



Film Snubber Capacitors for IGBT Modules

The Capacitance Company
KEMET
CHARGED.®

Why Choose KEMET

KEMET is your seamless, integrated, single source for capacitance solutions worldwide. With 95% of possible dielectric solutions, global availability, on-time delivery, plus full custom design services. One world. One KEMET.

Features & Benefits

- Wide capacitance & voltage range
- Direct mount version with six tab styles to fit most IGBTs
- 4-pin PCB mount version available
- Stable temperature characteristics
- Pb-free/RoHS-compliant
- Made with low-loss polypropylene film

Programs Supported

Power semiconductor snubbing, including IGBT direct mount

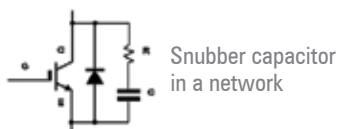
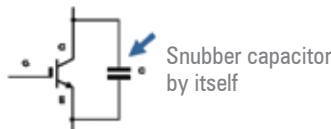
Steps for Choosing an IGBT Snubber Capacitor to Test

1. Choose the snubber voltage to match (or exceed) the IGBT voltage.
2. Choose an initial capacitance value using the diagram below.
3. Choose a tab style code from the diagrams on the reverse side.
4. Choose the desired part number from the datasheet.

The tab style code is digit 13. Example: C4BSNBX4200ZALJ is tab style A.

	IGBT with screw connections	IGBT with pin connections
Snubber by itself	 Series C4BS direct mount <p>Cap value = 0.5 μF per 100 A IGBT current (1.0 μF per 100 A if high inductance expected)</p>	 Series C4AS PC board mount <p>Cap value = 0.5 μF per 100 A IGBT current (1.0 μF per 100 A if high inductance expected)</p>
Snubber in network	 Series C4AS PC board mount <p>Cap value = 0.25 μF per 100 A IGBT current</p>	 Series C4AS PC board mount <p>Cap value = 0.25 μF per 100 A IGBT current</p>

This is a starting point. The engineer will pick the final cap value after evaluation and testing.



KEMET Products

Series	Capacitor Type	Rated Voltage	Cap Range	Characteristics
C4AS	Radial Leads	850 VDC/500 VAC	0.15 – 5.0 μ F	• Snubber applications
		1000 VDC/600 VAC	0.15 – 4.7 μ F	• Climatic category (IEC 60068-1) 40/85/56
		1200 VDC/630 VAC	0.1 – 3.5 μ F	• Pulse rise time (dv/dt) 469 to 3360 V/ μ s
		2000 VDC/700 VAC	0.033 – 1.5 μ F	• Pitch (p) p = 27.5, 37.5, 52.5 mm
		3000 VDC/750 VAC	0.022 – 0.82 μ F	• Terminals tinned copper 2 or 4 wires
C4BS	Direct Mount	850 VDC/550 VAC	0.47 – 5.0 μ F	• Snubber-IGBT applications
		1000 VDC/600 VAC	0.47 – 4.0 μ F	• Climatic category (IEC 60068-1) 40/85/56
		1200 VDC/630 VAC	0.33 – 3.3 μ F	• Pulse rise time (dv/dt) 469 to 3361 V/ μ s
		2000 VDC/700 VAC	0.10 – 1.5 μ F	• Box Length (L) L = 32 to 57.5 mm
		3000 VDC/750 VAC	0.047 – 0.82 μ F	• Terminals tinned brass lugs

For more information, samples
and engineering kits,
please visit us at www.kemet.com
or call 1.877.myKEMET.



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Application of C4B Tab Styles

The tab style code is digit 13 in the part number. Example: C4BSNBX4200ZALJ is tab style A

General description of tab styles. Also see detailed diagrams below.

Tab Styles	Cap Length	Pitch Range	Notes
A	41.5 - 42.5 mm	21.5 - 29.5 mm	Fits most common IGBTs
B	41.5 - 42.5 mm	16.0 - 28.0 mm	Fits most common IGBTs
H	41.5 - 42.5 mm	21.5 - 29.5 mm	Alternative to "A" with lower mounting height
A, B, H	57.5 mm		Larger pitches for high power IGBTs, see diagram below
E	B = 18 mm	31 mm	For the Semikron Skip® module, 31 mm terminals
F			Specialty type on demand, see diagram below
G			Specialty type on demand, see diagram below

Sugg. tabs for common IGBTs (always check specific cases).

IGBT Mfr	Series	A	B	E	H
Semikron	SKM				
Semikron	Skip®				
Powerex/Mitsubishi	CM up to 300				
Powerex/Mitsubishi	CM 400 & up				
Infineon/Eupec	BSM				
Microsemi	APT				

Above applies to cap length 41.5 - 42.5 mm or B=18 mm for tab style E.

