



# **CMS-SERIES Common Mode Inductors** (Surface Mount)

## **Description**

- 160°C maximum total temperature
- Three sizes of surface mount torroidal common mode inductors that provide 300Vdc isolation
- Inductance range from 5.5uH to 1600uH
- Current range up to 7.0 Amps
- Noise attenuation up to 44 dB
- Frequency range up to 100 MHz
- Meets UL94V-0 flammability standard
- Ferrite core material

#### **Applications**

- · EMI filters
- DC-DC brick power supplies
- Discrete output supplies
- Discrete and point-of-use power supplies (PUPS)

## **Environmental Data**

- Storage temperature range: -40°C to +160°C
- Operating ambient temperature range: -40°C to +160°C (range is application specific)
- Solder reflow temperature: +260°C max for 10 seconds max.





## **Packaging**

 Supplied in tape and reel packaging, 2,000 (CMS1), 800 (CMS2), and 600 (CMS3) per reel

Part Number	OCL (uH) minimum (1-2) & (3-4)	I rms. Amperes Max *	DCR (Ω) typ @ 20°C (1-2)	DCR (Ω) typ @ 20°C (4-3)	Leakage Inductance (uH) typ	Interwinding Capacitance (pF) typ
CMS1-1-R	4.5	7.00	0.0027	0.0027	0.05	2.0
CMS1-2-R	8	5.70	0.0040	0.0040	0.09	2.1
CMS1-3-R	12.6	4.10	0.0077	0.0077	0.14	2.2
CMS1-4-R	18	3.80	0.0089	0.0089	0.20	2.3
CMS1-5-R	25	3.60	0.0100	0.0100	0.28	2.4
CMS1-6-R	32.8	3.10	0.0138	0.0138	0.36	2.5
CMS1-7-R	41.5	2.60	0.019	0.019	0.45	2.6
CMS1-8-R	51.2	2.20	0.026	0.026	0.056	2.7
CMS1-9-R	62	1.90	0.035	0.035	0.68	2.7
CMS1-10-R	73.7	1.65	0.048	0.048	0.81	2.8
CMS1-11-R	100	1.35	0.070	0.070	1.10	2.9
CMS1-12-R	131	1.15	0.100	0.100	1.45	3.0
CMS1-13-R	166	1.00	0.138	0.138	1.83	3.1
CMS1-14-R	205	0.85	0.186	0.186	2.25	3.2
CMS2-1-R	25	5.35	0.005	0.005	0.22	2.0
CMS2-2-R	40	4.40	0.008	0.008	0.34	2.3
CMS2-3-R	57	3.60	0.012	0.012	0.47	2.5
CMS2-4-R	102	2.80	0.019	0.019	0.80	2.8
CMS2-5-R	160	2.30	0.029	0.029	1.25	3.1
CMS2-6-R	230	1.85	0.044	0.044	1.75	3.4
CMS2-7-R	270	1.60	0.060	0.060	2.00	3.6
CMS2-8-R	360	1.35	0.084	0.084	2.60	3.9
CMS2-9-R	460	1.10	0.120	0.120	3.30	4.1
CMS2-10-R	575	0.94	0.170	0.170	4.00	4.3
CMS2-11-R	700	0.80	0.230	0.230	5.00	4.6
CMS2-12-R	915	0.67	0.330	0.330	6.30	4.9
CMS2-13-R	1070	0.58	0.440	0.440	7.30	5.1
CMS2-14-R	1340	0.50	0.620	0.620	9.00	5.4
CMS3-1-R	28	5.70	0.005	0.005	0.31	2.80
CMS3-2-R	45	5.10	0.006	0.006	0.46	3.05
CMS3-3-R	64	4.75	0.007	0.007	0.64	3.30

#### Definitions:

OCL = Open Circuit Inductance

DCR = Direct Current Resistance Irms = rms current for approx. a 40°C temperature rise at an ambient temperature of 85°C. \*Operating Temperature: 160°C Max. Inductance values are sustained up to 160°C.

**Electrical Characteristics:** 

CIECTRICAL CHARACTERISTICS:

OCL (1-2) 0.10Vrms, 100kHz, 0.0Adc: (See Chart)

OCL (4-3) 0.10Vrms, 100kHz, 0.0Adc: (See Chart)

DCR (1-2) typ @ 20°C: (See Chart)

DCR (4-3) typ @ 20°C: (See Chart)

Hipot rating: winding to winding: 300Vdc min. for 1 second.

Turns Ratio: (1-2):(4-3) 1:1





# **CMS-SERIES Common Mode Inductors** (Surface Mount)

Part Number	OCL (uH) minimum (1-2) & (3-4)	I rms. Amperes Max *	DCR (Ω) typ @ 20°C (1-2)	DCR (Ω) typ @ 20°C (4-3)	Leakage Inductance (uH) typ	Interwinding Capacitance (pF) typ
CMS3-4-R	88	3.95	0.010	0.010	0.85	3.50
CMS3-5-R	146	3.10	0.017	0.017	1.30	3.70
CMS3-6-R	217	2.85	0.020	0.020	1.90	3.90
CMS3-7-R	258	2.45	0.027	0.027	2.20	4.15
CMS3-8-R	350	2.00	0.040	0.040	3.00	4.40
CMS3-9-R	400	1.70	0.053	0.053	3.30	4.65
CMS3-10-R	518	1.45	0.076	0.076	4.20	4.85
CMS3-11-R	648	1.20	0.107	0.107	5.10	5.10
CMS3-12-R	790	1.05	0.145	0.145	6.10	5.35
CMS3-13-R	1030	0.88	0.210	0.210	7.80	5.55
CMS3-14-R	1310	0.75	0.300	0.300	9.60	5.80

#### **Definitions:**

OCL = Open Circuit Inductance

DCR = Direct Current Resistance

Irms = rms current for approx. a 40°C temperature rise at an ambient temperature of 85°C. \*Operating Temperature: 160°C Max. Inductance values are sustained up to 160°C.

#### **Electrical Characteristics:**

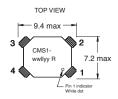
OCL (1-2) 0.10Vrms, 100kHz, 0.0Adc: (See Chart) OCL (4-3) 0.10Vrms, 100kHz, 0.0Adc: (See Chart)

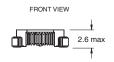
DCR (1-2) typ @ 20°C: (See Chart) DCR (4-3) typ @ 20°C: (See Chart)

Hipot rating: winding to winding: 300Vdc min. for 1 second. Turns Ratio: (1-2):(4-3) 1:1

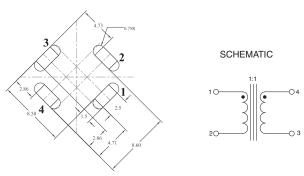
## **Mechanical Diagrams**

#### CMS1 Series

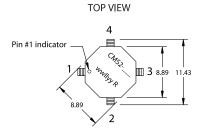


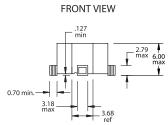


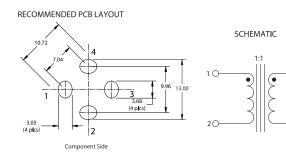
#### RECOMMENDED PCB LAYOUT



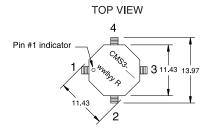
#### CMS2 Series

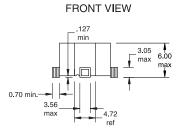


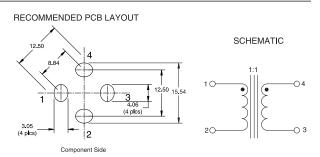




# **CMS3 Series**



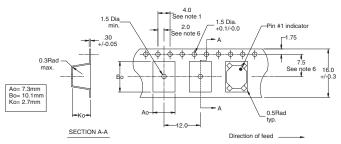




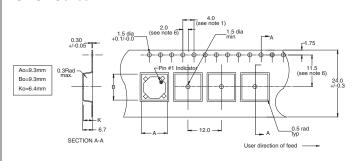


# **Packaging Information**

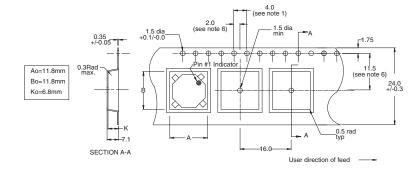




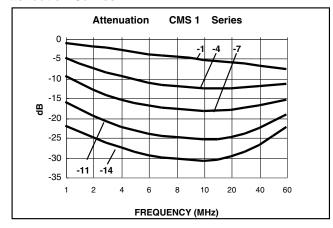
## CMS2 Series

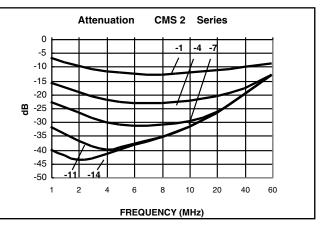


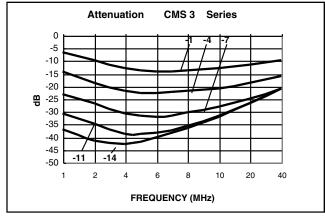
## CMS3 Series



#### **Attenuation Curves**



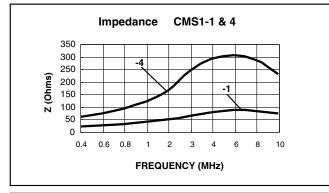


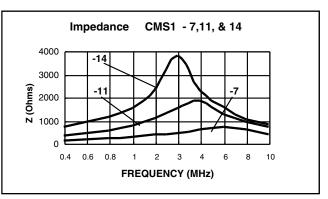


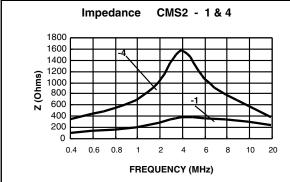


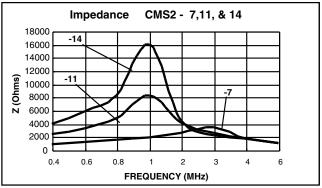


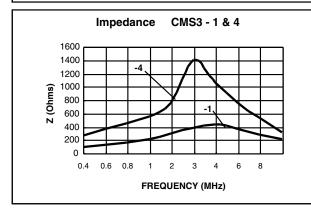
### **Impedance Curves**

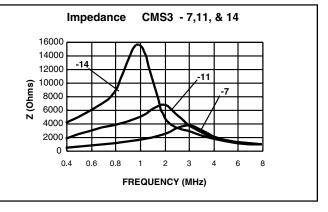














PM-4313 3/07

Visit us on the Web at www.cooperbussmann.com

© Cooper Electronic Technologies 2007 Tel: +1-561-998-4100 Toll Free: +1-888-414-2645 Fax: +1-561-241-6640

This bulletin is intended to present product design solutions and technical information that will help the end user with design applications. Cooper Electronic Technologies reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Cooper Electronic Technologies also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

Life Support Policy: Cooper Electronic Technologies does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.