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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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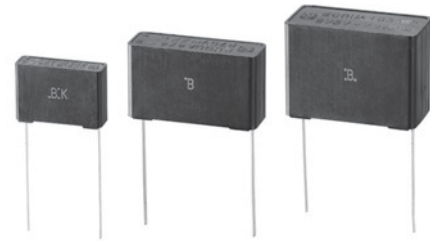
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Metalized Polypropylene Film Capacitor

Type : **ECQUA [Class X2]**

In accordance with UL/CSA and European safety regulation class X2  
Equipped with a safety mechanism



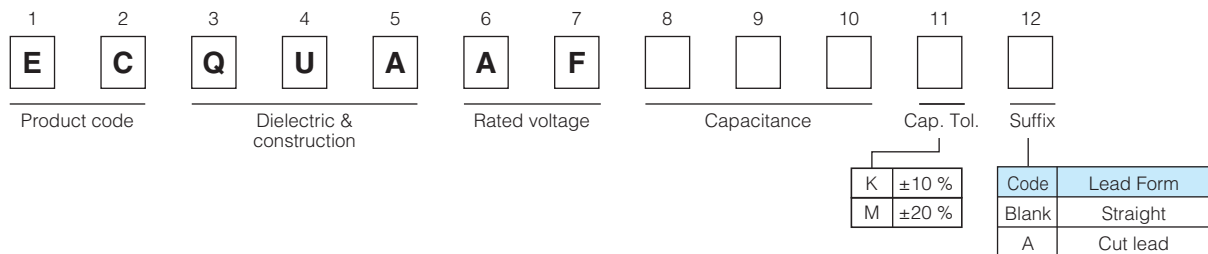
### Features

- High humidity resistance  
(THB test : 85 °C/85 %/240 V.AC/1000 h (C ≤ 1.0 μF))
- High safety (safety function installed)
- Compact
- Flame-retardant plastic case and non-combustible resin
- RoHS directive compliant

### Recommended applications

- Interference suppressors

### Explanation of part number



### Applicable standard

\* It is certified as type ECQUA in the following approval.

Approval		Class	Certification organization
UL	UL60384-14	Class X2	UL
CSA	CAN/CSA E60384-14	Class X2	
Europe	EN60384-14	Class X2	VDE
International	IEC60384-14	Class X2	

\* When applying this capacitor to European and American safety standards, please use type designation and rating such as ECQUA, 0.1 μF.

\* Approval number (File No.) of safety regulations are subject to revision without notice. Ask factory for a copy of the latest file No.

### Specifications

Category temperature range	-40 °C to +110 °C
Rated voltage	275 V.AC
Rated capacitance	0.10 μF to 2.2 μF
Capacitance tolerance	±10 % (K), ±20 % (M)
Dissipation factor (tan δ)	C ≤ 1.0 μF : tan δ ≤ 0.1 % ( 20 °C, 1 kHz ) C > 1.0 μF : tan δ ≤ 0.2 % ( 20 °C, 1 kHz )
Withstand voltage	Between terminals : 633 V.AC, 1183 V.DC, 60 s Between terminals to enclosure : 2050 V.AC, 60 s
Insulation resistance (IR)	C ≤ 0.33 μF : IR ≥ 15000 MΩ ( 20 °C, 100 V.DC, 60 s ) C > 0.33 μF : IR ≥ 5000 MΩ · μF ( 20 °C, 100 V.DC, 60 s ) C ≤ 0.47 μF : IR ≥ 2000 MΩ ( 20 °C, 500 V.DC, 60 s )
Maximum AC voltage *	310 V.AC

\* Use of this capacitor is limited to AC voltage (50 Hz or 60 Hz sine wave).

\* A faint corona discharge may occur inside of the capacitor element at rated voltage, however there is no influence on the reliability of the capacitor. (Suitable for series to the mains usage - for more details, please contact your Panasonic contact person.)

\* Maximum AC voltage including line voltage fluctuation is 310 V.AC.

310 V.AC is not nominal continuous applied voltage, but only indicates maximum value including in the voltage of the power supply. Basic nominal voltage is considered as 240 V.AC.

This maximum AC voltage is specified in only ECQUA type, not specified in other types.

Please refer to individual product specification, and contact us for further questions regarding design life.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.

Should a safety concern arise regarding this product, please be sure to contact us immediately.

## Dimensions

Technical drawings showing dimensions:  $L \pm 0.5^*$ ,  $T \pm 0.5^*$ ,  $H \pm 0.5^*$ ,  $F \pm 0.4$ ,  $20 \text{ min.}$ ,  $\phi d \pm 0.05$ ,  $4.0 \pm 0.5$ ,  $Q \pm 1.4$ ,  $P$  (Lead location limits from center). Labels include "Cut lead (Suffix A)", "Solder-plated copper-clad steel wire", and "Unit : mm".

**Marking Example**

(A) side	(B) or (C) side

Note : Only  $\pm 10\%$  as cap. tol. be marked as "K".  
 Note : Date code.

## Rating · Dimensions · Quantity

- Capacitance tolerance :  $\pm 10\%$  (K),  $\pm 20\%$  (M)

Part No.	Cap. ( $\mu\text{F}$ )	Dimensions (mm)							Min. order Q'ty	
		L	T	H	F	$\phi d$	P	Q	Straight	Cut lead
ECQUAAF104□( )	0.10	17.5	5.0	12.0	15.0	0.6	$0 \pm 0.8$	1.3	1000	1000
ECQUAAF154□( )	0.15	17.5	6.0	13.0	15.0	0.6	$0 \pm 0.8$	1.3		
ECQUAAF224□( )	0.22	17.5	7.5	14.0	15.0	0.6	$0 \pm 0.8$	1.3		
ECQUAAF334□( )	0.33	17.5	9.0	16.0	15.0	0.6	$0 \pm 0.8$	1.3	600	800
ECQUAAF474□( )	0.47	26.0	8.5	15.0	22.5	0.8	$0 \pm 0.8$	1.8		
ECQUAAF684□( )	0.68	26.0	10.0	17.0	22.5	0.8	$0 \pm 0.8$	1.8	500	500
ECQUAAF105□( )	1.0	26.0	12.0	19.0	22.5	0.8	$0 \pm 0.8$	1.8	300	300
ECQUAAF155□( )	1.5	31.0	12.0	22.0	27.5	0.8	$0 \pm 0.8$	1.8	200	200
ECQUAAF225□( )	2.2	31.0	14.5	24.5	27.5	0.8	$0 \pm 0.8$	1.8		

\* □ : Capacitance tolerance code  
 ( ) : Suffix for lead form