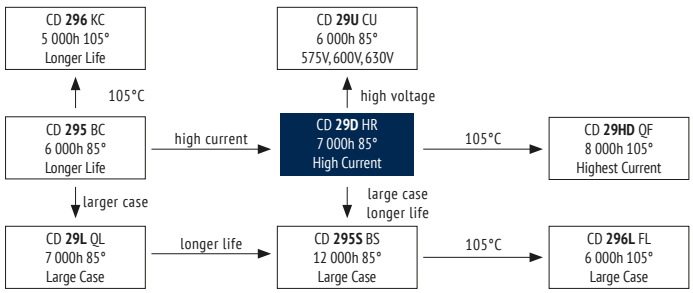
Jianghai
CAPACITOR COMPETENCE
since 1958

ALUMINUM ELECTROLYTIC CAPACITORS · SNAP-IN TYPE

CD **29D** HR SERIES

7 000h at 85°C

- Small Size
- Long Useful Life
- High Ripple Current
- Industrial Power Supplies and Inverters



ITEM	CHARACTERISTICS
Operating Temperature Range (°C)	-40 ~ +85
Voltage Range (V)	160 ~ 450
Capacitance Range (µF)	47 ~ 2 200
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.

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

Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	160 ~ 450
	$Z_{-40°C} / Z_{+20°C}$	4
Fast Charge-Discharge	**Please contact Jianghai for an appropriate choice of the capacitor or possible technical adaptions, esp. for applications like: Welding, Photoflash, Servo motors, X-Ray**	

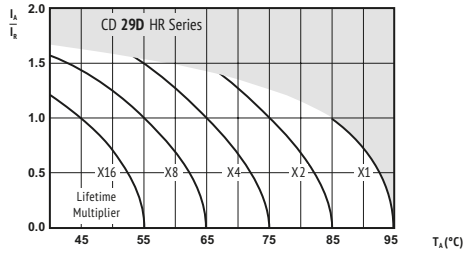
ITEM	USEFUL LIFE		LOAD LIFE	ENDURANCE TEST	SHELF LIFE	
Lifetime	7 000h	> 100 000h	5 000h	5 000h	1 000h	
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value	
Capacitance Change	Within ± 30% of initial value		Within ± 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 Applied Current Applied Temperature	U_R I_R 85°C	U_R 1,2 x I_R 40°C	U_R I_R 85°C	U_R I_R = 0 85°C IEC 60384	U_R = 0 I_R = 0 85°C	After test: U_R to be applied for 30 min > 24h before measurement

MULTIPLIER FOR RIPPLE CURRENT (FREQUENCY COEFFICIENT)

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

Multipliers for typical operating conditions.

MULTIPLIER FOR LIFETIME (LIFETIME DIAGRAM)



I_A = actual ripple current at 120Hz,
I_R = rated ripple current at 120Hz, 85°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 seperate "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.

CD **29D** HR SERIES

ALUMINUM ELECTROLYTIC CAPACITORS · SNAP-IN TYPE

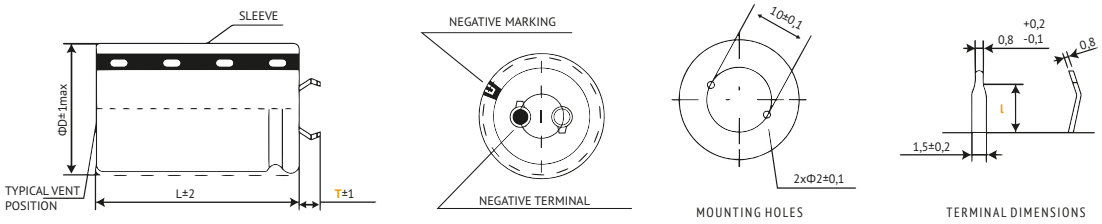
U_{RDC} (Surge Voltage) Code (V)	C_R Rated Capacitance (µF)	ESR_{max} Equivalent Series Resistance 20°C 120Hz (mΩ)	ESR_{typ} Equivalent Series Resistance 20°C 120Hz (mΩ)	tanδ Dissipation Factor 20°C 120Hz	I_{leak} Leakage Current (mA)	I_{RAC} Rated Ripple Current 85°C 120Hz (Arms)	Size øD x L (mm)	ORDER CODE ◊◊ = pin style & length ΔΔ = pin number Details: Page 4
160 (200) 2C	330	603	355	0,15	0,5	1,50	22 x 25	ECS2CHR331M◊◊ΔΔ2225
	390	511	300	0,15	0,6	1,60	25 x 25	ECS2CHR391M◊◊ΔΔ2525
	470	424	245	0,15	0,8	1,80	22 x 35	ECS2CHR471M◊◊ΔΔ2235
	560	356	215	0,15	0,9	2,10	22 x 35	ECS2CHR561M◊◊ΔΔ2235
		356	215	0,15	0,9	2,20	25 x 30	ECS2CHR561M◊◊ΔΔ2530
		356	215	0,15	0,9	2,10	30 x 25	ECS2CHR561M◊◊ΔΔ3025
	680	293	178	0,15	1,1	2,60	22 x 40	ECS2CHR681M◊◊ΔΔ2240
		293	178	0,15	1,1	2,50	25 x 35	ECS2CHR681M◊◊ΔΔ2535
	820	243	145	0,15	1,3	2,80	22 x 50	ECS2CHR821M◊◊ΔΔ2250
		243	145	0,15	1,3	2,70	25 x 40	ECS2CHR821M◊◊ΔΔ2540
		243	145	0,15	1,3	2,90	30 x 30	ECS2CHR821M◊◊ΔΔ3030
		243	145	0,15	1,3	2,80	35 x 25	ECS2CHR821M◊◊ΔΔ3525
	1000	199	115	0,15	1,5	3,30	25 x 45	ECS2CHR102M◊◊ΔΔ2545
		199	115	0,15	1,5	3,40	30 x 35	ECS2CHR102M◊◊ΔΔ3035
		199	115	0,15	1,5	3,30	35 x 30	ECS2CHR102M◊◊ΔΔ3530
	1200	166	95	0,15	1,5	3,70	25 x 50	ECS2CHR122M◊◊ΔΔ2550
		166	95	0,15	1,5	3,80	30 x 40	ECS2CHR122M◊◊ΔΔ3040
		166	95	0,15	1,5	3,60	35 x 35	ECS2CHR122M◊◊ΔΔ3535
	1500	133	75	0,15	1,5	4,40	30 x 45	ECS2CHR152M◊◊ΔΔ3045
		133	75	0,15	1,5	4,30	35 x 40	ECS2CHR152M◊◊ΔΔ3540
	1800	111	70	0,15	1,5	4,40	35 x 45	ECS2CHR182M◊◊ΔΔ3545
	2200	91	58	0,15	1,5	4,90	35 x 50	ECS2CHR222M◊◊ΔΔ3550
200 (250) 2D	220	905	375	0,15	0,4	1,20	22 x 25	ECS2DHR221M◊◊ΔΔ2225
	330	603	258	0,15	0,7	1,50	22 x 30	ECS2DHR331M◊◊ΔΔ2230
		603	258	0,15	0,7	1,60	25 x 25	ECS2DHR331M◊◊ΔΔ2525
	390	511	221	0,15	0,8	1,80	22 x 35	ECS2DHR391M◊◊ΔΔ2235
		511	221	0,15	0,8	1,80	25 x 30	ECS2DHR391M◊◊ΔΔ2530
	470	424	175	0,15	0,9	2,00	22 x 40	ECS2DHR471M◊◊ΔΔ2240
		424	175	0,15	0,9	2,10	30 x 25	ECS2DHR471M◊◊ΔΔ3025
	560	356	150	0,15	1,1	2,20	22 x 45	ECS2DHR561M◊◊ΔΔ2245
		356	150	0,15	1,1	2,20	25 x 35	ECS2DHR561M◊◊ΔΔ2535
		356	150	0,15	1,1	2,30	30 x 30	ECS2DHR561M◊◊ΔΔ3030
		356	150	0,15	1,1	2,20	35 x 25	ECS2DHR561M◊◊ΔΔ3525
	680	293	128	0,15	1,4	2,60	25 x 40	ECS2DHR681M◊◊ΔΔ2540
		293	128	0,15	1,4	2,40	30 x 30	ECS2DHR681M◊◊ΔΔ3030
	820	243	105	0,15	1,5	2,70	25 x 50	ECS2DHR821M◊◊ΔΔ2550
		243	105	0,15	1,5	2,80	30 x 40	ECS2DHR821M◊◊ΔΔ3040
		243	105	0,15	1,5	2,60	35 x 30	ECS2DHR821M◊◊ΔΔ3530
	1000	199	80	0,15	1,5	3,40	30 x 40	ECS2DHR102M◊◊ΔΔ3040
		199	80	0,15	1,5	3,60	35 x 35	ECS2DHR102M◊◊ΔΔ3535
	1200	166	70	0,15	1,5	3,80	30 x 50	ECS2DHR122M◊◊ΔΔ3050
		166	70	0,15	1,5	3,70	35 x 40	ECS2DHR122M◊◊ΔΔ3540
	1500	133	55	0,15	1,5	4,20	35 x 50	ECS2DHR152M◊◊ΔΔ3550
250 (300) 2E	150	1327	550	0,15	0,4	0,92	22 x 25	ECS2EHR151M◊◊ΔΔ2225
	180	1106	470	0,15	0,5	0,98	22 x 25	ECS2EHR181M◊◊ΔΔ2225
	220	905	370	0,15	0,6	1,25	22 x 30	ECS2EHR221M◊◊ΔΔ2230
		905	370	0,15	0,6	1,25	25 x 25	ECS2EHR221M◊◊ΔΔ2525
	270	737	305	0,15	0,7	1,25	22 x 35	ECS2EHR271M◊◊ΔΔ2235
	330	603	250	0,15	0,8	1,64	22 x 40	ECS2EHR331M◊◊ΔΔ2240
		603	250	0,15	0,8	1,64	25 x 30	ECS2EHR331M◊◊ΔΔ2530
		603	250	0,15	0,8	1,64	30 x 25	ECS2EHR331M◊◊ΔΔ3025
	390	511	221	0,15	1,0	1,90	22 x 45	ECS2EHR391M◊◊ΔΔ2245
		511	221	0,15	1,0	1,90	25 x 35	ECS2EHR391M◊◊ΔΔ2535
	470	424	175	0,15	1,2	2,20	22 x 50	ECS2EHR471M◊◊ΔΔ2250
		424	175	0,15	1,2	2,20	25 x 40	ECS2EHR471M◊◊ΔΔ2540
		424	175	0,15	1,2	2,20	30 x 30	ECS2EHR471M◊◊ΔΔ3030
		424	175	0,15	1,2	2,20	35 x 25	ECS2EHR471M◊◊ΔΔ3525
	560	356	150	0,15	1,4	2,40	25 x 45	ECS2EHR561M◊◊ΔΔ2545
		356	150	0,15	1,4	2,40	30 x 35	ECS2EHR561M◊◊ΔΔ3035
	680	293	123	0,15	1,5	2,80	30 x 40	ECS2EHR681M◊◊ΔΔ3040
		293	123	0,15	1,5	2,80	35 x 30	ECS2EHR681M◊◊ΔΔ3530
	820	243	105	0,15	1,5	3,20	30 x 45	ECS2EHR821M◊◊ΔΔ3045
		243	105	0,15	1,5	3,20	35 x 35	ECS2EHR821M◊◊ΔΔ3535
	1000	199	80	0,15	1,5	3,70	35 x 40	ECS2EHR102M◊◊ΔΔ3540
	1200	166	70	0,15	1,5	4,10	35 x 45	ECS2EHR122M◊◊ΔΔ3545
	1500	133	60	0,15	1,5	4,60	35 x 50	ECS2EHR152M◊◊ΔΔ3550

U_{RDC} (Surge Voltage) Code (V)	C_R Rated Capacitance (µF)	ESR_{max} Equivalent Series Resistance 20°C 120Hz (mΩ)	ESR_{typ} Equivalent Series Resistance 20°C 120Hz (mΩ)	tanδ Dissipation Factor 20°C 120Hz	I_{leak} Leakage Current (mA)	I_{RAC} Rated Ripple Current 85°C 120Hz (Arms)	Size øD x L (mm)	ORDER CODE ◊◊ = pin style & length ΔΔ = pin number Details: Page 4
400 (450) 2G	68	2341	960	0,12	0,3	0,62	22 x 25	ECS2GHR680M◊◊ΔΔ2225
	100	1592	600	0,12	0,4	0,81	22 x 30	ECS2GHR101M◊◊ΔΔ2230
		1592	600	0,12	0,4	0,83	25 x 25	ECS2GHR101M◊◊ΔΔ2525
	120	1327	550	0,12	0,5	0,93	22 x 35	ECS2GHR121M◊◊ΔΔ2235
	150	1062	440	0,12	0,6	1,20	22 x 40	ECS2GHR151M◊◊ΔΔ2240
		1062	440	0,12	0,6	1,20	25 x 30	ECS2GHR151M◊◊ΔΔ2530
		1062	440	0,12	0,6	1,20	30 x 25	ECS2GHR151M◊◊ΔΔ3025
	180	885	360	0,12	0,7	1,30	22 x 45	ECS2GHR181M◊◊ΔΔ2245
		885	360	0,12	0,7	1,30	25 x 35	ECS2GHR181M◊◊ΔΔ2535
		885	360	0,12	0,7	1,30	30 x 30	ECS2GHR181M◊◊ΔΔ3030
		885	360	0,12	0,7	1,30	35 x 25	ECS2GHR181M◊◊ΔΔ3525
	220	724	300	0,12	0,9	1,50	22 x 50	ECS2GHR221M◊◊ΔΔ2250
		724	300	0,12	0,9	1,50	25 x 40	ECS2GHR221M◊◊ΔΔ2540
		724	300	0,12	0,9	1,50	30 x 35	ECS2GHR221M◊◊ΔΔ3035
	270	590	240	0,12	1,1	1,70	25 x 45	ECS2GHR271M◊◊ΔΔ2545
		590	240	0,12	1,1	1,70	30 x 40	ECS2GHR271M◊◊ΔΔ3040
		590	240	0,12	1,1	1,70	35 x 30	ECS2GHR271M◊◊ΔΔ3530
	330	483	200	0,12	1,3	2,10	30 x 45	ECS2GHR331M◊◊ΔΔ3045
		483	200	0,12	1,3	2,10	35 x 35	ECS2GHR331M◊◊ΔΔ3535
	390	409	170	0,12	1,5	2,30	30 x 50	ECS2GHR391M◊◊ΔΔ3050
		409	170	0,12	1,5	2,30	35 x 40	ECS2GHR391M◊◊ΔΔ3540
	470	339	140	0,12	1,5	2,70	35 x 45	ECS2GHR471M◊◊ΔΔ3545
	560	285	110	0,12	1,5	3,00	35 x 50	ECS2GHR561M◊◊ΔΔ3550
450 (500) 2W	47	3387	2800	0,12	0,2	0,52	22 x 25	ECS2WHR470M◊◊ΔΔ2225
	68	2341	1940	0,12	0,3	0,66	22 x 30	ECS2WHR680M◊◊ΔΔ2230
		2341	1940	0,12	0,3	0,66	25 x 25	ECS2WHR680M◊◊ΔΔ2525
	100	1592	1310	0,12	0,5	0,90	22 x 35	ECS2WHR101M◊◊ΔΔ2235
		1592	1310	0,12	0,5	0,90	25 x 30	ECS2WHR101M◊◊ΔΔ2530
		1592	1310	0,12	0,5	0,90	30 x 25	ECS2WHR101M◊◊ΔΔ3025
	120	1327	910	0,12	0,5	1,10	22 x 40	ECS2WHR121M◊◊ΔΔ2240
		1327	910	0,12	0,5	1,10	25 x 35	ECS2WHR121M◊◊ΔΔ2535
	150	1062	880	0,12	0,7	1,30	22 x 50	ECS2WHR151M◊◊ΔΔ2250
		1062	880	0,12	0,7	1,30	25 x 40	ECS2WHR151M◊◊ΔΔ2540
		1062	880	0,12	0,7	1,30	30 x 30	ECS2WHR151M◊◊ΔΔ3030
	180	885	740	0,12	0,8	1,40	25 x 45	ECS2WHR181M◊◊ΔΔ2545
		885	740	0,12	0,8	1,40	30 x 35	ECS2WHR181M◊◊ΔΔ3035
		885	740	0,12	0,8	1,40	35 x 25	ECS2WHR181M◊◊ΔΔ3525
	220	724	590	0,12	1,0	1,60	25 x 50	ECS2WHR221M◊◊ΔΔ2550
		724	590	0,12	1,0	1,60	30 x 40	ECS2WHR221M◊◊ΔΔ3040
		724	590	0,12	1,0	1,60	35 x 30	ECS2WHR221M◊◊ΔΔ3530
	270	590	490	0,12	1,2	1,90	30 x 45	ECS2WHR271M◊◊ΔΔ3045
		590	490	0,12	1,2	1,90	35 x 35	ECS2WHR271M◊◊ΔΔ3535
	330	483	395	0,12	1,5	2,20	35 x 40	ECS2WHR331M◊◊ΔΔ3540
	390	409	300	0,12	1,5	2,40	35 x 45	ECS2WHR391M◊◊ΔΔ3545
	470	339	280	0,12	1,5	2,80	35 x 50	ECS2WHR471M◊◊ΔΔ3550

ORDER CODE SNAP-IN TYPE

EC	S	2G	QC	221	M	T6	P2	2535	-	JExxxxx
Techno-logy	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 0J 10V 1A 16V 1C 20V 1D 25V 1E 35V 1V 40V 1G 50V 1H 63V 1J 80V 1K 100V 2A 125V 2B 160V 2C 180V 2K 200V 2D 250V 2E 385V 2J 400V 2G 415V 2P 420V 2X 450V 2W 500V 2H 550V 2Y 575V 2Z 600V 2S 630V J2	CD 293 BZ CD 294 BW CD 295 BC CD 295S BS CD 296 KC CD 296L FL CD 297 BB CD 299 PG CD 29C QC CD 29D HR CD 29G BA CD 29H QH CD 29HD QF CD 29L QL CD 29U CU CD 29UH UT CD 840 ZQ CD 891 ZJ CD 892 ZL CD 895 ZK	0,1 0R1 0,47 R47 1,0 010 2,2 2R2 100 101 1 000 102 10 000 103	**±20% M** ±10% K +30/-10% Q +20/-0% R ±15% L +20/-10% V	4,0mm Pin Length T/L4 **6,3mm Pin Length T/L6** Soldering Pin S4 on request: alternative pin types ■ = preferred	**2 Pin P2** 3 Pin P3 4 Pin P4 5 Pin P5 6 Pin P6	22x40 **2240** 30x45 **3045** 35x80 **3580** 45x100 **45100** 50x105 **50105**	Standard - PVC V PET E	

2 PIN TYPE: T6P2 / T4P2 STANDARD

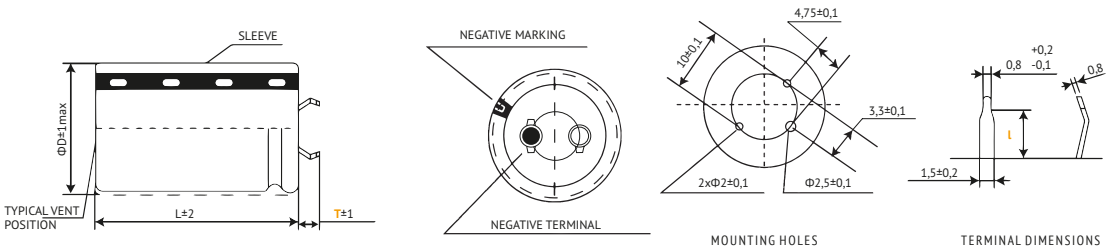


Standard Version: Self-Lock Terminal. Other terminal types and styles on request.
For diameter øD ⩾ 45mm the safety vent is typically placed at the side of the housing.

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

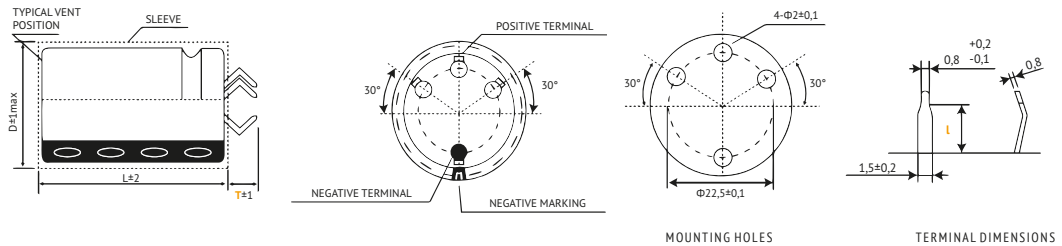


For diameter øD ⩾ 45mm the safety vent is typically placed at the side of the housing.

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 øD ⩾ 30mm only.
For diameter øD ⩾ 45mm 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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