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## PPS Film Capacitor

Type: **ECHS(Z)**

Non-inductive construction with PPS film designed for high heat resistance and high frequency applications



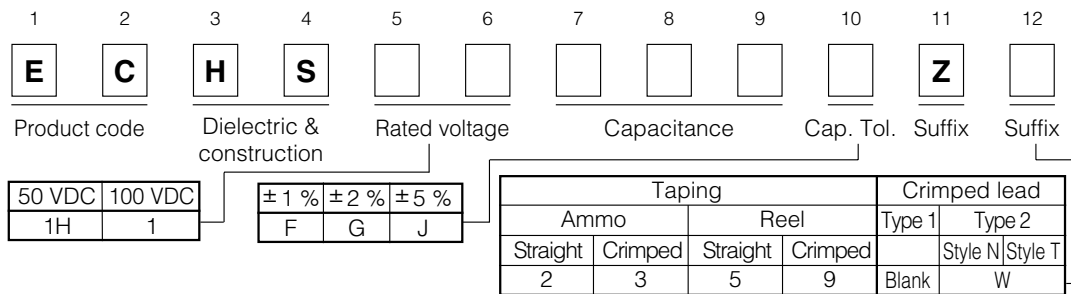
### ■ Features

- Wide operating temperature range  $-40\text{ }^{\circ}\text{C}$  to  $+125\text{ }^{\circ}\text{C}$
- Excellent temperature coefficient  $-100\text{ ppm}/^{\circ}\text{C}$
- Excellent frequency characteristics
- RoHS directive compliant

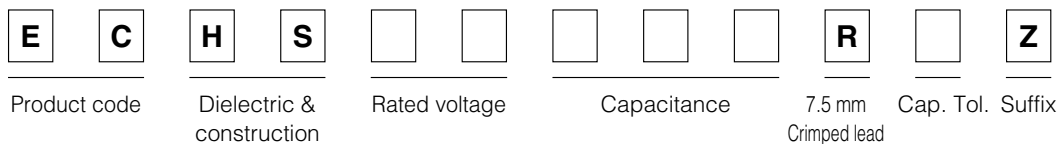
### ■ Recommended Applications

- Automotive components
- Oscillation circuits

### ■ Explanation of Part Numbers



### ● Explanation of Part Number for Odd Size Taping

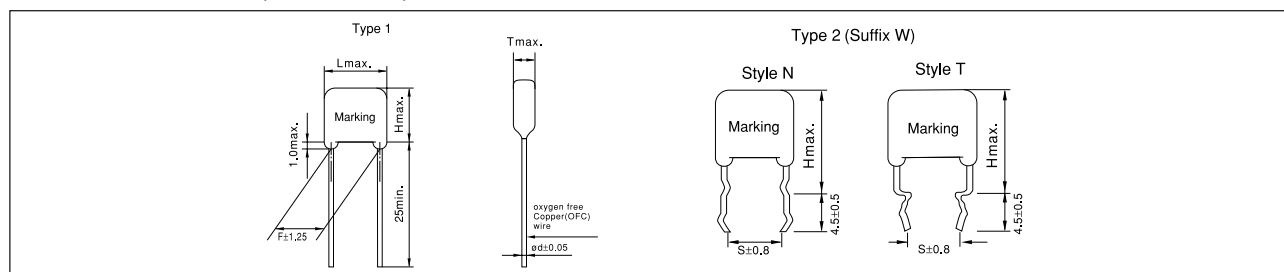


### ■ Specifications

Category temp. range (Including temperature-rise on unit surface)	$-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
Rated voltage	50 VDC, 100 VDC
Capacitance range	50 V : $0.0010\text{ }\mu\text{F}$ to $0.47\text{ }\mu\text{F}$ 100 V : $0.00010\text{ }\mu\text{F}$ to $0.47\text{ }\mu\text{F}$
Capacitance tolerance	$\pm 1\%$ (F), $\pm 2\%$ (G), $\pm 5\%$ (J)
Dissipation factor ( $\tan\delta$ )	$\tan\delta \leq 0.3\%$ ( $20\text{ }^{\circ}\text{C}$ , 1 kHz)
Withstand voltage	Between terminals : Rated volt.(VDC) $\times 250\%$ 1 s to 5 s
Insulation resistance (IR)	$C \leq 0.33\text{ }\mu\text{F}$ : $IR \geq 45000\text{ M}\Omega$ $C > 0.33\text{ }\mu\text{F}$ : $IR \geq 15000\text{ M}\Omega \cdot \mu\text{F}$ ( $20\text{ }^{\circ}\text{C}$ , 100 VDC, 60 s)

\* In case of applying voltage in alternating current (50 Hz or 60 Hz sine wave) to a capacitor with DC rated voltage, please refer to the page of "Permissible voltage (R.M.S) in alternating current corresponding to DC rated voltage".

### ■ Dimensions in mm (not to scale)



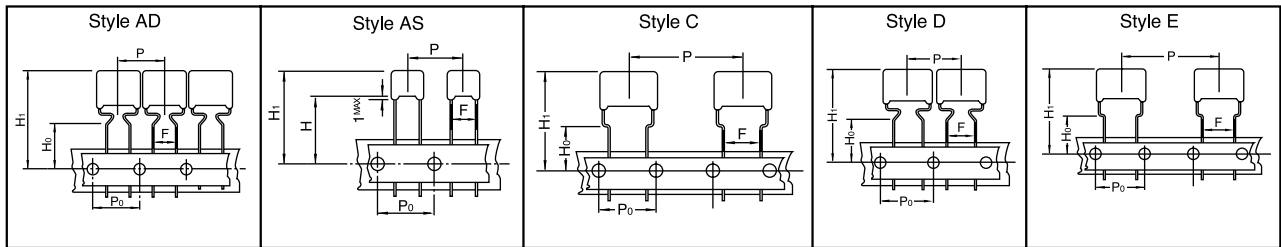
### ■ Packaging Specifications for Bulk Package

Packing quantity: 100 pcs./bag

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

### ■ Taping Specifications for Automatic Insertion

#### ● Taping style



※ Refer to the page of taping specifications.

#### ● Packaging Specifications

Type	Rated volt.	Cap. range (μF)	Taping style					Packing	
			AD	AS	B	C	D		E
ECHS	50 VDC	0.0010 to 0.056	○						Ammo
		0.0010 to 0.056	○						Reel
		0.0010 to 0.012		○					Ammo
		0.0010 to 0.012		○					Reel
		0.068 to 0.47				○			Ammo
		0.15 to 0.47						○	Ammo
		0.068 to 0.12					○		Ammo
	100 VDC	0.00010 to 0.027	○						Ammo
		0.00010 to 0.027	○						Reel
		0.00010 to 0.0047		○					Ammo
		0.00010 to 0.0047		○					Reel
		0.033 to 0.12				○			Ammo
		0.033 to 0.056					○		Ammo
		0.068 to 0.47						○	Ammo

#### ● Lead Spacing

Style	Lead Spacing
AD	5.0 mm
AS	5.0 mm
C	5.0 mm
D	7.5 mm
E	7.5 mm

\* See the column "Rating, Dimensions & Quantity Box" for packing quantity.

### ■ Rating, Dimensions & Quantity/Ammo Box or Reel

● Rated voltage : 50 VDC, Capacitance tolerance : ±1 % (F), ±2 % (G), ±5 % (J)

Part No.	Cap. (μF)	Dimensions (mm)							Quantity	
		L <sub>max.</sub>	T <sub>max.</sub>	H <sub>max.</sub>		F	S	ød	Ammo	Reel
				Type 1	Type 2					
ECHS1H102 □Z ( )	0.0010	8.5	4.0	7.6	12.6	5.00	5.0	0.60	1000	
ECHS1H122 □Z ( )	0.0012	8.5	4.0	7.8	12.8	5.00	5.0	0.60		
ECHS1H152 □Z ( )	0.0015	8.5	4.0	7.6	12.6	5.00	5.0	0.60		
ECHS1H182 □Z ( )	0.0018	8.5	4.0	7.6	12.6	5.00	5.0	0.60		
ECHS1H222 □Z ( )	0.0022	8.5	4.0	7.8	12.8	5.00	5.0	0.60		
ECHS1H272 □Z ( )	0.0027	8.5	4.0	7.8	12.8	5.00	5.0	0.60		
ECHS1H332 □Z ( )	0.0033	8.5	4.0	8.0	13.0	5.00	5.0	0.60		
ECHS1H392 □Z ( )	0.0039	8.5	4.0	7.8	12.8	5.00	5.0	0.60		
ECHS1H472 □Z ( )	0.0047	8.5	4.0	8.0	13.0	5.00	5.0	0.60		
ECHS1H562 □Z ( )	0.0056	8.5	4.0	8.2	13.2	5.00	5.0	0.60		
ECHS1H682 □Z ( )	0.0068	8.5	4.0	7.6	12.6	5.00	5.0	0.60		
ECHS1H822 □Z ( )	0.0082	8.5	4.0	7.6	12.6	5.00	5.0	0.60		
ECHS1H103 □Z ( )	0.010	8.5	4.0	7.8	12.8	5.00	5.0	0.60		
ECHS1H123 □Z ( )	0.012	8.5	4.0	8.0	13.0	5.00	5.0	0.60		
ECHS1H153 □Z ( )	0.015	12.0	4.5	7.8	12.8	7.50	5.0	0.60		
ECHS1H183 □Z ( )	0.018	12.0	4.5	8.0	13.0	7.50	5.0	0.60		
ECHS1H223 □Z ( )	0.022	12.0	4.5	8.2	13.2	7.50	5.0	0.60		
ECHS1H273 □Z ( )	0.027	12.0	4.5	10.4	15.4	7.50	5.0	0.60		
ECHS1H333 □Z ( )	0.033	12.0	4.5	10.6	15.6	7.50	5.0	0.60		
ECHS1H393 □Z ( )	0.039	12.0	5.0	10.4	15.4	7.50	5.0	0.60		
ECHS1H473 □Z ( )	0.047	12.0	5.0	10.8	15.8	7.50	5.0	0.60		
ECHS1H563 □Z ( )	0.056	12.0	5.5	11.0	16.0	7.50	5.0	0.60		
ECHS1H683 □Z ( )	0.068	14.5	5.0	11.2	16.2	10.00	5.0	0.60		
ECHS1H823 □Z ( )	0.082	14.5	5.5	11.6	16.6	10.00	5.0	0.60		
ECHS1H104 □Z ( )	0.10	14.5	6.0	12.0	17.0	10.00	5.0	0.60		
ECHS1H124 □Z ( )	0.12	14.5	6.5	12.4	18.4	10.00	5.0	0.60		
ECHS1H154 □Z ( )	0.15	17.0	6.5	12.4	18.4	12.50	5.0	0.60		
ECHS1H184 □Z ( )	0.18	17.0	6.5	14.0	19.0	12.50	5.0	0.60		
ECHS1H224 □Z ( )	0.22	17.0	7.0	14.4	19.4	12.50	5.0	0.60		
ECHS1H274 □Z ( )	0.27	17.0	7.5	15.2	20.2	12.50	5.0	0.80		
ECHS1H334 □Z ( )	0.33	17.0	8.5	15.8	20.8	12.50	5.0	0.80		
ECHS1H394 □Z ( )	0.39	17.0	9.0	16.4	21.4	12.50	5.0	0.80		
ECHS1H474 □Z ( )	0.47	17.0	10.0	17.2	22.2	12.50	5.0	0.80		

Suffix for lead crimped or taped type  
 Cap. tol. code

Style N: 0.0010 μF to 0.012 μF  
 Style T: 0.015 μF to 0.47 μF

■ Rating, Dimensions & Quantity/Ammo Box or Reel

● Rated voltage: 100 VDC, Capacitance tolerance :  $\pm 1\%$ (F),  $\pm 2\%$ (G),  $\pm 5\%$ (J)

Part No.	Cap. ( $\mu$ F)	Dimensions (mm)							Quantity		
		L <sub>max.</sub>	T <sub>max.</sub>	H <sub>max.</sub>		F		S	$\phi$ d	Ammo	Reel
				Type 1	Type 2	Type 1	Type 2				
ECHS1101□Z( )	0.00010	8.5	4.0	6.5	11.5	5.00	5.0	0.60	1000	1000	
ECHS1121□Z( )	0.00012	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1151□Z( )	0.00015	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1181□Z( )	0.00018	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1221□Z( )	0.00022	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1271□Z( )	0.00027	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1331□Z( )	0.00033	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1391□Z( )	0.00039	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1471□Z( )	0.00047	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1561□Z( )	0.00056	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1681□Z( )	0.00068	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1821□Z( )	0.00082	8.5	4.0	6.5	11.5	5.00	5.0	0.60			
ECHS1102□Z( )	0.0010	10.0	4.5	7.0	12.0	5.00	5.0	0.60			
ECHS1122□Z( )	0.0012	10.0	4.5	7.0	12.0	5.00	5.0	0.60			
ECHS1152□Z( )	0.0015	10.0	4.5	7.0	12.0	5.00	5.0	0.60			
ECHS1182□Z( )	0.0018	10.0	4.5	7.0	12.0	5.00	5.0	0.60			
ECHS1222□Z( )	0.0022	10.0	4.5	7.5	12.5	5.00	5.0	0.60			
ECHS1272□Z( )	0.0027	10.0	4.5	7.0	12.0	5.00	5.0	0.60			
ECHS1332□Z( )	0.0033	10.0	4.5	7.5	12.5	5.00	5.0	0.60			
ECHS1392□Z( )	0.0039	10.0	4.5	7.0	12.0	5.00	5.0	0.60			
ECHS1472□Z( )	0.0047	10.0	5.0	7.5	12.5	5.00	5.0	0.60			
ECHS1562□Z( )	0.0056	12.0	4.5	8.0	13.0	7.50	5.0	0.60			
ECHS1682□Z( )	0.0068	12.0	4.5	7.8	12.8	7.50	5.0	0.60			
ECHS1822□Z( )	0.0082	12.0	4.5	8.0	13.0	7.50	5.0	0.60			
ECHS1103□Z( )	0.010	12.0	4.5	8.0	13.0	7.50	5.0	0.60			
ECHS1123□Z( )	0.012	12.0	5.0	8.2	13.2	7.50	5.0	0.60			
ECHS1153□Z( )	0.015	12.0	5.0	8.4	13.4	7.50	5.0	0.60			
ECHS1183□Z( )	0.018	12.0	5.5	8.8	13.8	7.50	5.0	0.60			
ECHS1223□Z( )	0.022	12.0	5.0	10.8	15.8	7.50	5.0	0.60			
ECHS1273□Z( )	0.027	12.0	5.5	11.2	16.2	7.50	5.0	0.60			
ECHS1333□Z( )	0.033	14.5	5.5	11.2	16.2	10.00	5.0	0.60			
ECHS1393□Z( )	0.039	14.5	6.0	11.6	16.6	10.00	5.0	0.60			
ECHS1473□Z( )	0.047	14.5	6.0	11.8	16.8	10.00	5.0	0.60			
ECHS1563□Z( )	0.056	14.5	6.5	12.2	17.2	10.00	5.0	0.60			
ECHS1683□Z( )	0.068	17.0	6.5	12.2	17.2	12.50	5.0	0.60			
ECHS1823□Z( )	0.082	17.0	6.5	13.8	18.8	12.50	5.0	0.60			
ECHS1104□Z( )	0.10	17.0	7.0	14.2	19.2	12.50	5.0	0.60			
ECHS1124□Z( )	0.12	17.0	7.5	14.8	19.8	12.50	5.0	0.60			
ECHS1154□Z( )	0.15	20.5	7.5	15.0	20.0	15.00	5.0	0.80			
ECHS1184□Z( )	0.18	20.5	7.5	15.6	20.6	15.00	5.0	0.80			
ECHS1224□Z( )	0.22	20.5	8.5	16.2	21.2	15.00	5.0	0.80			
ECHS1274□Z( )	0.27	20.5	9.0	17.6	22.6	15.00	5.0	0.80			
ECHS1334□Z( )	0.33	20.5	10.0	18.4	23.4	15.00	5.0	0.80			
ECHS1394□Z( )	0.39	20.5	10.5	19.2	24.2	15.00	5.0	0.80			
ECHS1474□Z( )	0.47	20.5	11.5	20.2	25.2	15.00	5.0	0.80			

↑  
 ↑  
 ↑ Suffix for lead crimped or taped type  
 Cap. tol. code

Style N: 0.00010  $\mu$ F to 0.0047  $\mu$ F  
 Style T: 0.0056  $\mu$ F to 0.47  $\mu$ F