# Panasonic Conductive Polymer Aluminum Solid Capacitors

## **Radial Lead Type**

**OS**-CON



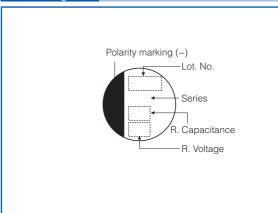
Series: SEP

#### **Features**

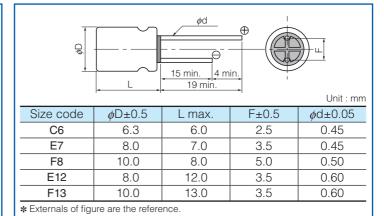
- Standard
- 105 °C 3000 h
- RoHS compliance, Halogen free

Specifications							
Size code	C6	E7	F8	E12	F13		
Category temperature range	−55 °C to +105 °C						
Rated voltage range	2	4 V.DC to 20 V.DC	2.5 V.DC to 20 V.DC				
Rated capacitance range	22 μF to 150 μF	33 μF to 330 μF	56 μF to 680 μF	100 μF to 680 μF	150 μF to 1500 μF		
Capacitance tolerance	±20 % (120 Hz / + 20 °C)						
Leakage current	Please see the attached characteristics list						
Dissipation factor (tan $\delta$ )	Please see the attached characteristics list						
Endurance	+105 °C, 3000 h, rated voltage applied (2.5 V.DC 2000 h applied)						
	Capacitance change	Within ±20 % of the initial value					
	tan $\delta$	≤ 150 % of the initial limit					
	DC leakage current   Within the initial limit						
Damp heat (Steady State)	+60 °C, 90 % to 95 %, 1000 h, No-applied voltage						
	Capacitance change   Within ±20 % of the initial value						
	tan $\delta$	≤ 150 % of the initial limit					
	DC leakage current	nt Within the initial limit (after voltage processing)					

### Marking



#### **Dimensions (not to scale)**



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Characteristics list										
Rated Rated Case size (mm)						Specifications				
Series v	voltage (V.DC)	Rated capacitance (µF)	φD	L	Size code	Ripple*1 current (mAr.m.s.)	ESR *2 $(m\Omega$ max.)	tan $\delta^{*3}$	LC*4 (µA)	Part number
	2.5	680	8.0	12.0	E12	4520	13	0.15	340	2R5SEP680M
	2.5	1500	10.0	13.0	F13	5440	12	0.18	750	2R5SEP1500M
		100	6.3	6.0	C6	1810	40	0.12	200	4SEP100M
		150	6.3	6.0		1810	40	0.12	300	4SEP150M
		220	8.0	7.0	E7	2560	35	0.12	440	4SEP220M
	4.0	330	8.0	7.0		2560	35	0.12	660	4SEP330M
	4.0	470	10.0	8.0	F8	3700	25	0.12	376	4SEP470M
		560	8.0	12.0	E12	4520	13	0.15	448	4SEP560M
		680	10.0	8.0	F8	3700	25	0.12	544	4SEP680M
		1200	10.0	13.0	F13	5440	12	0.18	960	4SEP1200M
		82	6.3	6.0	C6	1700	45	0.12	258	6SEP82M
		150	8.0	7.0	E7	2560	35	0.12	472	6SEP150M
	6.3	330	10.0	8.0	F8	3700	25	0.12	416	6SEP330M
		470	8.0	12.0	E12	4210	15	0.15	592	6SEP470M
		820	10.0	13.0	F13	5440	12	0.15	775	6SEP820M
		56	6.3	6.0	C6	1700	45	0.12	280	10SEP56M
SEP		120	8.0	7.0	E7	2560	35	0.12	600	10SEP120M
	10	270	10.0	8.0	F8	3700	25	0.12	540	10SEP270M
		330	8.0	12.0	E12	3950	17	0.15	660	10SEP330M
		560	10.0	13.0	F13	5230	13	0.15	840	10SEP560M
		39	6.3	6.0	C6	1620	50	0.10	312	16SEP39M
		82	8.0	7.0	E7	2120	40	0.12	656	16SEP82M
	16	150	10.0	8.0	F8	3020	30	0.12	480	16SEP150M
		180	8.0	12.0	E12	3640	20	0.15	576	16SEP180M
		330	10.0	13.0	F13	4720	16	0.15	792	16SEP330M
		22	6.3	6.0	C6	1450	60	0.10	220	20SEP22M
	20	33	8.0	7.0	E7	1890	45	0.12	330	20SEP33M
		47	8.0	7.0		1890	45	0.12	470	20SEP47M
		56	10.0	8.0		2400	40	0.12	224	20SEP56M
		68	10.0	8.0	F8	2400	40	0.12	272	20SEP68M
		100	10.0	8.0		2570	35	0.12	400	20SEP100MX
		100	8.0	12.0	E12	3320	24	0.15	400	20SEP100M
		150	10.0	13.0	F13	4320	20	0.15	600	20SEP150M

<sup>\$1</sup> Ripple current (100 kHz/ +105 °C ), \$2 ESR (100 kHz to 300 kHz/+20 °C) \$3 tan  $\delta$  (120 Hz/+20 °C) \$4 After 2 minutes

Frequency correction factor for ripple current								
Frequency	120 Hz ≦ f < 1 kHz	1 kHz ≦ f < 10 kHz	10 kHz ≦ f < 100 kHz	100 kHz ≤ f < 500 kHz				
Coefficient	0.05	0.3	0.7	1				

<sup>◆</sup> Please refer to each page in this catarog for "Flow conditions" and "Taping specifications".



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