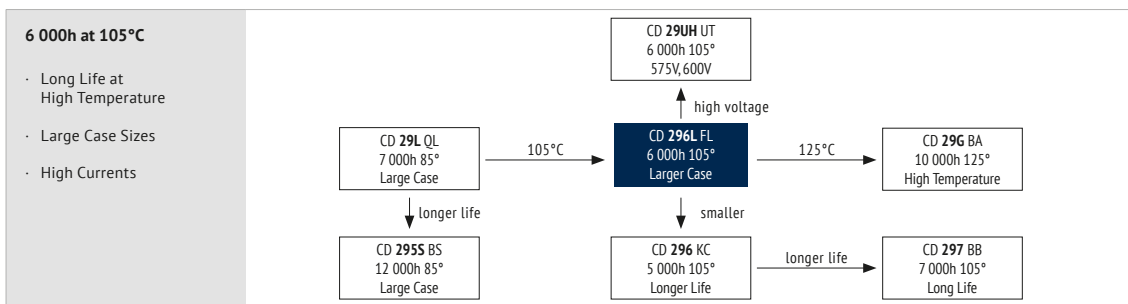


ALUMINUM ELECTROLYTIC CAPACITORS · SNAP-IN TYPE

CD 296L FL SERIES

CD 296L FL SERIES

ALUMINUM ELECTROLYTIC CAPACITORS · SNAP-IN TYPE



ITEM CHARACTERISTICS

Operating Temperature Range (°C)	-40 ~ +105	-25 ~ +105	
Voltage Range (V)	350 ~ 420	450 ~ 550	
Capacitance Range (µF)	390 ~ 3 000		
Capacitance Tolerance (20°C, 120Hz)	± 20%		
Leakage Current	After 5 minutes at 20°C application of rated voltage, leakage current is not more than specified in table.		
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	350 ~ 420	450 ~ 500
	$Z_{-25°C} / Z_{+20°C}$	4	7
	$Z_{-40°C} / Z_{+20°C}$	7	-
Fast Charge-Discharge	Please contact Jianghai for an appropriate choice of the capacitor or possible technical adaptations, esp. for applications like: Welding, Photoflash, Servo motors, X-Ray		

The usage at lower temperatures than indicated may be possible. Please contact the Jianghai Europe sales office for approval.

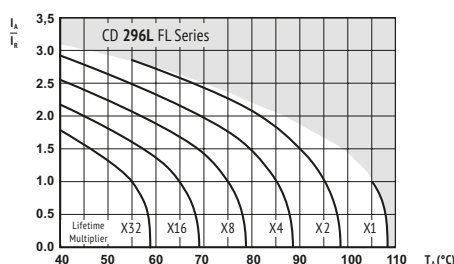
ITEM	USEFUL LIFE		LOAD LIFE	ENDURANCE TEST	SHELF LIFE	
Lifetime	6 000h	> 200 000h	3 000h	4 000h	1 000h	
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value	
Capacitance Change	Within ± 30% of initial value		Within ± 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 200% of specified value	Not more than 200% of specified value	Not more than 200% of specified value	
Condition:						
Applied Voltage	U_R	U_R	U_R	U_R	$U_R = 0$	After test: U_R to be applied for 30 min > 24h before measurement
Applied Current	I_R	$1,2 \times I_R$	I_R	$I_R = 0$	$I_R = 0$	
Applied Temperature	105°C	40°C	105°C	105°C IEC 60384	105°C	

MULTIPLIER FOR RIPPLE CURRENT (FREQUENCY COEFFICIENT)

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz	≥ 50 kHz
Factor	0,80	1,00	1,16	1,30	1,41	1,43

Multippliers for typical operating conditions.

MULTIPLIER FOR LIFETIME (LIFETIME DIAGRAM)



I_A = actual ripple current at 120Hz,
 I_R = rated ripple current at 120Hz, 105°C
 Multiplier of Useful Life as a function of ambient temperature & ripple current load

ENVIRONMENTAL

The products are RoHS, WEEE and REACH compliant. The detailed version please see separate "Environmental Certificates" document or www.jianghai-europe.com

SAFETY FACTOR

This diagram includes a safety margin. In many cases the allowed current capability/lifetime may be increased. For details and approvals please contact the Jianghai Europe sales office.

JIANGHAI EUROPE

Electronic Components GmbH



ENGINEERED SOLUTIONS

Customer specific adaptations needed? Please contact Jianghai Europe GmbH:
 TELEFON: +49 (0) 2151 652088-72 | E-MAIL: INFO@JIANGHAI-EUROPE.COM

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CD 296L FL SERIES

ALUMINUM ELECTROLYTIC CAPACITORS · SNAP-IN TYPE

U _{ADC} (Surge Voltage) Code	C _R Rated Capacitance	ESR _{max} Equivalent Series Resistance 20°C 120Hz	ESR _{typ} Equivalent Series Resistance 20°C 120Hz	tanδ Dissipation Factor 20°C 120Hz	I _{leak} Leakage Current	I _{rac} Rated Ripple Current 105°C 120Hz	Size øD x L (mm)	ORDER CODE ◇◇ = pin style & length △△ = pin number Details: Page 4	
(V)	(µF)	(mΩ)	(mΩ)		(mA)	(Arms)	(mm)		
350 (400) 2V	560	356	178	0,15	1,5	2,30	30 x 55	ECS2VFL561M◇◇△△3055	
		356	178	0,15	1,5	2,33	35 x 40	ECS2VFL561M◇◇△△3540	
		293	146	0,15	1,5	2,73	35 x 50	ECS2VFL681M◇◇△△3550	
	680	293	146	0,15	1,5	2,68	40 x 40	ECS2VFL681M◇◇△△4040	
		243	121	0,15	1,5	2,99	35 x 60	ECS2VFL821M◇◇△△3560	
		243	121	0,15	1,5	3,05	40 x 45	ECS2VFL821M◇◇△△4045	
	820	243	121	0,15	1,5	2,85	45 x 40	ECS2VFL821M◇◇△△4540	
		199	100	0,15	1,5	3,50	35 x 65	ECS2VFL102M◇◇△△3565	
		199	100	0,15	1,5	3,37	40 x 55	ECS2VFL102M◇◇△△4055	
	1000	199	100	0,15	1,5	3,06	45 x 45	ECS2VFL102M◇◇△△4545	
		166	83	0,15	1,5	3,81	35 x 75	ECS2VFL122M◇◇△△3575	
		166	83	0,15	1,5	3,81	40 x 65	ECS2VFL122M◇◇△△4065	
	1200	166	83	0,15	1,5	3,47	45 x 50	ECS2VFL122M◇◇△△4550	
		133	66	0,15	1,5	4,62	40 x 80	ECS2VFL152M◇◇△△4080	
		133	66	0,15	1,5	4,27	45 x 65	ECS2VFL152M◇◇△△4565	
	1500	111	55	0,15	1,5	5,43	40 x 95	ECS2VFL182M◇◇△△4095	
		111	55	0,15	1,5	5,10	45 x 75	ECS2VFL182M◇◇△△4575	
		91	45	0,15	1,5	5,86	45 x 90	ECS2VFL222M◇◇△△4590	
	1800	91	45	0,15	1,5	5,86	50 x 75	ECS2VFL222M◇◇△△5075	
		74	37	0,15	1,5	6,77	45 x 100	ECS2VFL272M◇◇△△45100	
		74	37	0,15	1,5	6,77	50 x 90	ECS2VFL272M◇◇△△5090	
	3300	61	30	0,15	1,5	6,77	50 x 105	ECS2VFL332M◇◇△△50105	
	400 (450) 2G	470	424	169	0,15	1,5	2,11	35 x 45	ECS2GFL471M◇◇△△3545
			424	169	0,15	1,5	2,14	40 x 40	ECS2GFL471M◇◇△△4040
356			142	0,15	1,5	2,48	35 x 50	ECS2GFL561M◇◇△△3550	
560		356	142	0,15	1,5	2,43	40 x 45	ECS2GFL561M◇◇△△4045	
		356	142	0,15	1,5	2,35	45 x 40	ECS2GFL561M◇◇△△4540	
		293	117	0,15	1,5	2,73	35 x 60	ECS2GFL681M◇◇△△3560	
680		293	117	0,15	1,5	2,78	40 x 50	ECS2GFL681M◇◇△△4050	
		293	117	0,15	1,5	2,59	45 x 40	ECS2GFL681M◇◇△△4540	
		243	97	0,15	1,5	3,17	35 x 65	ECS2GFL821M◇◇△△3565	
820		243	97	0,15	1,5	3,05	40 x 55	ECS2GFL821M◇◇△△4055	
		243	97	0,15	1,5	2,77	45 x 45	ECS2GFL821M◇◇△△4545	
		199	80	0,15	1,5	3,48	35 x 80	ECS2GFL102M◇◇△△3580	
1000		199	80	0,15	1,5	3,48	40 x 65	ECS2GFL102M◇◇△△4065	
		199	80	0,15	1,5	3,17	45 x 55	ECS2GFL102M◇◇△△4555	
		166	66	0,15	1,5	4,13	35 x 90	ECS2GFL122M◇◇△△3590	
1200		166	66	0,15	1,5	4,13	40 x 80	ECS2GFL122M◇◇△△4080	
		166	66	0,15	1,5	3,70	45 x 60	ECS2GFL122M◇◇△△4560	
		133	53	0,15	1,5	4,39	40 x 90	ECS2GFL152M◇◇△△4090	
1500		133	53	0,15	1,5	4,39	45 x 75	ECS2GFL152M◇◇△△4575	
		133	53	0,15	1,5	3,39	50 x 70	ECS2GFL152M◇◇△△5070	
		111	44	0,15	1,5	5,30	45 x 90	ECS2GFL182M◇◇△△4590	
1800		111	44	0,15	1,5	5,30	50 x 80	ECS2GFL182M◇◇△△5080	
		2200	91	36	0,15	1,5	5,90	50 x 90	ECS2GFL222M◇◇△△5090
		2700	74	29	0,15	1,5	6,50	50 x 105	ECS2GFL272M◇◇△△50105
420 (470) 2X	390	511	203	0,15	1,5	1,92	35 x 40	ECS2XFL391M◇◇△△3540	
		511	203	0,15	1,5	1,95	40 x 35	ECS2XFL391M◇◇△△4035	
		424	169	0,15	1,5	2,27	35 x 45	ECS2XFL471M◇◇△△3545	
	470	424	169	0,15	1,5	2,23	40 x 40	ECS2XFL471M◇◇△△4040	
		356	142	0,15	1,5	2,56	35 x 50	ECS2XFL561M◇◇△△3550	
		356	142	0,15	1,5	2,52	40 x 45	ECS2XFL561M◇◇△△4045	
	560	356	142	0,15	1,5	2,35	45 x 40	ECS2XFL561M◇◇△△4540	
		293	117	0,15	1,5	2,81	35 x 60	ECS2XFL681M◇◇△△3560	
		293	117	0,15	1,5	2,78	40 x 50	ECS2XFL681M◇◇△△4050	
	680	293	117	0,15	1,5	2,52	45 x 45	ECS2XFL681M◇◇△△4545	
		243	97	0,15	1,5	3,26	35 x 70	ECS2XFL821M◇◇△△3570	
		243	97	0,15	1,5	3,05	40 x 60	ECS2XFL821M◇◇△△4060	
	820	243	97	0,15	1,5	2,87	45 x 50	ECS2XFL821M◇◇△△4550	
		199	80	0,15	1,5	3,67	35 x 80	ECS2XFL102M◇◇△△3580	
		199	80	0,15	1,5	3,67	40 x 70	ECS2XFL102M◇◇△△4070	
	1000	199	80	0,15	1,5	3,38	45 x 60	ECS2XFL102M◇◇△△4560	
		166	66	0,15	1,5	4,33	40 x 80	ECS2XFL122M◇◇△△4080	
		166	66	0,15	1,5	3,92	45 x 65	ECS2XFL122M◇◇△△4565	
	1200	133	53	0,15	1,5	4,62	45 x 80	ECS2XFL152M◇◇△△4580	
		133	53	0,15	1,5	4,62	50 x 75	ECS2XFL152M◇◇△△5075	

U _{ADC} (Surge Voltage) Code	C _R Rated Capacitance	ESR _{max} Equivalent Series Resistance 20°C 120Hz	ESR _{typ} Equivalent Series Resistance 20°C 120Hz	tanδ Dissipation Factor 20°C 120Hz	I _{leak} Leakage Current	I _{rac} Rated Ripple Current 105°C 120Hz	Size øD x L (mm)	ORDER CODE ◇◇ = pin style & length △△ = pin number Details: Page 4
(V)	(µF)	(mΩ)	(mΩ)		(mA)	(Arms)	(mm)	
420 (470) 2X	1800	111	44	0,15	1,5	5,42	45 x 95	ECS2XFL182M◇◇△△4595
		111	44	0,15	1,5	5,42	50 x 85	ECS2XFL182M◇◇△△5085
		2200	91	36	0,15	1,5	6,00	50 x 100
450 (500) 2W	390	511	225	0,15	1,5	2,00	35 x 40	ECS2WFL391M◇◇△△3540
		424	186	0,15	1,5	2,27	35 x 45	ECS2WFL471M◇◇△△3545
		424	186	0,15	1,5	2,23	40 x 40	ECS2WFL471M◇◇△△4040
	470	424	186	0,15	1,5	2,15	45 x 35	ECS2WFL471M◇◇△△4535
		356	156	0,15	1,5	2,47	35 x 55	ECS2WFL561M◇◇△△3555
		356	156	0,15	1,5	2,52	40 x 50	ECS2WFL561M◇◇△△4050
	560	356	156	0,15	1,5	2,35	45 x 40	ECS2WFL561M◇◇△△4540
		293	129	0,15	1,5	2,89	35 x 65	ECS2WFL681M◇◇△△3565
		293	129	0,15	1,5	2,78	40 x 60	ECS2WFL681M◇◇△△4060
	680	293	129	0,15	1,5	2,61	45 x 50	ECS2WFL681M◇◇△△4550
		243	107	0,15	1,5	3,24	35 x 75	ECS2WFL821M◇◇△△3575
		243	107	0,15	1,5	3,24	40 x 65	ECS2WFL821M◇◇△△4065
	820	243	107	0,15	1,5	3,10	45 x 50	ECS2WFL821M◇◇△△4550
		199	88	0,15	1,5	3,77	35 x 90	ECS2WFL102M◇◇△△3590
		199	88	0,15	1,5	3,77	40 x 80	ECS2WFL102M◇◇△△4080
	1000	199	88	0,15	1,5	3,68	45 x 65	ECS2WFL102M◇◇△△4565
		166	73	0,15	1,5	4,43	40 x 95	ECS2WFL122M◇◇△△4095
		166	73	0,15	1,5	4,23	45 x 75	ECS2WFL122M◇◇△△4575
	1200	166	73	0,15	1,5	4,23	50 x 65	ECS2WFL122M◇◇△△5065
		133	58	0,15	1,5	4,84	40 x 100	ECS2WFL152M◇◇△△40100
		133	58	0,15	1,5	4,84	45 x 90	ECS2WFL152M◇◇△△4590
	1500	133	58	0,15	1,5	4,84	50 x 80	ECS2WFL152M◇◇△△5080
		111	49	0,15	1,5	5,30	45 x 105	ECS2WFL182M◇◇△△45105
		111	49	0,15	1,5	5,30	50 x 95	ECS2WFL182M◇◇△△5095
500 (550) 2H	390	511	225	0,15	1,5	1,80	35 x 50	ECS2HFL391M◇◇△△3550
		511	225	0,15	1,5	1,80	40 x 45	ECS2HFL391M◇◇△△4045
		424	186	0,15	1,5	2,00	35 x 55	ECS2HFL471M◇◇△△3555
	470	424	186	0,15	1,5	2,00	40 x 50	ECS2HFL471M◇◇△△4050
		424	186	0,15	1,5	2,00	45 x 40	ECS2HFL471M◇◇△△4540
		356	156	0,15	1,5	2,25	35 x 65	ECS2HFL561M◇◇△△3565
	560	356	156	0,15	1,5	2,25	40 x 55	ECS2HFL561M◇◇△△4055
		356	156	0,15	1,5	2,25	45 x 50	ECS2HFL561M◇◇△△4550
		293	129	0,15	1,5	2,60	35 x 75	ECS2HFL681M◇◇△△3575
	680	293	129	0,15	1,5	2,60	40 x 70	ECS2HFL681M◇◇△△4070
		293	129	0,15	1,5	2,60	45 x 55	ECS2HFL681M◇◇△△4555
		243	107	0,15	1,5	2,85	40 x 75	ECS2HFL821M◇◇△△4075
	820	243	107	0,15	1,5	2,85	45 x 60	ECS2HFL821M◇◇△△4560
		199	88	0,15	1,5	3,30	40 x 90	ECS2HFL102M◇◇△△4090
		199	88	0,15	1,5	3,30	45 x 75	ECS2HFL102M◇◇△△4575
	1000	166	73	0,15	1,5	4,00	40 x 100	ECS2HFL122M◇◇△△40100
		166	73	0,15	1,5	4,00	45 x 85	ECS2HFL122M◇◇△△4585
		166	73	0,15	1,5	4,00	50 x 80	ECS2HFL122M◇◇△△5080
	1200	133	58	0,15	1,5	4,45	45 x 100	ECS2HFL152M◇◇△△45100
		133	58	0,15	1,5	4,45	50 x 95	ECS2HFL152M◇◇△△5095
		1800	111	49	0,15	1,5	4,85	50 x 105



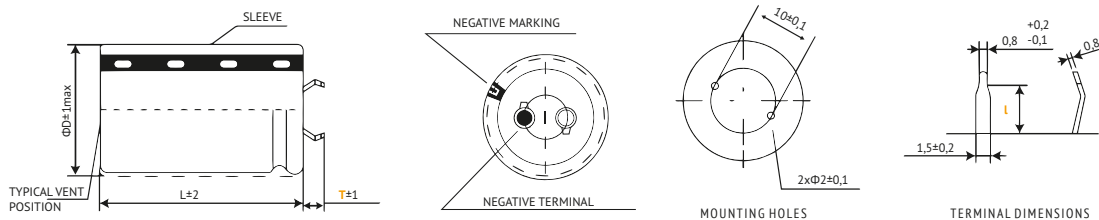
ORDER CODE SNAP-IN TYPE

EC	S	2G	QC	221	M	T6	P2	2535	-	JExxxx	
Technology	Terminal Type	Rated Voltage Code	Series Code	Capacitance Code	Capacitance Tolerance	Terminal Style	Terminal / Pitch	Dimension (mm)	Material Code	for Specials only	
EC Electrolytic Capacitor	Snap-In S	6,3V OJ	CD 293 BZ	0,1 OR1	±20% M	4,0mm Pin Length T/L4	2 Pin P2	22x40 2240	Standard -		
		10V 1A	CD 294 BW	0,47 R47	±10% K	6,3mm Pin Length T/L6	3 Pin P3	30x45 3045	PVC V		
		16V 1C	CD 295 BC	1,0 O10	+30/-10% Q	Soldering Pin S4	4 Pin P4	35x80 3580	PET E		
		20V 1D	CD 295S BS	2,2 2R2	+20/-0% R	on request: alternative pin types	5 Pin P5	45x100 45100			
		25V 1E	CD 296 KC	100 101	±15% L		6 Pin P6	50x105 50105			
		35V 1V	CD 296L FL	1 000 102	+20/-10% V						
		40V 1G	CD 297 BB	10 000 103							
		50V 1H	CD 299 PG								
		63V 1J	CD 29C QC								
		80V 1K	CD 29D HR								
		100V 2A	CD 29G BA								
		125V 2B	CD 29H QH								
		160V 2C	CD 29HD QF								
		180V 2K	CD 29L QL								
		200V 2D	CD 29U CU								
		250V 2E	CD 29UH UT								
		385V 2J	CD 840 ZQ								
		400V 2G	CD 891 ZJ								
		415V 2P	CD 892 ZL								
		420V 2X	CD 895 ZK								
		450V 2W									
		500V 2H									
		550V 2Y									
		575V 2Z									
		600V 2S									
		630V 1J									

■ = preferred



2 PIN TYPE: T6P2 / T4P2 STANDARD

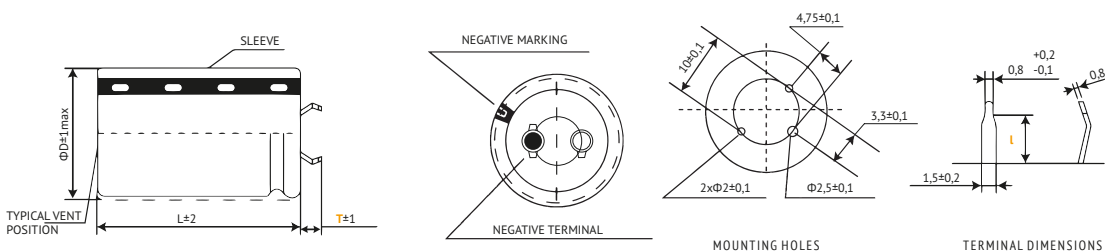


Standard Version: Self-Lock Terminal. Other terminal types and styles on request.
For diameter $\Phi D \geq 45$ mm the safety vent is typically placed at the side of the housing.

Terminal	T6 (preferred)	T4
Pin Length T	6,3 mm	4,0 mm
Pin Detail L	3,5 mm	2,5 mm

in mm

3 PIN TYPE: T4P3

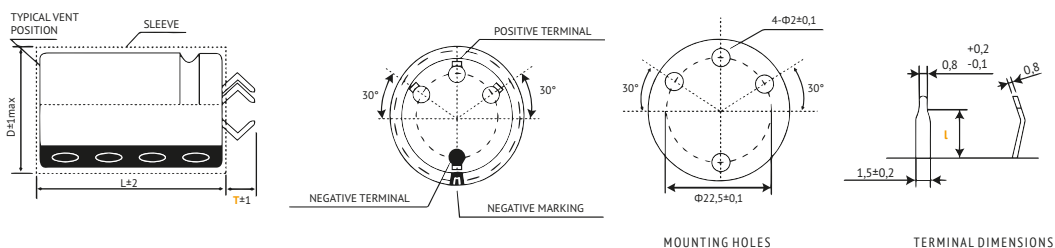


For diameter $\Phi D \geq 45$ mm the safety vent is typically placed at the side of the housing.

Terminal	T6	T4
Pin Length T	-	4,0 mm
Pin Detail L	-	2,5 mm

in mm

4 PIN TYPE: T6P4/T4P4 STANDARD



Standard Version: Non-Lock-Terminal. Other terminal types and styles on request.
For $\Phi D \geq 30$ mm only.
For diameter $\Phi D \geq 45$ mm the safety vent is typically placed at the side of the housing.

Terminal	T6 (preferred)	T4
Pin Length T	6,3 mm	4,0 mm
Pin Detail L	3,5 mm	2,5 mm

in mm

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