



Product Brief 2024

CeraLink Capacitors

The revolution for demanding high-efficiency and high-density power applications

Features

- Increasing capacitance with DC bias between 0 V and V_{op} (positive bias behaviour) and best in class capacitance density at operating point (V_{op} & T_{op})
- Capable of handling extremely high ripple currents
- High reliability with qualification based on AEC-Q200
- High temperature robustness with low losses at high temperature
- Cu inner electrode material properties are beneficial for high-frequency switching with low losses and allow fast slew rates with a high I_{max} .
- RoHS compatible
- Generally low self-heating and good thermal self-regulating characteristics. Additionally, the self-heating supports CeraLink to come to temperature for good performance.
- Surface mountable using standard MLCC reflow profiles

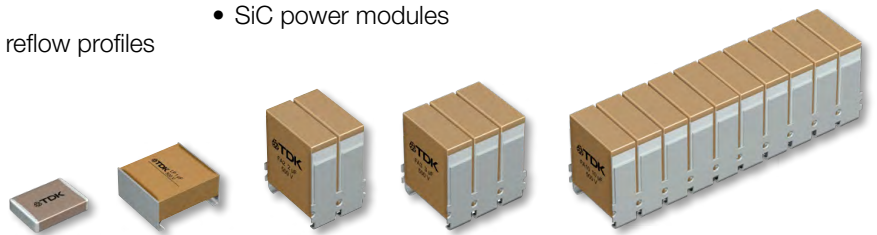
Known customer applications

TDK CeraLink capacitors are a highly compact solution for e.g. snubbers, filters, flying capacitors, and DC links to name a few functions. It can be used in xEV high-voltage applications:

- Auxiliary inverters (HV compressor, HV pump, HV heater)
- OBC, DC/DC converters or even charger converters
- Traction inverters or even eAxes
- Power modules for inverters

Industry:

- Drives
- Energy storage systems
- Power converters
- Power supplies like UPS, isolated power supply
- Solar inverters
- SiC power modules









More information

www.tdk-electronics.tdk.com/ceralink
or contact your local sales office

CeraLink Capacitors

Portfolio and technical specification

Series	Ordering Code	$V_{pk, max}$	V_R	V_{op}	$C_{nom, typ}$	$C_{eff, typ}$	$I_{op1} @ 100 kHz, 85 °C$	$I_{op2} @ 100 kHz, 105 °C$	ESL	Terminal style
		V	V	V	μF	μF	A_{RMS}	A_{RMS}	nH	
2220										
	B58043I5254M052	650	500	400	0.25	0.15	5	4.3	3	standard
	B58043E5254M052	650	500	400	0.25	0.15	4.5	3.8	3	soft
	B58043I9563M052	1080	900	800	0.056	0.033	2.4	2.1	3	standard
	B58043E9563M052	1080	900	800	0.056	0.033	2.3	2.0	3	soft
LP (Low Profile) – L-style										
	B58031I5105M062	650	500	400	1	0.6	11	10	3	SMD with lead frame
	B58031I7504M062	1000	700	600	0.5	0.25	7	6	3	
	B58031I9254M062	1300	900	800	0.25	0.13	5	5	3	
LP (Low Profile) – J-style										
	B58031U5105M062	650	500	400	1	0.6	11	10	3	SMD with lead frame
	B58031U7504M062	1000	700	600	0.5	0.25	7	6	3	
	B58031U9254M062	1300	900	800	0.25	0.13	5	5	3	
FA (Flex Assembly)										
FA2										
	B58035U5205M*	650	500	400	2	1.2	17	14	3	SMD with lead frame
	B58035U7105M*	1000	700	600	1	0.5	12	11	3	
	B58035U9504M*	1300	900	800	0.5	0.26	8	7	3	
FA3										
	B58035U5305M*	650	500	400	3	1.8	20	17	3	SMD with lead frame
	B58035U7155M*	1000	700	600	1.5	0.75	16	13	3	
	B58035U9754M*	1300	900	800	0.75	0.39	11	9	3	
FA10										
	B58035U5106M001	650	500	400	10	6	47	38	2	SMD with lead frame
	B58035U7505M001	1000	700	600	5	2.5	39	30	2	
	B58035U9255M001	1300	900	800	2.5	1.3	32	23	2	


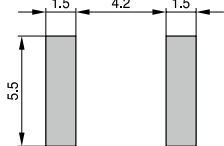

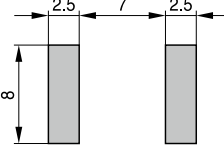

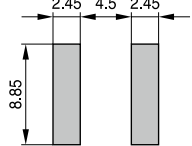

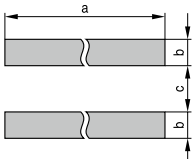

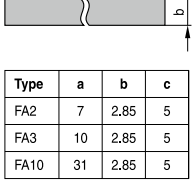

* different packaging units available

Symbol	Terms
$C_{eff, typ}$	Typical effective capacitance @ V_{op} , $0.5 V_{AC, RMS}$, 1 kHz, room temperature
$C_{nom, typ}$	Typical nominal capacitance @ V_{op} , quasistatic, room temperature
ESL	Equivalent series inductance

Symbol	Terms
I_{op}	Operating ripple current, root mean square value of sinusoidal AC current
V_{op}	Operating voltage
$V_{pk, max}$	Maximum peak operating voltage
V_R	Rated voltage

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Series	Ordering Code	l	w	h	Approx. weight	Solder pad layout																
		mm	mm	mm	g	mm																
2220																						
	B58043I5254M052	5.7	5	1.4	0.26	 CLC0036-Y																
	B58043E5254M052	5.7	5	1.4	0.26																	
	B58043I9563M052	5.7	5	1.6	0.29																	
	B58043E9563M052	5.7	5	1.6	0.29																	
LP (Low Profile) – L-style																						
	B58031I5105M062	7.85	10.84	4	1.3	 CLC0008-Q																
	B58031I7504M062	7.85	10.84	4	1.3																	
	B58031I9254M062	7.85	10.84	4	1.3																	
LP (Low Profile) – J-style																						
	B58031U5105M062	7.85	7.14	4	1.3	 CLC0013-W																
	B58031U7504M062	7.85	7.14	4	1.3																	
	B58031U9254M062	7.85	7.14	4	1.3																	
FA (Flex Assembly)																						
FA2																						
	B58035U5205M*	7.4	6	9.1	2.3																	
	B58035U7105M*	7.4	6	9.1	2.3																	
	B58035U9504M*	7.4	6	9.1	2.3																	
FA3																						
	B58035U5305M*	7.4	9	9.1	3.5	 <table border="1"> <thead> <tr> <th>Type</th> <th>a</th> <th>b</th> <th>c</th> </tr> </thead> <tbody> <tr> <td>FA2</td> <td>7</td> <td>2.85</td> <td>5</td> </tr> <tr> <td>FA3</td> <td>10</td> <td>2.85</td> <td>5</td> </tr> <tr> <td>FA10</td> <td>31</td> <td>2.85</td> <td>5</td> </tr> </tbody> </table>	Type	a	b	c	FA2	7	2.85	5	FA3	10	2.85	5	FA10	31	2.85	5
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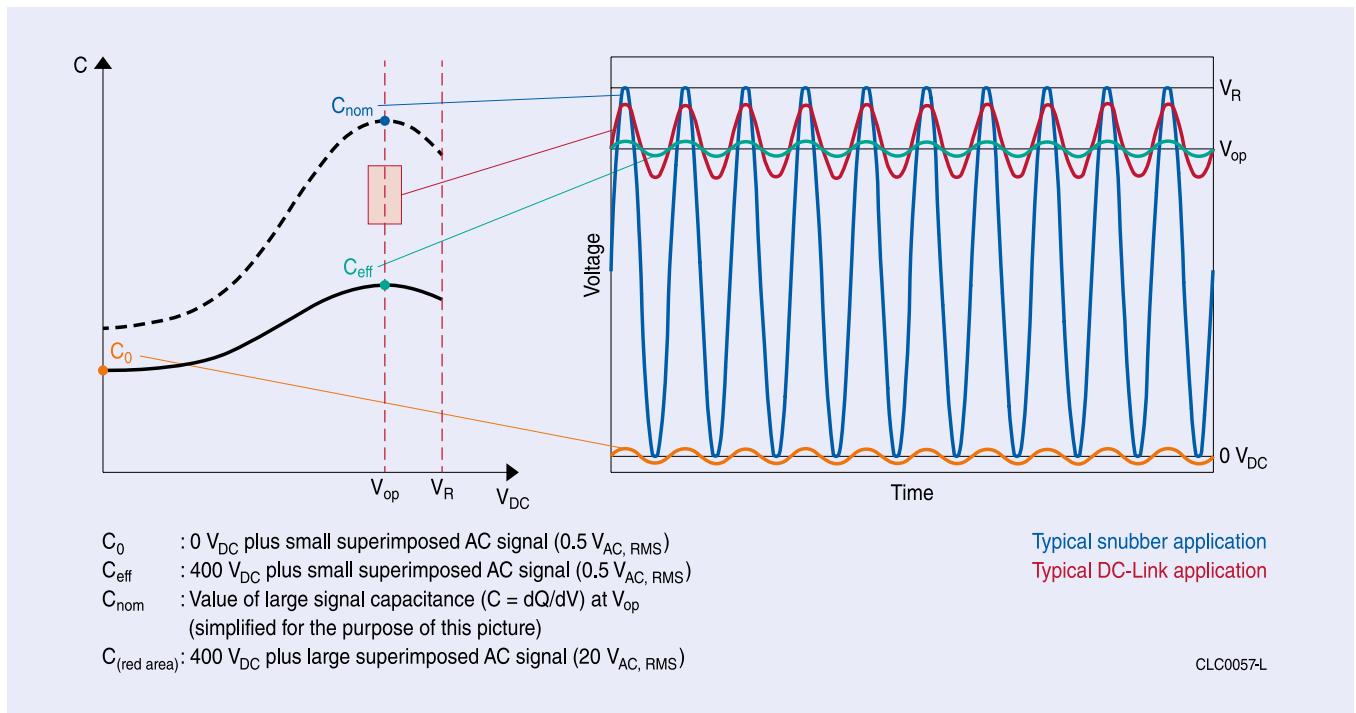
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CeraLink's special features

- Positive bias behavior

CeraLink features a non-linear capacitance behavior, i.e. the capacitance strongly depends on external parameters such as the applied DC bias voltage or the temperature. It is important to note that CeraLink is

designed to have its capacitance maximum under operating conditions, i.e. under a DC bias (constant operating voltage) and with a superimposed ripple amplitude.



- Behavior at high temperatures

- Operating temperature up to +150 °C (favorable for SiC/GaN)
- High temperature robustness with low losses at high temperature
- Ultra-low leakage currents due to material selection
- No thermal runaway
- Generally low self-heating and good thermal self-regulating properties

- Behavior at high frequencies

- Optimal frequency in the range of 100 kHz to 1 MHz
- Minimal ESR and low losses due to material selection
- No limitation of dV/dt , favorable for high rise/fall times

Important information: Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products. We expressly point out that these statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. It is incumbent on the customer to check and decide whether a product is suitable for use in a particular application. This publication is only a brief product survey which may be changed from time to time. Our products are described in detail in our data sheets. The Important notes (www.tdk-electronics.tdk.com/ImportantNotes) and the product-specific Cautions and warnings must be observed. All relevant information is available through our sales offices.