

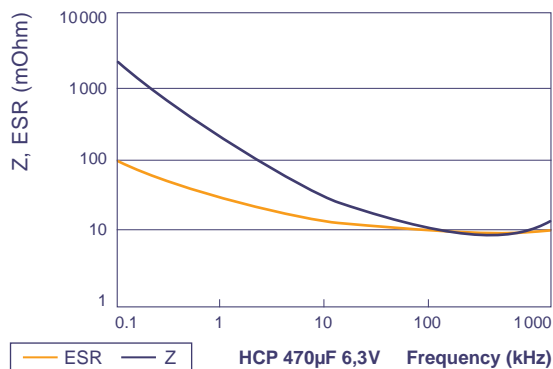
- Solid Aluminium Electrolytic Capacitor with Conductive Polymer
- Ultra low ESR
- High Ripple Current
- Switchmode Power Supplies, Computer, DC/DC Converter
- Noise Suppression in Smoothing / High-Frequency Circuits



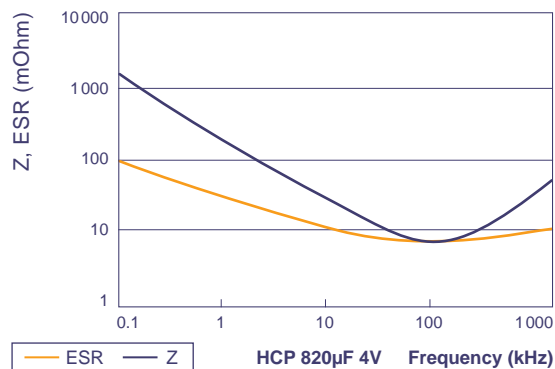
Item	Characteristics
Operating Temperature Range (°C)	-55 ~ +105
Voltage Range (V)	4 ~ 16
Capacitance Range (µF)	68 ~ 1200
Capacitance Tolerance (20°C, 120Hz)	± 20%
Surge Voltage	Rated Voltage x 1,15
Leakage Current (µA)	The initial specified value or less (20°C, 2min)
Dissipation Factor (20°C, 120Hz)	The initial specified value or less
Equivalent Series Resistance (20°C, 100kHz)	The initial specified value or less
Temperature Characteristics	$Z(+105^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \geq 0,75$ Stability at 100kHz
	$Z(-55^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1,25$ Stability at 100kHz
Load Life	2000h, Rated voltage applied at 105°C Capacitance change: within ± 20% of the initial measured value Dissipation Factor Tan δ : ≤150% of initial specified value ESR: ≤150% of initial specified value DC Leakage Current: ≤ the initial specified value
Moisture Resistance	1000h, Rated Voltage applied at 60°C, 90~95% RH Capacitance change: within ± 20% of the initial measured value Dissipation Factor Tan δ : ≤150% of initial specified value ESR: ≤150% of initial specified value DC Leakage Current: ≤ the initial specified value
Surge Voltage Characteristics	1000 cycles at 105°C, with $U_{DC} = 1,15 U_R$ (30sec load / 330sec discharge) Capacitance change: within ± 20% of the initial measured value Dissipation Factor Tan δ : ≤150% of initial specified value ESR: ≤150% of initial specified value DC Leakage Current: ≤ the initial specified value

Typical Curves

Frequency characteristics of Impedance and ESR

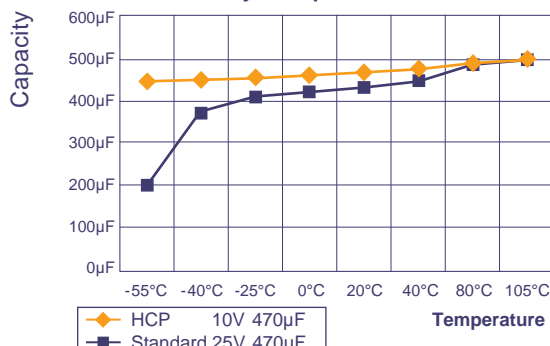


Frequency characteristics of Impedance and ESR



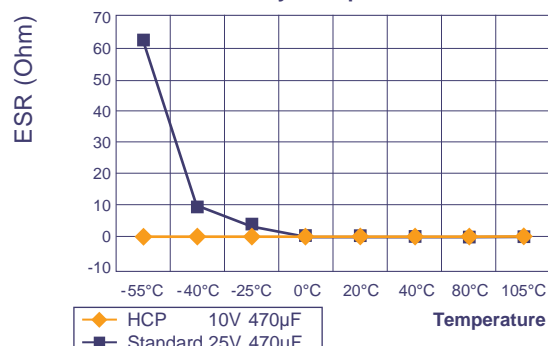
Capacity Drift:

Polymer Capacitor versus Standard Electrolytic Capacitor



ESR Drift:

Polymer Capacitor versus Standard Electrolytic Capacitor



Ratings for HCP Series

V _{DC} Code	Rated Capacitance	Max ESR 20°C, 100kHz	Max Ripple Current 105°C, 100kHz	Dissipation Factor 20°C, 120Hz	Leakage Current	Size Ø D x L
(V)	(µF)	(mΩ)	(mA _{rms})	-	(µA)	(mm)
4 0G	510	16	4080	0,08	410	8 x 11,5
	560	14	4080	0,08	450	8 x 11,5
	620	13	4260	0,08	500	8 x 11,5
	680	13	4840	0,08	550	10 x 12,5
	750	12	5040	0,08	600	10 x 12,5
	820	12	5040	0,08	655	10 x 12,5
	1000	12	5040	0,08	800	10 x 12,5
	1200	12	5040	0,15	960	10 x 12,5
6,3 0J	150	30	2780	0,07	190	8 x 11,5
	220	30	3000	0,07	280	8 x 11,5
	330	25	3500	0,08	415	8 x 11,5
	390	16	3810	0,08	490	8 x 11,5
	470	16	3810	0,08	595	8 x 11,5
	560	14	4330	0,08	705	10 x 12,5
	680	13	4840	0,08	860	10 x 12,5
	820	12	5040	0,15	1035	10 x 12,5
10 1A	100	30	2670	0,07	200	8 x 11,5
	150	29	3020	0,07	300	10 x 12,5
	220	27	3370	0,07	440	10 x 12,5
	330	21	4140	0,08	660	10 x 12,5
	390	18	4510	0,08	780	10 x 12,5
	470	15	4510	0,08	940	10 x 12,5
16 1C	68	36	2700	0,06	220	8 x 11,5
	100	30	2740	0,06	320	8 x 11,5
	150	28	3260	0,06	480	10 x 12,5
	330	14	5050	0,06	1056	10 x 12,5

Custom products are available on request.

Order Code SMD, Radial, Snap-In

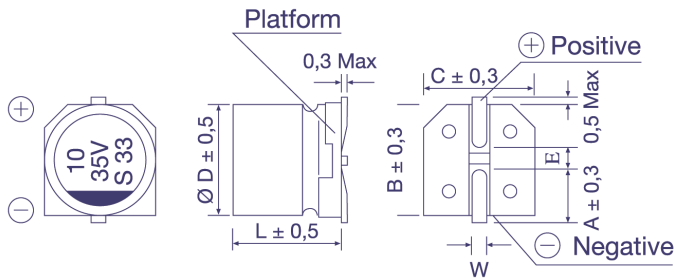
EC	R	1C	PT	101	M	FF	25	0611	JE xxxxx
Technology	Terminal Type	Rated Voltage Code	Series Code	Capacitance Code (in μF)	Capacitance Tolerance	Lead Form	Terminal/Pitch Size	Dimension	for Specials only
EC = Electrolytic Capacitor	SMD = V Radial = R	For coding please refer to the pages of ratings	CD VS = BS	0,47 = R47	$\pm 20\%$ = M	SMD:		4x7 = 0407	
			CD VH = VH	1,0 = 010	$\pm 10\%$ = K	Taped = FF	Terminal = T2	5x11,5 = 0511	
PC = Polymer Capacitor	Snap-In = S		CD VZ = VZ	2,2 = 2R2	+30 / -10% = Q	Radial:		6,3x11,5 = 0611	
			CD 261 = LK	100 = 101	+50 / -10% = T	Long Lead = LL	2,0mm = 20	35x80 = 3580	
			CD 261X = QX	1000 = 102		Cut 5,0mm = CB	2,5mm = 25	45x100 = 45100	
			CD 262 = QM	10000 = 103		Cut 4,5mm = CC	3,5mm = 35		
			CD 263 = BK			Cut 4,0mm = CD	5,0mm = 50		
			CD 269 = PH			Cut 3,5mm = CE	7,5mm = 75		
			CD 281 = LL			Cut 3,0mm = CF	10,0mm = 10		
			CD 284 = XY			on request: alternative lead forms (axial, 90° - angle, others)		12,5mm = 12	
			CD 287 = GC						
			CD 28L = QL						
			CD 293 = BZ						
			CD 294 = BW						
			CD 295 = BC						
			CD 296 = KC						
			CD 297 = BB						
			CD 299 = PG						
			CD 29D = HR						
			CD 29H = QH						
			CD 29L = QL						
			HCP = CP						
			HPM = PM						
			HVC = VC						

Snap-In:	
4,0mm Pin Length = T4	2 Pin = P2
6,3mm Pin Length = T6	3 Pin = P3
Soldering Pin = S4	4 Pin = P4
	5 Pin = P5

preferred

Technical Specification SMD Type

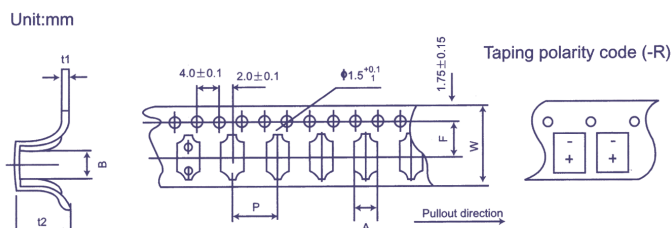
Dimensions



Ø D x L	4x5,4	5x5,4	6,3x5,4	6,3x7,7	8x10,5	8x11,8	10x10,5	10x12,7
A	1,8	2,1	2,4	2,5	2,9	2,9	3,2	3,2
B	4,3	5,3	6,6	6,6	8,3	8,4	10,3	10,4
C	4,3	5,3	6,6	6,6	8,3	8,4	10,3	10,4
E	1,0	1,3	2,2	2,2	3,1	3,1	4,5	4,5
L	5,4	5,4	5,4	7,7	10,5	11,8	10,5	12,7
W	0,5 - 0,8			0,7 - 1,1				

in mm

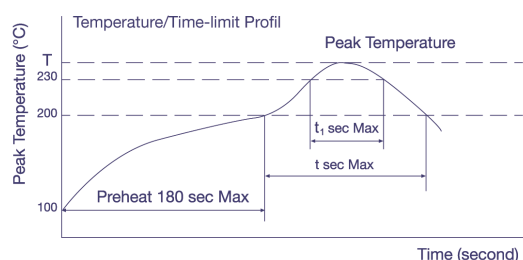
Taping Dimensions



Size (DxL)	w ± 0,3	A ± 0,2	B ± 0,2	P ± 0,1	t2 ± 0,2	F ± 0,1	t1 ± 0,1
4 x 5,4	12,0	5,0	5,0	8,0	5,8	5,5	0,4
5 x 5,4	12,0	6,0	6,0	12,0	5,8	5,5	0,4
6,3 x 5,4	16,0	7,0	7,0	12,0	5,8	7,5	0,4
6,3 x 7,7	16,0	7,0	7,0	12,0	8,4	7,5	0,4
8 x 10,5	24,0	8,7	8,7	16,0	11,0	11,5	0,5
8 x 11,8	24,0	8,7	8,7	16,0	12,3	11,5	0,5
10 x 10,5	24,0	10,7	10,7	16,0	11,0	11,5	0,5
10 x 12,7	24,0	10,7	10,7	16,0	14,0	11,5	0,5

in mm

Soldering Profile (Aluminium Electrolytic Capacitors)

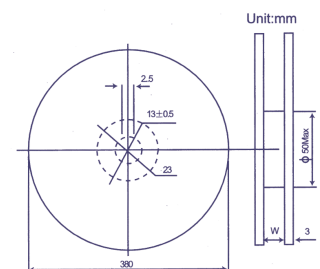


Allowable Range of Peak Temperature

Size	T (°C)	t (second)	t ₁ (second)
Ø 4 ~ 6,3	250	90	40
Ø 8 x 10,5	240	90	30
Ø 10 x 10,5	235	60	30

Diameter	w	D
4; 5	14 ± 1	50 ± 1
6,3	18 ± 1	50 ± 1
8; 10	25 ± 1	50 ± 1
Polymer	25 ± 1	80 ± 1

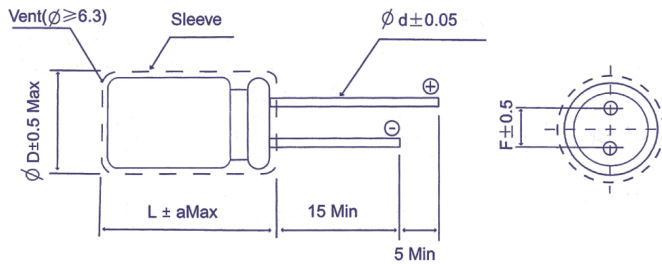
in mm



For more details or Soldering Profiles of Radials or Polymer-Capacitors please contact our local Sales Offices.

Technical Specification Radial Type

Dimensions for loose, long-lead type, (bulk)
Order Code: LL



L	L ≤ 7						L ≥ 11								
	3	4	5	6,3	8	5	6,3	8	10	12,5	16	18	20	22	25
∅ D	3	4	5	6,3	8	5	6,3	8	10	12,5	16	18	20	22	25
F	1	1,5	2,0	2,5	3,5	2,0	2,5	3,5	5,0		7,5		10,0		12,5
∅ d	0,4	0,45				0,5		0,6		0,8		1,0			
a _{Max}	1,0						2,0								

in mm

Dimensions for Ammopack taping
Order Code: FF (FD)

Code	Case Range		Dimensions				Form	Ammopack
	∅ D	L (max)	H ± 0,75	Ho ± 0,5	F ± 0,5	P ± 0,1		
FF	4 ~ 6	13	18,5	-	2,5	12,7	A	
	8	13	18,5	-	3,5	12,7		
	4 ~ 8	7	17,5	16	5	12,7	B	
	5 ~ 6,3	13	18,5					
	8	22	20,0					
	FD	10	22	18,5	-	15,0	A	
12,5		27	18,5	-				
FD	12,5	27	18,5	-	25,4	C		
FF	16 ~ 18	27	18,5	-	7,5	30,0	C	

in mm

Dimensions for loose, short cut leads, (bulk)
Order Code: CC (CB,CD,CE,CF)

Straight Lead						Bended Lead	
Code	CB	CC	CD	CE	CF		
I	5,0 ± 0,5	4,5 ± 0,5	4,0 ± 0,5	3,5 ± 0,5	3,0 ± 0,5		

preferred

in mm