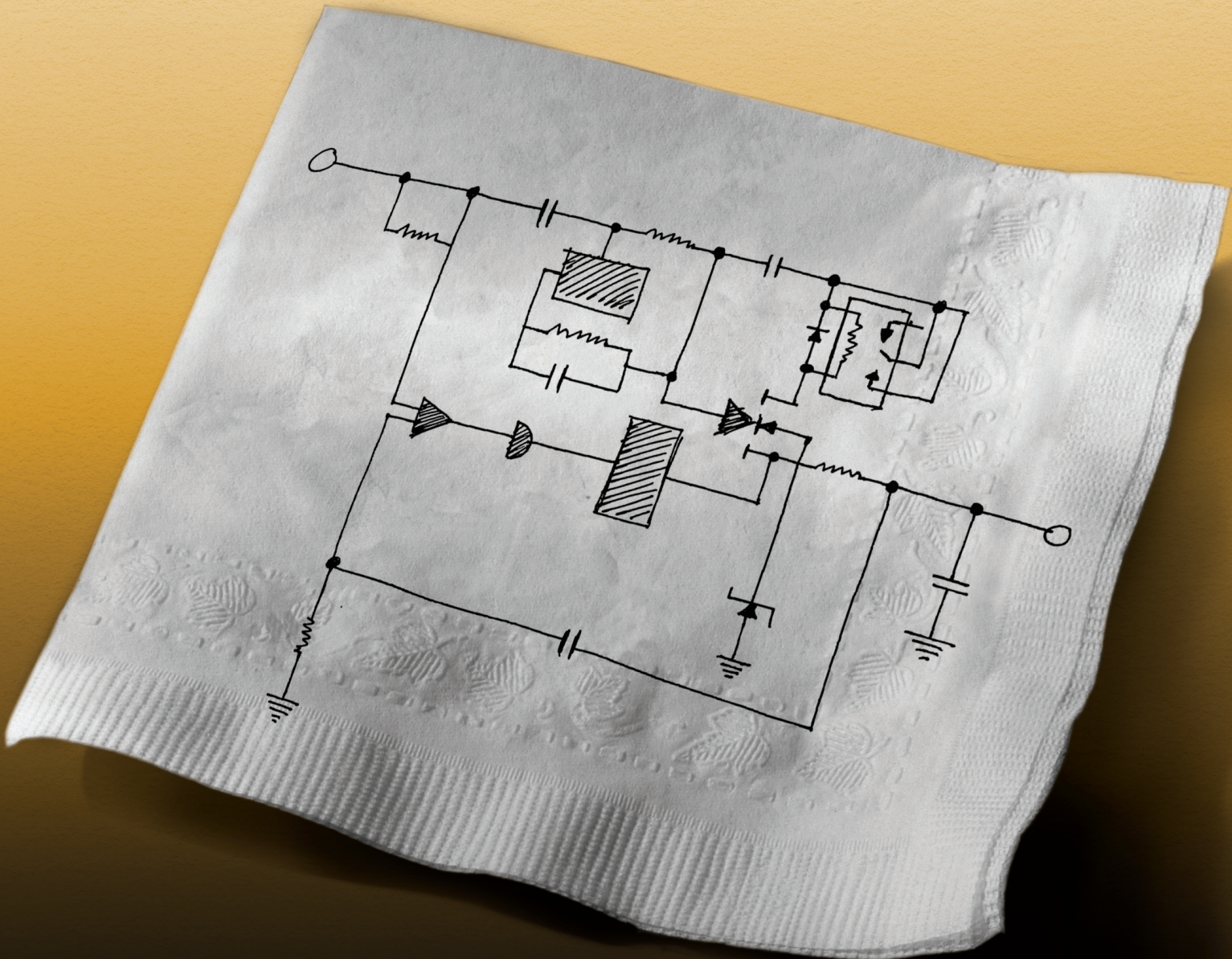


Electronic Components

KEMET makes it possible.

Electronic Components
KEMET
CHARGED.

Table of Contents

EMI Cores	4
Flex Suppressor Sheets	5
Inductors	
AC Line Filters	6
Ferrite Inductors	8
Metal Composite Inductors	10
Miniature Signal Relays	12
Multilayer Piezoelectric Actuators	14
Sensors	
Thermal Sensors	16
Current Sensors	18
Varistors	21

Features & Benefits

- Flat, round and snail versions
- Split versions for post-production attachment
- Broad range by simply adding turns

Product Checklist

- What frequency range is the target, AM or FM?
- What kind of cables are being used?
- Do you worry about damage to cable covering and insulation?
- Would you like to retrofit the core?
- When do you want to fix the core?

Applications

- FM frequency in MHz range filtering with NiZn
- AM frequency in kHz range filtering with MnZn
- According EMI standards IEC, CISPR, ECE and regional FCC, EN, VCCI



Electrical/Physical Characteristics

Product Family			Series Name	Family	Material	Outer Diameter (mm)	Inner Diameter (mm)	Height (mm)
Solid	For Round Cables	Bare type	Toroidal Cores	ESD-R	MnZn & NiZn	9.5 – 38.1	5.0 – 19.0	3.0 – 28.5
		Coated type	Toroidal Cores	ESD-R	MnZn & NiZn	12.0 – 32.0	6.2 – 19.0	3.0 – 28.8
		With case	Toroidal Cores	ESD-R	MnZn & NiZn	12.9 – 61.0	6.0 – 32.4	6.4 – 24.0
		With snail-shaped case	Toroidal Cores	ESD-R-B	MnZn & NiZn	21.5 – 51.5	8.8 – 25.5	13.0 – 17.5
		With high heat resistance & cable holding mechanism	Toroidal Cores	ESD-R-H	MnZn	52.5	22.7	8.5
	For Flat Cables	Bare type	Solid Cores	ESD-FPL	NiZn	14.5 – 80.0	0.55 – 2.2	2.75 – 12.0
Split	For Round Cables	With case	Snap-on Cores	ESD-SR	NiZn		Ø6 – Ø14.5	
		With high heat resistance & cable holding mechanism	Snap-on Cores for Round Cables	ESD-SR-H	NiZn		Ø9 – Ø13	
	For Flat Cables	With metal clamp	Split Cores	ESD-FPD	NiZn	37.0 – 80.0	2.0 – 2.6	10
		With plastic	Split Cores	ESD-FPD-1	NiZn	37.0 – 80.0	2.0 – 2.6	10
Bead	Single piece core		Bead Cores	B-20	MnZn & NiZn	2.8 – 9.7	0.8 – 4.8	1.2 – 8.0



www.kemet.com/emicores

Features & Benefits

- Halogen-free
- Reduced service hours with high temperature
- High magnetic permeability
- Low magnetic loss (μ'')
- Ultra-thin flexible sheet available on roll format
- Manufactured in a variety of shapes/sizes
- Ideal for use in portable equipment and a wide variety of applications
- Resonance suppression controls the high frequency current and suppresses unwanted electromagnetic resonance by creating impedance
- Suppresses the electromagnetic wave intruding the sheet by the magnetic loss of its composition
- Improves communication range of RFID

Product Checklist

- Does your product require protection against EMI or noise interferences?
- Does your product require protection against ESD?
- Does your RFID product require shielding to improve signal transmission and receiving?



www.kemet.com/flexsuppressors

Applications

Flex suppressors are flexible, polymer sheets with micro-magnetic foils used to attenuate or suppress electromagnetic and radio frequency interferences (EMI/RFI) generated by electronic devices. It can also be used to improve signal transmissions and receptions.

Any type of electronic equipment or component exposed to noise radiation including:

- Computer
- Consumer
- Industrial
- Medical
- RFID
- Telecommunication
- Automotive
- Gaming & Entertainment



Electrical/Physical Characteristics

Standard dimensions (mm)	240 × 240
Effective frequency	Up to 10 GHz
Thickness (mm)	0.03, 0.05, 0.07, 0.1, 0.2, 0.3, 0.5, 1.0
Temperature range (°C)	-40 to +105
Specific gravity (in 23°C atmosphere)	2.8, 3.0, 3.1, 3.2, 3.6 (typ)
Tensile strength (MPa)	3.5, 3.6, 6.8, 6.9
Surface resistance (Ω)	1.0×10^5 (minimum)
Thermal conductivity (W/m K)	0.22, 0.4, 1.3
Approved standard	UL94 V-0, UL94 V-1, UL94 HB, UL File No. E176124
Environment	RoHS compliant, halogen-free, PVC-free, lead-free
Relative magnetic permeability (at 3 MHz)	20, 60, 100, 130

Ordering Information

Series Type	Thickness (mm)	Standard Dimensions (mm)	Tape 1 Type Adhesive Tape Thickness (mm)	Tape 2 Type
EFR	(01)	240 x 240	T08	00
EFR	003 = 0.03	240 x 240	T08 = 0.03	00 = Without PET tape
EFX	005 = 0.05		T15 = 0.14	
EFF	007 = 0.07		T22 = 0.05	
EFA	01 = 0.1		Blank = No adhesive tape	
EFH	02 = 0.2			
EFG	03 = 0.3			
	05 = 0.5			
	10 = 1.0			

Features & Benefits

- Industry's highest standard, high-permeability core results in a high degree of characterization
- Optimized design for compact size, low profile and lightweight
- Split and non-split bobbin design for strong inductance/impedance/frequency characteristics
- Different form factors available

Product Checklist

- What is the type of choke is required, common or normal mode?
- What is the material and shape of the core?
- What is the rated current (A)?
- What is the inductance value (mH)?
- What is the DC resistance (mΩ)?
- What is the wire diameter value?
- What is the operating temperature range?
- What is the maximum temperature rise?
- What is the mounting type, vertical or horizontal?



www.kemet.com/aclinefilters

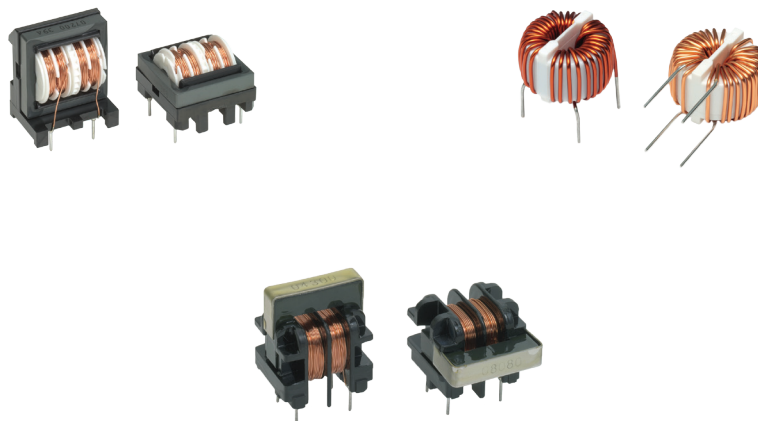
Applications

Common mode chokes for the following applications. Normal mode and HF chokes are non-standard and available by request only:

- Audio-visual equipment
- Office automation equipment
- Digital appliances
- Power supply devices
- Power conditioners
- Air conditioners

Ordering Information

Series	Rated Current (A)	Inductance (mH)	Type
SC	02	101	xx
	02 = 2.0	100 = 1.0	



Electrical/Physical Characteristics

Mode	Series	Core Material	Core Shape	Rated Current (A)	Inductance (mH)	DC Resistance (mΩ)
Common	SC Standard	MnZn	Toroidal	2 – 30	1 – 8	6 – 110
Common	SCR	MnZn	Toroidal	2 – 5	7 – 35	47 – 200
Common	SC-J	MnZn	Toroidal	2 – 18	0.5 – 8	7 – 120
Common	SC-GJ	MnZn	Toroidal	2 – 3	0.6 – 3	100 – 300
Common	SC-JV	MnZn	Toroidal	2 – 5	15 – 44	100 – 300
Common	SC-JS	MnZn	Toroidal	2 – 3	0.8 – 1.5	80 – 120
Common	SC-JH	MnZn	Toroidal	10 – 20	1 – 2	8 – 22
Common	SC-G/GS	MnZn	Toroidal	1 – 3	0.5 – 15	30 – 450
Common	SCF	Nanocrystalline	Toroidal	1.1 – 5	3.5 – 50	35 – 390
Common	SC-D	NiZn	Toroidal	2 – 20	0.01 – 0.1	8 – 70
Common	SU 7 VC	MnZn	UU	0.2 – 1.2	0.25 – 12	160 – 6,500
Common	SU 10 VFC-R	MnZn	UU	0.3 – 2	1 – 37	150 – 4,200
Common	SU 9 V/9 H	MnZn	UU	0.1 – 1	0.5 – 10	300 – 8,000
Common	SU 9 V/9 H-R	MnZn	UU	0.1 – 1	0.8 – 18	300 – 8,000
Common	SU 9 VF/9 HF	MnZn	UU	0.2 – 0.7	1.5 – 10	440 – 4,000
Common	SU 9 VD	NiZn	UU	0.7	0.01 – 0.04	100 – 180
Common	SU 10 VD	NiZn	UU	1 – 2	0.01 – 0.08	100 – 200
Common	SU 16 VD	NiZn	UU	3 – 4	0.01 – 0.05	40 – 80
Common	SS 11 VL	MnZn	Rectangular	0.3 – 3	-	-
Common	SS 11 V-CH/H-CH	MnZn	Rectangular	0.3 – 3	0.6 – 55	63 – 4,100
Common	SS 20 H	MnZn	Rectangular	0.3 – 2	1.8 – 51	110 – 3,200
Common	SS 21 V	MnZn	Rectangular	0.3 – 3	0.8 – 93	70 – 5,900
Common	SS 24 V-CH/H-CH	MnZn	Rectangular	0.5 – 2	2.5 – 35	170 – 1,750
Common	SS 26 V	MnZn	Rectangular	0.5 – 3	2.8 – 88	100 – 2,400
Common	SS 28 V-CH/28 H-CH	MnZn	Rectangular	0.8 – 2.5	4.5 – 35	160 – 9,50
Common	SS 30 V	MnZn	Rectangular	0.8 – 4.5	1.3 – 73	60 – 1,500
Common	SS 35 V/35 H	MnZn	Rectangular	1.5 – 4.5	2.2 – 30	60 – 480
Common	SS 38 V	MnZn	Rectangular	3.5 – 4.3	3.8 – 7.3	110 – 150
Common	SS 11 VL-R	MnZn	Rectangular	0.3 – 3	0.9 – 82	60 – 4,100
Common	SS 17 HB	MnZn	Rectangular	0.3 – 1.7	0.8 – 30	120 – 2,600
Common	SS 17 VA/HA	MnZn	Rectangular	0.3 – 1.7	0.5 – 20	120 – 2,600
Common	SS 11 V/H-R-CH	MnZn	Rectangular	0.3 – 3	0.9 – 82	63 – 4,100
Common	SS 20 H-R	MnZn	Rectangular	0.3 – 2	2.3 – 66	110 – 3,200
Common	SS 21 V-R	MnZn	Rectangular	0.3 – 3	1.3 – 138	70 – 5,900
Common	SS 24 V-K-CH/24 H-K-CH	MnZn	Rectangular	0.5 – 2	4 – 57	170 – 1,750
Common	SS 24 V-R-CH/24 H-R-CH	MnZn	Rectangular	0.5 – 2	4.5 – 60	170 – 1,750
Common	SS 26 V-R	MnZn	Rectangular	0.5 – 3	3.8 – 117	100 – 2,400
Common	SS 28 V-K-CH/28 H-K-CH	MnZn	Rectangular	0.8 – 2.5	7.5 – 53	160 – 950
Common	SS 28 V-R-CH/28 H-R-CH	MnZn	Rectangular	0.8 – 2.5	8 – 60	160 – 950
Common	SS 30 V-R	MnZn	Rectangular	0.8 – 4.5	1.7 – 96	60 – 1,500
Common	SSB 11 V/H-R	MnZn	Rectangular	1.3 – 1.7	4.3 – 9	180 – 380
Common	SSB 28 V/28 H	MnZn	Rectangular	0.8 – 2.5	4.5 – 35	160 – 950
Common	SSB 28 V-R/28 H-R	MnZn	Rectangular	0.8 – 2.5	8 – 60	160 – 950
Common	SHB	Sendust	Toroidal	2 – 30	0.044 – 1.64	7 – 450

Ferrite Inductors

Conformally Coated SBC & SBCP Coils

Features & Benefits

- Drum core construction
- Nickel-Zinc (NiZn) ferrite core
- Magnetic non-shield type
- RoHS compliant
- Operating temperature range up to +105°C
- Available in tape and reel

Product Checklist

- How much inductance is needed?
- What is the circuit's ripple current and frequency?
- What is the operating temperature range?
- Are there any size constraints?

Applications

- Embedded computer systems
- LED lighting
- Smart meters
- Electric home appliances
- Smoke detectors & alarm systems
- Power supplies
- Filtering for decoupling networks



SBC Coils



SBCP Coils

Ordering Information

SBC Coils

	1-	101-	571
Series	Core Size	Inductance Code (μH)	Rate Current Code (mA)
SBC	1 2 3 4 6 7 8 9	First two digits represent significant figures. Third digit specifies number of zeros.	First two digits represent significant figures. Third digit specifies number of zeros.

SBCP Coils

SBCP-	47HY	150	H	B
Series	Core Size	Inductance Code (μH)	External Tube	Packaging Type
SBCP	Outer size x height 47HY = φ 4.5 × 7.0 87HY = φ 8.0 × 7.5 80HY = φ 8.0 × 10.0 11HY = φ 11.0 × 11.0 14HY = φ 11.0 × 14.0	First two digits represent significant figures. Third digit specifies number of zeros.	Blank = None H = Presence (only for core sizes 87HY, 80HY and 11HY)	B = Bulk Blank = Tape & reel



www.kemet.com/ferriteinductors

Electrical/Physical Characteristics

SBC Coils

Part Number	Inductance L (μH) at 10 kHz/1 mA	Maximum DC Resistance (Ω)	Rated Current (A) ΔT = 20°C	Current (Reference Value) (A)	
				ΔT = 40°C	L Change Rate at 10%
SBC1	1.0 ± 20% to 1,000 ± 10%	0.03 to 4.90	3.10 to 0.21	4.30 to 0.29	5.20 to 0.14
SBC2	1.0 ± 20% to 1,000 ± 10%	0.01 to 4.00	6.10 to 0.18	8.50 to 0.25	6.40 to 0.21
SBC3	4.7 ± 20% to 1,500 ± 10%	0.02 to 3.64	4.20 to 0.25	5.80 to 0.35	4.60 to 0.26
SBC4	1.0 ± 20% to 10,000 ± 10%	0.01 to 19.5	7.40 to 0.11	10.30 to 0.15	14.90 to 0.14
SBC6	1.0 ± 20% to 10,000 ± 10%	0.01 to 13.6	9.60 to 0.16	13.40 to 0.22	37.70 to 0.35
SBC7	22.0 ± 20% to 1,000 ± 10%	0.03 to 1.20	4.30 to 0.54	6.00 to 0.75	7.80 to 1.10
SBC8	6.8 ± 20% to 1,000 ± 10%	0.02 to 0.78	8.60 to 0.76	12.00 to 1.00	13.90 to 1.10
SBC9	1.0 ± 20% to 680 ± 10%	0.01 to 1.05	9.80 to 0.55	13.70 to 0.77	31.10 to 1.10

SBCP Coils

Part Number	Inductance L (μH) at 10 kHz/1 mA	Maximum DC Resistance (Ω)	Rated Current (A) ΔT = 20°C	Current (Reference Value) (A)	
				ΔT = 40°C	L Change Rate at 10%
SBCP-47HY	2.2 ± 20% to 1,000 ± 10%	29 m to 6.00	2.59 to 0.15	3.66 to 0.21	3.20 to 0.16
SBCP-87HY	4.7 ± 20% to 680 ± 10%	0.03 to 1.66	3.20 to 0.33	4.40 to 0.46	4.30 to 0.32
SBCP-80HY	10 ± 20% to 1,000 ± 10%	0.05 to 1.89	2.90 to 0.40	4.00 to 0.56	5.30 to 0.48
SBCP-11HY	47 ± 20% to 680 ± 10%	0.10 to 1.00	2.00 to 0.55	2.90 to 0.77	4.40 to 1.10
SBCP-14HY	220 ± 10% to 3,300 ± 10%	0.31 to 2.42	1.05 to 0.33	1.51 to 0.46	2.20 to 0.57

Features & Benefits

- Improved power supply efficiency with composite metal core
- Metal cores reduce core losses and improve power supply efficiency at light loads
- Used as part of a filter or for energy storage
- High permeability for higher inductance with lower DC resistance
- Low losses at higher switching frequencies
- Molded metal structure reduces acoustic noise
- Higher current power and saturation in smaller packages
- Available in tape and reel

Product Checklist

- What is the inductance?
- What is the ripple current and frequency?
- What are the size constraints?
- What is the operating temperature range?

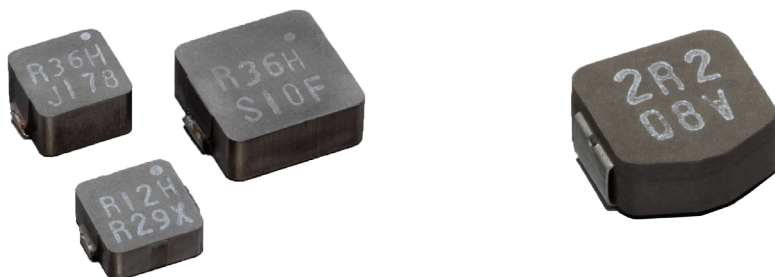
Applications

Applications include the following in the computer, consumer and telecommunications markets:

- Filtering for decoupling networks
- CPU, GPU and memory voltage regulator modules (VRMs)
- Laptops, tablets and servers
- HDTVs, game consoles and Blu-Ray players

Electrical/Physical Characteristics

Case Sizes	Materials	Operating Temperature Range	Current Options (A_{rms})	Inductance Values
12 x 12, 10 x 10, 7 x 7, 5 x 5 mm	G – High Efficiency H – High Permeability	-20°C to +120°C including self rise	3.1 A – 38 A	0.12 μ H – 4.7 μ H



Ordering Information

Series Code	Dimension Code	Inductance Code	Inductance at 100 kHz (μH)	DC Resistance (mΩ)	Rated Current	
					A _{rms}	A _{sat}
MPCG	0740	LR12	0.12	0.70	33.0	30.0
MPCG	0740	LR42	0.42	1.55	22.0	20.0
MPCG	1040	LR36	0.36	1.05	25.0	30.0
MPCG	1040	LR45	0.45	1.10	25.0	27.0
MPCG	1040	LR56	0.56	1.30	23.0	25.0
MPCG	1040	LR88	0.88	2.30	17.0	19.0
MPCH	0730	LR12	0.12	0.65	31.0	32.0
MPCH	0730	LR24	0.24	1.20	23.0	19.0
MPCH	0740	LR15	0.15	0.93	29.0	31.0
MPCH	0740	LR24	0.24	1.00	27.0	20.0
MPCH	0740	LR26	0.26	1.00	25.0	20.0
MPCH	0740	LR36E	0.36	1.42	23.0	22.0
MPCH	1040	LR36	0.36	0.88	28.0	24.0
MPCH	1040	L1R0	1.0	2.30	17.0	17.0
MPCH	1055	L1R3	1.3	2.30	18.5	17.0
MPC	0730	LR20C	0.20	1.20	23.0	17.5
MPC	0740	LR42C	0.42	1.55	22.0	20.0
MPC	0750	LR60C	0.60	2.30	17.0	19.0
MPC	1040	LR36C	0.36	1.05	25.5	30.0
MPC	1040	LR45C	0.45	1.10	25.0	27.0
MPC	1040	LR56C	0.56	1.30	23.0	25.0
MPC	1040	LR88C	0.88	2.30	17.0	24.0
MPC	1055	LR36C	0.36	0.75	32.0	35.0
MPC	1055	L1R0C	1.00	2.30	18.5	21.0
MPC	1250	LR36C	0.36	0.65	38.0	40.0
MPC	1250	LR50C	0.50	0.80	35.0	40.0
MPLC	0730	L1R0	1.0	9.0	10.6	11.0
MPLC	0730	L1R5	1.5	15.0	8.6	8.8
MPLC	0730	L2R2	2.2	19.0	7.3	8.2
MPLC	0730	L3R3	3.3	30.0	5.7	6.5
MPLC	0730	L4R7	4.7	41.0	5.0	5.6
MPLC	1040	L1R0	1.0	5.5	14.3	16.2
MPLC	1040	L1R5	1.5	7.0	12.4	12.7
MPLC	1040	L2R2	2.2	10.0	10.5	11.0
MPLC	1040	L3R3	3.3	14.0	8.8	9.3
MPLC	1040	L4R7	4.7	19.0	7.6	8.0
MPLCG ²	0520	LR22	0.22	6.9	9.3	11.0
MPLCG ²	0520	LR33	0.33	8.7	8.3	10.1
MPLCG ²	0520	L1R0	1.0	27.8	4.6	4.9
MPLCG ²	0520	L2R2	2.2	49.4	3.5	4.0
MPLCG	0530	LR22	0.22	3.7	14.1	10.2
MPLCG	0530	LR33	0.33	7.3	10.3	8.9
MPLCG	0530	LR47	0.47	9.0	9.3	8.7
MPLCG	0530	L1R0	1.0	14.6	7.4	5.6
MPLCG	0530	L1R5	1.5	21.7	5.9	5.6
MPLCG	0530	L2R2	2.2	36.4	4.5	5.0
MPLCG	0530	L3R3	3.3	58.0	3.6	3.1
MPLCG	0530	L4R7	4.7	74.0	3.1	3.0
MPLCG ²	0618	LR22	0.22	4.3	15.0	12.9
MPLCG ²	0618	LR33	0.33	6.2	12.6	10.5
MPLCG ²	0618	L1R0	1.0	20.4	7.0	8.4
MPLCG ²	0618	L2R2	2.2	47.0	4.6	5.5
MPLCG	0630	LR22	0.22	2.7	21.4	17.9
MPLCG	0630	LR33	0.33	4.3	16.9	17.3
MPLCG	0630	LR47	0.47	5.0	15.8	15.6
MPLCG	0630	LR68	0.68	6.0	14.2	12.6
MPLCG	0630	LR82	0.82	7.0	13.1	11.8
MPLCG	0630	L1R0	1.0	9.0	11.9	11.3
MPLCG	0630	L1R5	1.5	15.0	9.9	8.3
MPLCG	0630	L2R2	2.2	19.0	8.2	7.8
MPLCG	0630	L3R3	3.3	30.0	6.5	6.3
MPLCG	0630	L4R7	4.7	41.0	5.5	5.4
MPLCH	0740	L1R0	1.0	6.0	13.6	13.4
MPLCH	0740	L1R5	1.5	9.0	11.1	10.8
MPLCH	0740	L2R2	2.2	13.0	9.3	9.0
MPLCH	0740	L3R3	3.3	19.0	7.8	7.0
MPLCH	0740	L4R7	4.7	33.0	5.8	6.5

² Under development

Features & Benefits

- Compact, lightweight, ultra-low profile with high density
- Low power consumption
- Extremely durable plastic sealing
- High withstanding voltage
- Complete line of surface mount devices available

Product Checklist

- What is the load condition? (resistance, motor, lamp, etc.)
- What are the expected operation times for relay?
- What is the ambient temperature?
- How many pairs of contacts are required?
- What is the size and dimension?
- Do you need THD or SMD type?
- Do you need non-latch (current holding) or latch (single or double coil) type?
- What is the rated voltage?
- What is the input power consumption?
- What is the withstand and surge withstand contact voltage?
- What is insulation capability?
- Are any certifications required? (UL, CSA)
- Are there any special requests or environmental conditions?



www.kemet.com/relays

Applications

- Communications and telecom equipment
 - Switching systems
 - xDSL access modules
 - IP/ADSL modems
- Wired and wireless transmission equipment
- Measurement instruments
 - Semiconductor testers
 - Smart meters
- Household appliances and audio visual systems
 - High-end audio equipment
 - HDTV/PCs
 - Blue-Ray recorders
 - Display exchanges
 - PC sound and video boards
- Medical equipment
 - Ultrasonography
- Office machines
 - Printers
 - IP telephones
- Security systems
 - Network cameras
 - Home fire detection and alarms
- Automotive
 - Hands-free
 - Car audio and navigation
 - Vehicle drive recorders
- Power saving equipment
 - IP servers
 - Office LED lighting
 - Stand-by power

Electrical/Physical Characteristics

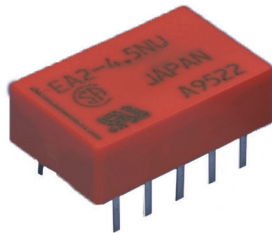
Series		UA2	UB2	UC2	UD2	EA2	EB2	EC2	EE2
Appearance									
Height (mm)		8.3	8.8	5.6	5.45	5.4	7.5	9.4	10.0
Implementation (mm)		10.6 x 5.7	10.6 x 7.4	10.9 x 6.5	10.9 x 8.4	14.2 x 9.2	14.3 x 11.5	15 x 7.5	15 x 9.5
Features		Ultra-compact, slim, high withstand voltage		Ultra-small, low-profile, high withstand voltage		Small, low-profile		Small, slim, high withstand voltage	
		THD	SMD	THD	SMD	THD	SMD	THD	SMD
Contact Form		2C							
Contact	Capacity (W)	30 W / 37.5 VA				30 W / 62.5 VA			
	Voltage (VDC)	220 VDC / 250 VAC							
	Current (A)	1				2		2	
Coil	Power (MW) Consumption	100 – 230		100 – 140		100 – 200		100 – 230	
	Rated Voltage (VDC)	3, 4.5, 5, 12, 24		3, 4.5, 5, 12		3, 4.5, 5, 12, 24		3, 4.5, 5, 12, 24	
Options (Default is non-latch)		1 coil; latch type, low power consumption		1 coil; latch type, low power consumption		1 coil & 2 coil; latch type		1 coil & 2 coil; latch type, high isolation type	

Ordering Information

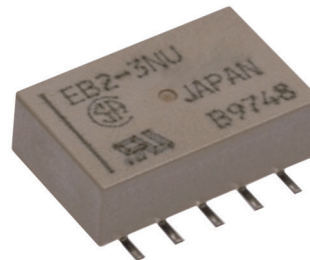
Series			Nominal Coil Voltage	Latch Type	Option		Packaging Code
EB2			– 3	S	NU		–L
Type	THD	SMD	1.5 = 1.5 V 3 = 3 V 4.5 = 4.5 V 5 = 5 V 12 = 12 V 24 = 24 V	Blank = Non-latch S = Single coil latch T = Double coil latch	THD	SMD	Blank = Tube (default packaging for THDs) L = Embossed carrying tape (L type)
Flat	EA2	EB2			NU = Standard NE = Low power consumption	NU = Standard NUN/NUH = Minimum footprint NE = Low power consumption NEN = Low power consumption with minimum footprint NUX = High solder joint reliability	
Ultra-Mini Flat	UC2	UD2					
Slim	EC2	EE2					
Ultra-Mini Slim	UA2	UB2					

Note: Some options may not be available. Please refer to detailed product information.

Through-Hole Type



Surface Mount Type



Features & Benefits

- Accurate nanometer positioning
- Space-saving designs
- High-speed response
- Large generation of force
- High reliability
- Low power consumption
- Long operational life
- High electrostrictive factor
- Operating temperature range of -25°C to +85°C
- Maximum driving voltage of 150 VDC
- RoHS/REACH Compliant

Product Checklist

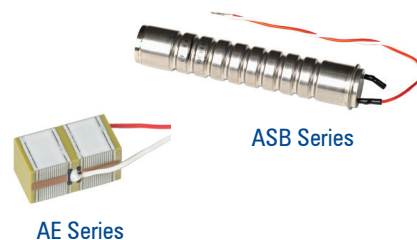
- What force and displacement does your design require?
- What driving voltage(s) are available?
- What is the ambient temperature and humidity?
- What are the size constraints?
- Are you using electromagnetic actuators for new design needs?
- How fast is the ideal displacement response time?
- What kind of displacement accuracy does your application need?



www.kemet.com/actuators

Applications

- Semiconductor manufacturing systems
- Precision machinery & mechatronics
- Mass-flow valves
- Medical equipment
- Measuring & analytical instrumentation
- Optical instrumentation



Ordering Information

AE Series

AE	0505	D44	H40	D	F
Series	Ceramic Cross Section (mm)	Nominal Displacement (μm)	Overall Length (mm)	Thin Coating Type	Environmental Compliance
AE = Resin coated type	0505 = 5 X 5 *Coating area is not included	The last two digits specify the displacement values. Example: D44 = 44 μm	Blank = Standard overall lengths of 5, 10 or 20 H40 = 40	D = Thin coating type	F = RoHS/REACH Compliant (See detailed "Environmental Compliance" information on product datasheet)

ASB Series

AS	B	170	C	801	N	D	0	LF
Series	Housing Construction & Operating Temperature Range	Nominal Displacement (μm)	Maximum Voltage (VDC)	Generated Force (N)	Mount Configuration	Drive Block Configuration	New Design	Environmental Compliance
AS = capsulated in metal case	B = Bellows (pre-load), maximum operating temperature of 85°C	The first two digits specify the displacement values. The last digit is an exponent of 10. Example: 170 = 17 μm	C = 150	The first two digits specify the values. The last digit is an exponent of 10. Example: 801 = 800 N = 80 kgf	N = Female thread type F = Flange type	D = V groove	Sequentially numbered starting from zero.	F = RoHS/REACH Compliant (See detailed "Environmental Compliance" information on product datasheet)

* For more information on RoHS/REACH compliance, please refer to product datasheets.

Electrical/Physical Characteristics

AE Series	Electrical	Energy/Power		Physical	
Part Number	Capacitance (μF)	Generated Force (N)	Cross Section (mm)	Overall Length (mm)	Displacement (μm) at Maximum Voltage of 150 VDC
AE0203D04DF	0.09	200	2 x 3	5	4.6 ± 1.5
AE0203D08DF	0.18			10	9.1 ± 1.5
AE0203D16DF	0.35			20	17.4 ± 2.0
AE0203D44H40DF	0.82			40	42.0 ± 6.6
AE0505D08DF	0.75	850	5 x 5	10	9.1 ± 1.5
AE0505D16DF	1.4			20	17.4 ± 2.0
AE0505D44H40DF	3.4			40	42.0 ± 6.6
AE1010D16DF	5.4	3,500	10 x 10	20	18.4 ± 3.5
AE1010D44H40DF	13.6			40	42.0 ± 6.6

ASB Series	Electrical	Energy/Power	Physical
Part Number	Capacitance (μF)	Generated Force (N)	Displacement (μm) at Maximum Voltage of 150 VDC
ASB170C801FD0LF	1.5	800	17.0 ± 3
ASB170C801ND0LF			
ASB340C801FD0LF	3		34.0 ± 6
ASB340C801ND0LF			
ASB510C801FD0LF	4.5		51.0 ± 9
ASB510C801ND0LF			
ASB680C801FD0LF	6		68.0 ± 12
ASB680C801ND0LF			

Thermal Sensors

TRS™ Thermal Reed Switch & OHD™ Thermal Guard

Features & Benefits

- No control circuit required
- High reliability
- Good for threshold thermal control
- Sensing temperature range of +30°C to +130°C
- Excellent accuracy of $\pm 2.5^\circ\text{C}$
- Screw clamp for easy installation
- Excellent environmental durability
- Long operational life
- RoHS compliant

Product Checklist

- At what temperature should the sensor be activated, or switched?
- What are your temperature accuracy requirements?
- Is the application designed to switch AC or DC power?
- What current values will be switched by the sensor?
- What voltage is being switched?
- Does the design require a Break or Make sensor?
- How will the sensor be mounted?
- Is the operation of the thermal sensor affected by magnetic and/or electric fields?



www.kemet.com/thermalsensors

Applications

- Digital appliances
- Power electronics
- Automotive applications
- Air conditioners



Ordering Information

TRS Series

TRS	5-	50	B	LR	V	U
Series	Reed Switch Type	Operating Temperature (°C)	Contact Type	Shape Classification	Rated Voltage (VDC)	Approvals
TRS	5	50 60 70 80 90 100 110 120 130	B = Break	LR = L type with tin	Blank = 100 V = 200	Blank = No approvals U = UL & CSA approved

OHD Series

OHD	1-	40	B
Series	Model Number	Operating Temperature (°C)	Contact Type
OHD	1 3 5R	30 35 40 45 50 55 60 65 70 75	80 85 90 95 100 105 110 115 120
			B = Break M = Make (OHD1 & OHD3 Series only)

Electrical/Physical Characteristics

Part Number	Voltage (VDC)	Maximum Break Current (A)	Maximum Break Voltage (VAC)	Maximum Break Power (W)	Operating Temperature Range (°C)	Operating Temperature Precision (°C)
TRS Series						
TRS5-__BLRU	100	0.5	140	50 AC	50 – 130	±2.5
TRS5-__BLRVU	200	0.275	264	60.5 AC		

Part Number	Contact Type	Maximum Activation Voltage (V)	Maximum Activation Power (W)	Minimum/Maximum Activation Current	Maximum Contact Resistance (mΩ)	Insulation Withstand Voltage	Minimum Insulation Resistance	Operating Temperature Range (°C)	Operating Temperature Precision (°C)
OHD Series									
OHD1-__M	Make	110 AC/DC	6 AC/DC	0.1 mA / 1 VDC 0.3 AC/DC	150	2,500 VAC / 1 minute or 3,000 VAC / 1 second	500 VDC to 100 MΩ	40 – 120	±5
OHD1-__B	Break							30 – 120	
OHD3-__M	Make							40 – 120	
OHD3-__B	Break							30 – 120	
OHD5R-__B	Break	30 DC	1 DC	0.1 mA/ 1 VDC 0.1 DC	300	1,500 VAC / 1 minute or 1,800 VAC / 1 second		60 – 120	

Features & Benefits

- High sensitivity
- High performance
- Compact and lightweight
- Mountable on printed circuit boards

Product Checklist

- Is the operation of a current sensor affected by magnetic and/or electric fields?
- Is there a height restriction in your circuit?
- What is the diameter of the cable?
- What is the voltage requirement at operating temperature?
- Are there any special environmental condition concerns, such as temperature or moisture?
- Are there any mechanical robustness concerns, such as vibration or shock?
- What is your installation method?

Applications

- Microcontroller-based equipment
- Refrigerators
- Air conditioners
- Inductive heating
- Servo motors
- Inverters
- UPS
- SMPS



Ordering Information

CT-	06-	50
Series	Shape Classification	Number of Turns
CT	05 06 07	Blank (CT-05 only) = 500 turns 50 = 500 turns 100 = 1,000 turns

Electrical/Physical Characteristics

Part Number	Turns	Core	Lead Wires	Material	Compliance	
CT-05	500	Permalloy	φ 0.6 mm pin connectors	Phenolic resin case, epoxy-filled	RoHS	
CT-06-50	500		Polyethylene sheath φ 0.5 mm single wire	Phenolic resin case, silicon-filled		
CT-06-100	1,000					
CT-07-50	500		φ 0.8 mm pin connectors	Phenolic resin case, epoxy-filled		
CT-07-100	1,000					



www.kemet.com/currentsensors

Current Sensors

C/CT High Current AC Snap-On Type

Features & Benefits

- Compact and slim design
- Flat temperature characteristics
- Flame retardant
- RoHS compliant

Product Checklist

- Is the operation of a current sensor affected by magnetic and/or electric fields?
- Is there a height restriction in your circuit?
- What is the diameter of the cable?
- What is the voltage requirement at operating temperature?
- Are there any special environmental condition concerns, such as temperature or moisture?
- Are there any mechanical robustness concerns, such as vibration or shock?
- What is your installation method?

Applications

- EMS measurements
- High performance distribution boards
- Power conditioners
- Power monitoring systems
- Inverters
- Industrial machinery



Ordering Information

C/CT-	12	16
Series	Rated Current (A)	Diameter (mm)
C/CT	12 = 120	16

Electrical/Physical Characteristics

Part Number	Rated Current (A)	Output Voltage (mV)*	Output Voltage Protection (V)	Insulation Resistance	Operating Temperature Range
C/CT-1216	120	1,000 ± 20	7.5	500 VDC to 100 MΩ	-20°C to 60°C

*Measurement conditions from output voltage: $f = 50 \text{ Hz}$, $R = 60 \Omega$, $I_o = 50 \text{ A}$



Current Sensors

ZCT Zero-Phase Current Transformers

Features & Benefits

- High sensitivity
- Compact and lightweight
- Laminated iron core

Product Checklist

- Is the operation of a current sensor affected by magnetic and/or electric fields?
- Is there a height restriction in your circuit?
- What is the diameter of the cable?
- What is the voltage requirement at operating temperature?
- Are there any special environmental condition concerns, such as temperature or moisture?
- Are there any mechanical robustness concerns, such as vibration or shock?
- What is your installation method?

Applications

- Circuit breakers
- Earth-leakage detection
- Short-circuit relays
- Ground fault circuit interrupters



Ordering Information

MR-	1
Series	Shape Classification
MR	1
	2
	3
	4
	1 – P5

Electrical/Physical Characteristics

Part Number	Minimum Output Voltage (mV)	Temperature Characteristics	Maximum Overinput Characteristics	Measurement Conditions	Compliance
MR-1	8	± 10 (-20°C to 80°C)	10 (After DC 5 A input)	f = 60 Hz R = 300 Ω I _o = 22.5 mA	RoHS
MR-2					
MR-3					
MR-4					
MR-1-P5					



www.kemet.com/currentsensors

Features & Benefits

- Wide range of SMD sizes
- Operating temperature range up to 150°C
- Automotive and industrial grade
- RoHS, GADSL and REACH compliant
- AEC-Q200 compliant

Product Checklist

- What is the working voltage of the system to be protected?
- What is the maximum transient voltage that the system can withstand?
- What overvoltages can the system be exposed to (wave shape, amplitude, duration, is the surge repeatable or not?) What power would be dissipated?

Applications

- Automotive electronics
- Industrial
- Consumer electronics
- PV systems
- Telecom
- Inverters

Electrical/Physical Characteristics

	DUAL FUNCTION		SMD				
Series	VM	VK	VA	VC	VE	VG	VP
Package							
DC voltage range (VDC)	16 – 56	3 – 125	16 – 56	3 – 170	3 – 170	18	14 – 385
AC voltage range (V _{rms})	14 – 40	2 – 95	14 – 40	2 – 130	2 – 130	14	11 – 300
I _{max} (8/20 us) (A)	800 – 1,200	150	120 – 1,200	30 – 1,200	30 – 1,200	20 – 30	100 – 1,200
Temperature (°C)	-40 to +125	-40 to +125	-55 to +125	-55 to +125	-55 to +150	-55 to +125	-40 to +85
Typical capacitance	0.47 µF – 1.5 µF	10 nF – 1 µF	0.37 nF – 10 nF	160 pF – 1.95 nF	160 pF – 1.95 nF	75 pF – 400 pF	70 pF – 3.1 nF
Size	7.5 x 9 / 8 x 12 mm	6 x 9 mm	0805 – 2220	0603 – 2220	0603 – 2220	0603 – 1210	3225 – 4032
Applications	Elimination of transients and EMI noise from DC motors in automotive electronics, such as windshield wipers, power windows, power seats, etc. VM and VK are single components that combine a varistor and capacitor.		Protection against overvoltage transients in automotive applications.	Suppression of inductive switching or other transient events, ESD protection at the circuit board level.		Low values of capacitance, excellent for I/O line protection operating at high speed data transfer, ESD protection for industrial, consumer electronics. Provides on-board transient voltage protection of integrated circuits.	Standard SMD varistors for transient surge suppression used for industrial applications, PV systems, telecom, household electronics and inverters.



www.kemet.com/varistors

Ordering Information

VA	805	K			
Series	Chip Size Code	Tolerance of Varistor Voltage	Rated Peak Single Pulse Transient Current*	Packaging/Termination	Max Continuous Working Voltage AC*
VA = SMD 125°C Automotive	0805 – 2220	K = $\pm 10\%$	121 – 122	R = Reel 180 mm NiSn Barrier Terminations	014 – 040
VE = SMD 150°C High Temperature, Low Voltage	0603 – 2220	K = $\pm 10\%$ L = $\pm 15\%$ M = $\pm 20\%$	300 – 122		002 – 130
VC = SMD 125°C Low Voltage					
VG = SMD 125°C ESD Suppression	0603 – 1210	S = Special	020		014
VP = SMD 85°C Plastic Encapsulated	3225 – 4032	K = $\pm 10\%$	101 – 122	R = Reel 330 mm	011 – 300

VK	103	M	M	151	R	2	P050
Series	Capacitance Code	Capacitor Tolerance Code	Tolerance of Varistor Voltage	Max Surge Current Code*	Packaging/Lead Style	Max Continuous Working Voltage AC*	Pitch Code
VK = Dual Function Through-Hole 125°C Low Voltage Varistor/X7R Capacitor	103 – 105	M = $\pm 20\%$	K = $\pm 10\%$ L = $\pm 15\%$ M = $\pm 20\%$	151	B = Bulk R = Reel	002 – 095	P050 = 5 mm
VM = Dual Function Through-Hole 125°C Automotive Varistor/X7R Capacitor	474 – 155		K = $\pm 10\%$	801 – 122	B = Bulk/Straight Lead R = Reel/Straight Lead	014 – 040	P050 = 5 mm P120 = 12 mm

* Please see product datasheets for details.



Capacitor Simulation Tool

ksim.kemet.com



Made for Engineers by Engineers

engineeringcenter.com



Catalogs and
Technical Data



COMPONENTEDGE

3D Models, Specifications, and Search

search.kemet.com



Corporate Headquarters

KEMET Corporation
2835 KEMET Way
Simpsonville, SC 29681
USA
864.963.6300
www.kemet.com

Countries and Areas listed below represent KEMET operations throughout the world.

Bulgaria
China
Finland
Germany
Hong Kong

India
Indonesia
Italy
Japan
Macedonia

Malaysia
Mexico
Portugal
Singapore
South Korea

Sweden
Taiwan
United Kingdom
USA