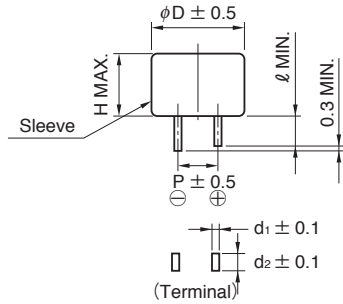
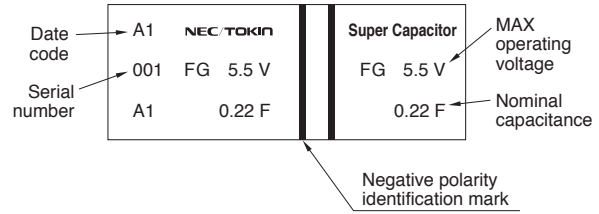


# 6.3 FG Series

## Dimensions



## Markings on sleeve



### ● FG Type

## Specifications

Part Number	MAX operating voltage (Vdc)	Nominal capacitance		MAX ESR (at 1 kHz) ( $\Omega$ )	MAX current at 30 min. (mA)	Voltage holding characteristics (V)	Dimension (unit:mm)						Weight (g)
		Charge system (F)	Discharge system (F)				$\phi D$	H	P	$l$	$d_1$	$d_2$	
FG0H103ZF	5.5	0.010	0.013	300	0.015	4.2	11.0	5.5	5.08	2.7	0.2	1.2	0.9
FG0H223ZF	5.5	0.022	0.028	200	0.033	4.2	11.0	5.5	5.08	2.7	0.2	1.2	1.0
FG0H473ZF	5.5	0.047	0.060	200	0.071	4.2	11.0	5.5	5.08	2.7	0.2	1.2	1.0
FG0H104ZF	5.5	0.10	0.13	100	0.15	4.2	11.0	6.5	5.08	2.7	0.2	1.2	1.3
FG0H224ZF	5.5	0.22	0.28	100	0.33	4.2	13.0	9.0	5.08	2.2	0.4	1.2	2.5
FG0H474ZF	5.5	0.47	0.60	120	0.71	4.2	14.5	18.0	5.08	2.4	0.4	1.2	5.1
FG0H105ZF	5.5	1.0	1.3	65	1.5	4.2	16.5	19.0	5.08	2.7	0.4	1.2	7.0
FG0H225ZF	5.5	2.2	2.8	35	3.3	4.2	21.5	19.0	7.62	3.0	0.6	1.2	12.1
FG0H475ZF	5.5	4.7	6.0	35	7.1	4.2	28.5	22.0	10.16	6.1	0.6	1.4	27.3
FG0V155ZF	3.5	1.5	2.2	65	1.5	—	16.5	14.0	5.08	3.1	0.4	1.2	5.2

### ● FGH Type

## Specifications

Part Number	MAX operating voltage (Vdc)	Nominal capacitance		MAX ESR (at 1 kHz) ( $\Omega$ )	MAX current at 30 min. (mA)	Voltage holding characteristics (V)	Dimension (unit:mm)						Weight (g)
		Charge system (F)	Discharge system (F)				$\phi D$	H	P	$l$	$d_1$	$d_2$	
FGH0H104ZF	5.5	—	0.10	100	0.15	4.2	11.0	5.5	5.08	2.7	0.2	1.2	1.0
FGH0H224ZF	5.5	—	0.22	100	0.33	4.2	11.0	7.0	5.08	2.7	0.2	1.2	1.3
FGH0H474ZF	5.5	—	0.47	65	0.71	4.2	16.5	8.0	5.08	2.7	0.4	1.2	4.1
FGH0H105ZF	5.5	—	1.0	35	1.5	4.2	21.5	9.5	7.62	3.0	0.6	1.2	7.2

### ● FGR Type

## Specifications

Part Number	MAX operating voltage (Vdc)	Nominal capacitance		MAX ESR (at 1 kHz) ( $\Omega$ )	MAX current at 30 min. (mA)	Voltage holding characteristics (V)	Dimension (unit:mm)						Weight (g)
		Charge system (F)	Discharge system (F)				$\phi D$	H	P	$l$	$d_1$	$d_2$	
FGR0H474ZF	5.5	0.47	0.60	120	0.71	4.2	14.5	18.0	5.08	2.4	0.4	1.2	5.1
FGR0H105ZF	5.5	1.0	1.3	65	1.5	4.2	16.5	19.0	5.08	2.7	0.4	1.2	7.0
FGR0H225ZF	5.5	2.2	2.8	35	3.3	4.2	21.5	19.0	7.62	3.0	0.6	1.2	12.1



- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact NEC TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.

## Specifications

Series name		FG, FGH type		FGR type		Test conditions (conforming to JIS C 5160-1)	
Category temperature range		-25 °C to +70 °C		-40 °C to +85 °C			
MAX operating voltage		5.5Vdc, 3.5Vdc		5.5Vdc			
Capacitance		FG : 0.010F to 4.7F FGH : 0.10F to 1.0F		0.47F to 2.2F		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		More than 90% of initial ratings		Surge voltage : 6.3V (5.5V type) : 4.0V(3.5V type)	
	ESR	Not to exceed 120% of initial ratings		Not to exceed 120% of initial ratings		Charge : 30 sec.	
	Current (30 minutes value)	Not to exceed 120% of initial ratings		Not to exceed 120% of initial ratings		Discharge : 9min 30sec. Number of cycles : 1000	
	Appearance	No obvious abnormality		No obvious abnormality		Series resistance : 0.010F 1500 Ω : 0.022F 560 Ω : 0.047F 300 Ω : 0.10F 150 Ω : 0.22F 56 Ω : 0.47F 30 Ω : 1.0F, 1.5F 15 Ω : 2.2F, 4.7F 10 Ω Discharge resistance : 0 Ω Temperature : 85 ± 2 °C (FGR) : 70 ± 2 °C (FG, FGH)	
Characteristics in different temperature	Capacitance	Phase 2	50% or higher than initial value	Phase 2	50% or higher than initial value	Conforms to 4.17 Phase1 : +25 ± 2 °C Phase2 : -25 ± 2 °C Phase3 : -40 ± 2 °C (FGR) Phase4 : +25 ± 2 °C Phase5 : +70 ± 2 °C (FG, FGH) : +85 ± 2 °C (FGR) Phase6 : +25 ± 2 °C	
	ESR	Phase 2	400% or less than initial value	Phase 2	400% or less than initial value		
	Capacitance	Phase 3		Phase 3	30% or higher than initial value		
	ESR	Phase 3		700% or less than initial value			
	Capacitance	Phase 5	200% or less than initial value	Phase 5	200% or less than initial value		
	ESR		Satisfy initial ratings		Satisfy initial ratings		
	Current (30 minutes value)	Phase 5	1.5CV (mA) or below	Phase 5	1.5CV (mA) or below		
	Capacitance		Within ±20% of initial value		Phase 6		
ESR	Phase 6	Satisfy initial ratings	Phase 6	Satisfy initial ratings			
Current (30 minutes value)	Phase 6	Satisfy initial ratings	Phase 6	Satisfy initial ratings			
Lead strength (tensile)		No terminal damage		No terminal damage		Conforms to 4.9	
Vibration resistance	Capacitance	Satisfy initial ratings		Satisfy initial ratings		Conforms to 4.13 Frequency : 10 to 55 Hz Testing time : 6 hours	
	ESR						
	Current (30 minutes value)						
	Appearance	No obvious abnormality		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		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						
	Current (30 minutes value)						
	Appearance	No obvious abnormality		No obvious abnormality			
Temperature cycle	Capacitance	Satisfy initial ratings		Satisfy initial ratings		Conforms to 4.12 Temperature condition : Category MIN temp → Room temp → Category MAX temp → Room temp Number of cycles : 5 Cycles	
	ESR						
	Current (30 minutes value)						
	Appearance	No obvious abnormality		No obvious abnormality			
High temp. and high humidity resistance	Capacitance	Within ±20% of initial value		Within ±20% of initial value		Conforms to 4.14 Temperature : 40 ± 2 °C Relative humidity : 90 to 95 %RH Testing time : 240 ± 8 hours	
	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			
	Appearance	No obvious abnormality		No obvious abnormality			
High temperature load	Capacitance	Within ±30% of initial value		Within ±30% of initial value		Conforms to 4.15 Temp : Category MAX temp ± 2 °C Voltage applied : MAX operating voltage Series protection resistance : 0 Ω Testing time : 1000 <sup>48</sup> Hours	
	ESR	Below 200% 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			
Self discharge characteristics (voltage holding characteristics)		5.5V type: Voltage between terminal leads higher than 4.2V		Voltage between terminal leads higher than 4.2V		Charging condition	Voltage applied : 5.0Vdc (Terminal at the case's side be negative) Series resistance : 0 Ω Charging time : 24 hours
		3.5V type: Not specified				Storage	Let stand for 24 hours in condition described below with terminals opened. Ambient temperature : Lower than 25 °C Relative humidity : Lower than 70%RH



- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact NEC TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.