FC Series

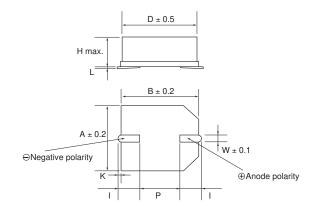
Features

- Enables surface mounting.
- High rated voltage of 5.5V.
- High reliability solution leakage.

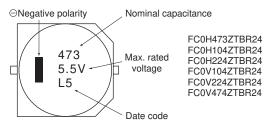
Applications

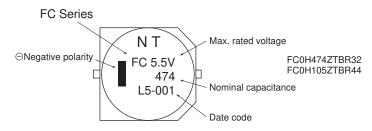
Subsidiary power supply.
 Buck up power supply line.
 Memory backup during battery exchange.

Dimensions



Markings





Standard Rating

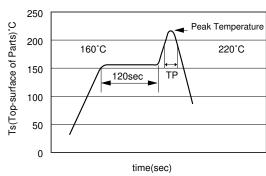
		_												
Part Number	Max. Rated Voltage	Nominal Capacitance Discharge	Max. ESR (at 1kHz)	at 20 minutes	Voltage Holding					Dimension	(Unit:r	nm)		
	(Vdc)	system (F)	(Ω)	(mA)	Characteristic Min. (V)	D	Н	Α	В	I	W	Р	K	L
FC0H473ZTBR24	5.5	0.047	50	0.071	4.2	10.5	5.5	10.8	10.8	3.6±0.5	1.2	5.0	0.7±0.2	0 +0.3
FC0H104ZTBR24	5.5	0.10	25	0.15	4.2	10.5	5.5	10.8	10.8	3.6±0.5	1.2	5.0	0.7±0.2	0 +0.3
FC0H224ZTBR24	5.5	0.22	25	0.33	4.2	10.5	8.5	10.8	10.8	3.6±0.5	1.2	5.0	0.7±0.2	0 +0.3
FC0H474ZTBR32	5.5	0.47	13	0.71	4.2	16.0	9.5	16.3	16.3	6.8±1.0	1.2	5.0	1.2±0.35	0 +0.5
FC0H105ZTBR44	5.5	1.00	7	1.50	4.2	21.0	10.5	21.6	21.6	7.0 ± 1.0	1.4	10.0	1.2±0.35	0 +0.5
FC0V104ZTBR24	3.5	0.10	50	0.090	_	10.5	5.5	10.8	10.8	3.6 ± 0.5	1.2	5.0	0.7±0.2	0 +0.3
FC0V224ZTBR24	3.5	0.22	25	0.20	_	10.5	5.5	10.8	10.8	3.6±0.5	1.2	5.0	0.7±0.2	0 +0.3
FC0V474ZTBR24	3.5	0.47	25	0.42	_	10.5	8.5	10.8	10.8	3.6±0.5	1.2	5.0	0.7±0.2	0 +0.3

Precautions for use

- This capacitor is exclusive use of reflow soldering.
 It's designed for thermal conduction system such as infrared ray (IR) or heat blow.
 For applying other methods, Please consult with
- Graph attheleft, "Reflow Condition" indicares the surface temperature at the top of capacitor.

· Reflow Condition

Reflow Profile



Tape and Reel Dimensions

[Reel Dimensions]

				(mm)
Mark	TBR24		TBR32	TBR44
Α	380±2		330±2	380±2
Б	Product height 5.5mm	80±1	100 1	100 1
В	Product height 8.5mm	100±1	100±1	100±1
С	13±0.5		13±0.5	13±0.5
D	21±0.8		21±0.8	21±0.8
E	2±0.5		2±0.5	2±0.5
W	25.5±0.5		32.5±0.5	44.5±0.5
t	Product height 5.5mm	3.0	2.8	2.8
l l	Product height 8.5mm	2.8	2.0	2.0

Dimensions of indented [square-hole plastic tape]

(mm)

Sprocket hole	е
t1 / ¢	Indented square-hole for fitting super capacitors
t ₂ Super capac	P ₁ P ₂ P ₀ Forward direction itors fitting on square-hole

			(/
Mark	TBR24	TBR32	TBR44
W	24.0	32.0	44.0
Α	11.4	18.0	23.0
В	13.0	20.0	25.0
P ₀	4.0	4.0	4.0
P ₁	16.0	24.0	32.0
P ₂	2.0	2.0	2.0
F	11.5	14.2	20.2
φDo	1.55	1.55	1.55
t ₁	0.4	0.5	0.5
E	1.75	1.75	1.75
t2	5.8	10.0	12.0

Number of pachaged Super capacitors

Part Number	Packaging
FC0H473ZTBR24	1000pcs./reel
FC0H104ZTBR24	1000pcs./reel
FC0H224ZTBR24	500pcs./reel
FC0H474ZTBR32	200pcs./reel
FC0H105ZTBR44	150pcs./reel
FC0V104ZTBR24	1000pcs./reel
FC0V224ZTBR24	1000pcs./reel
FC0V474ZTBR24	500pcs./reel

Specifications 5.5V Type

Item			Standard	Test Conditio	ns conforming to JIS C 5102-1994		
Operating Temperature Range		–25°C to +70°C					
Maximum Operatin	ig Voltage	5.5 VDC					
Nominal Capacitance Range		0.047 to 1.0F		See characte	eristics measuring method.		
Capacitance Allow	ance	+80%, -20%		See characte	eristics measuring method.		
Equivalent Series	Resistance	See standard list		See characte	eristics measuring method.		
Current (30-minute	es value)	See standard list		See characte	eristics measuring method.		
		Capacitance	More than 90% of initial requirement	Conforms to	7.14		
		Equivalent series resistance	Not to exceed 120% of initial requirement	Surge Voltage: 6.3 V(5.5V produc			
		Current (30-minute value) Not to exceed 120% of initial requirement		Temperatur	e: 70 ± 2°C		
*Surge Voltage20		Appearance			30 sec. 9 min. 30 sec. eycles 1000 cycles. stance: $0.047F$ 300 Ω esistance: 0 Ω		
	Disease	Capacitance	50% or higher of initial value	Conforms to	7.12		
	Phase 2	Equivalent series resistance	4 or less times initial value	Phase 1: +	25 ± 2°C		
* Temperature		Capacitance	200% or below of initial value	Phase 2: -	25 ± 2°C		
Variation of	Phase 5	Equivalent series resistance	Satisty initial standard value	Phase 3: -	40 ± 2°C		
Characteristics		Current (30-minute value)	1.5 CV (mA) or below	Phase 4: +	25 ± 2°C		
		Capacitance	Within ±20% of initial value	Phase 5: +	70 ± 2°C		
	Phase 6	Equivalent series resistance	Satisty initial standard value	Phase 6: +25 ± 2°C			
		Current (30-minute value)	Satisty initial standard value				
		Capacitance	ance		8.2.3		
*		Equivalent series resistance	Satisty initial standard value	Frequency : 10 to 55 Hz			
Vibration Resistan	ce	Current (30-minute value)		Test duration : 6 hours			
		Appearance No obvious abnormality		7			
		Capacitance		Conforms to 8.5			
*		Equivalent series resistance	Satisty initial standard value	Solder temperature: 260 ± 10°C Dipping duration: 10 ± 1 sec. Dipped up to 1.6 mm from the lower end			
Soldering Heat Re	sistance	Current (30-minute value)					
		Appearance	No obvious able abnormality	of the capac			
		Capacitance		Conforms to 9.3			
*		Equivalent series resistance	Satisty initial standard value	Temperature condition:			
Temperature Cycle	9	Current (30-minute value)		–25°C –	» normal temperature		
		Appearance	No obvious abnormality	→ +70°C → normal temperature			
		Capacitance	Within 20% of initial value	Number of o	cycles: 5 cycles		
*		Equivalent series resistance	1.2 or less times initial standard value	Conforms to			
Humidity Resistan	ce	Current (30-minute value)	1.2 or less times initial standard value	Temperature Relative hui	e: 40 ± 2°C		
		Appearance	No obuious abnormality	Test duratio			
		Capacitance	Within 30% of initial value	Conforms to	9.10		
*		Equivalent series resistance	Twice or less times initial standard value	Temperature			
High Temperature	Load	Current (30-minute value)	Twice or less times initial standard value	Voltage applied: 5.5			
		Appearance	No obvious abnormality	Series protection resistance: 0Ω Test duration: 1000^{+48}_{0} hours			
* Voltage Holding Characteristics		lding stics Voltage between terminal leads higher than 4.2 V					
(Self Dischage)				Storage	Temperature:Lower than 25°C		

 $^{^{\}star}$ The characteristics above must be satisfied for asterisked items after the end of reflow soldering (according to the reflow condition shown on page).

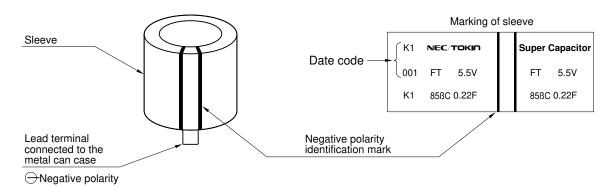
Specifications 3.5V Type

Departury Annals Septiment Septi	Item			Standard	Test Conditions conforming to JIS C 5012 ⁻¹⁹⁹⁴		
Nominal Capacitance Range Capacitance Range Capacitance Range A80%, 20% See characteristics measuring method.	Operating Temperature Range		-25°C to +70°C				
Equivalent Series Resistance Current (30-minute value) *Surge Voltage Phase 2 *Temperature Variation of Characteristics Characteristics Current (30-minute value) *Vibration Resistance Vibration Resistance Vibration Resistance Vibration Resistance Vibration Resistance Vibration Resistance Current (30-minute value) *Soldering Heat Resistance Current (30-minute value) Appearance No obvious abnormality Vibration Resistance Vibration Resistance Vibration Resistance Current (30-minute value) Appearance No obvious abnormality Vibration Resistance Vibration Resistance Current (30-minute value) Appearance No obvious abnormality Vibration Resistance Current (30-minute value) Appearance No obvious abnormality See characteristics measuring method. See characteristics conforment Current (30-minute value) Not to exceed 120% of initial requirement No obvious abnormality Capacitance Solder initial requirement Current (30-minute value) Appearance No obvious abnormality Appearance No obvious abnormality Temperature Cycle Phase 1: +25 ± 2°C Phase 1: +25 ± 2°C Phase 2: +25 ± 2°C Phase 3: -40 ± 2°C Phase 3: -40 ± 2°C Phase 4: +25 ± 2°C Phase 4: +25 ± 2°C Phase 5: +25 ± 2°C Phase 6: +25 ± 2°C Phase 6: +25 ± 2°C Phase 6: +25 ± 2°C Conforms to 8.5 Solder temperature: -40 ± 2°C -40 ± 40 ± 40 ± 40 ± 40 ± 40 ± 40 ± 40 ±	Maximum Operatin	g Voltage	3.5 VDC				
See standard list Surge Voltage: Tandard list Tandard	Nominal Capacitance Range		0.010 to 0.47F		See characteristics measuring method.		
See standard list	Capacitance Allow	Capacitance Allowance			See characteristics measuring method.		
Capacitance Equivalent series resistance Current (30-minute value) No to exceed 120% of initial requirement Current (30-minute value) No to exceed 120% of initial requirement Current (30-minute value) No to exceed 120% of initial requirement Current (30-minute value) No to exceed 120% of initial requirement Current (30-minute value) No bivious abnormality Conforms to 7.14 Surper resistance Current (30-minute value) Conforms to 7.15 Surper resistance Current (30-minute value) Current (30-min	Equivalent Series	Resistance	See standard list		See characteristics measuring method.		
Surge Voltage	Current (30-minute	es value)	See standard list		See characteristics measuring method.		
*Surge Voltage *Appearance Appearance Appearance Appearance No obvious abnormality No obvious abnormality Phase 2 Equivalent series resistance Capacitance Capacitance Capacitance Current (30-minute value) Appearance No obvious abnormality Phase 5 Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Phase 6: 22 c'c Phase 7: 22 c'c Phase 1: 22 c'c Phase 2: -25 : 2 c'c Phase 2: -25 : 2 c'c Phase 3: -40 : 2 c'c Phase 6: -25 : 2 c'c			Capacitance	More than 90% of initial requirement	Conforms to 7.14		
*Surge Voltage **Surge Voltage gesistance **Surge Voltage sesistance **Surge Voltage sesist			Equivalent series resistance	Not to exceed 120% of initial requirement	Surge Voltage: 4.0 V(3.5V products)		
Surge Voltage Appearance Appearance Appearance No obvious abnormality Phase 2: Capacitance Conforms to 7.12			Current (30-minute value)	Not to exceed 120% of initial requirement	Charge: 30 sec.		
*Temperature Variation of Characteristics Phase 5	*Surge Voltage		Appearance	No obvious abnormality	$\begin{array}{lll} \text{Number of cycles 1000 cycles.} \\ \text{Charge resistance : } 0.10F & 150 \ \Omega \\ & : 0.22F & 56 \ \Omega \\ & : 0.47F & 30 \ \Omega \\ & : 1.0F & 15 \ \Omega \\ \end{array}$		
Temperature Variation of Characteristics Phase 5 2°C Capacitance 200% or below of initial value Phase 2: -25 ± 2°C Phase 2: -25 ± 2°C Phase 2: -25 ± 2°C Phase 3: -40 ± 2°C Phase 4: +25 ± 2°C Phase 6: -25 ± 2°C Phas		DI 0	Capacitance	50% or higher of initial value	Conforms to 7.12		
Variation of Characteristics Phase 5 Equivalent series resistance (30-minute value) Satisty initial standard value Phase 4: +25 ± 2°C Phase 4: +25 ± 2°C *Vibration Resistance Phase 6: +25 ± 2°C Conform to 8.2.3 Conforms to 8.2.3 *Vibration Resistance Equivalent series resistance Current (30-minute value) Satisty initial standard value Conforms to 8.2.3 *Appearance No obvious abnormality Frequency : 10 to 55 Hz *Test duration : 6 hours Conforms to 8.5 *Soldering Heat Resistance Capacitance Satisty initial standard value Conforms to 8.5 *Colder temperature: 260 ± 10°C Dipping duration: 10 ± 1 sec. Dipping duration: 10 ± 1 sec. Dipped up to 1.6 mm from the lower end of the capacitor. *Temperature Cycle Capacitance Satisty initial standard value Conforms to 9.3 *Temperature Cycle Capacitance Satisty initial standard value Conforms to 9.3 *Temperature Cycle Capacitance Satisty initial standard value Conforms to 9.3 *Temperature Cycle Capacitance Satisty initial standard value Conforms to 9.5 *Temperature Cycle Appearance No obvious abnormality		Phase 2	Equivalent series resistance	4 or less times initial value	Phase 1: +25 ± 2°C		
Variation of Characteristics Phase 5 (Quivalent series resistance) Equivalent series resistance (Quivalent series resistance) Satisty initial standard value Phase 4: ±25 ± 2°C Phase 5: ±70 ± 2°C Phase 6: ±25 ± 2°C Phase 7: ±25 ± 2°C	* Temperature		Capacitance	200% or below of initial value	Phase 2: -25 ± 2°C		
*Temperature Cycle *Temperature Cycle *Humidity Resistance Phase 6 Capacitance Capacitance Equivalent series resistance Capacitance Equivalent series resistance Current (30-minute value) Satisty initial standard value Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious able abnormality Temperature Cycle *Temperature Cycle Temperature Cycle *Temperature Cycle *Humidity Resistance Capacitance Equivalent series resistance Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality No obvious abnormality Appearance No obvious abnormality No obvious abnormality Appearance No obvious abnormality No obvious abnormality Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Within 20% of initial standard value Current (30-minute value) Appearance No obvious abnormality Capacitance Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Within 30% of initial standard value Equivalent series resistance Conforms to 9.5 Temperature: 40 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours Temperature: 70 ± 2°C Voltage applied: 3.5 Vdc Voltage applied: 3.5 Vdc	1 '	Phase 5	Equivalent series resistance	Satisty initial standard value	Phase 3: -40 ± 2°C		
Phase 6 Equivalent series resistance Current (30-minute value) Satisty initial standard value *Vibration Resistance Equivalent series resistance Current (30-minute value) Appearance No obvious able abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious able abnormality Current (30-minute value) Appearance Satisty initial standard value Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Number of cycles: 5 cycles Current (30-minute value) Appearance No obvious abnormality Number of cycles: 5 cycles Conforms to 9.5 Temperature 40 ± 2°C Relative humidity Position Position	Characteristics		Current (30-minute value)	1.5 CV (mA) or below	Phase 4: +25 ± 2°C		
*Vibration Resistance		Phase 6	Capacitance	Within ±20% of initial value	Phase 5: +70 ± 2°C		
*Temperature Cycle *Temperature Cycle *Humidity Resistance Capacitance Equivalent series resistance Capacitance Equivalent series resistance Temperature Cycle *Humidity Resistance Capacitance Equivalent series resistance *Humidity Resistance Capacitance Equivalent series resistance Appearance No obvious abnormality Satisty initial standard value Satisty initial s			Equivalent series resistance	Satisty initial standard value	Phase 6: +25 ± 2°C		
*Temperature Cycle **Temperature Cycle **Humidity Resistance **Humidity Resistance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious able abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Temperature Cycle *Humidity Resistance *Humidity Resistance *High Temperature Load Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality No obvious abnormality 1.2 or less times initial standard value Equivalent series resistance Within 30% of initial value Equivalent series resistance Equivalent series resistance Within 30% of initial value Equivalent series resistance Equivalent series resistance Twice or less times initial standard value Twice or less times initial standard value Temperature: 70 ± 2°C Voltage applied: 70 ± 2°C Voltage applied: 3.5 Vdc			Current (30-minute value)	Satisty initial standard value			
Test duration : 6 hours Current (30-minute value) Appearance No obvious abnormality		'	Capacitance		Conforms to 8.2.3		
Current (30-minute value) Appearance No obvious abnormality	*		Equivalent series resistance	Satisty initial standard value			
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*Soldering Heat Resistance Equivalent series resistance Current (30-minute value) Appearance No obvious able abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance Appearance No obvious able abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Capacitance Within 20% of initial value Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Number of cycles: 5 cycles Conforms to 9.5 Temperature: Appearance Current (30-minute value) Appearance No obvious abnormality Capacitance Equivalent series resistance 1.2 or less times initial standard value Current (30-minute value) Appearance No obuious abnormality Capacitance Within 30% of initial value Equivalent series resistance Twice or less times initial standard value Twice or less times initial standard value Voltage applied: 70 ± 2°C Voltage applied: Voltage applied: Voltage applied:			Appearance	No obvious abnormality			
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Temperature Cycle *Temperature Cycle *Temperature Cycle *Temperature Cycle *Humidity Resistance *Humidity Resistance *Temperature Load *High Temperature Load *High Temperature Load *Temperature (30-minute value) Appearance Appearance No obvious able abnormality Satisty initial standard value No obvious abnormality Number of cycles: 5 cycles Conforms to 9.5 Temperature: 40 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours *High Temperature Load *Appearance No obvious abnormality Capacitance Within 30% of initial value Equivalent series resistance Twice or less times initial standard value Voltage applied: 3.5 Vdc	*		Equivalent series resistance	Satisty initial standard value	·		
Appearance No obvious able abnormality of the capacitor. Capacitance Equivalent series resistance Current (30-minute value) Appearance No obvious abnormality Appearance No obvious abnormality Temperature Cycle Equivalent series resistance Temperature condition: -25°C → normal temperature → +70°C → normal temperature Number of cycles: 5 cycles Capacitance Within 20% of initial value Equivalent series resistance 1.2 or less times initial standard value Current (30-minute value) Appearance No obuious abnormality Capacitance Within 30% of initial value Test duration: 240 ± 8 hours Temperature: 70 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours Temperature: 70 ± 2°C Voltage applied: 3.5 Vdc	Soldering Heat Re	sistance	Current (30-minute value)		11 0		
*Temperature Cycle Equivalent series resistance Current (30-minute value) Appearance Appearance No obvious abnormality Capacitance Equivalent series resistance *Humidity Resistance Current (30-minute value) Capacitance Equivalent series resistance Equivalent series resistance Temperature condition: -25°C → normal temperature Number of cycles: 5 cycles Conforms to 9.5 Temperature: 40 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours *High Temperature Load *High Temperature Load Appearance Figuivalent series resistance Equivalent series resistance Temperature Conforms to 9.5 Temperature: 40 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours *Temperature: 70 ± 2°C Voltage applied: 3.5 Vdc			Appearance	No obvious able abnormality			
*Temperature Cycle Current (30-minute value) Appearance No obvious abnormality Number of cycles: 5 cycles Capacitance Equivalent series resistance *Humidity Resistance Capacitance Equivalent series resistance To rest times initial standard value Appearance No obuious abnormality Current (30-minute value) Appearance No obuious abnormality Capacitance Within 30% of initial value Capacitance Within 30% of initial value Equivalent series resistance To description of initial standard value Equivalent series resistance To ± 2°C Relative humidity: Yest duration: Conforms to 9.5 Temperature: A0 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours To description of initial value Equivalent series resistance Twice or less times initial standard value Voltage applied: 3.5 Vdc			Capacitance				
Thumidity Resistance Current (30-minute value)	_*		Equivalent series resistance	Satisty initial standard value			
Appearance No obvious abnormality Number of cycles: 5 cycles Capacitance Within 20% of initial value Conforms to 9.5 Humidity Resistance Equivalent series resistance 1.2 or less times initial standard value Current (30-minute value) 1.2 or less times initial standard value Appearance No obuious abnormality Capacitance Within 30% of initial value Equivalent series resistance Twice or less times initial standard value Equivalent series resistance Twice or less times initial standard value Temperature: 40 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours Conforms to 9.10 Temperature: 70 ± 2°C Voltage applied: 3.5 Vdc	Temperature Cycle)	Current (30-minute value)				
*Humidity Resistance				No obvious abnormality	·		
*Humidity Resistance Current (30-minute value) 1.2 or less times initial standard value Relative humidity: 90 to 95% RH 240 ±8 hours	*		Capacitance	Within 20% of initial value	Conforms to 9.5		
Current (30-minute value) Appearance No obuious abnormality Capacitance Within 30% of initial value Equivalent series resistance Test duration: 240 ±8 hours Conforms to 9.10 Temperature: 70 ±2°C Voltage applied: 3.5 Vdc			Equivalent series resistance	1.2 or less times initial standard value	· ·		
Appearance No obuious abnormality Capacitance Within 30% of initial value Equivalent series resistance Twice or less times initial standard value Temperature: 70 ± 2°C Voltage applied: 3.5 Vdc	Humidity Resistant	Humidity Resistance		1.2 or less times initial standard value	,		
*High Temperature Load **Equivalent series resistance Twice or less times initial standard value Voltage applied: 70 ± 2°C Voltage applied: 3.5 Vdc			Appearance	No obuious abnormality	lest duration.		
High Temperature Load ** Compared C			Capacitance	Within 30% of initial value			
	*		Equivalent series resistance	Twice or less times initial standard value	- 1		
Outlook (or minute value) I vivide of least times milital standard value Spripe protection resistance. NO	High Temperature	Load	Current (30-minute value)	Twice or less times initial standard value	Series protection resistance: 0 Ω		
Appearance No obvious abnormality Test duration: 1000 $^{+48}_{0}$ hours			Appearance	No obvious abnormality	Test duration: 1000 ⁺⁴⁸ hours		

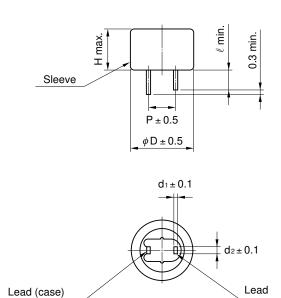
^{*} The characteristics above must be satisfied for asterisked items after the end of reflow soldering (according to the reflow condition shown on page).

Markings

Markings are made with black ink on the green sleeve.



Dimensions and Standard Ratings



Negative polarity

Part No.			Weight				
r ait ivo.	D	Н	Р	d₁	d ₂	e.	(g) (oz)
FT0H104Z	11.5	8.5	5.08	0.4	1.2	2.7	1.6
	(0.453)	(0.335)	(0.2)	(0.016)	(0.047)	(0.106)	(0.057)
FT0H224Z	14.5	12.0	5.08	0.4	1.2	2.2	4.1
	(0.57)	(0.47)	(0.2)	(0.016)	(0.047)	(0.087)	(0.145)
FT0H474Z	16.5	13.0	5.08	0.4	1.2	2.7	5.3
	(0.65)	(0.512)	(0.2)	(0.016)	(0.047)	(0.106)	(0.187)
FT0H105Z	21.5	13.0	7.62	0.6	1.2	3.0	10.0
	(0.85)	(0.512)	(0.3)	(0.024)	(0.047)	(0.118)	(0.353)
FT0H225Z	28.5	14.0	10.16	0.6	1.4	6.1	18.0
	(1.12)	(0.55)	(0.4)	(0.024)	(0.055)	(0.240)	(0.635)
FT0H335Z	36.5	15.0	15.00	0.6	1.7	6.1	38.0
	(1.44)	(0.588)	(0.59)	(0.024)	(0.067)	(0.240)	(1.34)
FT0H565Z	44.5	17.0	20.00	1.0	1.4	6.1	72.0
	(1.75)	(0.67)	(0.79)	(0.039)	(0.055)	(0.240)	(2.54)

Note: Weight is typical.

Part Number	Max. Rated Voltage (V)	Nomial Capacitance Charge System (F)	Discharge System (F)	Max. ESR (at 1 kHz) (Ω)	Max. Current at 30 minutes (mA)
FT0H104Z	5.5	0.10	0.14	less than 16	less than 0.15
FT0H224Z	5.5	0.22	0.28	less than 10	less than 0.33
FT0H474Z	5.5	0.47	0.60	less than 6.5	less than 0.71
FT0H105Z	5.5	1.0	1.3	less than 3.5	less than 1.5
FT0H225Z	5.5	2.2	2.8	less than 1.8	less than 3.3
FT0H335Z	5.5	3.3	4.2	less than 1.0	less than 5.0
FT0H565Z	5.5	5.6	7.2	less than 0.6	less than 8.4

Specifications

				Test Conditions	
Item			conforming to JIS C 5102 ⁻¹⁹⁹⁴		
Operating Temperate	ure Range	-40°C to +85°C	•		
Maximum Operating Voltage		5.5 Vdc			
Nominal Capacitar	nce Range	0.1 to 5.6 F (Refer to s	tandard ratings)		
Capacitance Allow	ance	+80 %, –20 %		See characteristics measuring conditions	
Equivalent Series F	Resistance	See standard list		See characteristics measuring conditions	
Current (30-minute	e value)	See standard list		See characteristics measuring conditions	
	·	Capacitance	More than 90 % of initial requirement	At 85°C Surge voltage 6.3 V Charge: 30 sec. Discharge: 9 min. 30 sec. 1000 cycles Charge resistance:	
Surge Voltage		Equivalent Series Resistance	Not to exceed 120 % of initial requirement	0.10 F 150 Ω 0.22 F 56 Ω 0.47 F 30 Ω 1.0 F 15 Ω 2.2 F 10 Ω	
		Current at 30 minutes	Not to exceed 120 % of initial requirement	3.3 F 10Ω 5.6 F 10Ω Discharge resistance: Not applicable (0Ω)	
	Dhara 0	Capacitance	More than 50 % of initial value	Conforms to 7.12	
	Phase 2	Equivalent Series Resistance	Not to exceed 3 times initial value	Phase 1: +25±2°C	
	Discos	Capacitance	More than 30 % of initial value	Phase 2: -25 ±2°C	
Temperature	Phase 3	Equivalent Series Resistance	Not to exceed 7 times initial value	Phase 3: -40 ±2°C	
Variation of		Capacitance	Not to exceed 150 % of initial value	Phase 4: +25 ±2°C	
Characteristics	Phase 5	Equivalent Series Resistance	Not to exceed initial requirement	Phase 5: +85±2°C	
		Current at 30 minutes	Not to exceed 1.5 CV (mA)	Phase 6: +25 ±2°C	
		ΔC/C	Within ±20 % of initial value		
	Phase 6	Equivalent Series Resistance	Not to exceed initial requirement		
		Current at 30 minutes	Not to exceed initial requirement		
Lead Strength (Ter	nsile)	No loosening nor perm	anent damage of the leads	Conforms to 8.1.2(1) 0.022 to 0.47 F: 1 kg, 10 sec. 1 F: 2.5 kg, 10 sec	
		Capacitance	Meet initial requirement	Conforms to 8.2.3	
Vibration Resistan	ce	Equivalent Series Resistance	Meet initial requirement	Frequency: 10 to 55 Hz	
		Current at 30 minutes	Meet initial requirement	Test duration: 6 hours	
Solderability		3/4 or more of the pin s	Conforms to 8.4 $230 \pm 5^{\circ}$ C 5 ± 0.5 sec. 1.6 mm from body		
0.11		Capacitance	Meet initial requirement	Conforms to 8.5	
Soldering Heat Resistance		Equivalent Series Resistance	Meet initial requirement	260 ±10°C, 10 ±1 sec. Immersion depth:	
00.0:0100		Current at 30 minutes	Meet initial requirement	1.6 mm from body	
		Capacitance	Meet initial requirement	Conforms to 9.3 Temperatuve condition:	
Temperature Cycle	e	Equivalent Series Resistance	Meet initial requirement	–40°C → Normal temperature	
		Current at 30 minutes	Meet initial requirement	→ +85°C→ Normal temperature Number of cycles : 5 cycles	
Humidity Resistance		Capacitance	Within ± 20% of initial value	Conforms to 9.5	
		Equivalent Series Resistance	Not to exceed120 % of initial requirement	40 ± 2°C, 90 to 95% RH	
		Current at 30 minutes	Not to exceed120 % of initial requirement	240 ± 8 hours	
		Capacitance change	Within ±30% of initial value	Conforms to 9.10	
High temperature I	Load	Equivalent Series Resistance	Not to exceed 200% of initial requirement	Temperature: $85 \pm 2^{\circ}$ C Series resistance: $Q_8\Omega$	
		Current at 30 minutes	Not to exceed 200% of initial requirement	Applied voltage: 5.5°VDC Time of test: 1000 hours	
			Time of toot. 1000 Hours		