

CD293 Series

Snap-in Aluminium Electrolytic Capacitors

Features

- General-purpose standard series
- Load life of 2000 hours at 105°C
- Environmentally friendly product



TEMPERATURE RANGE
-40°C ... +105°C

TABULATED VOLTAGES
63 – 250 V

TABULATED CAPACITANCE
270 – 12000 μF

ENDURANCE
105°C 2000 h

Tabulated voltages / capacitance: case-size table entries only; see the note on the rated voltage range / subject to manufacturer confirmation.

Specifications

Operating temperature range	10 ~ 250 V: -40 ~ +105°C 350 ~ 500 V: -25 ~ +105°C						
Rated voltage range	10 ~ 250 V 350 ~ 500 V						
Capacitance tolerance	±20% (120 Hz, 20°C)						
Leakage current	$I \leq 3\sqrt{CV}$ or 3000 μA, whichever is greater, after 5 minutes' application of rated voltage						
Load life	2000 hours at +105°C with rated voltage applied. <table border="1"> <tr> <td>Capacitance change</td><td>Within ±20% of the initial value</td></tr> <tr> <td>Dissipation factor</td><td>Not more than 200% of the initial specified value</td></tr> <tr> <td>Leakage current</td><td>Not more than the initial specified value</td></tr> </table>	Capacitance change	Within ±20% of the initial value	Dissipation factor	Not more than 200% of the initial specified value	Leakage current	Not more than the initial specified value
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Dissipation factor	Not more than 200% of the initial specified value						
Leakage current	Not more than the initial specified value						
Placement test	1000 hours at +105°C with rated voltage applied (see notes). After the test, rated voltage (UR) is applied for 30 minutes, 24 to 48 hours before measurement. <table border="1"> <tr> <td>Capacitance change</td><td>Within ±20% of the initial value</td></tr> <tr> <td>Dissipation factor</td><td>Not more than 200% of the initial specified value</td></tr> <tr> <td>Leakage current</td><td>Not more than the initial specified value</td></tr> </table>	Capacitance change	Within ±20% of the initial value	Dissipation factor	Not more than 200% of the initial specified value	Leakage current	Not more than the initial specified value
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Leakage current	Not more than the initial specified value						
Applicable standards	JIS C 5101-4-1 and JIS C 5101-2						

Low-temperature characteristics

Rated voltage (V)	10	16	25	35	50	63 ~ 100	160 ~ 250	250 ~ 350
Z(-25°C)/Z(+20°C)	6	6	4	4	4	4	4	8
Z(-40°C)/Z(+20°C)	16	15	10	10	8	6	15	—

Maximum impedance ratio at 120 Hz. Z(-40°C)/Z(+20°C) is not specified for the 250 ~ 350 V group.

Dissipation factor (tan δ) at 20°C, 120 Hz

Rated voltage (V)	10	16	25	35	50	63	80	100	160 ~ 250	350 ~ 500
tan δ (max.)	4.5	0.40	0.35	0.30	0.25	0.25	0.20	0.20	0.15	0.20

Ripple current temperature correction factor

Ambient temperature (°C)	45	60	80	105
Correction factor	2.50	2.20	1.62	1.00

Ripple current frequency correction factor

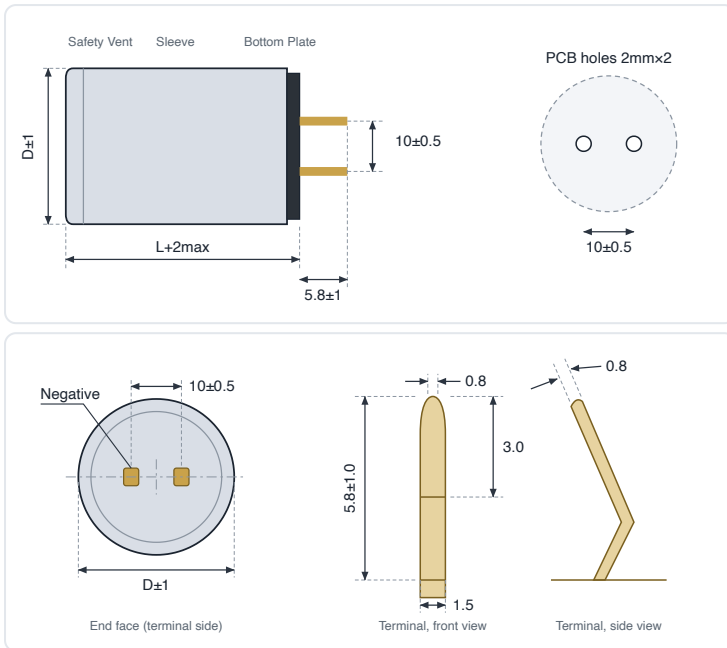
Frequency (Hz)	50	120	1k	10k	100k
10 ~ 100 V	0.88	1.00	1.15	1.15	1.20
160 ~ 250 V	0.85	1.00	1.15	1.20	1.20
350 ~ 450 V	0.88	1.00	1.15	1.15	1.20

Standard ratings

$\mu\text{F} \setminus \text{V}$	63	80	100	160	200	250
270						22x25
330						22x30 25x25
390				22x25	22x25	22x35 25x30
470				22x30	22x30	22x40 25x35 30x25
560				22x35 25x25	22x35 25x25	22x45 25x40 30x30
680				22x40 25x30	22x40 25x30	22x50 25x45 30x35 35x25
820			22x25	22x45 25x35 30x25	22x45 25x35 30x25	25x50 30x40 35x30
1000				22x50 25x40 30x30	22x50 25x40 30x30 35x25	30x45 35x35
1200		22x25	22x30 25x25	25x45 30x35 35x25	25x45 30x35 35x30	30x50 35x40
1500		22x25	22x35 25x30 30x25	25x50 30x40 35x30	25x50 30x40 35x35	35x45
1800	22x25	22x30 25x25	22x40 25x35 30x25	30x45 35x35	30x45 35x40	35x50
2200	22x30 25x25	22x35 25x30 30x25	22x45 25x40 30x30 35x25	30x50 35x40	30x50 35x45	
2700	22x35 25x25	22x40 25x35 30x25	22x50 25x45 30x35 35x30	35x45	35x50	
3300	22x35 25x30 30x25	22x45 25x40 30x30 35x25	25x50 30x40 35x30	35x50		
3900	22x40 25x35 30x30 35x25	22x50 25x45 30x35 35x25	30x45 35x35			
4700	22x50 25x40 30x30 35x25	25x50 30x40 35x30	30x50 35x40			
5600	25x45 30x35 35x30	30x45 35x35	35x45			
6800	25x50 30x40 35x30	30x50 35x40	35x50			
8200	30x45 35x35	35x45				
10000	30x50 35x40	35x50				
12000	35x45					

Case size $\Phi\text{D} \times \text{L}$ (mm). Full ratings in the characteristics list.

Dimensions



How to order

CD293 Series code	2 Number of characters for capacitance $47\mu\text{F} = 2$, $470\mu\text{F} = 3$, $4700\mu\text{F} = 4$	470 Capacitance $47\mu\text{F} = 470$, $3300\mu\text{F} = 332$, $33000\mu\text{F} = 333$	M Capacitance tolerance $M = \pm 20\%$, $K = \pm 10\%$	630 Voltage code $6.3\text{V} = 6\text{R}3$, $10\text{V} = 100$, $63\text{V} = 630$, $100\text{V} = 101$	B Package B: bulk pack, A: ammo pack	8X12 Size code
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Example: CD2932470M630B8X12

Environmental

RoHS declaration (6/6) complies with the requirements of Directive 2002/95/EC, which stipulates the use of 100% Sn solder, gold plated or non-magnetic 100% Sn solder

RoHS

REACH

Applications

Computer

PC power

Measuring instruments

Telecom infrastructure

Characteristics list

Rated voltage (V)	Capacitance (μF)	Case diameter ΦD (mm)	Case size $\Phi D \times L$ (mm)
63	1500		
63	1800	$\Phi 22$	22x25
63	2200	$\Phi 22$	22x30
63	2200	$\Phi 25$	25x25
63	2700	$\Phi 22$	22x35
63	2700	$\Phi 25$	25x25
63	3300	$\Phi 22$	22x35
63	3300	$\Phi 25$	25x30
63	3300	$\Phi 30$	30x25
63	3900	$\Phi 22$	22x40
63	3900	$\Phi 25$	25x35
63	3900	$\Phi 30$	30x30
63	3900	$\Phi 35$	35x25
63	4700	$\Phi 22$	22x50
63	4700	$\Phi 25$	25x40
63	4700	$\Phi 30$	30x30
63	4700	$\Phi 35$	35x25
63	5600	$\Phi 25$	25x45
63	5600	$\Phi 30$	30x35
63	5600	$\Phi 35$	35x30
63	6800	$\Phi 25$	25x50
63	6800	$\Phi 30$	30x40

Rated voltage (V)	Capacitance (μF)	Case diameter ΦD (mm)	Case size ΦD×L (mm)
63	6800	Φ35	35×30
63	8200	Φ30	30×45
63	8200	Φ35	35×35
63	10000	Φ30	30×50
63	10000	Φ35	35×40
63	12000	Φ35	35×45
80	1200	Φ22	22×25
80	1500	Φ22	22×25
80	1800	Φ22	22×30
80	1800	Φ25	25×25
80	2200	Φ22	22×35
80	2200	Φ25	25×30
80	2200	Φ30	30×25
80	2700	Φ22	22×40
80	2700	Φ25	25×35
80	2700	Φ30	30×25
80	3300	Φ22	22×45
80	3300	Φ25	25×40
80	3300	Φ30	30×30
80	3300	Φ35	35×25
80	3900	Φ22	22×50
80	3900	Φ25	25×45
80	3900	Φ30	30×35
80	3900	Φ35	35×25
80	4700	Φ25	25×50
80	4700	Φ30	30×40
80	4700	Φ35	35×30
80	5600	Φ30	30×45
80	5600	Φ35	35×35
80	6800	Φ30	30×50
80	6800	Φ35	35×40
80	8200	Φ35	35×45
80	10000	Φ35	35×50
100	820	Φ22	22×25
100	1200	Φ22	22×30
100	1200	Φ25	25×25
100	1500	Φ22	22×35
100	1500	Φ25	25×30
100	1500	Φ30	30×25
100	1800	Φ22	22×40
100	1800	Φ25	25×35
100	1800	Φ30	30×25
100	2200	Φ22	22×45
100	2200	Φ25	25×40
100	2200	Φ30	30×30
100	2200	Φ35	35×25
100	2700	Φ22	22×50
100	2700	Φ25	25×45
100	2700	Φ30	30×35
100	2700	Φ35	35×30
100	3300	Φ25	25×50
100	3300	Φ30	30×40
100	3300	Φ35	35×30
100	3900	Φ30	30×45
100	3900	Φ35	35×35
100	4700	Φ30	30×50
100	4700	Φ35	35×40
100	5600	Φ35	35×45
100	6800	Φ35	35×50
100	8200		
160	390	Φ22	22×25
160	470	Φ22	22×30

Rated voltage (V)	Capacitance (μF)	Case diameter ΦD (mm)	Case size ΦD×L (mm)
160	560	Φ22	22×35
160	560	Φ25	25×25
160	680	Φ22	22×40
160	680	Φ25	25×30
160	820	Φ22	22×45
160	820	Φ25	25×35
160	820	Φ30	30×25
160	1000	Φ22	22×50
160	1000	Φ25	25×40
160	1000	Φ30	30×30
160	1200	Φ25	25×45
160	1200	Φ30	30×35
160	1200	Φ35	35×25
160	1500	Φ25	25×50
160	1500	Φ30	30×40
160	1500	Φ35	35×30
160	1800	Φ30	30×45
160	1800	Φ35	35×35
160	2200	Φ30	30×50
160	2200	Φ35	35×40
160	2700	Φ35	35×45
160	3300	Φ35	35×50
200	390	Φ22	22×25
200	470	Φ22	22×30
200	560	Φ22	22×35
200	560	Φ25	25×25
200	680	Φ22	22×40
200	680	Φ25	25×30
200	820	Φ22	22×45
200	820	Φ25	25×35
200	820	Φ30	30×25
200	1000	Φ22	22×50
200	1000	Φ25	25×40
200	1000	Φ30	30×30
200	1000	Φ35	35×25
200	1200	Φ25	25×45
200	1200	Φ30	30×35
200	1200	Φ35	35×30
200	1500	Φ25	25×50
200	1500	Φ30	30×40
200	1500	Φ35	35×35
200	1800	Φ30	30×45
200	1800	Φ35	35×40
200	2200	Φ30	30×50
200	2200	Φ35	35×45
200	2700	Φ35	35×50
250	270	Φ22	22×25
250	330	Φ22	22×30
250	330	Φ25	25×25
250	390	Φ22	22×35
250	390	Φ25	25×30
250	470	Φ22	22×40
250	470	Φ25	25×35
250	470	Φ30	30×25
250	560	Φ22	22×45
250	560	Φ25	25×40
250	560	Φ30	30×30
250	680	Φ22	22×50
250	680	Φ25	25×45
250	680	Φ30	30×35
250	680	Φ35	35×25
250	820	Φ25	25×50

Rated voltage (V)	Capacitance (μF)	Case diameter ΦD (mm)	Case size $\Phi\text{D}\times\text{L}$ (mm)
250	820	$\Phi 30$	30×40
250	820	$\Phi 35$	35×30
250	1000	$\Phi 30$	30×45
250	1000	$\Phi 35$	35×35
250	1200	$\Phi 30$	30×50
250	1200	$\Phi 35$	35×40
250	1500	$\Phi 35$	35×45
250	1800	$\Phi 35$	35×50

Rated voltage range: the specification table states 10 ~ 250 V and 350 ~ 500 V, but case sizes are printed only for 63, 80, 100, 160, 200 and 250 V — subject to manufacturer confirmation.

Voltage groups differ between tables on the source sheet: 350 ~ 500 V (rated voltage range, $\tan \delta$), 250 ~ 350 V (low-temperature characteristics; overlaps 160 ~ 250 V at 250 V) and 350 ~ 450 V (ripple frequency correction) — subject to manufacturer confirmation.

Dissipation factor: $\tan \delta$ at 10 V is printed as 4.5, while all other voltages are 0.15 ~ 0.40 — subject to manufacturer confirmation.

Placement test: the original sheet names this test 'Placement test'; its condition line reads '1000 hours, with application of working voltage at 105°C' — subject to manufacturer confirmation.

Rated ripple current: the source sheet titles its ratings table 'Nominal capacitance, rated voltage, rated ripple current and case size table' and prints ripple correction factors, but no rated ripple current values — subject to manufacturer confirmation.

Characteristics list: 63 V / 1500 μF and 100 V / 8200 μF are listed without a case size — subject to manufacturer confirmation.

How to order: the ordering example (47 μF , 63 V, size code 8X12) is not among the CD293 ratings — subject to manufacturer confirmation.

KOME