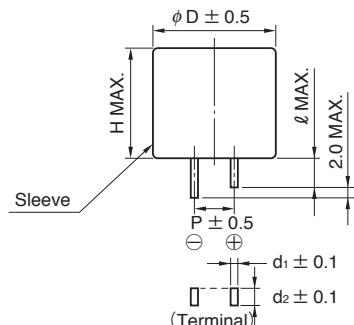


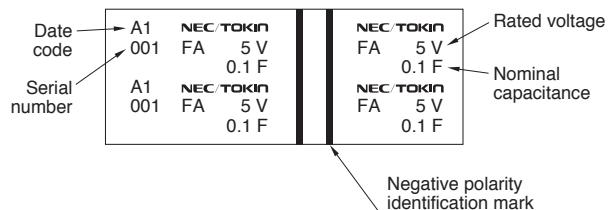
6.8 FA Series, FE Series

● FA Series

Dimensions



Markings on sleeve

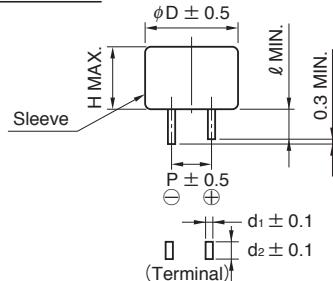


Specifications

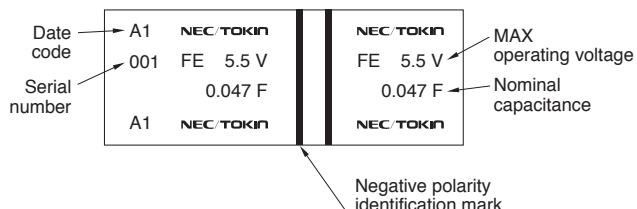
Part Number	MAX operating voltage (Vdc)	Rated voltage (Vdc)	Nominal capacitance		MAX ESR (at 1 kHz) (Ω)	MAX current at 30 min. (mA)	Dimension (unit:mm)						Weight (g)
			Charge system (F)	Discharge system (F)			φ D	H	P	ℓ	d ₁	d ₂	
FA0H473ZF	5.5	5	0.047	0.075	20.0	0.071	16.0	15.5	5.1	5.0	0.4	1.2	6.2
FA0H104ZF	5.5	5	0.10	0.16	8.0	0.15	21.5	15.5	7.6	5.5	0.6	1.2	12
FA0H224ZF	5.5	5	0.22	0.35	5.0	0.33	28.5	16.5	10.2	9.5	0.6	1.4	25
FA0H474ZF	5.5	5	0.47	0.75	3.5	0.71	36.5	16.5	15.0	9.5	0.6	1.7	42
FA0H105ZF	5.5	5	1.0	1.6	2.5	1.5	44.5	18.5	20.0	9.5	1.0	1.4	65
FA1A223ZF	11.0	10	0.022	0.035	20.0	0.066	16.0	25.0	5.1	5.0	0.4	1.2	7.5
FA1A104ZF	11.0	10	0.10	0.16	8.0	0.30	28.5	25.5	10.2	9.5	0.6	1.4	32
FA1A224ZF	11.0	10	0.22	0.35	6.0	0.66	36.5	27.5	15.0	9.5	1.0	1.4	55
FA1A474ZF	11.0	10	0.47	0.75	4.0	1.41	44.5	28.5	20.0	9.5	1.0	1.4	83

● FE Series

Dimensions



Markings on sleeve



Specifications

Part Number	MAX operating voltage (Vdc)	Nominal capacitance		MAX ESR (at 1 kHz) (Ω)	MAX current at 30 min. (mA)	Dimension (unit:mm)						Weight (g)
		Charge system (F)	Discharge system (F)			φ D	H	P	ℓ	d ₁	d ₂	
FE0H473ZF	5.5	0.047	0.075	14.0	0.071	14.5	14.0	5.1	2.2	0.4	1.2	3.9
FE0H104ZF	5.5	0.10	0.16	6.5	0.15	16.5	14.0	5.1	2.7	0.4	1.2	5
FE0H224ZF	5.5	0.22	0.35	3.5	0.33	21.5	15.5	7.6	3.0	0.6	1.2	9.5
FE0H474ZF	5.5	0.47	0.75	1.8	0.71	28.5	16.5	10.2	6.1	0.6	1.4	16
FE0H105ZF	5.5	1.0	1.4	1.0	1.5	36.5	18.5	15.0	6.1	0.6	1.7	38
FE0H155ZF	5.5	1.5	2.1	0.6	2.3	44.5	18.5	20.0	6.1	1.0	1.4	72



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Specifications

Item	Series name	FA	FE	Test conditions (conforming to JIS C 5160-1)			
Category temperature range		−25°C to +70°C	−40°C to +70°C				
MAX operating voltage		5.5Vdc, 11Vdc	5.5Vdc				
Capacitance		5.5V : 0.047F to 1.0F 11V : 0.022F to 0.47F	0.047F to 1.5F	Refer to "Measurement Conditions"			
Capacitance allowance		+80 %, −20 %	+80 %, −20 %	Refer to "Measurement Conditions"			
ESR		Refer to standard ratings	Refer to standard ratings	Measured at 1kHz, 10mA ; See also "Measurement Conditions"			
Current (30-minutes value)		Refer to standard ratings	Refer to standard ratings	Refer to "Measurement Conditions"			
Surge	Capacitance		More than 90% of initial ratings	Surge voltage : 6.3V (5.5V type) : 12.6V (11V type)			
	ESR		Not to exceed 120% of initial ratings	Charge : 30 sec. Discharge : 9min 30sec.			
	Current (30 minutes value)		Not to exceed 120% of initial ratings	Number of cycles : 1000 Series resistance : 0.047F 300Ω : 0.10F 150Ω : 0.22F 56Ω : 0.47F 30Ω : 1.0F, 1.5F 15Ω			
	Appearance	No obvious abnormality		Discharge resistance : 0Ω Temperature : 70±2°C			
Characteristics in different temperature	Capacitance	Phase 2	70% or higher than initial value 300% or less than initial value	Conforms to 4.17 Phase1 : +25±2°C Phase2 : −25±2°C Phase3 : −40±2°C (FE type) Phase4 : +25±2°C Phase5 : +70±2°C Phase6 : +25±2°C			
	ESR	Phase 3	40% or higher than initial value 400% or less than initial value				
	Capacitance	Phase 5	150% or less than initial value Satisfy initial ratings				
	ESR	Phase 5	200% or less than initial value Satisfy initial ratings				
	Current (30 minutes value)	Phase 6	1.5CV (mA) or below Within ±20% of initial value				
	Capacitance	Phase 6	Within ±20% of initial value Satisfy initial ratings				
	ESR	Phase 6	Within ±20% of initial value Satisfy initial ratings				
	Current (30 minutes value)	Phase 6	Satisfy initial ratings				
Lead strength (tensile)		No terminal damage		Conforms to 4.9			
Vibration resistance	Capacitance	Satisfy initial ratings		Conforms to 4.13 Frequency : 10 to 55 Hz Testing time : 6 hours			
	ESR	Satisfy initial ratings					
	Current (30 minutes value)	No obvious abnormality					
	Appearance	No obvious abnormality					
Solderability		Over 3/4 of the terminal should be covered by the new solder	Over 3/4 of the terminal should be covered by the new solder	Conforms to 4.11 Solder temp : 245±5°C Dipping time : 5±0.5 sec. 1.6mm from the bottom should be dipped.			
Solder heat resistance	Capacitance	Satisfy initial ratings		Conforms to 4.10 Solder temp : 260±10°C Dipping time : 10±1 sec. 1.6mm from the bottom should be dipped.			
	ESR	Satisfy initial ratings					
	Current (30 minutes value)	No obvious abnormality					
Temperature cycle	Appearance	No obvious abnormality		Conforms to 4.12 Temperature condition : −25°C (−40°C for FE type)→ Room temperature→ +70°C →Room temperature Number of cycles : 5 Cycles			
	Capacitance	Satisfy initial ratings					
	ESR	Satisfy initial ratings					
	Current (30 minutes value)	No obvious abnormality					
High temp. and high humidity resistance	Appearance	No obvious abnormality		Conforms to 4.14 Temperature : 40±2°C Relative humidity : 90 to 95 %RH Testing time : 240±8 hours			
	Capacitance	Over 90% of initial value	Within ±20% of initial value				
	ESR	Not to exceed 120% of initial ratings	Not to exceed 120% of initial ratings				
	Current (30 minutes value)	Not to exceed 120% of initial ratings	Not to exceed 120% of initial ratings				
High temperature load	Appearance	No obvious abnormality	No obvious abnormality	Conforms to 4.15 Temperature : 70±2°C Voltage applied : MAX operating voltage Series protection resistance : 0Ω Testing time : 1000 ^{±4} Hours			
	Capacitance	Over 85% of initial value	Within ±30% of initial value				
	ESR	Below 120% of initial ratings	Below 200% of initial ratings				
	Current (30 minutes value)	Below 200% of initial ratings	Below 200% of initial ratings				
Appearance		No obvious abnormality	No obvious abnormality				



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