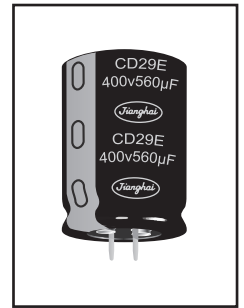
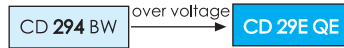


2000h at 105°C

- Withstanding over voltage
- PCB Mounting



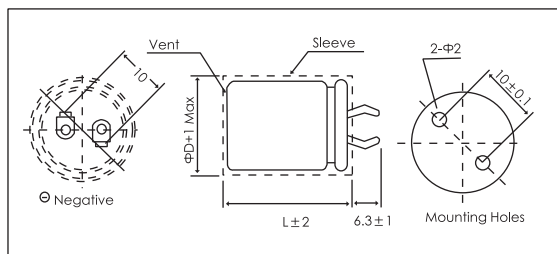
SNAP-IN/LUG

Items	Characteristics		
Operating Temperature Range (°C)	-25 ~ 105		
Voltage Range (V)	200 ~ 450		
Capacitance Range (µF)	56 ~ 1500		
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 0.01CV or 1.5mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V)		
Dissipation Factor (20°C, 120Hz)	Rated Voltage (V)	200~400	450
	Tan δ (max)	0.15	0.20
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	200 ~ 450	
	Impedance Ratio $Z_{-25°C} / Z_{+20°C}$	4	

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	4000h	≥ 180000h	2000h	3000h	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 200% of specified value	Not more than 130% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	$U_R$ $I_R$ 105°C	$U_R$ $1.4 \times I_R$ 40°C	$U_R$ $I_R$ 105°C	$U_R$ $I_R = 0$ 105°C	$U_R = 0$ $I_R = 0$ 105°C After test: $U_R$ to be applied for 30min >24h before measurement

## Dimensions

mm



## Frequency Coefficient

Frequency Voltage (V)	50/60Hz	120Hz	300Hz	1kHz	10kHz	≥50kHz
	< 250	0.80	1.00	1.17	1.32	1.45
> 250	0.80	1.00	1.16	1.30	1.41	1.43

## Temperature Coefficient

Temperature(°C)	+40	+55	+70	+85	+105
Coefficient	2.7	2.5	2.1	1.7	1.0

# CD 29E QE SERIES



## Ratings for CD 29E QE Series

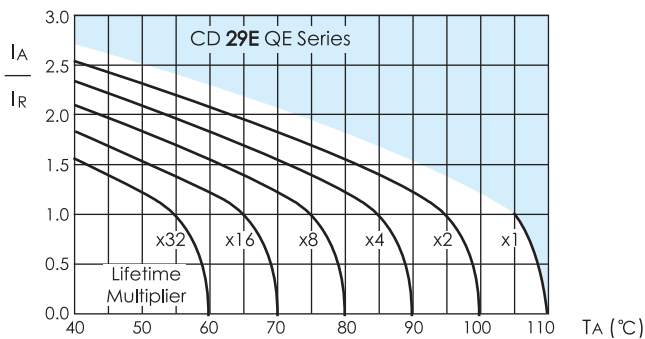
SNAP-IN/LUG

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
200 (250) 2D	150	1327	708	0.71	22 x 25	ECS2DQE151M□□220025
		1106	590	0.78	22 x 30	ECS2DQE181M□□220030
	220	905	483	0.98	22 x 30	ECS2DQE221M□□220030
		905	483	0.98	25 x 25	ECS2DQE221M□□250025
	270	737	393	1.15	22 x 35	ECS2DQE271M□□220035
		737	393	1.15	25 x 30	ECS2DQE271M□□250030
	330	603	322	1.30	22 x 40	ECS2DQE331M□□220040
		603	322	1.30	25 x 30	ECS2DQE331M□□250030
	390	510	272	1.40	22 x 50	ECS2DQE391M□□220050
		510	272	1.40	25 x 35	ECS2DQE391M□□250035
	470	510	272	1.40	30 x 25	ECS2DQE391M□□300025
		423	226	1.51	25 x 40	ECS2DQE471M□□250040
	560	423	226	1.51	30 x 30	ECS2DQE471M□□300030
		355	190	1.70	25 x 45	ECS2DQE561M□□250045
	680	355	190	1.70	30 x 30	ECS2DQE561M□□300030
		355	190	1.70	35 x 25	ECS2DQE561M□□350025
	820	293	137	1.88	30 x 35	ECS2DQE681M□□300035
		293	137	1.88	35 x 30	ECS2DQE681M□□350030
	1000	243	113	2.14	30 x 40	ECS2DQE821M□□300040
		243	113	2.14	35 x 30	ECS2DQE821M□□350030
1200	199	80	2.37	30 x 50	ECS2DQE102M□□300050	
	199	80	2.37	35 x 35	ECS2DQE102M□□350035	
1500	166	66	2.61	35 x 40	ECS2DQE122M□□350040	
	133	53	3.17	35 x 50	ECS2DQE152M□□350050	
250 (300) 2E	120	1659	885	0.68	22 x 25	ECS2EQE121M□□220025
		1106	590	0.88	22 x 30	ECS2EQE181M□□220030
	180	1106	590	0.88	25 x 25	ECS2EQE181M□□250025
		905	483	1.09	22 x 35	ECS2EQE221M□□220035
	220	905	483	1.09	25 x 30	ECS2EQE221M□□250030
		737	393	1.21	22 x 40	ECS2EQE271M□□220040
	270	737	393	1.21	25 x 35	ECS2EQE271M□□250035
		737	393	1.21	30 x 25	ECS2EQE271M□□300025
	330	603	281	1.32	22 x 45	ECS2EQE331M□□220045
		603	281	1.32	25 x 40	ECS2EQE331M□□250040
	390	603	281	1.32	30 x 30	ECS2EQE331M□□300030
		510	238	1.57	22 x 50	ECS2EQE391M□□220050
	470	510	238	1.57	25 x 45	ECS2EQE391M□□250045
		510	238	1.57	30 x 30	ECS2EQE391M□□300030
	560	423	198	1.70	25 x 50	ECS2EQE471M□□250050
		423	198	1.70	30 x 35	ECS2EQE471M□□300035
	680	355	166	1.89	30 x 40	ECS2EQE561M□□300040
		355	166	1.89	35 x 30	ECS2EQE561M□□350030
	820	293	137	2.20	30 x 45	ECS2EQE681M□□300045
		293	137	2.20	35 x 35	ECS2EQE681M□□350035
1000	243	97	2.45	30 x 50	ECS2EQE821M□□300050	
	243	97	2.45	35 x 40	ECS2EQE821M□□350040	
1200	199	80	2.70	35 x 45	ECS2EQE102M□□350045	
	166	66	3.29	35 x 50	ECS2EQE122M□□350050	

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
400 (450) 2G	68	2927	1171	0.58	22 x 25	ECS2GQE680M□□220025
		2427	971	0.68	22 x 30	ECS2GQE820M□□220030
	82	2427	971	0.68	25 x 25	ECS2GQE820M□□250025
		1990	796	0.79	22 x 35	ECS2GQE101M□□220035
	100	1990	796	0.79	25 x 30	ECS2GQE101M□□250030
		1990	553	0.91	22 x 40	ECS2GQE121M□□220040
	120	1990	553	0.91	25 x 35	ECS2GQE121M□□250035
		1990	553	0.91	30 x 25	ECS2GQE121M□□300025
	150	1327	442	0.99	22 x 45	ECS2GQE151M□□220045
		1327	442	0.99	25 x 35	ECS2GQE151M□□250035
	180	1106	369	1.16	22 x 50	ECS2GQE181M□□220050
		1106	369	1.16	25 x 40	ECS2GQE181M□□250040
	220	1106	369	1.16	30 x 30	ECS2GQE181M□□300030
		905	302	1.28	25 x 45	ECS2GQE221M□□250045
	270	905	302	1.28	30 x 35	ECS2GQE221M□□300035
		737	246	1.43	25 x 50	ECS2GQE271M□□250050
	330	737	246	1.43	30 x 40	ECS2GQE271M□□300040
		737	246	1.43	35 x 35	ECS2GQE271M□□350035
	390	603	201	1.67	30 x 45	ECS2GQE331M□□300045
		603	201	1.67	35 x 40	ECS2GQE331M□□350040
470	510	136	1.90	30 x 50	ECS2GQE391M□□300050	
	510	136	1.90	35 x 45	ECS2GQE391M□□350045	
450 (500) 2W	56	4739	1185	0.44	22 x 25	ECS2WQE560M□□220025
		68	3903	976	0.53	22 x 30
	82	3236	809	0.64	22 x 35	ECS2WQE820M□□220035
		3236	809	0.64	25 x 25	ECS2WQE820M□□250025
	100	2654	663	0.70	22 x 40	ECS2WQE101M□□220040
		2654	663	0.70	25 x 30	ECS2WQE101M□□250030
	120	2212	442	0.76	22 x 45	ECS2WQE121M□□220045
		2212	442	0.76	25 x 35	ECS2WQE121M□□250035
	150	2212	442	0.76	30 x 30	ECS2WQE121M□□300030
		1769	354	0.90	22 x 50	ECS2WQE151M□□220050
	180	1769	354	0.90	25 x 40	ECS2WQE151M□□250040
		1769	354	0.90	30 x 35	ECS2WQE151M□□300035
	220	1769	354	0.90	35 x 30	ECS2WQE151M□□350030
		1206	241	1.13	25 x 45	ECS2WQE221M□□250045
	270	1206	241	1.13	30 x 40	ECS2WQE221M□□300040
		1206	241	1.13	35 x 35	ECS2WQE221M□□350035
	330	983	197	1.30	25 x 50	ECS2WQE271M□□250050
		983	197	1.30	30 x 45	ECS2WQE271M□□300045
	390	983	197	1.30	35 x 30	ECS2WQE271M□□350030
		804	161	1.45	30 x 50	ECS2WQE331M□□300050
470	804	161	1.45	35 x 45	ECS2WQE331M□□350045	
	680	136	1.72	35 x 50	ECS2WQE391M□□350050	

Customer products are available on request.

## Lifetime Diagram



IA = actual ripple current at 120Hz, IR = rated ripple current at 120Hz, 105°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load

## DC Overvoltage Test Conditions

Rated Voltage (Vdc)	Nominal Capacitance (μF)	Current Limit (A)	Test Voltage (Vdc)
200	<330	4	300/375
	330 ≤ C < 470	5	
	≥ 470	7	
250	<330	4	350/450
	330 ≤ C < 470	5	
	≥ 470	7	
400	<100	2	500/600
	100 ≤ C < 220	4	
	≥ 220	7	
450	<100	2	550/675
	100 ≤ C < 220	4	
	≥ 220	7	

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.