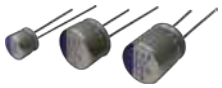
Radial lead type SEP Series



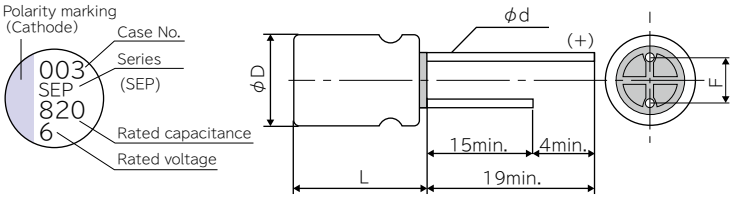
RoHS directive/Halogen-free compliant
Standard of Radial Lead Type
Endurance: 105℃ 3,000h

Specifications

Items	Condition		Specifications					
Rated voltage (V)	–		2.5	4.0	6.3	10	16	20
Surge voltage (V)	Room temperature		3.3	5.2	8.2	12	18	23
Category temperature range (℃)	–		−55 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		Please see the attached characteristics list					
Leakage current※1	Rated voltage applied, after 2 minutes		Please see the attached characteristics list					
Equivalent series resistance (ESR)	100kHz to 300kHz/20℃		Please see the attached characteristics list					
Characteristics of impedance ratio at high temp. and low temp.	Based the value at 100kHz, +20℃	−55℃ Z/Z20℃	0.75 to 1.25					
		+105℃ Z/Z20℃	0.75 to 1.25					
Endurance	105℃, 3,000h, Rated voltage applied (2.5V → 2,000h)	ΔC/C	Within ±20% of the initial value					
		DF	Within 1.5 times of the initial limit					
		ESR	Within 1.5 times of the initial limit					
		LC	Within the initial limit					
Damp heat(Steady state)	60℃, 90 to 95%RH, 1,000h, No-applied voltage	ΔC/C	Within ±20% of the initial value					
		DF	Within 1.5 times of the initial limit					
		ESR	Within 1.5 times of the initial limit					
		LC	Within the initial limit (after voltage processing)					
Resistance to soldering heat※2	Flow method (260±5℃ X 10s)	ΔC/C	Within ±5% of the initial value					
		DF	Within the initial limit					
		ESR	Within the initial limit					
		LC	Within the initial limit (after voltage processing)					

※1 In case of some problems for measured values, measure after applying rated voltage.
※2 Please refer to page 25 for flow soldering conditions.

Marking and dimensions



(unit : mm)

Size code	φD ±0.5	L max	F	φd ±0.05
C6	6.3	6.0	2.5±0.5	0.45
E7	8.0	7.0	3.5±0.5	0.45
F8	10.0	8.0	5.0±0.5	0.50
E12	8.0	12.0	3.5±0.5	0.60
F13	10.0	13.0	5.0±0.5	0.60

Size list

RV : Rated voltage

μF \ RV	2.5	4.0	6.3	10	16	20
22						C6
33						E7
39					C6	
47						E7
56				C6		F8
68						F8
82			C6		E7	
100		C6				F8、E12
120				E7		
150		C6	E7		F8	F13
180					E12	
220		E7				
270				F8		
330		E7	F8	E12	F13	
470		F8	E12			
560		E12		F13		
680	E12	F8				
820			F13			
1,200		F13				
1,500	F13					

SEP series characteristics list

Size code	Part number	Rated voltage (V)	Rated capacitance (μF)	ESR(mΩ) (max) 100kHz to 300kHz/20℃	Rated ripple current 100kHz (mArms) at 105℃	DF (% max)	Leakage current (μA) (max) After 2 minutes
C6	20SEP22M	20	22	60	1450	10	220
	16SEP39M	16	39	50	1620	10	312
	10SEP56M	10	56	45	1700	12	280
	6SEP82M	6.3	82	45	1700	12	258
	4SEP100M	4.0	100	40	1810	12	200
	4SEP150M	4.0	150	40	1810	12	300
E7	20SEP33M	20	33	45	1890	12	330
	20SEP47M	20	47	45	1890	12	470
	16SEP82M	16	82	40	2120	12	656
	10SEP120M	10	120	35	2560	12	600
	6SEP150M	6.3	150	35	2560	12	472
	4SEP220M	4.0	220	35	2560	12	440
	4SEP330M	4.0	330	35	2560	12	660
F8	20SEP56M	20	56	40	2400	12	224
	20SEP68M	20	68	40	2400	12	272
	20SEP100MX	20	100	35	2570	12	400
	16SEP150M	16	150	30	3020	12	480
	10SEP270M	10	270	25	3700	12	540
	6SEP330M	6.3	330	25	3700	12	416
	4SEP470M	4.0	470	25	3700	12	376
	4SEP680M	4.0	680	25	3700	12	544
E12	20SEP100M	20	100	24	3320	15	400
	16SEP180M	16	180	20	3640	15	576
	10SEP330M	10	330	17	3950	15	660
	6SEP470M	6.3	470	15	4210	15	592
	4SEP560M	4.0	560	13	4520	15	448
	2R5SEP680M	2.5	680	13	4520	15	340
F13	20SEP150M	20	150	20	4320	15	600
	16SEP330M	16	330	16	4720	15	792
	10SEP560M	10	560	13	5230	15	840
	6SEP820M	6.3	820	12	5440	15	775
	4SEP1200M	4.0	1200	12	5440	18	960
	2R5SEP1500M	2.5	1500	12	5440	18	750

※1 Tx : Ambient temperature

Frequency coefficient for ripple current

Frequency	120Hz≦ f <1kHz	1kHz≦ f <10kHz	10kHz≦ f <100kHz	100kHz≦ f ≦500kHz
Coefficient	0.05	0.3	0.7	1