

# SPECIFICATION

No: WM-S08-007

MENTION ITEM	
1. Scope .....	1
2. Relative Standards .....	1
3. Quality .....	1
4. Operating Temperature Range .....	1
5. Part Number .....	1
6. Marking .....	6
7. Specifications and Test Methods .....	7
8. Characteristics Data .....	9
9. Taping specification .....	10
10. Packaging Styles .....	11
11. Packaging Quantity .....	12
12. Label and Transport .....	12
13. Notification before the modification .....	12
14. Manufacturer .....	12
15. Attached Table .....	13

DIVISION	DATE ISSUED	SPEC.NO.
QA. DERT	July,17,2012	WM-S08-007B03

# HLS *TYPE* -FOR Fixed calss 3 ceramic dielectric capacitors

**1. SCOPE**

This specification applies to ceramic insulated capacitors disk type used in electronic equipment.

**2. RELATIVE STANDARDS**

GB/T 11305-1989 [ Fixed capacitors of ceramic dielectric,class 3]

**3. QUALITY**

Capacitors are manufactured in a highly quality-controlled processes to ensure the reliability of the products

**4. OPERATING TEMPERATURE RANGE**

-25°C to +85°C

**5. PART NUMBERS**

Examples HLS 1H F 104 Z A 2 B W  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Type
- ② Rated Voltage
- ③ Temperature Characteristics
- ④ Nominal Capacitance
- ⑤ Capacitance Tolerance Symbol
- ⑥ Lead Style
- ⑦ Lead Spacing
- ⑧ Packaging
- ⑨ Internal code

**5.1 Type**

Type Designation

Type	Designation
HLS	class 3 ceramic dielectric capacitors

**5.2 Raated Voltage**

Code	Rated Voltage
1C	DC.16V
1E	DC.25V
1H	DC.50V/63V
2A	DC.100v

5.3 Temperature Characteristics Code

Code	Temperature Characteristics	Cap.Change Of Temp.coeff.	Temperature Range
B	Y5P	$\pm 10\%$	-25 to 85°C
E	Y5U	+20%~-55%	
F	Y5V	+30%~-80%	

5.4 Nominal Capacitance Code

Nominal capacitance shall consist of three numerals in the unit of picofarad(Pf). The first and second numerals mean the significant figures, and the third numeral shall represent the number of zeros following the significant figures.

Example:

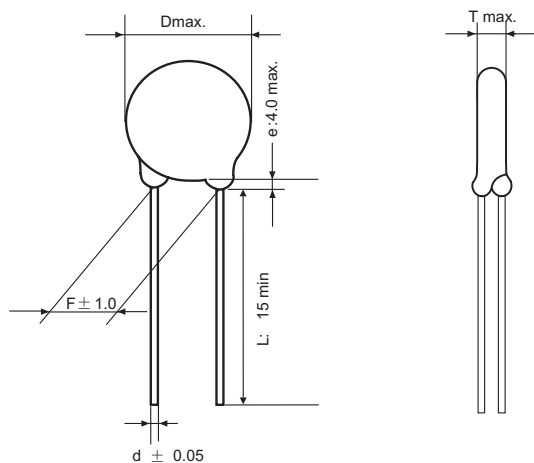
Code	Capacitance(pF)
102	1000
103	10000
223	22000
104	100000

5.5 Capacitance Tolerance

Code	Tolerance
K	$\pm 10\%$
M	$\pm 20\%$
Z	-20%~+80%

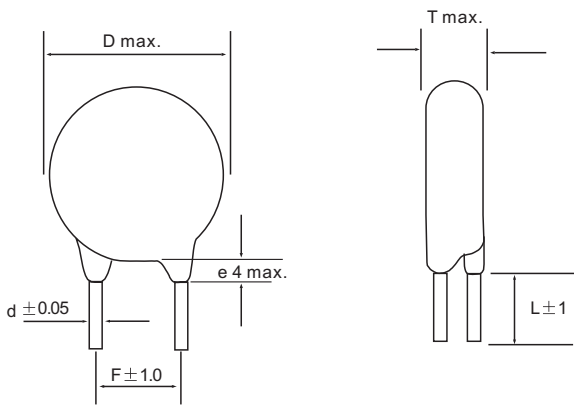
5.6 Lead style

5.6.1: Straight long lead (Lead Style Code :A )



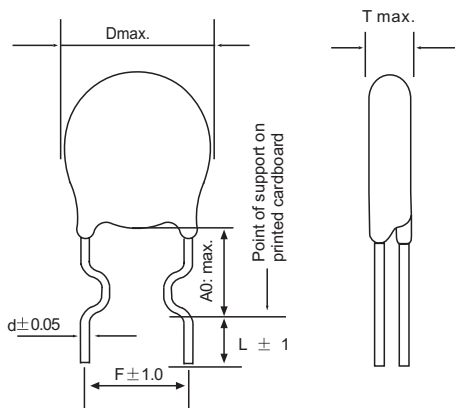
Lead code	A1	A2	A3	A4
F	2.5	5	7.5	10
L	15 mm min			
d	0.45 or 0.5			
e	Max. 4.0mm			

5.6.2 : Straight short lead ( Lead Style Code : B )



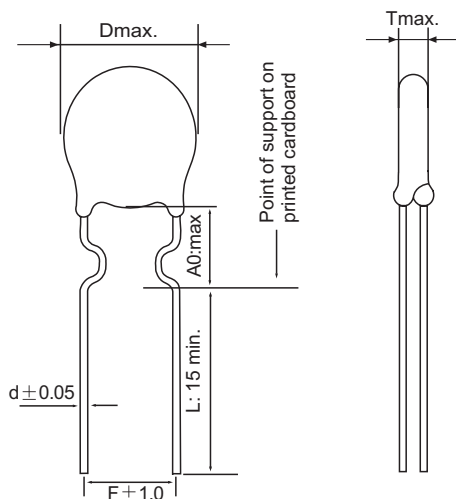
Lead code	B1	B2	B3	B4
F	2.5	5	7.5	10
L	5 or depend on client			
d	0.45 or 0.5			
e	Max. 4.0mm			

5.6.3 : Inside Crimped Short lead ( Lead Style Code : C )



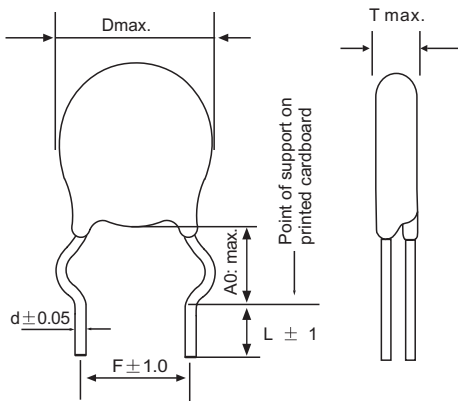
Lead code	C2	C3	C4
F	5	7.5	10
A0	5	5	6.5
L	5 ± 1 mm		
d	0.45 or 0.5		

5.6.4 : Inside crimped long lead ( Lead Style Code : D )



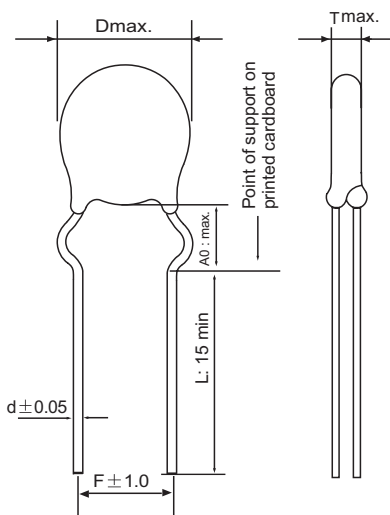
Lead code	D2	D3	D4
F	5	7.5	10
A0	5	5	6.5
L	15mm Min		
d	0.45 or 0.5		

5.6.5 : Outside crimped Short lead ( Lead Style Code: E )



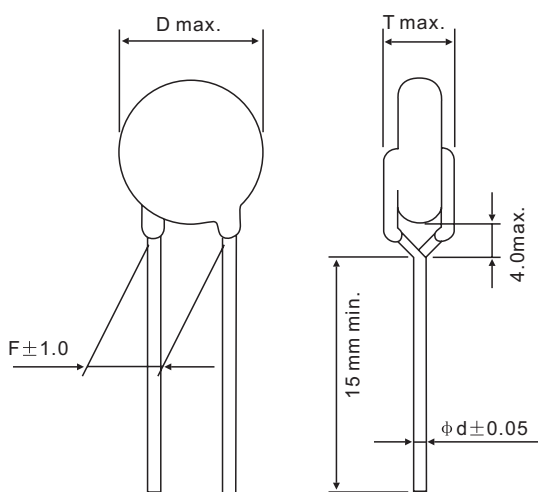
Lead code	E2	E3	E4
F	5	7.5	10
A	5	5	6.5
L	5 or depend on client		
d	0.45 or 0.5		

5.6.6 : Outside crimped long lead ( Lead Style Code: F )



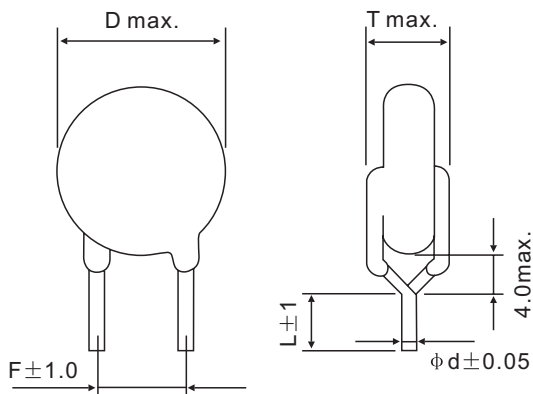
Lead code	F2	F3	F4
F	5	7.5	10
A0	5	5	6.5
L	15mm Min		
d	0.45 or 0.5		

5.6.7 : Vertical crimped long lead ( Lead Style Code: G )



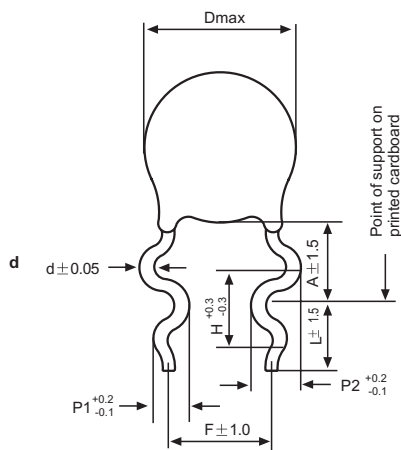
Lead code	G2	G3	G4
F	5	7.5	10
L	15 mm min		
d	0.45 or 0.5		

5.6.8 : Vertical crimped short lead ( Lead Style Code: H )



Lead code	H2	H3	H4
F	5	7.5	10
L	5 or depend on client		
d	0.45 or 0.5		

5.6.9 : Duoble crimped snap lead, (Lead Style Code: M)



Lead code	M2	M3	M4
F	5	7.5	10
H	2.6	2.6	3.3
P1	1.25	1.25	1.65
P2	1.65	1.65	1.95
A	D < 8: 6.0 ± 1.5, D > 8: 7.0 ± 1.5		
L	3 to 30 mm		
d	0.45 or 0.5		

General Information: PCB max. thickness 1.6mm

5.7 Lead Spacing Code

Code	Lead Spacing(mm)
1	2.5 ± 1.0
2	5.0 ± 1.0
3	7.5 ± 1.0
4	10.0 ± 1.0

5.9 Internal Code



Code	Illuminate
W	Meeting RoHS

5.8 Packaging Code

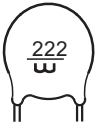

Code	Pitch of components(mm)	Packaging
B	/	Bulk
A	12.7	Taping Ammo Pack
C	25.4	
D	15.0	
E	30.0	
R	12.7	Taping Reel Pack

## 6. MARKING



## 6.1 Characteristics : B(Y5P)

Rated Voltage (V)	Marking item	Marking ex.
50	a: Manufacturers Trade Mark b: Nominal capacitance c: Rated Voltage	
500	a: Manufacturers Trade Mark b: Temperature Characteristic c: Nominal capacitance d: Capacitance Tolerance e: Rated Voltage	

## 6.2 Characteristics : E(Y5U)

Rated Voltage (V)	Marking item	Marking ex.
50	a: Manufacturers Trade Mark b: Nominal capacitance c: Rated Voltage	
500	a: Manufacturers Trade Mark b: Temperature Characteristic c: Nominal capacitance d: Capacitance Tolerance e: Rated Voltage	

## 6.3 Characteristics : F(Y5V)

Rated Voltage (V)	Marking item	Marking ex.
50	a: Manufacturers Trade Mark b: Nominal capacitance c: Rated Voltage	
500	a: Manufacturers Trade Mark b: Temperature Characteristic c: Nominal capacitance d: Capacitance Tolerance e: Rated Voltage	

7. SPECIFICATION AND TEST METHOD

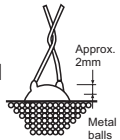
7.1 Test condition

Test and measurement shall be made at the standard condition, (Temperature 15 to 35°C, relative humidity 45 to 75% and atmospheric pressure 86-106 kPa), unless otherwise specified herein

If doubt occurred on the value of measurement, and remeasurement was requested by customer capacitors shall be measured at the reference condition (Temperature 20±2°C, relative humidity 60 to 70% and atmospheric pressure 86-106 kPa), unless otherwise specified herein

7.2 Performance

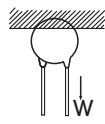
No.	Item	Specification	Testing Method												
1	Operating Temperature Range	-25 to +85°C	—												
2	Capacitance	Within Specified tolerance.	The capacitor shall be measured at 20°C with 1±0.2kHz and AC0.1V(r.m.s.).												
3	Dissipation Factor(D.F.)	50V : D.F.≤5.0% 16V : D.F.≤7.5%	Same condition as capacitance.												
4	Insulation Resistance(I.R.)	16V : 100MΩ or 10MΩ.uFmin. 25V/50V : 1000MΩ or 20MΩ.uFmin Whichever is smaller	The insulation resistance shall be measured with rated voltage within 60±5 s of charging.												
5	Dielectric Strength	Between Lead Wires	No Failure. The capacitor shall not be damage when Dc voltage of 200% of the rated voltage are applied between the lead wires for 1 to 5 s. (Charge/Discharge current ≤10mA.)												
		Body Insulation	No Failure. The capacitor is placed in the container with metal balls of diameter 1mm so that each lead wire, short-circuited, is kept approximately 2mm off the balls as shown in the figure, and DC voltage of 200% of the rated voltage is applied for 1 to 5 s between capacitor lead wires and small metals. (Charge/Discharge current ≤10mA.)												
6	Temperature Characteristic	B : Within ±10% E : Within +20/-55% F : Within +30/-80%	The capacitance measurement shall be made at each step specified in table and at a sufficient number of intermediate temperature between step 2 and 7. Capacitance change from the value of step 3 shall not exceed the limit specified.												
			<table border="1"> <thead> <tr> <th>Step</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Temp.</td> <td>20±2°C</td> <td>-25±3°C</td> <td>20±2°C</td> <td>85±2°C</td> </tr> <tr> <td>DC Voltage applied</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> </tr> </tbody> </table> <p>Pre-treatment: Capacitor shall be stored at 85±2°C for 1 h, then placed at room condition for 24±2h before measurements.</p>	Step	1	2	3	4	Temp.	20±2°C	-25±3°C	20±2°C	85±2°C	DC Voltage applied	None
Step	1	2	3	4											
Temp.	20±2°C	-25±3°C	20±2°C	85±2°C											
DC Voltage applied	None	None	None	None											
7	Vibration Resistance	Appearance	No marked defect.												
		Capacitance	Within specified tolerance.												
		D.F.	Satisfies initial requirement.												
8	Soldering Effent	Appearance	No marked defect												
		Capacitance Change	B : Within ±10% E : Within ±15% F : Within ±20%												
		Dielectric Strength (Between Lead Wires)	Pass the item No.5												
9	Humidity (Under Steady State)	Appearance	No marked defect.												
		Capacitance Change	B : Within ±10% E : Within ±20% F : Within ±30%												
		D.F.	B/E: D.F.≤5.0% F : D.F.≤7.5%												
		I.R.	1/2 of initial requirement or over												
		Dielectric Strength (Between Lead Wires)	Pass the item No.5												



\*1 "C" expresses nominal capacitance value.

\*2 "room condition" ..... Temperature; 15 to 35°C, Relative humidity; 45 to 75%, Atmospheric pressure; 86 to 106kPa



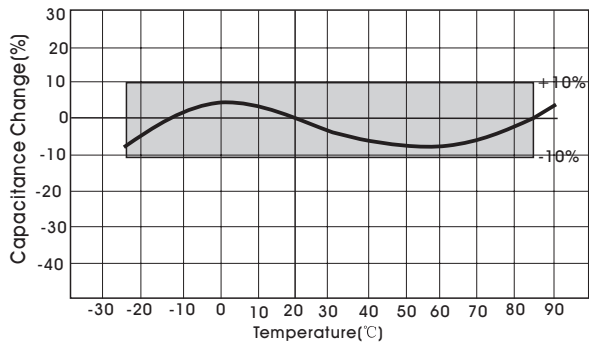
No.	Item	Specification	Testing Method															
10	Humidity Loading	Appearance	No marked defect.															
		Capacitance Change	B : Within $\pm 10\%$ E : Within $\pm 20\%$ F : Within $\pm 30\%$															
		D.F.	B/E: D.F. $\leq 5.0\%$ F : D.F. $\leq 7.5\%$															
		I.R.	1/2 of initial requirement or over															
		Dielectric Strength (Between Lead Wires)	Pass the item No.5															
			Apply the rated voltage for 500 +24/-0 h at $40 \pm 2^\circ\text{C}$ in 90 to 95% relative humidity. Pre-treatment : Capacitor shall be stored at $85 \pm 2^\circ\text{C}$ for 1h, then placed at * <sup>2</sup> room condition for $24 \pm 2$ h before initial measurements. Post-treatment: Capacitor shall be stored for 1 to 2 h at * <sup>2</sup> room condition. (Charge/Discharge current $\leq 50\text{mA}$ .)															
11	Life	Appearance	No marked defect.															
		Capacitance Change	B : Within $\pm 10\%$ E : Within $\pm 20\%$ F : Within $\pm 30\%$															
		D.F.	B/E: D.F. $\leq 5.0\%$ F : D.F. $\leq 7.5\%$															
		I.R.	1/2 of initial requirement or over															
		Dielectric Strength (Between Lead Wires)	Pass the item No.5															
			Apply a DC voltage of 200% of the rated voltage for 1000 +48/-0 h at $85 \pm 2^\circ\text{C}$ Pre-treatment : Capacitor shall be stored at $85 \pm 2^\circ\text{C}$ for 1h, then placed at * <sup>2</sup> room condition for $24 \pm 2$ h before initial measurements. Post-treatment : Capacitor shall be stored at $24 \pm 2$ h, at * <sup>2</sup> room condition. (Charge/Discharge current $\leq 50\text{mA}$ .)															
12	Temperature and immersion cycling	Appearance	No marked defect.															
		Capacitance Change	B : Within $\pm 10\%$ E : Within $\pm 20\%$ F : Within $\pm 30\%$															
		D.F.	B/E: D.F. $\leq 5.0\%$ F : D.F. $\leq 7.5\%$															
		I.R.	1/2 of initial requirement or over															
		Dielectric Strength (Between Lead Wires)	Pass the item No.5															
			The capacitor shall be subjected to 5 cycles of temperature variation according to Table 1, then the capacitor shall be immersed into two baths, the one a clean water bath at temperature $65 \pm 0.5^\circ\text{C}$ and the other a saturated salt waterbath at temperature $0 \pm 3^\circ\text{C}$ for 15 min. This immersion cycle shall be repeated 2 times, then the capacitor shall be washed in running water, wiped or dried with air draught. Pre-treatment : Capacitor shall be stored at $85 \pm 2^\circ\text{C}$ for 1h, then placed at * <sup>2</sup> room condition for $24 \pm 2$ h before initial measurements. Post-treatment : Capacitor shall be stored for 1 to 2h at * <sup>2</sup> room condition. (Charge/Discharge current $\leq 50\text{mA}$ .)															
			(Table 1)															
			<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature(<math>^\circ\text{C}</math>)</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>-25 \pm 3</math></td> <td>30 min</td> </tr> <tr> <td>2</td> <td>Room Temp.</td> <td>3 min</td> </tr> <tr> <td>3</td> <td><math>85 \pm 3</math></td> <td>30 min</td> </tr> <tr> <td>4</td> <td>Room Temp.</td> <td>3 min</td> </tr> </tbody> </table>	Step	Temperature( $^\circ\text{C}$ )	Time	1	$-25 \pm 3$	30 min	2	Room Temp.	3 min	3	$85 \pm 3$	30 min	4	Room Temp.	3 min
Step	Temperature( $^\circ\text{C}$ )	Time																
1	$-25 \pm 3$	30 min																
2	Room Temp.	3 min																
3	$85 \pm 3$	30 min																
4	Room Temp.	3 min																
13	Strength of Lead	Pull	As a figure, fix the body of capacitor, apply a tensile weight gradually to each lead wire in the radial direction of capacitor up to 10N and keep it for $10 \pm 1$ s.															
		Bending	Each lead wire shall be subjected to 5N weight and then a $90^\circ$ bend, at the point of egress, in one direction, return to original position, and then a $90^\circ$ bend in the opposite direction at the rate of one bend in 2 to 3 s.															
																		
14	Solderability of Leads	Lead wire shall be soldered with uniformly coated on the axial direction over $\frac{3}{4}$ of the circumferential direction.	The lead wire of a capacitor shall be dipped into a methanol solution of 25wt% rosin and then into molten solder of $235 \pm 5^\circ\text{C}$ for $2 \pm 0.5$ s. In both cases the depth of dipping is up to about 1.5 to 2mm from the root of lead wires.															

\*<sup>2</sup> "room condition" ..... Temperature; 15 to  $35^\circ\text{C}$ , Relative humidity; 45 to 75%, Atmospheric pressure; 86 to 106kPa

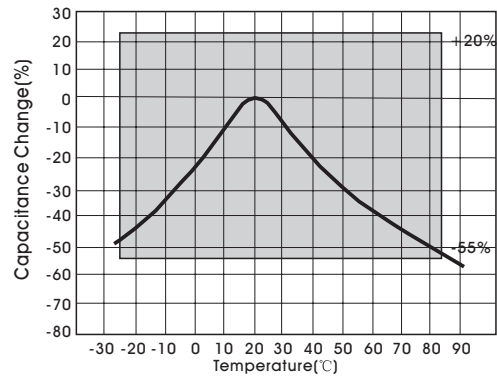
8. CHARACTERISTICS DATA ( TYPICCAL EXAMPLE)

8.1 Capacitance-Temperature Characteristics

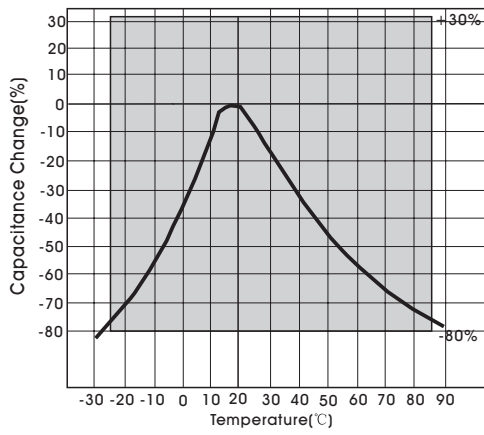
Char: B(Y5P)



Char:E (Y5U)

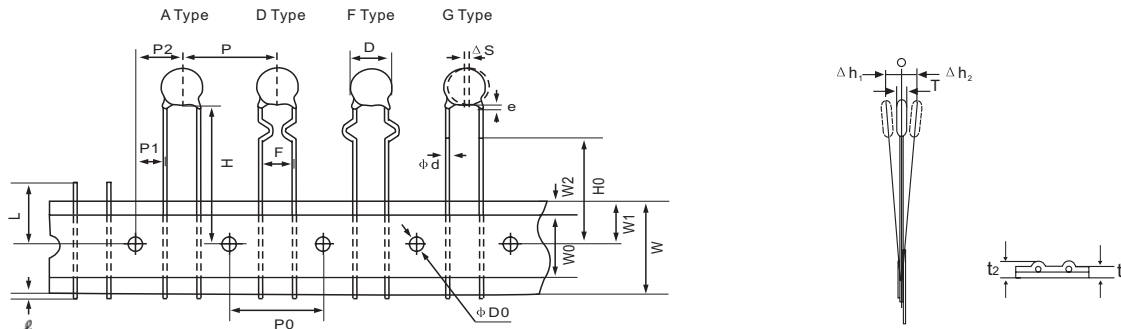


Char:F (Y5V)

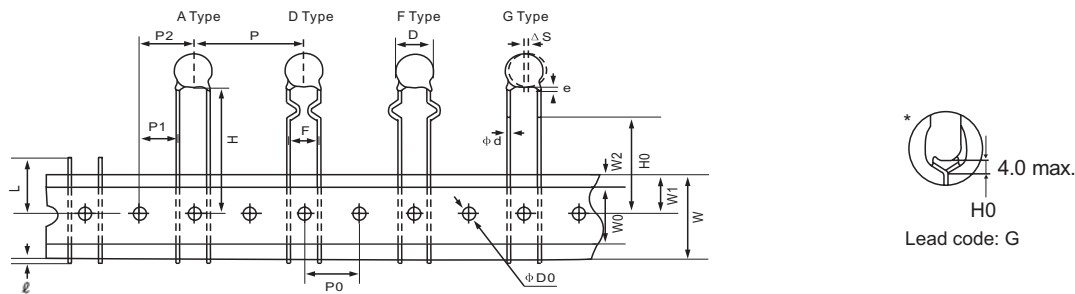


9 TAPING SPECIFICATION

- 12.7mm pitch/ lead spacing 5.0/7.5 mm taping (Lead Code:A2,A3,D2,D3,F2,F3,G2,G3 )



- 25.4mm pitch/ lead spacing 7.5/10.0mm taping (Lead Code:A3,A4,D3,D4,F3,F4,G3,G4 )

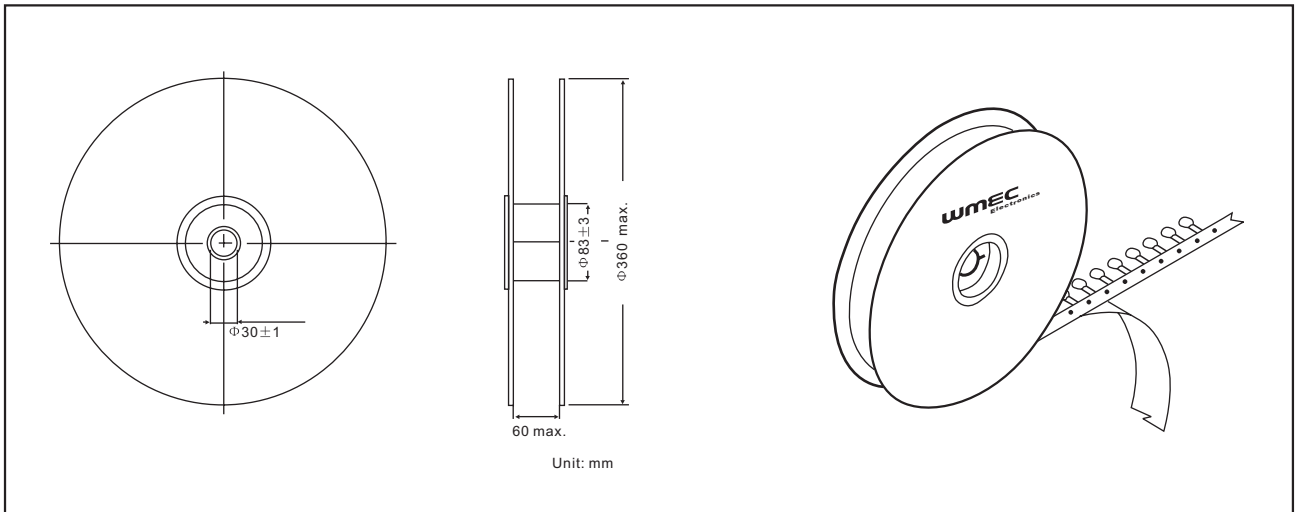


Item	Code	A2/D2/F2/G2	A3/D3/F3/G3	A3/D3/F3/G3	A4/D4/F4/G4
Pitch of component	P	12.7	12.7	25.4	25.4
Pitch of sprocket hole	P <sub>0</sub>	12.7±0.3	12.7±0.3	12.7±0.3	12.7±0.3
Lead spacing	F	5.0±1.0	7.5±1.0	7.5±1.0	10.0±1.0
Length from hole center to component center	P <sub>2</sub>	6.35±1.3	6.35±1.3	12.7±1.3	12.7±1.3
Length from hole center to lead	P <sub>1</sub>	3.85±0.7	2.6±0.7	8.95±1.0	7.7±1.0
Body diameter	D	See the individual product specification			
Deviation along tape, left or right	ΔS	0±2.0			
Carrier tape width	W	18.0±0.5			
Position of sprocket hole	W <sub>1</sub>	9.0±0.5			
Lead distance between reference and bottom planes	H	20.0±2.0 (Lead Code:A2/A3/A4)			
	H <sub>0</sub>	18.0±2.0 (Crimp type)			
Diameter of sprocket hole	φD <sub>0</sub>	4.0±0.2			
Lead diameter	φd	0.5±0.05			
Total tape thickness	t <sub>1</sub>	0.6±0.3			
Total thickness, tape and lead wire	t <sub>2</sub>	2.0 max.			
Body thickness	T	See the individual product specification			
Portion to cut in case of defect	L	11.0 max.			
Hold down tape width	W <sub>0</sub>	10.0±2			
Hold down tape position	W <sub>2</sub>	1.5±1.5			
Coating extension on lead	e	3.0 max. (Crimp type:Up to the end of crimp)			
Deviation across tape	Δh <sub>1</sub>	2.0 max.			
	Δh <sub>2</sub>				
Protrusion length	ℓ	+0.5 to -1.0			

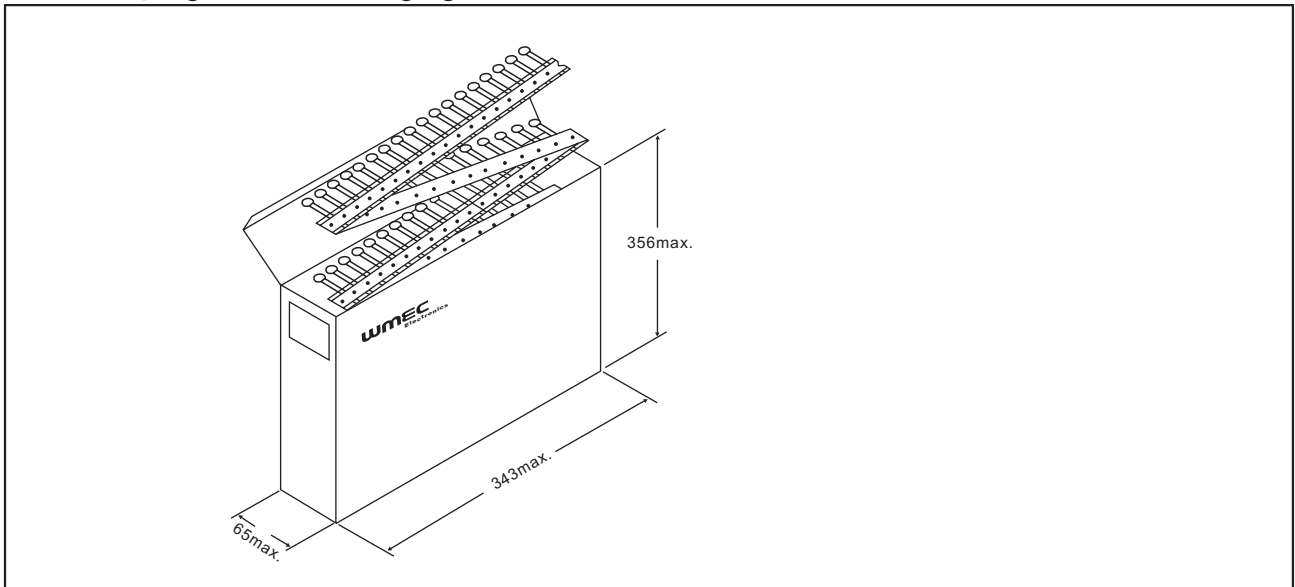
(in mm)

### 10 PACKAGING STYLES

#### 10.1 Taping: Reel Packaging



#### 10.2 Taping: Ammo Packaging



#### 10.3 Bulk

Polyethylene Bag

**11 : PACKAGING QUANTITY**

11.1 ( Bulk) at standards specification

Body Diameter 4.5 to 8.0 mm : 1000 pcs

Body Diameter 9.0 mm over : 500 pcs

11.2 Taping (Pitch : 12.7 mm )

Taping: 2000 pcs./Box

**12 : LABEL AND TRANSPORT**

Capacitors shall be packaged prior to shipment so as to prevent damage during transportation and storage.

Shipping carton contains the following information on the label

- a) Our Part No.
- b) Quantity
- c) Lot No.
- d) Manufacturers Name.

**13: NOTIFICATION BEFORE THE MODIFICATION**

We'll previously notify the modified place of manufacture, Manufactured articles and materials.

**14 : MANUFACTURER**

XIAMEN WANMING ELECTRONICS CO., LTD.

The operating conditions for the guarantee of this product are as shown in the specification.

Please note that Wanming Electronics co.,Ltd. Shall not be responsible for a failure and/or abnormality which are caused by use under the conditions other than the aforesaid operating conditions.

## Attached Table 1

## Series HLS (Rated Voltage: 16 / 25 /50 VDC , Temp.Char. B/Y5P, E/Y5U,F/Y5V)

Part Number	Temp. Char.	Rated Voltage	Capacitance (pF)	Body Dia.D (mm)	Lead Spacing F (mm)	Body Thickness T (mm)	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
HLS1EB103□□□	B/Y5P	25VDC	10000 ±10%	5.5	2.5 / 5.0	3.0	A1B/A2B	D1B/D2B	D2A
HLS1EB153□□□	B/Y5P	25VDC	15000 ±10%	6.5	2.5 / 5.0	3.0	A1B/A2B	D1B/D2B	D2A
HLS1EB223□□□	B/Y5P	25VDC	22000 ±10%	6.5	5.0	3.0	A2B	D2B	D2A
HLS1EB333□□□	B/Y5P	25VDC	33000 ±10%	8.0	5.0	3.0	A2B	D2B	D2A
HLS1EB473□□□	B/Y5P	25VDC	47000 ±10%	9.0	5.0	3.0	A2B	D2B	D2A
HLS1EB683□□□	B/Y5P	25VDC	68000 ±10%	10.0	5.0	3.0	A2B	D2B	D2A
HLS1EB104□□□	B/Y5P	25VDC	100000 ±10%	11.0	5.0	3.0	A2B	D2B	D2A
HLS1HB332□□□	B/Y5P	50VDC	3300 ±10%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HB472□□□	B/Y5P	50VDC	4700 ±10%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HB682□□□	B/Y5P	50VDC	6800 ±10%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HB103□□□	B/Y5P	50VDC	10000 ±10%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HB153□□□	B/Y5P	50VDC	15000 ±10%	6.5	5.0	3.0	A2B	D2B	D2A
HLS1HB223□□□	B/Y5P	50VDC	22000 ±10%	6.5	5.0	3.0	A2B	D2B	D2A
HLS1HB333□□□	B/Y5P	50VDC	33000 ±10%	8.5	5.0	3.0	A2B	D2B	D2A
HLS1HB473□□□	B/Y5P	50VDC	47000 ±10%	9.0	5.0	3.0	A2B	D2B	D2A
HLS1EE104□□□	E/Y5U	25VDC	100000 ±20%	7.5	5.0	3.0	A2B	D2B	D2A
HLS1HE103□□□	E/Y5U	50VDC	10000 ±20%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HE153□□□	E/Y5U	50VDC	15000 ±20%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HE223□□□	E/Y5U	50VDC	22000 ±20%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HE333□□□	E/Y5U	50VDC	33000 ±20%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HE473□□□	E/Y5U	50VDC	47000 ±20%	6.5	5.0	3.0	A2B	D2B	D2A
HLS1HE683□□□	E/Y5U	50VDC	68000 ±20%	7.5	5.0	3.0	A2B	D2B	D2A
HLS1HE104□□□	E/Y5U	50VDC	100000 ±20%	8.5	5.0	3.0	A2B	D2B	D2A
HLS1CF104□□□	F/Y5V	16VDC	100000 +80/-20%	5.5	2.5 / 5.0	3.0	A1B/A2B	D1B/D2B	D2A
HLS1CF224□□□	F/Y5V	16VDC	100000 +80/-20%	8.5	2.5 / 5.0	3.0	A1B/A2B	D1B/D2B	D2A
HLS1EF153□□□	F/Y5V	25VDC	15000 +80/-20%	4.5	5.0	3.0	A2B	D2B	D2A
HLS1EF223□□□	F/Y5V	25VDC	22000 +80/-20%	4.5	5.0	3.0	A2B	D2B	D2A
HLS1EF333□□□	F/Y5V	25VDC	33000 +80/-20%	4.5	5.0	3.0	A2B	D2B	D2A
HLS1EF473□□□	F/Y5V	25VDC	47000 +80/-20%	5.0	5.0	3.0	A2B	D2B	D2A
HLS1EF683□□□	F/Y5V	25VDC	68000 +80/-20%	6.0	5.0	3.0	A2B	D2B	D2A
HLS1EF104□□□	F/Y5V	25VDC	100000 +80/-20%	6.5	5.0	3.0	A2B	D2B	D2A
HLS1EF224□□□	F/Y5V	25VDC	220000 +80/-20%	9.5	5.0	3.0	A2B	D2B	D2A
HLS1HF153□□□	F/Y5V	50VDC	15000 +80/-20%	4.5	5.0	3.0	A2B	D2B	D2A
HLS1HF223□□□	F/Y5V	50VDC	22000 +80/-20%	5.0	5.0	3.0	A2B	D2B	D2A
HLS1HF333□□□	F/Y5V	50VDC	33000 +80/-20%	5.5	5.0	3.0	A2B	D2B	D2A
HLS1HF473□□□	F/Y5V	50VDC	47000 +80/-20%	6.0	5.0	3.0	A2B	D2B	D2A
HLS1HF683□□□	F/Y5V	50VDC	68000 +80/-20%	7.0	5.0	3.0	A2B	D2B	D2A
HLS1HF104□□□	F/Y5V	50VDC	100000 +80/-20%	7.5	5.0	3.0	A2B	D2B	D2A
HLS1HF224□□□	F/Y5V	50VDC	220000 +80/-20%	10.0	5.0	3.0	A2B	D2B	D2A

Three blank columns are filled with the lead and packaging codes. Please refer to the three columns on the right for appropriate code.