

The Capacitance Company

Thank you for visiting our new ***Telecommunications Capacitance Solution*** page.

This site is currently under construction - in the interim you will find the following KEMET product data sheets that may be of interest to you.

CHARGED.®

HIGH TEMPERATURE

Programs Supported

- Down hole oil exploration
- Mining
- Automotive (under the hood in particular)
- Industrial

Benefits & Advantages

- KEMET's broad & deep product portfolio
- 95% of possible capacitance solutions
- Global foot print - Manufacturing & Sales
- Local Technical Support
- Custom or off the shelf solutions
- Easy-To-Buy-From order system and philosophy

KEMET Products

	Tantalum	MLCC	SMD Film	Thru Hole Film	SMD Aluminum	Thru Hole & Screw Term Aluminum
200°C	In development	HiTemp/HiVolt (& 260°C) SMD & Stacks in development				
175°C	T499 (MnO2)		SMC, SMW, SPC			
150°C	T498 (MnO2)	X8R X8L		SMR		PEG126 PEG222 PEG225 PEG226
125°C	MnO2 T525 (KO) T530 (KO)	X7R C0G	GMC, GMW, GPC LDE, LDB MDC, MDS	RSB JSP MDK R46(X2-125°C ver.) R74(125°C ver.)	A700 (AO)	PEG124 PEH526 PEH626
105°C	T520 (KO)			Various Series		Various Series
85°C		Y5Z X5R				Various Series

Other Information:

White papers at www.kemet.com
 PPT available from KEMET Sales team

Samples available

www.kemet.com

FLEX CRACK MITIGATION

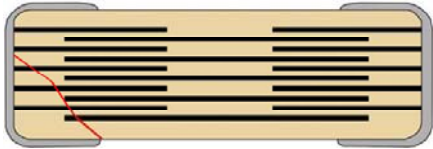
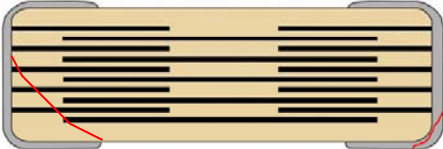
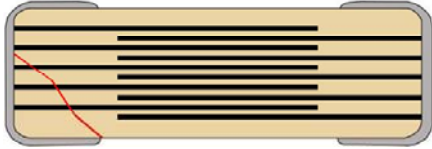
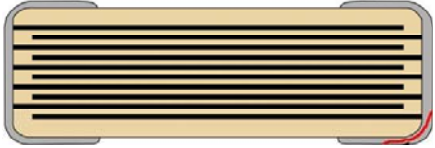
Programs Supported

- Automotive:
Battery line, Engine control, Safety, Multimedia
- Industrial:
Measurement, Analytical, Medical, Power supply
- Military & Aerospace:
Display, Instrumentation, Navigation

Benefits & Advantages

- Reduces catastrophic failures due to board flex
- Reduces low IR or short circuits due to board flex
- Channels flex stress to end terminations (flexible terminations)
- Allow up to 5mm of board flex capability (flexible terminations)
- Four options to choose from
- Global footprint – manufacturing & sales

KEMET Product Options:

Technology	Target Values	Example
Floating Electrode <u>FE CAP</u>	Low to Mid Capacitance	 Floating Electrode means 2 capacitors in Series
Floating Electrode + Flexible Termination <u>FF CAP</u>	Low to Mid Capacitance	
Open Mode	Mid Capacitance	 Open Mode creates a safe margin area
Flexible Termination* <u>FT CAP</u> *New – Up to 2225 case size!	High Capacitance	 Flexible Termination moves the crack away from ceramic body

Other Information:

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Samples available

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HIGH VOLTAGE SMD

Benefits & Features

- High voltage (500V - 3000V)
- Non-polarized
- High volumetric capacitance with low leakage current
- Extremely low ESR and ESL
- High thermal stability
- High ripple current capability
- Preferred capacitance solution at frequencies exceeding 100kHz
- Lead free solder process capability (260°C)
- Automotive Grade available
- ROHS compliant (When ordered with standard 100% Sn Termination Finish)
- Easy-To-Buy-From order entry & philosophy
- Global footprint – manufacturing & sales

Programs Supported

- Automotive
- Consumer
- Industrial
- Medical
- Telecommunications

Electrical & Physical Characteristics

- Case Sizes: 0805, 1206, 1210, 1808, 1812, 1825, 2220, 2225
- Tolerances: 0.25pF - 20%
- Dielectric Options: COG (1pF to 0.010µF) & X7R (10pf to 0.22µF)
- Temperature Range: -55°C thru +125°C
- Voltage Options: 500V, 630V, 1000V, 1500V, 2000V, 2500V, 3000V
- Capacitance Values: 1.0pF to 2.2µF

Applications

- Switch Mode Power Supply
- Resonators
- Snubber Circuit
- High Voltage Coupling
- Ballast Circuits (LCD, Fluorescent, Etc.)
- Coupling Capacitor/CUK
- RF Antenna Transmitter Circuits
- Input Filter
- Tank Circuit
- Output Filter
- High Voltage DC Blocking
- Voltage Multiplier Circuits
- Input Protection for LAN/Telecom Products

Markets

- Power Supply
- DC-DC Converter
- HID Lighting
- Industrial Equipment/Control
- Computer (LAN/WAN Interface)
- Motor Control Circuits
(Hybrid Automotive, Industrial, etc.)
- High Voltage Power Supply
- LCD Fluorescent Backlight Ballast
- Telecommunications Equipment
- Medical Equipment/Control
- Analog and Digital Modems

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Military & Industrial Grade Stacked Capacitors

Programs Supported

- Industrial
- Military
- Space

Applications

- Input & output Filtering on Power Supplies
 -Often found on "Capacitor Banks"
- Snubber circuits
- Radar Filtering (28V / Microwave Burst)

Benefits & Features

- MIL-PRF-49470
- Military Grade Case Codes 3, 4, & 5
- Military Grade Case Codes 2, 4, & 6 Q2CY10
- DSCC Approved (87106)
- Industrial Grade Available / Qualified to MIL-PRF-49470
- Space Grade Available ("T" Level)
- Low ESR/ESL
- High Thermal Stability
- High Ripple Current Capability
- Higher Reliability than Electrolytics or Tantalum
- Available Encapsulated or Unencapsulated
- Operating temperature range between -55°C and +125°C
- Easy-To-Buy-From Order Entry & Philosophy

Military Grade Case Codes 3, 4 & 5

Mil Spec	MIL-PRF-49470
DSCC Drawing	87106
Form Factor	N, J, & L Leads
Voltage	50V – 500V
Dielectrics	BX, BR, BQ
Cap Range	0.15µF - 47µF
Case Size	3, 4, & 5

Space Level Stacked Capacitors

Mil Spec	MIL-PRF-49470
Form Factor	N, J, & L Leads
Voltage	50V – 500V
Dielectrics	BX, BR, BQ
Cap Range	0.15µF - 47µF
Case Size	3, 4, & 5

Military Grade Case Codes 1, 2 & 6 Q2CY10

Mil Spec	MIL-PRF-49470
DSCC Drawing	87106
Form Factor	N, J, & L Leads
Voltage	50V – 500V
Dielectrics	BX, BR, BQ
Cap Range	6.8µF - 270µF
Case Size	1, 2, & 6

Industrial Grade Capacitors

Mil Spec	n/a
DSCC Drawing	n/a
Form Factor	N, J, & L Leads
Voltage	25V – 1000V
Dielectrics	BX, BR, BQ, X7R
Cap Range	0.15µF - 165µF
Case Size	3, 4, & 5

Other Information:

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T521 Series - High Voltage Polymer

Programs Supported

- Industrial/Medical
 - Industrial Power Suppliers (to 28V)
 - Medical Diagnostics
- Telecommunication
- Computer/Network
 - Lap top, Desk top, Net Books, Servers
- Military/Avionics
 - Military Grade Power Supplies (to 28V)
 - Avionics Instrumentation (to 28V)

Benefits & Features

- High Voltage (16V-35V)
- Replacement for MnO₂ Tantalum Chips (35V-50V)
- Up to 68µF Capacitance value
- High Ripple Current Capability
- Volumetrically Efficient
- Stable temperature characteristics
- Safe failure mode
- Low ESR
- Recommended 20% Voltage Derating
- 125°C Rated Temperature
- Pb Free/RoHS Compliant & Halogen Free
(When ordered with 100% Sn Termination Finish)
- Easy-To-Buy-From Order Entry & Philosophy

T521 Series Offerings vs Standard (MnO₂) Tantalum Chip Capacitors

Cap	~13V Applications		~16V Applications		~20V Applications		~24V Applications		~28V Applications	
	25V Std.	16V T521	35V Std.	20V T521	35V Std.	25V T521	50V Std.	35V T521	50V Std.	35V T521
6.8µF							7343-32 300mΩ		7343-32 300mΩ	
10µF							7343-43 250mΩ		7343-43 250mΩ	
15µF			7343-32 225mΩ		7343-32 225mΩ		7343-43 200mΩ	7343-20 125mΩ	7343-43 200mΩ	7343-20 125mΩ
22µF			7343-43 125mΩ		7343-43 125mΩ			7343-32 90mΩ		7343-32 90mΩ
33µF	7343-32 90mΩ		7343-43 100mΩ		7343-43 100mΩ	7343-20 60mΩ		7343-32 45mΩ		7343-32 45mΩ
47µF	7343-43 120mΩ		7343-43 185mΩ	7343-20 55mΩ	7343-43 185mΩ	7343-32 75mΩ		7343-43 35mΩ		7343-43 35mΩ
68µF	7343-43 125mΩ	7343-20 50mΩ		7343-32 100mΩ		7343-32 75mΩ		7343-43 100mΩ		7343-43 100mΩ
100µF	7260-38 150mΩ	7343-20 50mΩ		7343-32 100mΩ		7343-43 35mΩ				
150µF		7343-32 45mΩ		7343-43 100mΩ						
220µF		7343-43 100mΩ								

Blue = Contact Factory for Availability

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Snubber Capacitors for IGBT Modules

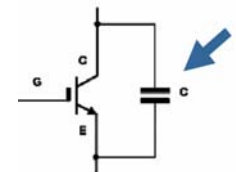
Benefits & Features

- Wide capacitance & voltage range
- Direct mount version with six tab styles to fit most IGBTs
- 4-pin PCB mount version available
- Easy-To-Buy-From Order Entry & Philosophy
- Global footprint – manufacturing & sales
- Stable temperature characteristics
- Pb free/RoHS compliant
- Made with low-loss polypropylene film
- Safe failure mode

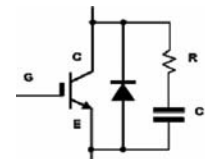
Screw connections

Pin connections

Snubber by itself	 <p>Series C4BS, C4BT direct mount</p> <p>Cap value = 1uF per 100A IGBT rating</p>	 <p>Series C4AS, C4AT PC board mount</p> <p>Cap value = 1uF per 100A IGBT rating</p>
	 <p>Series C4AS, C4AT PC board mount</p> <p>Cap value = 0.25uF per 100A IGBT rating</p>	 <p>Series C4AS, C4AT PC board mount</p> <p>Cap value = 0.25uF per 100A IGBT rating</p>



**Snubber capacitor
by itself**



**Snubber capacitor
in a network**

This is a starting point. The engineer will pick the capacitor voltage and final cap value.

KEMET Snubber Capacitor Quick Selector Guide

Series	Capacitor type	Rated Voltage	Cap Range	Characteristics
C4AS	Radial Leads	850VDC/500VAC	0.15 - 5.0µF	<ul style="list-style-type: none"> • Snubber applications • Climatic category (IEC 60068-1) 40/85/56 • Pulse rise time (dv/dt) 469 to 3360V/µs • Pitch (p) p = 27.5, 37.5, 52.5mm • Terminals Tinned copper 2 or 4 wires
		1000VDC/600VAC	0.15 - 4.7µF	
		1200VDC/630VAC	0.1 - 3.5µF	
		2000VDC/700VAC	0.033 - 1.5µF	
		3000VDC/750VAC	0.022 - 0.82µF	
C4AT	Radial Leads	250VDC/160VAC	1.0 - 60µF	<ul style="list-style-type: none"> • Switching applications • Climatic category (IEC 60068-1) 40/85/56 • Pulse rise time (dv/dt) 15 to 148V/µs • Pitch (p) p = 27.5, 37.5, 52.5mm • Terminals Tinned copper 2 or 4 wires
		400VDC/250VAC	1.0 - 40µF	
		450VDC/275VAC	1.0 - 33µF	
		600VDC/350VAC	0.68 - 20µF	
		700VDC/400VAC	0.47 - 15µF	
C4BS	Direct Mount	850VDC/550VAC	0.47 - 5.0µF	<ul style="list-style-type: none"> • Snubber-IGBT applications • Climatic category (IEC 60068-1) 40/85/56 • Pulse rise time (dv/dt) 469 to 3361V/µs • Box Length (L) L = 32 to 57.5mm • Terminals Tinned brass lugs
		1000VDC/600VAC	0.47 - 4.0µF	
		1200VDC/630VAC	0.33 - 3.3µF	
		2000VDC/700VAC	0.10 - 1.5µF	
		3000VDC/750VAC	0.047 - 0.82µF	
C4BT	Direct Mount	250VDC/160VAC	4.7 - 60µF	<ul style="list-style-type: none"> • Switching-IGBT applications • Climatic category (IEC 60068-1) 40/85/56 • Pulse rise time (dv/dt) 27 to 148V/µs • Box Length (L) L = 32 to 57.5mm • Terminals Tinned brass lugs
		400VDC/250VAC	3.3 - 40µF	
		600VDC/330VAC	2.5 - 20µF	
		700VDC/400VAC	1.5 - 15µF	
		850VDC/450VAC	1.0 - 10µF	

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