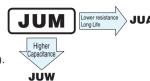


Radial Lead Type, Standard

- Standard type (2.7V).
- Suitable for quick charge and discharge.
- Wide temperature range (- 25 to +70°C).
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

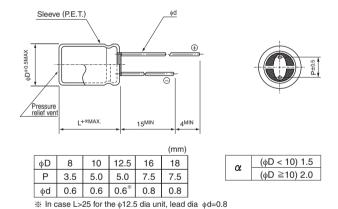




Specifications

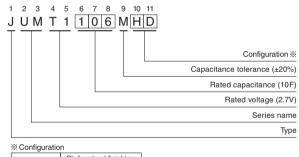
Item	Performa	Performance Characteristics				
Category Temperature Range	− 25 to +70°C					
Rated Voltage Range	2.7V					
Rated Capacitance Range	1 to 47F See Note					
Capacitance Tolerance	±20%, 20°C					
Stability at Low Temperature	Capacitance (- 25°C) / Capacitance (+20°C) ×100 ≥ 70% ESI	R (- 25°C) / ESR (+20°C)	1 ≤ 4			
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 ESR	Within ±30% of the initial capacitance value 300% or less than 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 ESR	Within ±30% of the initial capacitance value 300% or less than the initial specified value			
Humidity Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 500 hours at 40°C 90%RH.	Capacitance change ESR	Within ±30% of the initial capacitance value 300% or less than the initial specified value			
Marking	Printed with white color letter on black sleeve.					

Drawing



• Please refer to page 18 for end seal configuration.

Type numbering system (Example: 2.7V 10F)



φ D Pb-free lead finishing Pb-free PET sleeve 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)
	1	105	1.8	3	8 × 11.5
	2.2	225	1.0	1.3	8 × 20
	3.3	335	0.6	1.0	10 × 20
2.7V	4.7	475	0.4	0.6	12.5 × 20
(T1)	10	106	0.2	0.25	12.5 × 31.5
	22	226	0.07	0.13	16 × 31.5
	33	336	0.06	0.08	18 × 31.5
	47	476	0.05	0.06	18 × 40

Note:

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minuite 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 bellow.

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



Radial Lead Type, High Capacitance

- High Capacitance type (2.7V).
- Higher capacitance than JUM.
- Wide temperature range (- 25 to +70°C).
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

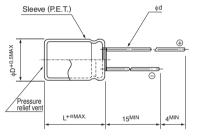




■ Specifications

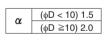
Item	Performance Characteristics						
Category Temperature Range	- 25 to +70°C	- 25 to +70°C					
Rated Voltage	2.7V						
Rated Capacitance Range	1 to 82F See Note						
Capacitance Tolerance	±20%, 20°C						
Stability at Low Temperature	Capacitance (- 25°C) / Capacitance (+20°C) ×100 ≥ 70% ESF	R (- 25°C) / ESR (+20°C)) ≤4				
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance						
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value				
Endurance	are restored to 20°C after the rated voltage is applied for 1000 hours	ESR	300% or less than the initial specified value				
	at 70°C.						
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value				
Shelf Life	are restored to 20°C after storing the capacitors under no load	ESR	300% or less than the initial specified value				
	for 1000 hours at 70°C.						
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value				
Humidity Endurance	are restored to 20°C after the rated voltage is applied for 500 hours	ESR	300% or less than the initial specified value				
	at 40°C 90%RH.						
Marking	Printed with white color letter on black sleeve.						

Drawing



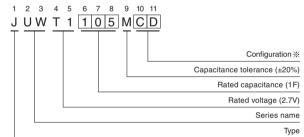


						(mm)
φD	6.3	8	10	12.5	16	18
Р	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.6	0.6*	0.6*	0.8	0.8



- Please refer to page 18 about the end seal configuration.

Type numbering system (Example: 2.7V 1F)



* Configuration

Cornigulatio	A Configuration				
φD	Pb-free lead finishing Pb-free PET sleeve				
6.3	CD				
8 • 10	PD				
12.5 to 18	HD				

Dimensions

Differsions							
Rated Voltage (Code)	Rated Capacitance (F)	Code	ESR (Ω) (at 1kHz)	DCR* Typical (Ω)	Case size φ D × L (mm)		
	1.0	105	1.8	4	6.3 × 9		
	1.5	155	1.2	2.5	8 × 11.5		
	2.7	275	0.6	1.2	8 × 20		
	3.3	335	0.5	1.1	10 × 12.5		
2.7V	4.7	475	0.4	0.8	10 × 20		
(T1)	6.8	685	0.3	0.7	12.5 × 20		
(11)	12	126	0.3	0.6	10 × 31.5		
	22	226	0.2	0.4	12.5 × 31.5		
	33 336 0.12		0.12	0.28	16 × 31.5		
	47	476	0.1	0.22	18 × 31.5		
	82	826	0.06	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 30minuite charge with rated voltage (2.7V).

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

The discharge time ($\Delta T)$ measured between 2V and 1V with constant current.

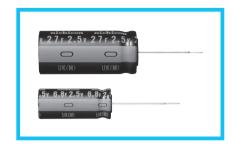
The capacitance calculated bellow.



Radial Lead Type, Lower Resistance

- Lower resistance type of JUM.
- Suited for Smart Meters.
- Lower temperature range (− 40 to +70°C).
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

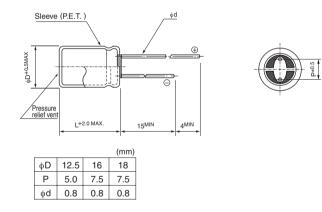




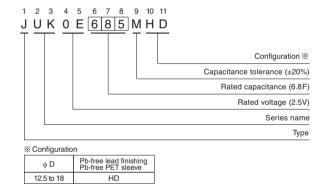
■ Specifications

Item	Performa	Performance Characteristics				
Category Temperature Range	- 40 to +70°C					
Rated Voltage	2.5V					
Rated Capacitance	6.8 to 27F See Note					
Capacitance Tolerance	±20%, 20°C					
Stability at Low Temperature	Capacitance (-40°C) / Capacitance (+20°C) ×100 ≥ 70% ESI	R (- 40°C) / ESR (+20°C)) ≦7			
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Endurance	are restored to 20°C after the rated voltage is applied for 1000 hours	ESR	300% or less than the initial specified value			
	at 70°C.					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Shelf Life	are restored to 20°C after storing the capacitors under no load	ESR	300% or less than the initial specified value			
	for 1000 hours at 70°C.					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Humidity Endurance	are restored to 20°C after the rated voltage is applied for 500 hours	ESR	300% or less than the initial specified value			
	at 40°C 90%RH.					
Marking	Printed with white color letter on black sleeve.					

Drawing



Type numbering system (Example : 2.5V 6.8F)



• Please refer to page 18 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)
	6.8	685	0.075	0.085	12.5 × 31.5
2.5V	12	126	0.060	0.065	16 × 31.5
(0E)	18	186	0.055	0.055	18 × 31.5
	27	276	0.040	0.035	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 30minuite charge with rated voltage (2.5V).

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

The discharge time ($\Delta T)$ measured between 2V and 1V with constant current.

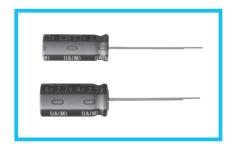
The capacitance calculated bellow.



Radial Lead Type, Lower Resistance, Long Life

- Lower resistance and long life type of JUM.
- Lower temperature range (- 40 to +70°C).
- Load life of 2000hours at 70°C.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

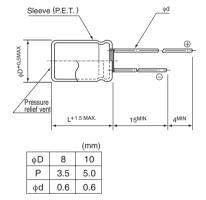




■ Specifications

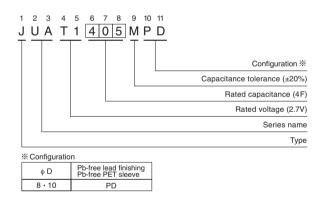
Item	Performance Characteristics					
Category Temperature Range	- 40 to +70°C					
Rated Voltage	2.7V					
Rated Capacitance	2.5 to 4.7F See Note					
Capacitance Tolerance	±20%, 20°C					
Stability at Low Temperature	Capacitance (-40°C) / Capacitance (+20°C) ×100 ≥ 70% ESI	R (- 40°C) / ESR (+20°C)) ≦7			
ESR	Refer to the table below (20°C).					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Endurance	are restored to 20°C after the rated voltage is applied for 2000 hours	ESR	400% or less than the initial specified value			
	at 70°C.					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Shelf Life	are restored to 20°C after storing the capacitors under no load	ESR	400% or less than the initial specified value			
	for 1000 hours at 70°C.					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Humidity Endurance	are restored to 20°C after the rated voltage is applied for 500 hours	ESR	300% or less than the initial specified value			
	at 40°C 90%RH.					
Marking	Printed with white color letter on black sleeve.					

Drawing





Type numbering system (Example: 2.7V 4F)



Dimensions

Rated Voltage (Code)	Rated Capacitance (F)	Code	ESR (Ω) (at 1kHz)	DCR※ Typical(Ω)	Case size φ D × L (mm)
2.7V	2.5	255	0.15	0.15	8 × 20
(T1)	4	405	0.10	0.10	10 × 20
(11)	4.7	475	0.15	0.13	10 × 20

^{*} 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 30minuite 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 bellow.



Snap-in Terminal Type

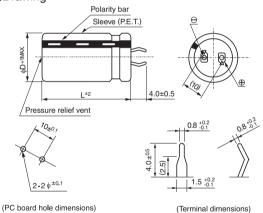
- Excellent in voltage holding property.
- Suitable for quick charge and discharge.
- Wide temperature range (- 25°C to + 60°C).
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).



■ Specifications

Item	Performance Characteristics					
Category Temperature Range	- 25 to +60°C					
Rated Voltage Range	2.5V					
Rated Capacitance Range	56 to 200F See Note					
Capacitance Tolerance	±20% (20°C)					
Stability at Low Temperature	Capacitance (- 25°C) / Capacitance (+20°C) ×100 ≥ 70% ESI	R (- 25°C) / ESR (+20°C)) ≦ 7			
ESR, DCR*	Refer to the table below (20°C). *DC internal resistance					
	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	Capacitance change	Within ±30% of the initial capacitance value			
Endurance		ESR	300% or less than the initial specified value			
	at 60°C.					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Shelf Life	are restored to 20°C after storing the capacitors under no load	ESR	300% or less than the initial specified value			
	for 2000 hours at 60°C.					
	The specifications listed at right shall be met when the capacitors	Capacitance change	Within ±30% of the initial capacitance value			
Humidity Endurance	are restored to 20°C after the rated voltage is applied for 500 hours	ESR	300% or less than the initial specified value			
	at 40°C 90%RH.					
Marking	Printed with white color letter on black sleeve.					

Drawing

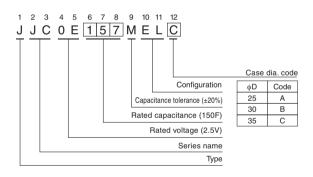


■ Dimensions

Rated Voltage	Cap.		o. ESR(mΩ) DO		Cas	Case size		
(code)	Cap.	code	(at 1kHz)	Typical (mΩ)	φ 25 (A)	φ30 (B)	ф 35 (C)	
	56	566	70	50	25 × 40	30×30		
	68	686	60	45			35×30	
2.5V	82	826	60	35	25×50	30×40		
(0E)	100	107	50	30			35×35	
(02)	120	127	50	25		30×50	35×40	
	150	157	40	22			35×50	
	200	207	30	16			35 × 50	

 $\ensuremath{\mathtt{\#}}$ The listed DCR value is typical and therefore not a guaranteed value.

Type numbering system (Example: 2.5V 150F)



Note:

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minuite 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.



Screw Terminal Type, High Energy Density Type

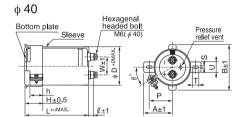
- High energy density.
- Suitable for electric power storage.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

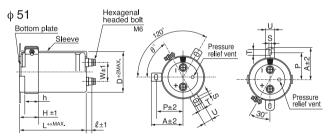


■ Specifications

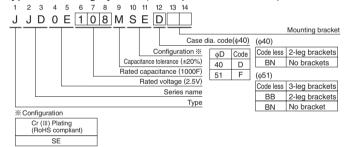
Item	Performance Characteristics					
Category Temperature Range	− 25 to +60°C					
Rated Voltage Range	2.5V					
Rated Capacitance Range	1000 to 2500F See Note					
Capacitance Tolerance	±20%, 20°C					
Stability at Temperature	Capacitance (- 25°C) / Capacitance (+20°C) ×100 ≥ 70% DC	R (- 25°C) / DCR(+20°C)	ı ≦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.					
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 DCR	Within ±30% of the initial capacitance value 300% or less than the initial specified value			
Humidity Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 500 hours at 40°C 90%RH.	Capacitance change DCR	Within ±30% of the initial capacitance value 300% or less than the initial specified value			
Marking	Printed with white color letter on black sleeve.					

Drawing





Type numbering system (Example: 2.5V 1000F)



Note:

The capacitance calculated from discharge time (ΔT) with constant current (i) after 30minuite 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 believe

The capacitance calculated bellow. Capacitance (F) = $i \times \Delta T$

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

φD	W	l	α	Nominal of bolt
40	18.8	9	3	M6
51	26.0	10	3	M6

Dimensions

Rated Voltage	Сар.	Cap. DCR*		Case size		Ref. Weight
(Code)	(F)	code	Typical (mΩ)	φ (mm)	L (mm)	(g)
	1000	108	8.0	40	105	210
2.5V	1300	138	6.0	51	135	250
(0E)	2300	238	4.0		135	450
	2500	258	3.5		142	500

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

• Dimensions of mounting bracket (mm)

Leg shape	3-Legs	2-Legs					
Symbol ϕD	51	40	51				
Р	32.5	27	33.2				
Α	38.5	32	40				
В	-	48	-				
Т	7.5	7.0	6.0				
S	5.0	3.5	4.5				
U	12	10	14				
θ°	60	45	30				
Н	20	17	25				
h	15	12	15				

Note)The brackets will be supplied in the separate box.



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,(EU)2015/863).

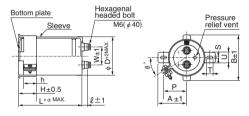


■ Specifications

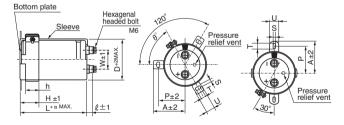
Item	Performance Characteristics					
Category Temperature Range	− 25 to +60°C					
Rated Voltage Range	2.5V					
Rated Capacitance Range	700 to 2000F See Note					
Capacitance Tolerance	±20%(20°C)					
Stability at Low Temperature	Capacitance (- 25°C) / Capacitance (+20°C) ×100 ≥ 70% DC	R (– 25°C) / 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 DCR	Within ±30% of the initial capacitance value 300% or less than 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 DCR	Within ±30% of the initial capacitance value 300% or less than the initial specified value			
Humidity Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 500 hours at 40°C 90%RH.	Capacitance change DCR	Within ±30% of the initial capacitance value 300% or less than the initial specified value			
Marking	Printed with white color letter on black sleeve.					

Drawing

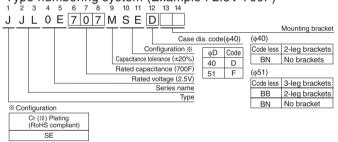
φ 40



φ51



Type numbering system (Example : 2.5V 700F) 1 2 3 4 5 6 7 8 9 10 11 12 13 14



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

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

The capacitance calculated bellow.

Capacitance (F) = $i \times \Delta T$

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

		. ,	0 (-,		,
φD	W	l	α	Nominal of bolt	
40	18.8	9	3	M6	
51	26.0	10	3	M6	

Dimensions

Rated Voltage	Cap.	Cap.	DCR* Typical (mΩ)	Case size φD×L (mm)		Ref. Weight
(Code)	(F)			φD	L	(g)
	700	707	3.5		105	210
2.5V	1000	108	2.5	51	142	250
(0E)	1200	128	2.2		167	300
(UL)	1100	118	2.8		105	380
	1700	178	1.7		142	500
	2000	208	1.5		167	600

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

Dimensions of mounting bracket (mm)

- Birrioriolorio di friddittirig bracket							
Leg shape	3-Legs	2-Legs					
Symbol ϕD	51	40	51				
Р	32.5	27	33.2				
Α	38.5	32	40				
В	-	48	_				
Т	7.5	7.0	6.0				
S	5.0	3.5	4.5				
U	12	10	14				
θ°	60	45	30				
Н	20	17	25				
h	15	12	15				

Note)The brackets will be supplied in the separate box.