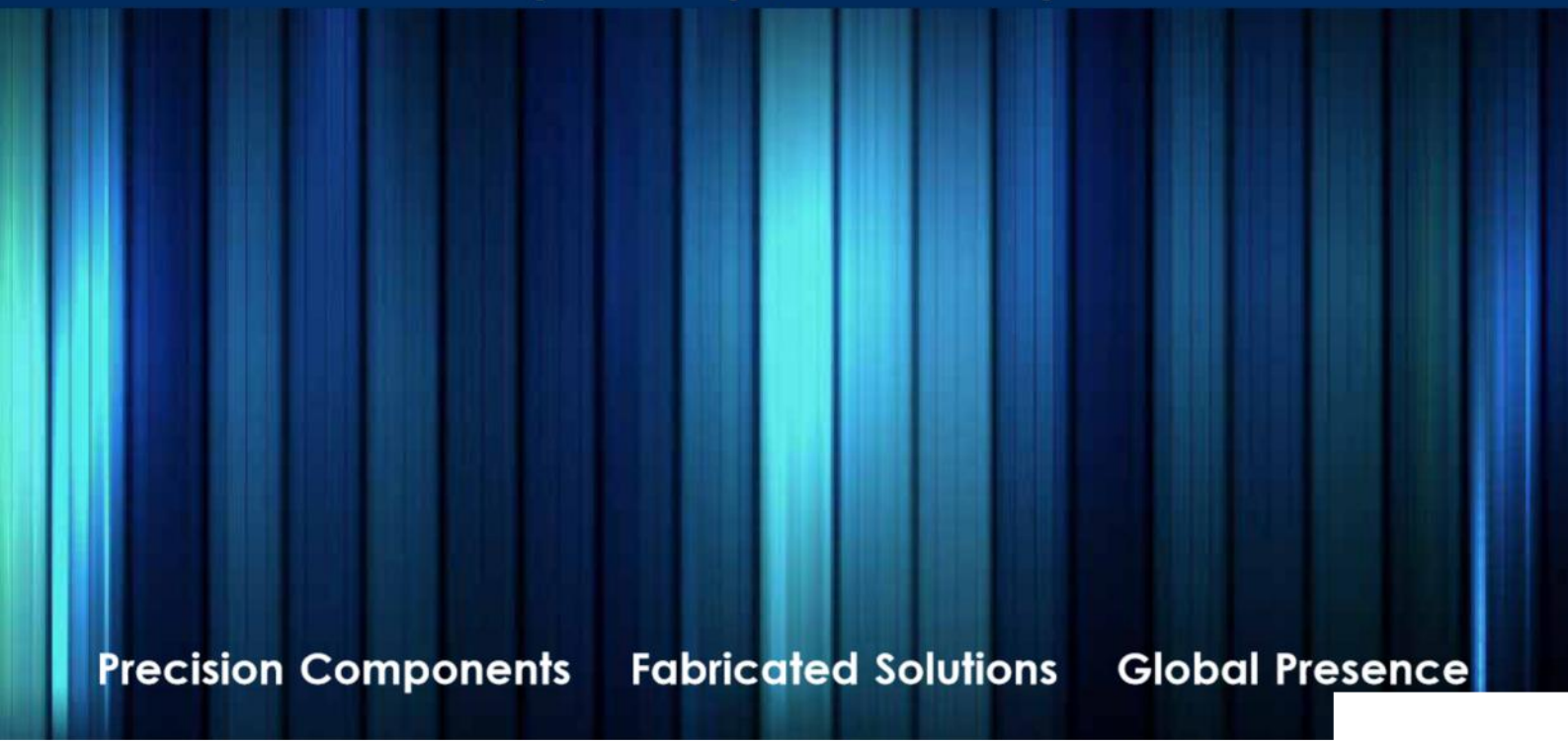
BOYD CORPORATION

LectroShield
EMI Absorbers

One Company, Many Solutions



BOYD CORPORATION

One Company, Many Solutions

Seams and openings in electronic devices provide avenues for rogue energy waves to enter or exit a device, causing erratic performance. This is known as EMI (electromagnetic interference). Boyd's LectroShield conductive foams, elastomers, adhesives, and metal foils are designed to manage interference energy, improving reliability and efficiency in device performance.

Boyd's LectroShield EMI Absorbers are designed to eliminate unwanted electrical "noise" in an electronic device. Different to shielding solutions, EMI Absorbers are intended to absorb unwanted energy, controlling and minimizing internal interference and crosstalk, and are commonly used as last minute fixes to manage EMI concerns where device redesign is not possible. Absorbers can be flexible or rigid, easy to die cut, are dielectric so they can be used near metals, do not need to be grounded and available with PSA. For these reasons, EMI Absorber applications are diverse and vary greatly from more traditional shielding materials and solutions.

Boyd's EMI Absorber solutions span multiple frequency ranges and applications, including:

- General EMI Noise Absorption in a Flexible Format
- 1MHz - 10GHz
- From 20 u' to 200 u'
- RFID & WPC in a Flexible Format
- 1MHz - 3GHz
- 20 u' to 70 u'
- High Frequency Absorption in a Flexible Format
- 1GHz - 40GHz
- WPC Absorption in a Rigid Format (125KHz)
- 140 u' to 670 u'
- Rigid NFC Ferrite (13.56MHz)

Boyd provides best-cost, engineered, specialty material-based energy management and sealing solutions through comprehensive technical materials and design expertise, world-class manufacturing quality, service reliability, and unparalleled supply chain management. Use Boyd's years of experience and engineering support in concert with your engineering / technical expertise to ensure your EMI challenges are solved in a cost effective, leading edge way.

Boyd Corporation Global Headquarters 600 S. McClure Rd. Modesto, CA +1 209-236-1111 Visit us! www.boydcorp.com

BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber		
		BOYD Part Number		
		BCEMI-310-1001	BCEMI-310-1002	BCEMI-310-1003
Frequency Ranges		1MHz ~ 10 GHz		
Standard Thickness	mm	0.025 / 0.05 / 0.1 / 0.15 / 0.2		
Permeability (u')	@ 3 MHz	20	30	50
Use Temperature	°C	-50 - 200		
Hardness	Shore A	80		
Density	g/cm3	3.8		
Solder Resistance	300°C/10sec	Pass		
Chemical Resistance	No Change	Pass		
Flammability	UL 94	Yes		
Standard Size	R / Sheet	Roll (1M width / 100M length)		
RoHS/ HF		RoHS/HF		
Note		Application: General EMI Noise (Silicone Binder)		

Properties	Unit	Product Type: EMI Absorber		
		BOYD Part Number		
		BCEMI-310-1004	BCEMI-310-1005	BCEMI-310-1006
Frequency Ranges		1MHz ~ 10 GHz		
Standard Thickness	mm	0.025 / 0.05 / 0.1 / 0.15 / 0.2		
Permeability (u')	@ 3 MHz	70	100	120
Use Temperature	°C	-50 - 200		
Hardness	Shore A	80		
Density	g/cm3	3.8		
Solder Resistance	300°C/10sec	Pass		
Chemical Resistance	No Change	Pass		
Flammability	UL 94	Yes		
Standard Size	R / Sheet	Roll (1M width / 100M length)		
RoHS/ HF		RoHS/HF		
Note		Application: General EMI Noise (Silicone Binder)		

BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber		
		BOYD Part Number		
		BCEMI-310-1007	BCEMI-310-1008	BCEMI-310-1009
Frequency Ranges		1MHz ~ 10 GHz		
Standard Thickness	mm	0.025 / 0.05 / 0.1 / 0.15 / 0.2		
Permeability (u')	@ 3 MHz	130	150	180
Use Temperature	°C	-50 - 200		
Hardness	Shore A	80		
Density	g/cm3	3.8		
Solder Resistance	300°C/10sec	Pass		
Chemical Resistance	No Change	Pass		
Flammability	UL 94	Yes		
Standard Size	R / Sheet	Roll (1M width / 100M length)		
RoHS/ HF		RoHS/HF		
Note		Application: General EMI Noise (Silicone Binder)		

Properties	Unit	Product Type: EMI Absorber
		BOYD Part Number
		BCEMI-310-1010
Frequency Ranges		1MHz ~ 10 GHz
Standard Thickness	mm	0.025 / 0.05 / 0.1 / 0.15 / 0.2
Permeability (u')	@ 3 MHz	200
Use Temperature	°C	-50 - 200
Hardness	Shore A	80
Density	g/cm3	3.8
Solder Resistance	300°C/10sec	Pass
Chemical Resistance	No Change	Pass
Flammability	UL 94	Yes
Standard Size	R / Sheet	Roll (1M width / 100M length)
RoHS/ HF		RoHS/HF
Note		Application: General EMI Noise (Silicone Binder)

BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber		
		BOYD Part Number		
		BCEMI-310-1011	BCEMI-310-1012	BCEMI-310-1013
Frequency Ranges		1MHz ~ 3GHz		
Standard Thickness	mm	0.025 / 0.05 / 0.1 / 0.15 / 0.2		
Permeability (u')	@ 3 MHz	20	30	50
Use Temperature	°C	-50 ~200		
Hardness	Shore A	80		
Density	g/cm3	3.8		
Solder Resistance	300°C/10sec	Pass		
Chemical Resistance	No Change	Pass		
Flammability	UL 94	Yes		
Standard Size	R / Sheet	Roll (1M width / 100M length)		
RoHS/ HF		RoHS/HF		
Note		Application: RFID / WPC / EMI Noise (Silicone Binder)		

Properties	Unit	Product Type: EMI Absorber
		BOYD Part Number
		BCEMI-310-1014
Frequency Ranges		1MHz ~ 3GHz
Standard Thickness	mm	0.025 / 0.05 / 0.1 / 0.15 / 0.2
Permeability (u')	@ 3 MHz	70
Use Temperature	°C	-50 - 200
Hardness	Shore A	80
Density	g/cm3	3.8
Solder Resistance	300°C/10sec	Pass
Chemical Resistance	No Change	Pass
Flammability	UL 94	Yes
Standard Size	R / Sheet	Roll (1M width / 100M length)
RoHS/ HF		RoHS/HF
Note		Application: RFID / WPC / EMI Noise (Silicone Binder)

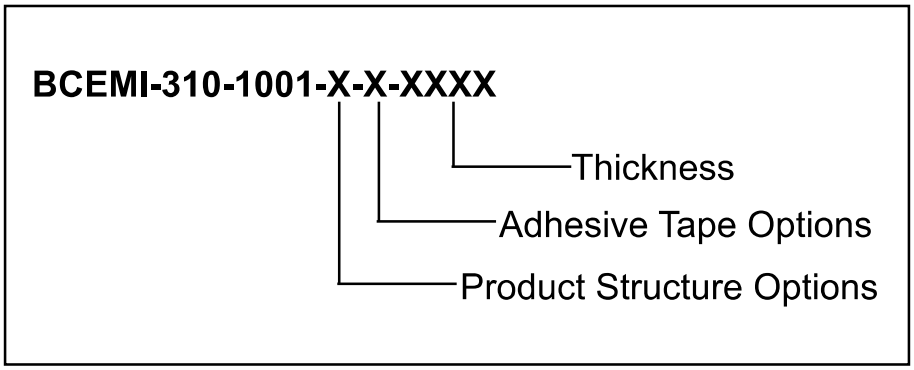
BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber	
		BOYD Part Number	
		BCEMI-310-1015	BCEMI-310-1016
Frequency Ranges		1GHz ~ 40GHz	
Standard Thickness	mm	0.5 / 1.0 / 1.5	
Permeability (u')	@ 3 MHz	4	3
Use Temperature	°C	-50 ~ 180	
Hardness	Shore A	70	
Density	g/cm3	3.3	
Solder Resistance	300°C/10sec	Pass	
Chemical Resistance	No Change	Pass	
Flammability	UL 94		
Standard Size	R / Sheet	210mm*300mm	
RoHS/ HF		RoHS/HF	
Note		Application: High Frequency Noise Silicone Binder	

BOYD CORPORATION

One Company, Many Solutions



EXAMPLE
BCEMI-310-1001-A-A-0.05
20 u' absorber, absorber + acrylic adhesive structure + 22 micron adhesive @ 0.05mm thick

Product Structure Options	
A	Absorber + Acrylic Adhesive
G	Aluminum Foil + Absorber + Acrylic Adhesive
H	Copper Foil + Absorber + Acrylic Adhesive

Adhesive Options	Base Film (microns)	Adhesive (microns)	Total (microns)	Notes
A	12	10	22	Transparent
B	12	18	30	Transparent
C	12	30	42	Transparent
D	12	18	30	Blue
E	Double Side Acrylic Tape 30 microns			Transparent
0	No Tape			N/A
2		15	15	Black
3	5	20	25	Transparent
7	Double Side Acrylic Tape 50 microns			Transparent
8	Double Side Acrylic Tape 10 microns			Transparent
9	5	10	15	Transparent

BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber		
		BOYD Part Number		
		BCEMI-310-1017	BCEMI-310-1018	BCEMI-310-1019
Frequency Ranges		13.56 MHz		
Standard Thickness	mm	0.045 / 0.06 / 0.08 / 0.1 / 0.15 / 0.18 / 0.2 / 0.25		
Permeability (u')	@ 13.56 MHz	150	130	110
Permeability (u")	@ 13.56 MHz	3	2	1
Use Temperature	°C	215 (ferrite only)		
Standard Size	Max. mm	135x135		
RoHS/ HF		RoHS/HF		
Note		Application : NFC (Ferrite)		

BCEMI-310-1017-XXXX

Thickness

EXAMPLE
BCEMI-310-1017-0.045
150 u' NFC Ferrite @ 0.045mm thick

BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber		
		BOYD Part Number		
		BCEMI-310-1020	BCEMI-310-1021	BCEMI-310-1022
Frequency Ranges		125KHz		
Standard Thickness	mm	0.045 / 0.06 / 0.08 / 0.1 / 0.15 / 0.18 / 0.2 / 0.25 / 0.3		
Permeability (u')	@ 100 KHz	140	310	380
Use Temperature	°C	215(ferrite only)	210(ferrite only)	150(ferrite only)
Standard Size	Max. mm	135x135		
RoHS/ HF		RoHS/HF		
Note		Application : Wireless Charger (Ferrite)		

Properties	Unit	Product Type: EMI Absorber	
		BOYD Part Number	
		BCEMI-310-1023	BCEMI-310-1024
Frequency Ranges		125KHz	
Standard Thickness	mm	0.045 / 0.06 / 0.08 / 0.1 / 0.15 / 0.18 / 0.2 / 0.25 / 0.3	0.2 ~ 0.6
Permeability (u')	@ 100 KHz	600	330
Use Temperature	°C	100(ferrite only)	210(ferrite only)
Standard Size	Max. mm	135x135	50x45
RoHS/ HF		RoHS/HF	RoHS/HF
Note		Application : Wireless Charger (Ferrite)	Wireless Charger Medium Power (Ferrite)

BOYD CORPORATION

One Company, Many Solutions

Properties	Unit	Product Type: EMI Absorber	
		BOYD Part Number	
		BCEMI-310-1025	BCEMI-310-1026
Frequency Ranges		100KHz ~ 1MHz	
Standard Thickness	mm	0.045 / 0.06 / 0.07 / 0.1 / 0.15 / 0.2	1
Permeability (u')	@ 100 KHz	250	670
Use Temperature	°C	-45 ~ 85	-45 ~ 85
Standard Size	Max. mm	125x125	50x50
RoHS/ HF		RoHS/HF	RoHS/HF
Note		Wireless Charger (Ferrite)	Wireless Charger Medium Power (Ferrite)

BCEMI-310-1025-XXXX

Thickness

EXAMPLE
BCEMI-310-1025-0.06
250 u' Wireless Charger Ferrite @ 0.06mm thick