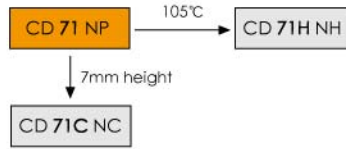


CD 71 NP Series



2000h at 85°C

- Load life of 2000 hours at 85°C
- Bi-polar standard
- Ideal for inconsistent polarity circuits



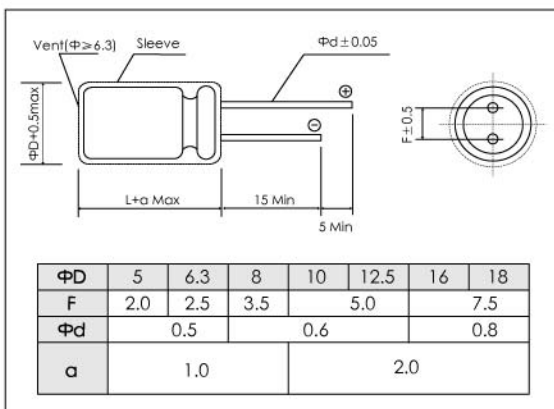
Items	Characteristics																														
Operating Temperature Range (°C)	-40 ~ +85																														
Capacitance Tolerance (20°C, 120Hz)	± 20%																														
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.03CV or 3, whichever is greater. C: Nominal Capacitance (µF) V: Rated Voltage (V)																														
Dissipation Factor (20°C, 120Hz)	<table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> </tr> </thead> <tbody> <tr> <td>Tan δ (max)</td> <td>0.24</td> <td>0.24</td> <td>0.20</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.15</td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	Tan δ (max)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10	0.15										
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160																					
Tan δ (max)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.10	0.15																						
Stability at Low Temperature (Impedance Ratio at 120Hz)	<table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> </tr> </thead> <tbody> <tr> <td>Z_{-25°C} / Z_{+20°C}</td> <td>4</td> <td>3</td> <td colspan="4">2</td> <td colspan="2"></td> <td>4</td> </tr> <tr> <td>Z_{-40°C} / Z_{+20°C}</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td colspan="3">3</td> <td colspan="2"></td> </tr> </tbody> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	Z _{-25°C} / Z _{+20°C}	4	3	2						4	Z _{-40°C} / Z _{+20°C}	10	8	6	4	3				
Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160																						
Z _{-25°C} / Z _{+20°C}	4	3	2						4																						
Z _{-40°C} / Z _{+20°C}	10	8	6	4	3																										

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	3000h	≥ 50000h	2000h	2000h	1000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ± 30% of initial value		Within ± 20% of initial value	Within ± 20% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 150% of specified value	Not more than 150% of specified value	Not more than 150% of specified value
Condition: Applied Voltage Applied Current Applied Temperature Failure Rate Level	U _R I _R 85°C ≤ 1% Failure Rate	U _R 1.2 x I _R 40°C ≤ 1% Failure Rate	U _R I _R 85°C guaranteed	U _R I _R = 0 85°C	U _R = 0 I _R = 0 85°C After test: U _R to be applied for 30min >24h before measurement

Note: The life test excluding shelf life should be conducted with the polarity inverted every 250hrs.

Dimensions

mm



Frequency Coefficient

Frequency	Rated Voltage (V)				
	50-60Hz	120Hz	1kHz	10kHz	100kHz
6.3 ~ 16	0.80	1.0	1.1	1.2	1.2
25 ~ 35	0.80	1.0	1.5	1.7	1.7
50 ~ 160	0.80	1.0	1.6	1.9	1.9

Temperature Coefficient

Temperature (°C)	+70	+85
Coefficient	1.35	1

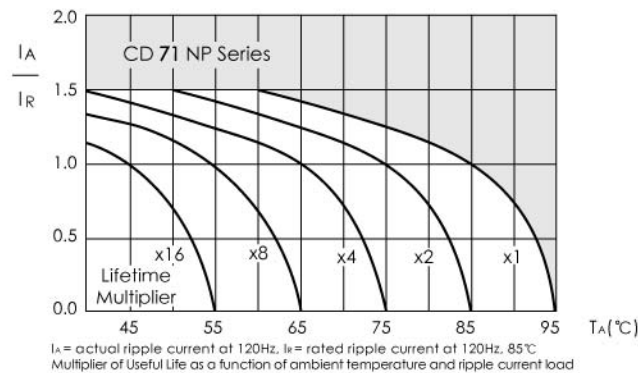
Ratings for CD 71 NP Series

Ur (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size Φ D x L	P/N
(V)	(μ F)	(Ω)	(mA _{rms})	(mm)	-
6.3 (7.2) 0J	33	9.65	58	5 x 11.5	ECR0JNP330M□□050011
	47	6.78	69	5 x 11.5	ECR0JNP470M□□050011
	100	3.18	115	6.3 x 11.5	ECR0JNP101M□□063011
	220	1.45	202	8 x 11.5	ECR0JNP221M□□080011
	330	0.97	247	8 x 11.5	ECR0JNP331M□□080011
	470	0.68	350	10 x 12.5	ECR0JNP471M□□100012
	1000	0.32	611	10 x 20	ECR0JNP102M□□100020
	2200	0.16	1090	12.5 x 25	ECR0JNP222M□□125025
	3300	0.11	1490	16 x 25	ECR0JNP332M□□160025
	4700	0.08	1880	16 x 31.5	ECR0JNP472M□□160031
10 (13) 1A	22	14	52	5 x 11.5	ECR1ANP220M□□050011
	33	9.65	63	5 x 11.5	ECR1ANP330M□□050011
	47	6.78	75	5 x 11.5	ECR1ANP470M□□050011
	100	3.18	126	6.3 x 11.5	ECR1ANP101M□□063011
	220	1.45	221	8 x 11.5	ECR1ANP221M□□080011
	330	0.97	322	10 x 12.5	ECR1ANP331M□□100012
	470	0.68	420	10 x 16	ECR1ANP471M□□100016
	1000	0.32	767	12.5 x 20	ECR1ANP102M□□125020
	2200	0.16	1380	16 x 25	ECR1ANP222M□□160025
	3300	0.11	1760	16 x 31.5	ECR1ANP332M□□160031
16 (20) 1C	10	26	39	5 x 11.5	ECR1CNP100M□□050011
	22	12	58	5 x 11.5	ECR1CNP220M□□050011
	33	8.04	71	5 x 11.5	ECR1CNP330M□□050011
	47	5.65	97	6.3 x 11.5	ECR1CNP470M□□063011
	100	2.65	167	8 x 11.5	ECR1CNP101M□□080011
	220	1.21	294	10 x 12.5	ECR1CNP221M□□100012
	330	0.80	394	10 x 16	ECR1CNP331M□□100016
	470	0.56	513	10 x 20	ECR1CNP471M□□100020
	1000	0.27	935	12.5 x 25	ECR1CNP102M□□125025
	2200	0.13	1660	16 x 31.5	ECR1CNP222M□□160031
25 (32) 1E	4.7	56	28	5 x 11.5	ECR1ENP47M□□050011
	10	26	40	5 x 11.5	ECR1ENP100M□□050011
	22	12	60	5 x 11.5	ECR1ENP220M□□050011
	33	8.04	84	6.3 x 11.5	ECR1ENP330M□□063011
	47	5.65	100	6.3 x 11.5	ECR1ENP470M□□063011
	100	2.65	204	10 x 12.5	ECR1ENP101M□□100012
	220	1.21	332	10 x 16	ECR1ENP221M□□100016
	330	0.80	444	10 x 20	ECR1ENP331M□□100020
	470	0.56	607	12.5 x 20	ECR1ENP471M□□125020
	1000	0.27	1120	16 x 25	ECR1ENP102M□□160025
35 (44) 1V	4.7	45	28	5 x 11.5	ECR1VNP47M□□050011
	10	21	42	5 x 11.5	ECR1VNP100M□□050011
	22	9.65	71	6.3 x 11.5	ECR1VNP220M□□063011
	33	6.43	87	6.3 x 11.5	ECR1VNP330M□□063011
	47	4.52	122	8 x 11.5	ECR1VNP470M□□080011
	100	2.12	212	10 x 12.5	ECR1VNP101M□□100012
	220	0.97	375	10 x 20	ECR1VNP221M□□100020
	330	0.64	526	12.5 x 20	ECR1VNP331M□□125020
	470	0.45	685	12.5 x 25	ECR1VNP471M□□125025
	1000	0.21	1270	16 x 31.5	ECR1VNP102M□□160031

Ur (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size Φ D x L	P/N
(V)	(μ F)	(Ω)	(mA _{rms})	(mm)	-
50 (63) 1H	0.1	1857	4	5 x 11.5	ECR1HNP0R1M□□050011
	0.22	844	7	5 x 11.5	ECR1HNP22M□□050011
	0.33	562	8	5 x 11.5	ECR1HNP33M□□050011
	0.47	395	10	5 x 11.5	ECR1HNP47M□□050011
	1	185	14	5 x 11.5	ECR1HNP010M□□050011
	2.2	84	21	5 x 11.5	ECR1HNP2R2M□□050011
	3.3	56	26	5 x 11.5	ECR1HNP3R3M□□050011
	4.7	39	31	5 x 11.5	ECR1HNP4R7M□□050011
	10	18	45	5 x 11.5	ECR1HNP100M□□050011
	22	8	77	6.3 x 11.5	ECR1HNP220M□□063011
63 (79) 1J	33	5.6	111	8 x 11.5	ECR1HNP330M□□080011
	47	3.9	157	10 x 12.5	ECR1HNP470M□□100012
	100	1.8	273	10 x 20	ECR1HNP101M□□100020
	220	0.84	506	12.5 x 25	ECR1HNP221M□□125025
	330	0.56	620	12.5 x 25	ECR1HNP331M□□125025
	470	0.40	861	16 x 25	ECR1HNP471M□□160025
	2.2	72	23	5 x 11.5	ECR1JNP2R2M□□050011
	3.3	48	28	5 x 11.5	ECR1JNP3R3M□□050011
	4.7	33	34	5 x 11.5	ECR1JNP4R7M□□050011
	10	15	57	6.3 x 11.5	ECR1JNP100M□□063011
100 (125) 2A	22	7	89	8 x 11.5	ECR1JNP220M□□080011
	33	4.8	144	10 x 12.5	ECR1JNP330M□□100012
	47	3.3	188	10 x 16	ECR1JNP470M□□100016
	100	1.5	343	12.5 x 20	ECR1JNP101M□□125020
	220	0.72	645	16 x 25	ECR1JNP221M□□160025
	0.1	1326	5	5 x 11.5	ECR2ANP0R1M□□050011
	0.22	603	8	5 x 11.5	ECR2ANP22M□□050011
	0.33	402	9	5 x 11.5	ECR2ANP33M□□050011
	0.47	282	11	5 x 11.5	ECR2ANP47M□□050011
	1	132	16	5 x 11.5	ECR2ANP010M□□050011
160 (200) 2C	2.2	60	24	5 x 11.5	ECR2ANP2R2M□□050011
	3.3	40	34	6.3 x 11.5	ECR2ANP3R3M□□063011
	4.7	28	41	6.3 x 11.5	ECR2ANP4R7M□□063011
	10	13	70	8 x 11.5	ECR2ANP100M□□080011
	22	6	136	10 x 12.5	ECR2ANP220M□□100012
	33	4	181	10 x 16	ECR2ANP330M□□100016
	47	2.82	248	12.5 x 20	ECR2ANP470M□□125020
	100	1.33	458	16 x 25	ECR2ANP101M□□160025
	220	0.60	837	18 x 35.5	ECR2ANP221M□□180035
	3.3	60	49	10 x 16	ECR2CNP3R3M□□100016
	4.7	42	59	10 x 16	ECR2CNP4R7M□□100016
	10	19	109	12.5 x 20	ECR2CNP100M□□125020
	22	9	177	12.5 x 25	ECR2CNP220M□□125025
	33	6	240	16 x 25	ECR2CNP330M□□160025
	47	4.23	329	16 x 35.5	ECR2CNP470M□□160035
100	1.99	425	18 x 35.5	ECR2CNP101M□□180035	

Customer products are available on request.

Lifetime Diagram



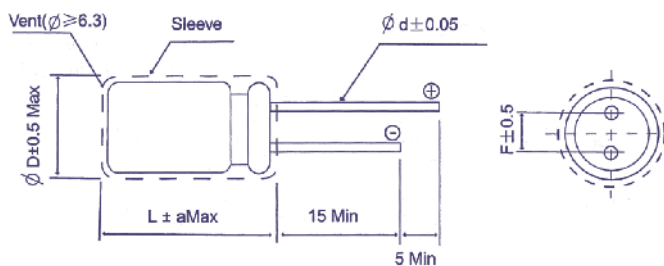
Order Code **SMD, Radial, Snap-In**

EC	R	1C	PT	101	M	FF	25	0611	JExxxx	
Technology	Terminal Type	Rated Voltage Code	Series Code	Capacitance Code (in μF)	Capacitance Tolerance	Lead Form	Terminal/Pitch Size	Size $\varnothing D \times L$	for Specials only	
EC = Electrolytic Capacitor	SMD = V	2,5V = 0E	CD 110 = PT	0,47 = R47	$\pm 20\%$ = M	SMD:		4x7 = 0407		
	Radial = R	4V = 0G	CD 11GL = GL	1,0 = 010	$\pm 10\%$ = K	Taped = FF	Terminal = T2	5x11,5 = 0511		
PC = Polymer Capacitor	Snap-In = S	6,3V = 0J	CD 261 = LK	2,2 = 2R2	+20 / -0% = R	Radial:		6,3x11,5 = 0611		
		10V = 1A	CD 261X = QX	10 = 100	+20 / -10% = V	Taped = FF	2,0mm = 20	35x80 = 3580		
		16V = 1C	CD 262 = QM	100 = 101	+30 / -10% = Q	Long Lead = LL	2,5mm = 25	45x100 = 45100		
		20V = 1D	CD 263 = BK	1000 = 102	+50 / -10% = T	Cut 5,0mm = CB	3,5mm = 35			
		25V = 1E	CD 269 = PH	10000 = 103		Cut 4,5mm = CC	5,0mm = 50			
		35V = 1V	CD 269L = HL			Cut 4,0mm = CD	7,5mm = 75			
		40V = 1G	CD 281 = LL			Cut 3,5mm = CE	10,0mm = 10			
		50V = 1H	CD 281L = LH			Cut 3,0mm = CF	12,5mm = 12			
		63V = 1J	CD 287 = GC			on request: alternative lead forms (Keyed Polarity, axial, 90° - angle, others)				
		80V = 1K	CD 28L = QL			Snap-In:				
		100V = 2A	CD 293 = BZ			4,0mm Pin Length = T4	2 Pin = P2			
		160V = 2C	CD 294 = BW			6,3mm Pin Length = T6	3 Pin = P3			
		180V = 2K	CD 295 = BC			Soldering Pin = S4	4 Pin = P4			
		200V = 2D	CD 296 = KC			on request: alternative pin types				
		250V = 2E	CD 297 = BB			5 Pin = P5				
		315V = 2F	CD 299 = PG			preferred				
		350V = 2V	CD 29D = HR							
		385V = 2J	CD 29H = QH							
		400V = 2G	CD 29L = QL							
		415V = 2P	CD 891 = ZJ							
		420V = 2X	CD 892 = ZL							
		450V = 2W	CD 895 = ZK							
		500V = 2H								
		550V = 2Y	Polymer on request							

Technical Specification **Radial Type**

Dimensions for loose, long-lead type (bulk)

Order Code: LL



L	L ≤ 7					L ≥ 11									
$\varnothing D$	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	15,0	17,5	20,0
$\varnothing d$	0,45					0,5		0,6			0,8		1,0		
a_{Max}	1,0					2,0									

For diameter 20 pitch 7,5 on request.

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	

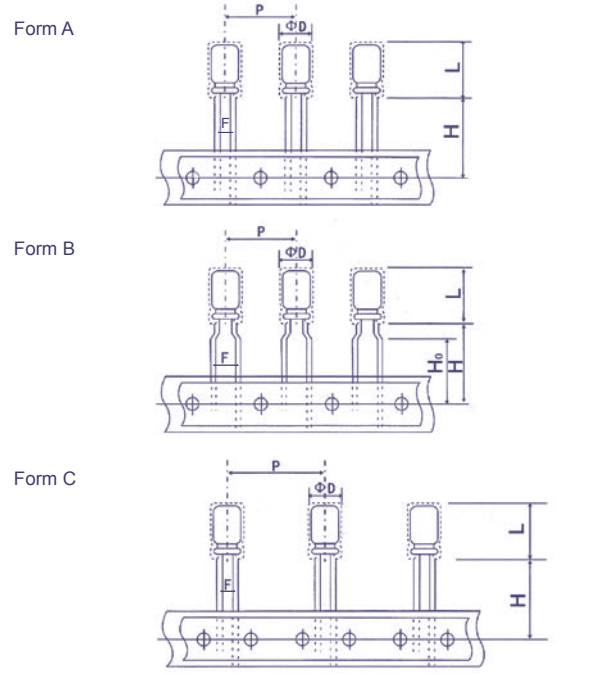
preferred

in mm

Dimensions for Ammopack taping

Order Code: FF (FD)

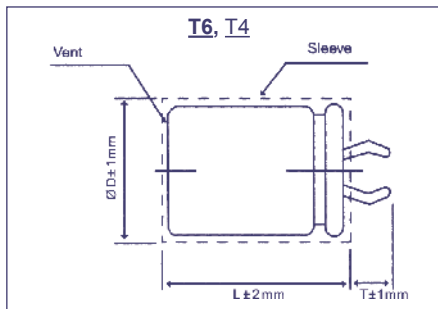
Code	Case Range		Dimensions				Form
	Ø D	L (max)	H ± 0,75	Ho ± 0,5	F ^{+0,8} _{-0,2}	P ± 0,1	
FF	4 ~ 5	13	18,5	-	2,5	12,7	B
	6,3	13	18,5	-	2,5	12,7	A
	8	13	18,5	-	3,5	12,7	
	4 ~ 8	7	17,5	16	5,0	12,7	B
	5 ~ 6,3	13	18,5				
	8	22	20,0				
		10	22	18,5	-	-	15,0
	12,5	27	18,5	-	-	25,4	C
FD	12,5	27	18,5	-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



in mm

Technical Specification Snap-In Type

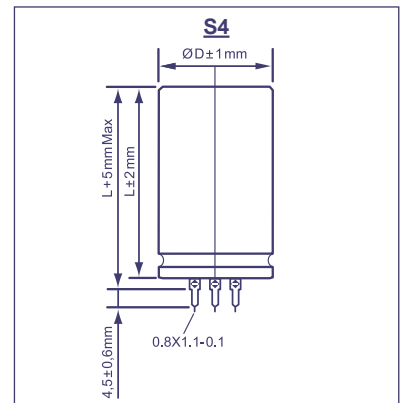
Pin Type: Snap-In Order Code: T6, T4



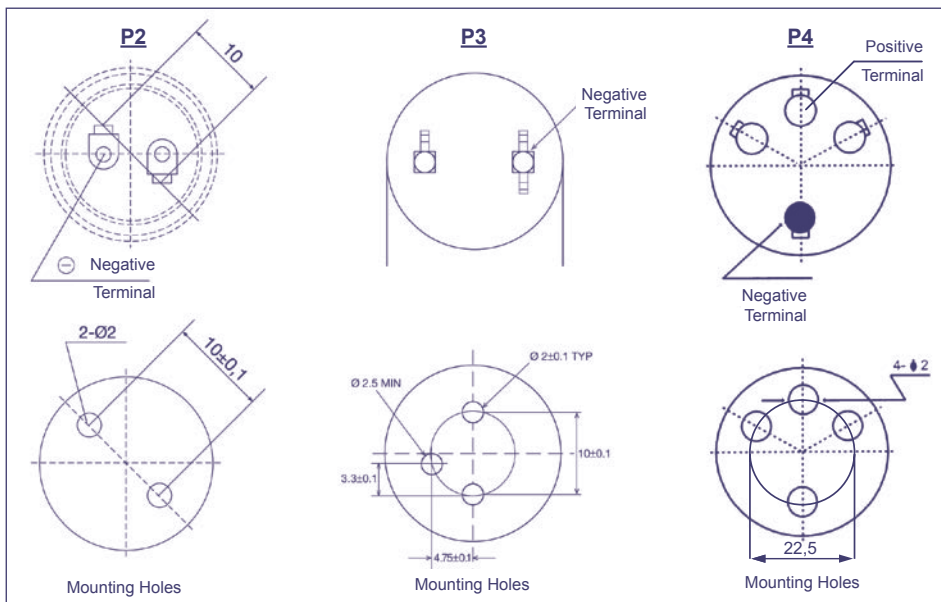
Terminal	T6	T4
Pin Length	6,3	4,0

preferred

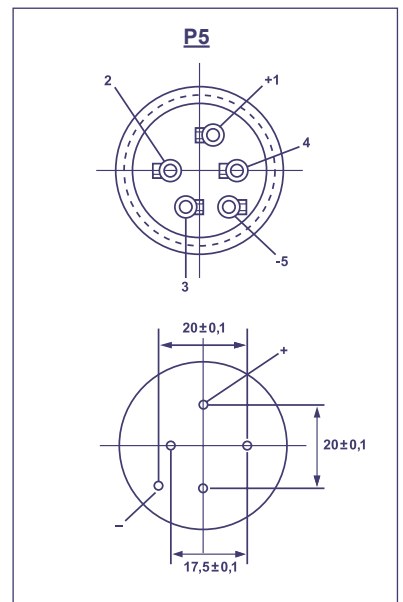
Pin Type: Soldering Order Code: S4



Snap-In Terminal Order Code: P2, P3, P4 and Mounting Holes (Top view)



Soldering Terminal Order Code: P5



P3 only as T4 Terminal available, P4 for Ø D ≥ 30mm, P5 for Ø D ≥ 40mm