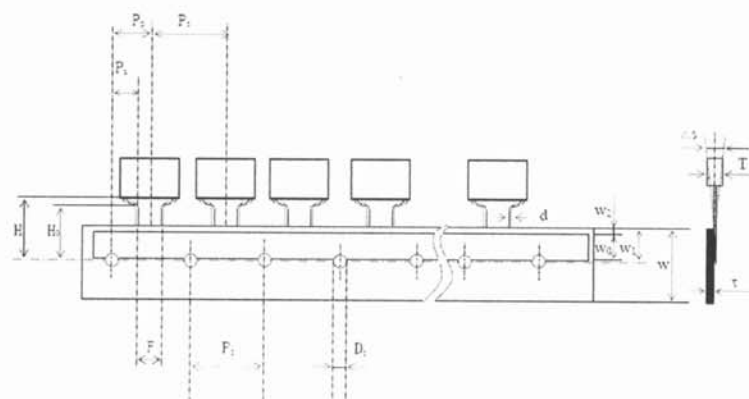


图 4 Fig4

技术指标名称 Specification	引出线间距 P=10.0mm
弹带（圆盘）包装代码 Code of Ammo & Rell Tapped	A313(R313)
送带孔距 Feed hole pitch P0 (mm)	15.0
成型间距 Pitch of taping wire F(mm)	7.5
电容器底部至带孔中心距离 Height of crangle from tape center H(mm)	18.5

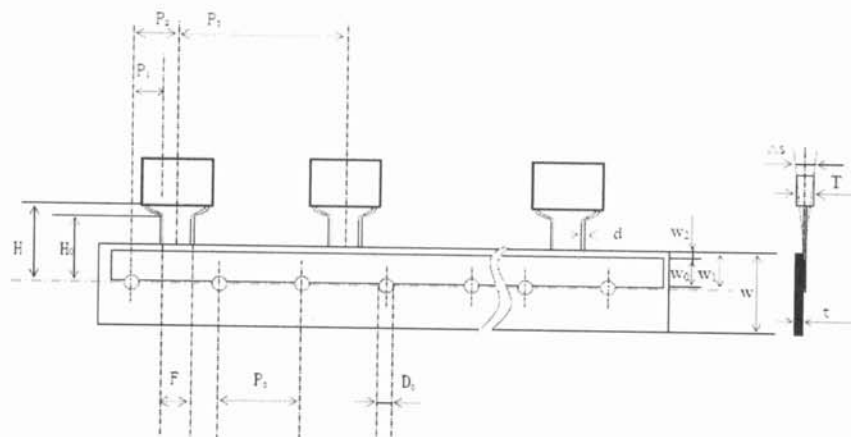


图 5 Fig 5

技术指标名称 Specification	引出线间距 $P=15.0\text{mm}$
弹带（圆盘）包装代码 Code of Ammo & Reel Tapped	A316(R316)
送带孔距 Feed hole pitch P_0 (mm)	15.0
成型间距 Pitch of taping wire F (mm)	7.5
电容器底部至带孔中心距离 Height of crankle from tape center H (mm)	18.5