

FC Series

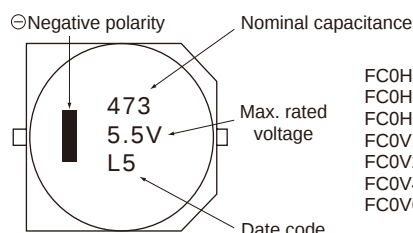
Features

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

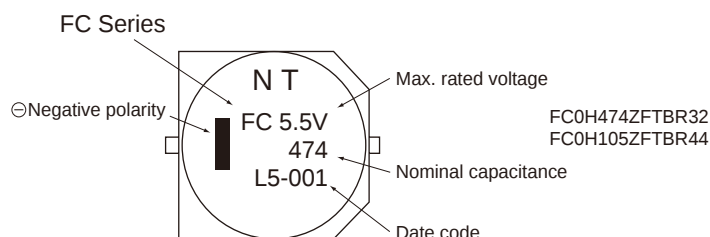
Applications

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

Markings



FC0H473ZFTBR24
FC0H104ZFTBR24
FC0H224ZFTBR24
FC0V104ZFTBR24
FC0V224ZFTBR24
FC0V474ZFTBR24
FC0V683ZFTBR16



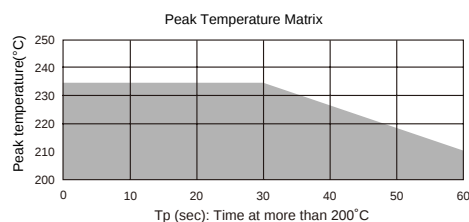
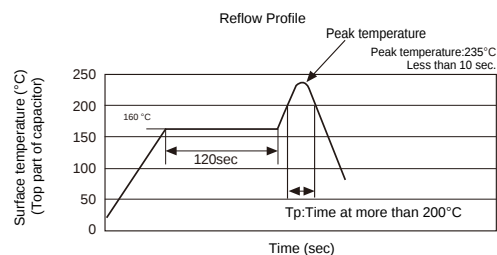
Standard Rating

Part Number	Max. Rated Voltage (Vdc)	Nominal Capacitance Discharge system (F)	Max. ESR (at 1kHz) (Ω)	Max. current at 30 minutes (mA)	Voltage Holding Characteristic Min. (V)	Dimension (Unit:mm)									Weight (g)
						D	H	A	B	I	W	P	K	L	
FC0H473ZFTBR24	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±0.3	0 ^{+0.3} _{-0.1}	1.0
FC0H104ZFTBR24	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±0.3	0 ^{+0.3} _{-0.1}	1.0
FC0H224ZFTBR24	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±0.3	0 ^{+0.3} _{-0.1}	1.4
FC0H474ZFTBR32	5.5	0.47	13	0.71	4.2	16.0	9.5	16.3	6.8±1.0	1.2	5.0	1.2±0.35	0 ^{+0.5} _{-0.1}	4.0	
FC0H105ZFTBR44	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} _{-0.1}	6.7
FC0V104ZFTBR24	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±0.3	0 ^{+0.3} _{-0.1}	1.0
FC0V224ZFTBR24	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±0.3	0 ^{+0.3} _{-0.1}	1.0
FC0V474ZFTBR24	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±0.3	0 ^{+0.3} _{-0.1}	1.4
FCH0V683ZFTBR16	3.6	0.068	40	0.062	—	6.8	3.7	6.8	6.8	2.9±0.5	0.7	2.5	0.7±0.3	0 ^{+0.3} _{-0.1}	0.3

Precautions for use

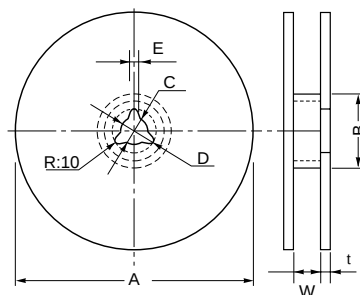
- This capacitor is exclusive use of reflow soldering.
It's designed for thermal conduction system such as infrared ray (IR) or heat blow.
For applying other methods, Please consult with us first.
- Graph at the left, "Reflow Condition" indicates the surface temperature at the top of capacitor.

- Reflow Condition



Tape and Reel Dimensions

[Reel Dimensions]

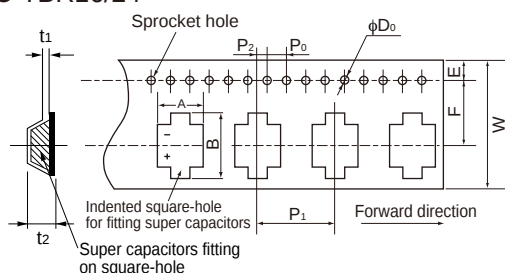


(mm)

Mark	TBR16	TBR24		TBR32	TBR44
A	380±2	380±2		330±2	370±2
B	80±1	Product height 5.5mm	80±1	100±1	100±1
		Product height 8.5mm	100±1		
C	13±0.5	13±0.5		13±0.5	13±0.5
D	21±0.8	21±0.8		21±0.8	23±0.8
E	2±0.5	2±0.5		2±0.5	2±0.5
W	17.5±1.0	25.5±0.5		33.5±0.5	45.5±0.5
t	2.0	Product height 5.5mm	3.0	2.8	2.8
		Product height 8.5mm	2.8		

Dimensions of indented [square-hole plastic tape]

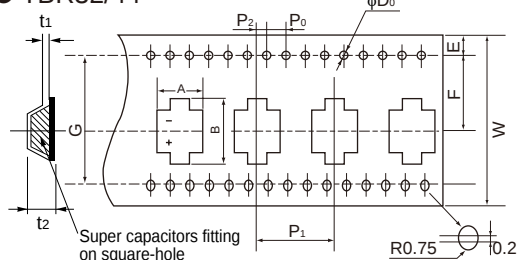
● TBR16/24



(mm)

Mark	TBR16	TBR24		TBR32	TBR44
W	16.0	24.0		32.0	44.0
A	7.2	11.4		18.0	23.0
B	9.0	13.0		20.0	25.0
P0	4.0	4.0		4.0	4.0
P1	12.0	16.0		24.0	32.0
P2	2.0	2.0		2.0	2.0
F	7.5	11.5		14.2	20.2
φD0	1.5	1.55		1.55	1.55
t1	0.4	0.4		0.5	0.5
E	1.75	1.75		1.75	1.75
t2	5.0	Product height 5.5mm	6.0	10.0	12.0
		Product height 8.5mm	8.4		
G	-	-		28.4	40.4

● TBR32/44



Number of packaged Super capacitors

Part Number	Packaging
FC0H473ZFTBR24	1000pcs./reel
FC0H104ZFTBR24	1000pcs./reel
FC0H224ZFTBR24	500pcs./reel
FC0H474ZFTBR32	200pcs./reel
FC0H105ZFTBR44	150pcs./reel
FC0V104ZFTBR24	1000pcs./reel
FC0V224ZFTBR24	1000pcs./reel
FC0V474ZFTBR24	500pcs./reel
FCH0V683ZFTBR16	1500pcs./reel

Specifications: FC Series 5.5V Type

Item		Specifications		Test Conditions conforming to JIS C 5102 ⁻¹⁹⁹⁴	
Operating Temperature Range		-25°C to +70°C			
Maximum Operating Voltage		5.5 VDC			
Nominal Capacitance Range		Refer to standard ratings		Refer to characteristics measuring method.	
Capacitance Allowance		+80%, -20%		Refer to characteristics measuring method.	
Equivalent Series Resistance		Refer to standard ratings		Refer to characteristics measuring method.	
Current (30-minutes value)		Refer to standard ratings		Refer to characteristics measuring method.	
* Surge Voltage		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 products)	
		Current (30-minute value)	Not to exceed 120% of initial requirement	Temperature: 70 ± 2°C	
		Appearance	No obvious abnormality	Charge: 30 sec. Discharge: 9 min. 30 sec. Number of cycles 1000 cycles. Charge resistance: 0.047F 300 Ω Discharge resistance: 0 Ω	
* Temperature Variation of Characteristics	Phase 2	Capacitance	50% or higher of initial value	Conforms to 7.12	
		Equivalent series resistance	4 or less times initial value	Phase 1: +25 ± 2°C	
	Phase 5	Capacitance	200% or below of initial value	Phase 2: -25 ± 2°C	
		Equivalent series resistance	Satisfy initial standard value	Phase 4: +25 ± 2°C	
		Current (30-minute value)	1.5 CV (mA) or below	Phase 5: +70 ± 2°C	
	Phase 6	Capacitance	Within ±20% of initial value	Phase 6: +25 ± 2°C	
		Equivalent series resistance	Satisfy initial standard value		
		Current (30-minute value)	Satisfy initial standard value		
* Vibration Resistance		Capacitance		Conforms to 8.2.3	
		Equivalent series resistance	Satisfy initial standard value	Frequency : 10 to 55 Hz	
		Current (30-minute value)		Test duration : 6 hours	
		Appearance	No obvious abnormality		
* Soldering Heat Resistance		Capacitance		After reflow soldering, bring the condition back to room temperature and fulfill the parameter listed left.	
		Equivalent series resistance	Satisfy initial standard value		
		Current (30-minute value)			
		Appearance	No obvious abnormality		
* Temperature Cycle		Capacitance		Conforms to 9.3	
		Equivalent series resistance	Satisfy initial standard value	Temperature condition: -25°C → normal temperature → +70°C → normal temperature	
		Current (30-minute value)		Number of cycles: 5 cycles	
		Appearance	No obvious abnormality		
* Humidity Resistance		Capacitance	Within 20% of initial value	Conforms to 9.5	
		Equivalent series resistance	1.2 or less times initial standard value	Temperature: 40 ± 2°C	
		Current (30-minute value)	1.2 or less times initial standard value	Relative humidity: 90 to 95% RH	
		Appearance	No obvious abnormality	Test duration: 240 ± 8 hours	
* High Temperature Load		Capacitance	Within 30% of initial value	Conforms to 9.10	
		Equivalent series resistance	Twice or less times initial standard value	Temperature: 70 ± 2°C	
		Current (30-minute value)	Twice or less times initial standard value	Voltage applied: 5.5 Vdc	
		Appearance	No obvious abnormality	Series protection resistance: 0 Ω	
* Voltage Holding Characteristics (Self Discharge)		Voltage between terminal leads higher than 4.2 V		Test duration: 1000 hours	
* Voltage Holding Characteristics (Self Discharge)		Voltage between terminal leads higher than 4.2 V		Charging condition	+48 0 Voltage applied: 5.0 VDC Series resistance: 0 Ω Charging time: 24hours
				Storage	Time: 24hours Temperature: Lower than 25°C

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

Specifications: FC Series 3.5V Type

Item		Specifications		Test Conditions Conforming to JIS C 5102 ⁻¹⁹⁹⁴
Operating Temperature Range		-25°C to +70°C		
Maximum Operating Voltage		3.5 VDC		
Nominal Capacitance Range		0.10 to 0.47F		Refer to characteristics measuring method.
Capacitance Allowance		+80%, -20%		Refer to characteristics measuring method.
Equivalent Series Resistance		Refer to standard ratings		Refer to characteristics measuring method.
Current (30-minutes value)		Refer to standard ratings		Refer to characteristics measuring method.
* Surge Voltage		Capacitance	More than 90% of initial requirement	Conforms to 7.14 Surge Voltage: 4.0 V(3.5V products) Temperature: 70 ± 2°C Charge: 30 sec. Discharge: 9 min. 30 sec. Number of cycles 1000 cycles. Charge resistance : 0.10F 150 Ω : 0.22F 56 Ω : 0.47F 30 Ω : 1.0F 15 Ω Discharge resistance: 0 Ω
		Equivalent series resistance	Not to exceed 120% of initial requirement	
		Current (30-minute value)	Not to exceed 120% of initial requirement	
		Appearance	No obvious abnormality	
* Temperature Variation of Characteristics	Phase 2	Capacitance	50% or higher of initial value	Conforms to 7.12 Phase 1: +25 ± 2°C Phase 2: -25 ± 2°C Phase 4: +25 ± 2°C Phase 5: +70 ± 2°C Phase 6: +25 ± 2°C
		Equivalent series resistance	4 or less times initial value	
	Phase 5	Capacitance	200% or below of initial value	
		Equivalent series resistance	Satisfy initial standard value	
		Current (30-minute value)	1.5 CV (mA) or below	
	Phase 6	Capacitance	Within ±20% of initial value	
		Equivalent series resistance	Satisfy initial standard value	
		Current (30-minute value)	Satisfy initial standard value	
* Vibration Resistance		Capacitance	Satisfy initial standard value	Conforms to 8.2.3 Frequency : 10 to 55 Hz Test duration : 6 hours
		Equivalent series resistance		
		Current (30-minute value)		
		Appearance		
* Soldering Heat Resistance		Capacitance	Satisfy initial standard value	After reflow soldering (Refer to page 5 reflow soldering guaranteed condition.) and then being stabilized at +20°C, should satisfy initial requirement.
		Equivalent series resistance		
		Current (30-minute value)		
		Appearance		
* Temperature Cycle		Capacitance	Satisfy initial standard value	Conforms to 9.3 Temperature condition: -25°C → normal temperature → +70°C → normal temperature Number of cycles: 5 cycles
		Equivalent series resistance		
		Current (30-minute value)		
		Appearance		
* Humidity Resistance		Capacitance	Within 20% of initial value	Conforms to 9.5 Temperature: 40 ± 2°C Relative humidity: 90 to 95% RH Test duration: 240 ± 8 hours
		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 obvious abnormality	
* High Temperature Load		Capacitance	Within 30% of initial value	Conforms to 9.10 Temperature: 70 ± 2°C Voltage applied: 3.5 Vdc Series protection resistance: 0 Ω Test duration: 1000 ⁺⁴⁸ ₀ hours
		Equivalent series resistance	Twice or less times initial standard value	
		Current (30-minute value)	Twice or less times initial standard value	
		Appearance	No obvious abnormality	

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