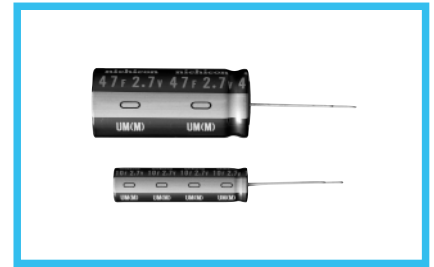
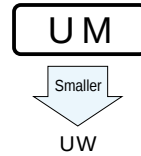


UM

Radial Lead Type, High Voltage
series

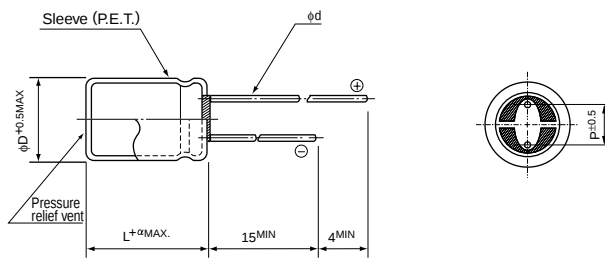
- High voltage type (2.7V).
- Suitable for quick charge and discharge.
- Wide temperature range (– 25 to +70°C).
- Compliant to the RoHS directive (2011/65/EU).



Specifications

Item	Performance Characteristics		
Category Temperature Range	– 25 to +70°C		
Rated Voltage Range	2.7V		
Rated Capacitance Range	0.47 to 47F See Note		
Capacitance Tolerance	±20% , 20°C		
Leakage Current	0.5C (mA) [C : Rated Capacitance(F)] (After 30 minutes' application of rated voltage : 2.7V)		
Stability at Low Temperature	Capacitance (– 25°C) / Capacitance (+20°C) ×100 ≥ 70%		
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 70°C.	Capacitance change	Within ±30% of the initial capacitance value
		ESR	300% or less than the initial specified value
		Leakage current	Less than or equal to the initial specified value
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 1000 hours at 70°C.	Capacitance change	Within ±30% of the initial capacitance value
		ESR	300% or less than the initial specified value
		Leakage current	Less than or equal to the initial specified value
Marking	Printed with white color letter on black sleeve.		

Drawing

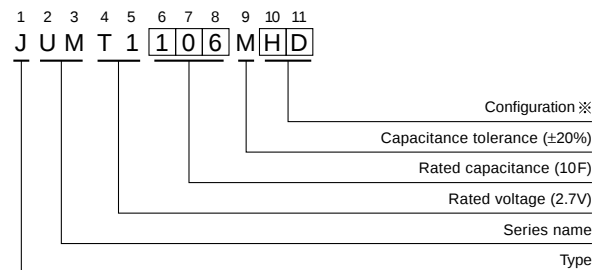


	φD	6.3	8	10	12.5	16	18
P	2.5	3.5	5.0	5.0	7.5	7.5	
φd	0.5	0.6	0.6	0.6 [※]	0.8	0.8	

※ In case L>25 for the φ12.5 dia unit, lead dia φd=0.8

α	(φD < 10) 1.5
	(φD ≥ 10) 2.0

Type numbering system (Example : 2.7V 10F)



※ Configuration

φ D	Pb-free lead finishing Pb-free PET sleeve
6.3	ED
8 · 10	PD
12.5 to 18	HD

• Please refer to page 20 for end seal configuration.

Dimensions

Rated Voltage (Code)	Rated Capacitance (F)	Code	ESR (Ω) (at 1kHz)	DCR※ Typical (Ω)	Case size φ D × L (mm)
2.7V (T1)	0.47	474	4	6	6.3 × 9
	1	105	2	3	8 × 11.5
	2.2	225	2	1.3	8 × 20
	3.3	335	1	1.0	10 × 20
	4.7	475	0.4	0.6	12.5 × 20
	10	106	0.2	0.25	12.5 × 31.5
	22	226	0.2	0.13	16 × 31.5
	33	336	0.1	0.08	18 × 31.5
	47	476	0.1	0.06	18 × 40

Note :

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minute charge with rated voltage (2.7V).

The discharge current (i) is 0.01 × rated capacitance (F).

The discharge time (ΔT) measured between 2V and 1V with constant current.

The capacitance calculated below.

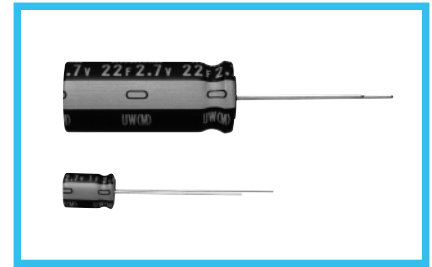
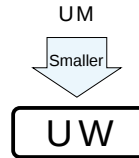
$$\text{Capacitance (F)} = i \times \Delta T$$

※ The listed DCR value is typical and therefore not a guaranteed value.

UW series

Radial Lead Type, High Voltage, Smaller-Sized

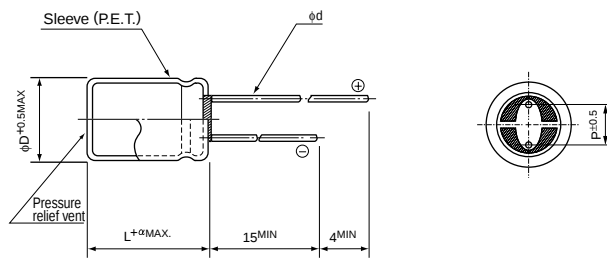
- High voltage type (2.7V).
- One rank smaller case sized than UM series.
- Wide temperature range (– 25 to +70°C).
- Compliant to the RoHS directive (2011/65/EU).



Specifications

Item	Performance Characteristics		
Category Temperature Range	– 25 to +70°C		
Rated Voltage	2.7V		
Rated Capacitance Range	1 to 82F See Note		
Capacitance Tolerance	±20% , 20°C		
Leakage Current	0.5C (mA) [C : Rated Capacitance(F)] (After 30 minutes' application of rated voltage : 2.7V)		
Stability at Low Temperature	Capacitance (– 25°C) / Capacitance (+20°C) ×100 ≥ 70%		
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 70°C.	Capacitance change	Within ±30% of the initial capacitance value
		ESR	300% or less than the initial specified value
		Leakage current	Less than or equal to the initial specified value
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 1000 hours at 70°C.	Capacitance change	Within ±30% of the initial capacitance value
		ESR	300% or less than the initial specified value
		Leakage current	Less than or equal to the initial specified value
Marking	Printed with white color letter on black sleeve.		

Drawing

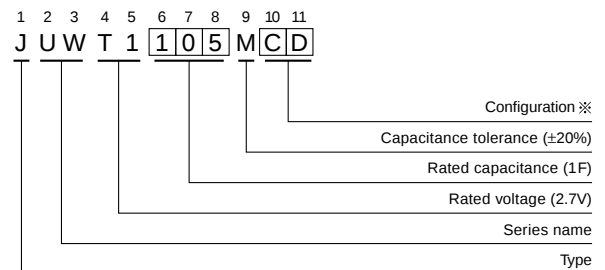


	φD	6.3	8	10	12.5	16	18
P		2.5	3.5	5.0	5.0	7.5	7.5
φd		0.5	0.6	0.6*	0.6*	0.8	0.8

* In case L>25 for the φ10 and φ12.5 dia unit, lead dia φd=0.8

α	(φD < 10) 1.5
	(φD ≥ 10) 2.0

Type numbering system (Example : 2.7V 1F)



※ Configuration

φ D	Pb-free lead finishing Pb-free PET sleeve
6.3	CD
8 · 10	PD
12.5 to 18	HD

Dimensions

Rated Voltage (Code)	Rated Capacitance (F)	Code	ESR (Ω) (at 1kHz)	DCR※ Typical (Ω)	Case size φ D × L (mm)
2.7V (T1)	1	105	4	4	6.3 × 9
	1.5	155	3	2.5	8 × 11.5
	2.7	275	2	1.2	8 × 20
	4.7	475	1	0.8	10 × 20
	6.8	685	0.8	0.7	12.5 × 20
	12	126	0.4	0.6	10 × 31.5
	22	226	0.3	0.4	12.5 × 31.5
	33	336	0.2	0.28	16 × 31.5
	47	476	0.2	0.22	18 × 31.5
	82	826	0.1	0.13	18 × 40

※ The listed DCR value is typical and therefore not a guaranteed value.

Note :

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minute charge with rated voltage (2.7V).

The discharge current (i) is 0.01 × rated capacitance (F).

The discharge time (ΔT) measured between 2V and 1V with constant current.

The capacitance calculated below.

$$\text{Capacitance (F)} = i \times \Delta T$$

UK

Radial Lead Type, Lower Resistance

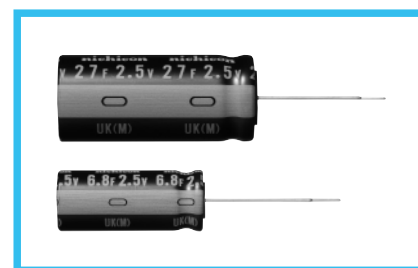
series

- Lower resistance type of UM series.
- Suited for Smart Meters.
- Lower temperature range (– 40 to +70°C).
- Adapted to the RoHS directive (2011/65/EU).

UM

Lower
resistance

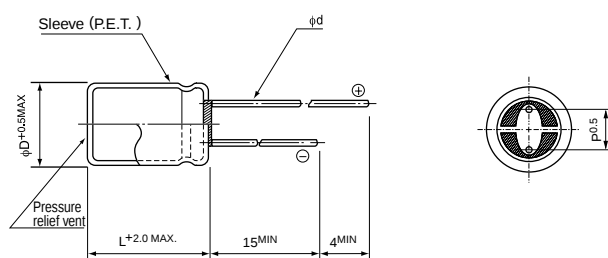
UK



Specifications

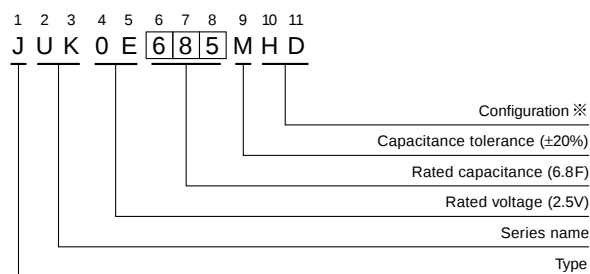
Item	Performance Characteristics		
Category Temperature Range	− 40 to +70°C		
Rated Voltage	2.5V		
Rated Capacitance Range	6.8 to 27F See Note		
Capacitance Tolerance	±20% , 20°C		
Leakage Current	0.5C (mA) [C : Rated Capacitance(F)] (After 30 minutes' application of rated voltage : 2.5V)		
Stability at Low Temperature	Capacitance (− 40°C) / Capacitance (+20°C) ×100 ≥ 70%		
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 70°C.	Capacitance change	Within ±30% of the initial capacitance value
		ESR	300% or less than the initial specified value
		Leakage current	Less than or equal to the initial specified value
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 1000 hours at 70°C.	Capacitance change	Within ±30% of the initial capacitance value
		ESR	300% or less than the initial specified value
		Leakage current	Less than or equal to the initial specified value
Marking	Printed with white color letter on black sleeve.		

Drawing



	(mm)		
φD	12.5	16	18
P	5.0	7.5	7.5
φd	0.8	0.8	0.8

Type numbering system (Example : 2.5V 6.8F)



※ Configuration

φ D	Pb-free lead finishing Pb-free PET sleeve
12.5 to 18	HD

- Please refer to page 20 about the end seal configuration.

Dimensions

Rated Voltage (Code)	Rated Capacitance (F)	Code	ESR (Ω) (at 1kHz)	DCR※ Typical (Ω)	Case size φ D × L (mm)
2.5V (0E)	6.8	685	0.075	0.085	12.5 × 31.5
	12	126	0.060	0.065	16 × 31.5
	18	186	0.055	0.055	18 × 31.5
	27	276	0.040	0.035	18 × 40

Note :

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minute charge with rated voltage (2.5V).

The discharge current (i) is 0.01 × rated capacitance (F).

The discharge time (ΔT) measured between 2V and 1V with constant current.

The capacitance calculated below.

$$\text{Capacitance (F)} = i \times \Delta T$$

※ The listed DCR value is typical and therefore not a guaranteed value.

JC

Snap-in Terminal Type

series

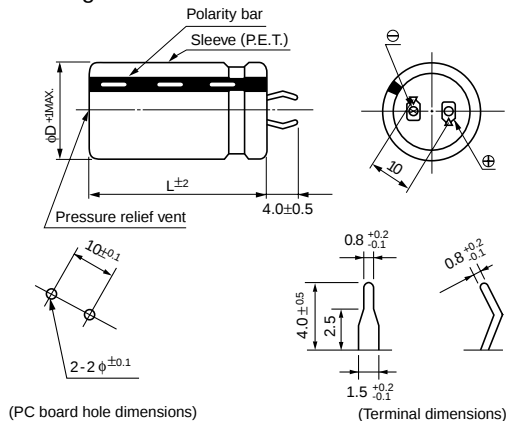
- Excellent in voltage holding property.
- Suitable for quick charge and discharge.
- Wide temperature range (−25°C to +60°C).
- Compliant to the RoHS directive (2011/65/EU).



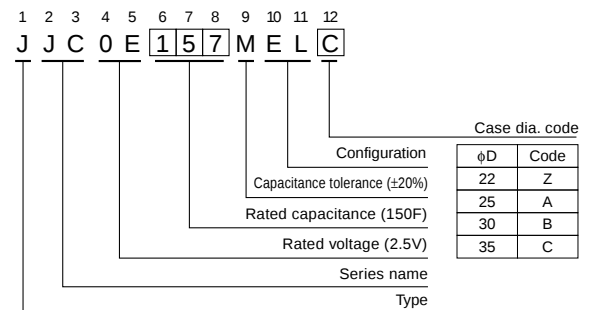
■ Specifications

Item	Performance Characteristics	
Category Temperature Range	−25 to +60°C	
Rated Voltage Range	2.5V	
Rated Capacitance Range	15 to 200F See Note	
Capacitance Tolerance	±20% (20°C)	
Leakage Current	0.5C (mA) [C : Rated Capacitance(F)] (After 30 minutes' application of rated voltage : 2.5V)	
Stability at Low Temperature	Capacitance (−25°C) / Capacitance (+20°C) ×100 ≥ 70%	
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance	
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 60°C.	Capacitance change
		Within ±30% of the initial capacitance value
		ESR
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 2000 hours at 60°C.	300% or less than the initial specified value
		Leakage current
		Less than or equal to the initial specified value
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 2000 hours at 60°C.	Capacitance change
		Within ±30% of the initial capacitance value
		ESR
Marking	Printed with white color letter on black sleeve.	300% or less than the initial specified value
		Leakage current
		Less than or equal to the initial specified value

■ Drawing



Type numbering system (Example : 2.5V 150F)



■ Dimensions

Rated Voltage (code)	Cap. (F)	Cap. code	ESR(mΩ) (at 1kHz)	DCR* Typical (mΩ)	Case size φD×L (mm)			
					φ 22 (Z)	φ 25 (A)	φ 30 (B)	φ 35 (C)
2.5V (0E)	15	156	120	160	22×20			
	18	186	120	140		25×20		
	22	226	90	130			30×20	
	27	276	90	110	22×30		30×20	
	33	336	80	90		25×30		35×20
	39	396	80	80	22×35	25×30		35×20
	47	476	70	60	22×40	25×35		
	56	566	70	50		25×40	30×30	
	68	686	60	45				35×30
	82	826	60	35		25×50	30×40	
	100	107	50	30				35×35
	120	127	50	25			30×50	35×40
	150	157	40	22				35×50
	200	207	30	16				35×50

Note :

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minute charge with rated voltage (2.5V).

The discharge current (i) is 0.01 × rated capacitance (F). The discharge time (ΔT) measured between 2V and 1V with constant current.

The capacitance calculated bellow.

$$\text{Capacitance (F)} = i \times \Delta T$$

* The listed DCR value is typical and therefore not a guaranteed value.

JD

Screw Terminal Type, High Energy Density Type

series

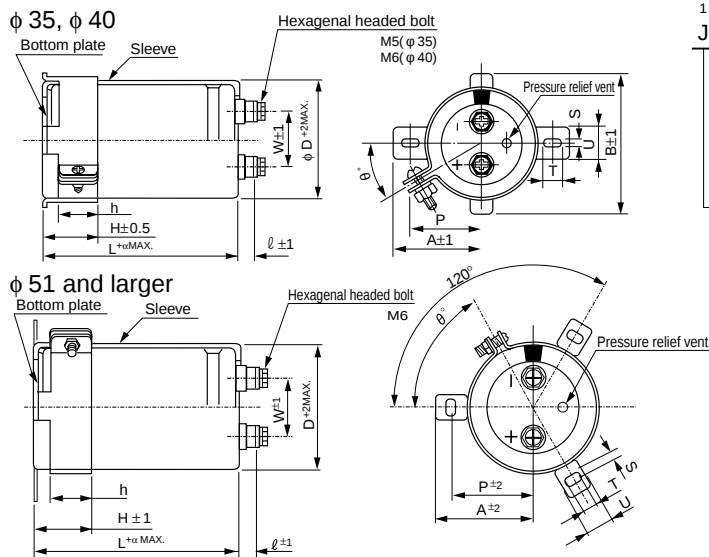
- High energy density.
- Suitable for electric power storage.
- Compliant to the RoHS directive (2011/65/EU).



■ Specifications

Item	Performance Characteristics		
Category Temperature Range	− 25 to + 60°C		
Rated Voltage Range	2.5V		
Rated Capacitance Range	600 to 6000F See Note		
Capacitance Tolerance	±20% (20°C)		
Leakage Current	0.5C (mA) [C : Rated Capacitance (F)] (After 30 minutes' application of rated voltage : 2.5V)		
Stability at Temperature	Capacitance (− 25°C) /Capacitance (+20°C) ×100 ≧ 70% DCR(−25°C) / DCR (+20°C) ≦ 7		
DCR*	Refer to the table below. (20°C) *DC internal resistance		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 60°C.	Capacitance change	Within ±30% of the initial capacitance value
		DCR	300% or less than the initial value
		Leakage current	Less than or equal to the initial specified value
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 2000 hours at 60°C.	Capacitance change	Within ±30% of the initial capacitance value
		DCR	300% or less than the initial value
		Leakage current	Less than or equal to the initial specified value
Marking	Printed with white color letter on black sleeve.		

■ Drawing



Type numbering system (Example : 2.5V 600F)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
J	J	D	0	E	6	0	7	M	S	E	C		

Case dia. code (φ35) (φ35, φ40)

Configuration ※

φD	Code
35	C
40	D
51	F
63.5	G
76.2	H

Capacitance tolerance (±20%)
Rated capacitance (600F)
Rated voltage (2.5V)
Series name
Type

Mounting bracket

Code less	2-leg brackets
BN	No brackets

(φ51, φ63.5, φ76.2)

Code less	3-leg brackets
BB	2-leg brackets
BN	No bracket

※ Configuration
Cr (III) Plating (RoHS compliant)
SE

■ Dimensions

Rated Voltage (Code)	Cap. (F)	Cap. code	DCR ※ Typical (mΩ)	Case size		Ref. Weight (g)
				φ (mm)	L (mm)	
2.5V (0E)	600	607	13.5	35	85	130
	800	807	10.0		105	160
	950	957	8.5		135	210
	1000	108	8.0	40	105	210
	1300	138	6.0		135	250
	2300	238	4.0		135	450
	2500	258	3.5	51	142	500
	4000	408	2.2		150	800
	6000	608	2.2		165	1300

※ The listed DCR value is typical and therefore not a guaranteed value.

● Dimensions of terminal pitch(W) and length(ℓ) and Normal dia. of bolt (mm)

φ D	W	ℓ	α	Nominal of bolt
35	12.7	6	3	M5
40	18.8	9	3	M6
51	26.0	10	3	M6
63.5	28.6	10	3	M6
76.2	31.8	6	3	M6

● Dimensions of mounting bracket (mm)

Symbol	3-Legs				2-Legs			
	51	63.5	76.2	35	40	51	63.5	76.2
P	32.5	38.1	44.5	24	27	33.2	40.5	46.5
A	38.5	43	49.2	29	32	40	46.5	53
B	—	—	—	45	48	—	—	—
T	7.5	8.0	7.0	7.0	7.0	6.0	7.0	6.0
S	5.0	5.0	5.0	3.5	3.5	4.5	4.5	4.5
U	12	14	14	10	10	14	14	14
θ°	60	60	60	30	45	30	30	30
H	20	25	30	15	17	25	35	35
h	15	20	24	10	12	15	20	20

Note :

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minute charge with rated voltage (2.5V).

The discharge current (i) is 0.01 × rated capacitance (F).

The discharge time (ΔT) measured between 2V and 1V with constant current.

The capacitance calculated below.

$$\text{Capacitance (F)} = i \times \Delta T$$

CAT.8100C

JL series

Screw Terminal Type, High Power Density Type

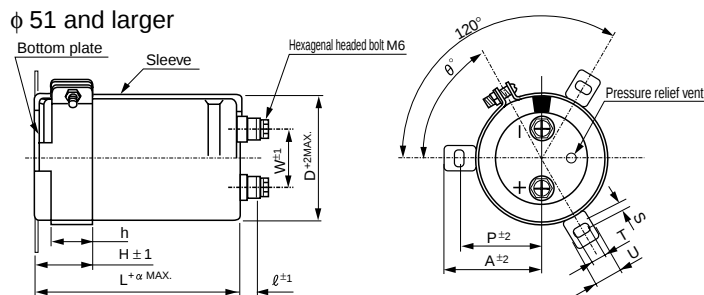
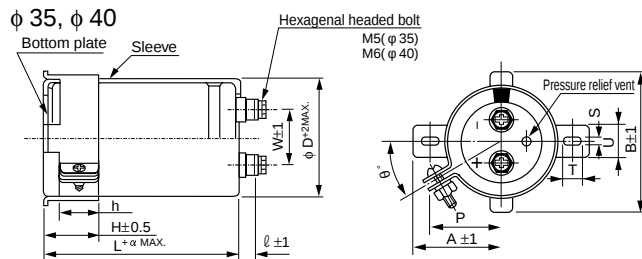
- High power density.
- Rapid charge-discharge.
- Suitable for regeneration and UPS applications.
- Compliant to the RoHS directive (2011/65/EU).



Specifications

Item	Performance Characteristics		
Category Temperature Range	- 25 to + 60°C		
Rated Voltage Range	2.5V		
Rated Capacitance Range	400 to 2600F See Note		
Capacitance Tolerance	± 20% (20°C)		
Leakage Current	0.5C (mA) [C : Rated Capacitance (F)] (After 30 minutes' application of rated voltage : 2.5V)		
Stability at Low Temperature	Capacitance (- 25°C) / Capacitance (+20°C) ×100 ≥ 70% DCR (-25°C) / DCR (+20°C) ≤ 7		
DCR*	Refer to the table below. (20°C) *DC internal resistance		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 60°C.	Capacitance change	Within ±30% of the initial capacitance value
		DCR	300% or less than the initial value
		Leakage current	Less than or equal to the initial specified value
Shelf Life	The specifications listed at right shall be met when the capacitors are restored to 20°C after storing the capacitors under no load for 2000 hours at 60°C.	Capacitance change	Within ±30% of the initial capacitance value
		DCR	300% or less than the initial value
		Leakage current	Less than or equal to the initial specified value
Marking	Printed with white color letter on black sleeve.		

Drawing



Type numbering system (Example : 2.5V 650F)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
J	J	L	0	E	6	5	7	M	S	E	C		
Case dia. code(φ35) Configuration ※ Capacitance tolerance (±20%) Rated capacitance (650F) Rated voltage (2.5V) Series name Type													
※ Configuration Cr (III) Plating (RoHS compliant) SE													
Mounting bracket φD Code Code less 2-leg brackets φ35, φ40 BN No brackets φ51, φ63.5 Code less 3-leg brackets BB 2-leg brackets BN No bracket													

Dimensions

Rated Voltage (Code)	Cap. (F)	Cap. code	DCR ※ Typical (mΩ)	Case size φD × L (mm)		Ref. Weight (g)
				φ D	L	
2.5V (0E)	400	407	6.0	35	85	130
	550	557	4.0		105	160
	650	657	3.5		135	210
	700	707	3.5	40	105	210
	850	857	2.5		135	250
	1500	158	1.8	51	135	450
	1700	178	1.7		142	500
	2600	268	1.3	63.5	150	800

※ The listed DCR value is typical and therefore not a guaranteed value.

Dimensions of terminal pitch(W) and length (ℓ) and Normal dia. of bolt (mm)

φ D	W	ℓ	α	Nominal of bolt
35	12.7	6	3	M5
40	18.8	9	3	M6
51	26.0	10	3	M6
63.5	28.6	10	3	M6

Dimensions of mounting bracket

(mm)

Leg shape	3-Legs			2-Legs		
	51	63.5	35	40	51	63.5
P	32.5	38.1	24	27	33.2	40.5
A	38.5	43	29	32	40	46.5
B	—	—	45	48	—	—
T	7.5	8.0	7.0	7.0	6.0	7.0
S	5.0	5.0	3.5	3.5	4.5	4.5
U	12	14	10	10	14	14
θ°	60	60	30	45	30	30
H	20	25	15	17	25	35
h	15	20	10	12	15	20

Note :

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minute charge with rated voltage (2.5V).

The discharge current (i) is 0.01 × rated capacitance (F).

The discharge time (ΔT) measured between 2V and 1V with constant current.

The capacitance calculated bellow.

$$\text{Capacitance (F)} = i \times \Delta T$$

CAT.8100C