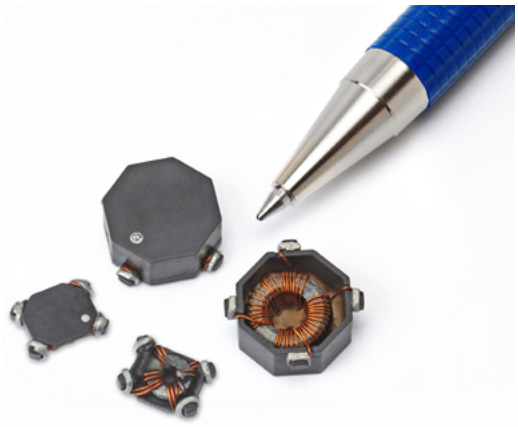
CMS

Common mode inductors, surface mount



Product description

- 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:
  J-STD-020 (latest revision) compliant

RoHS

Pb

Powering Business Worldwide

Product specifications

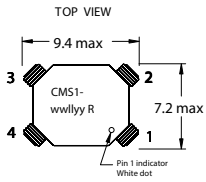
Part number	OCL (uH) minimum (1-2) & (4-3)	I rms. Amperes Max*	DCR (Ω) typ @ 20°C (1-2)	DCR (Ω) typ @ 20°C (4-3)	Leakage Inductance (uH) typ	Interwinding Capacitance (pF) typ
CMS1-1-R	4.5	7.00	0.0027	0.0027	0.05	2.0
CMS1-2-R	8	5.70	0.0040	0.0040	0.09	2.1
CMS1-3-R	12.6	4.10	0.077	0.077	0.14	2.2
CMS1-4-R	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	3.9
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
CMS2-0-R	14	6.00	0.004	0.004	0.13	1.7
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	4.3
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
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

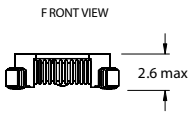
Definitions:
OCL = Open Circuit Inductance
DCR = Direct Current Resistance
Irms = rms current for approx. a 40°C temperature rise at an ambient temperature of 85°C.
*Operating Temperature: 160°C Max. Inductance values are sustained up to 160°C.

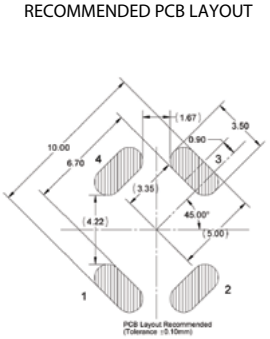
Electrical Characteristics:
OCL (1-2) 0.10Vrms, 100kHz, 0.0Adc: (See Chart)
OCL (4-3) 0.10Vrms, 100kHz, 0.0Adc: (See Chart)
DCR (1-2) typ @ 20°C: (See Chart)
DCR (4-3) typ @ 20°C: (See Chart)
Hipot rating: winding to winding: 300Vdc min. for 1 second.
Turns Ratio: (1-2):(4-3) 1:1

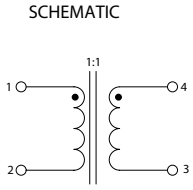
Dimensions–mm

CMS1

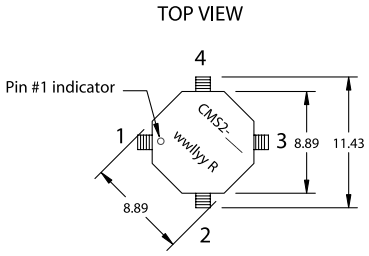


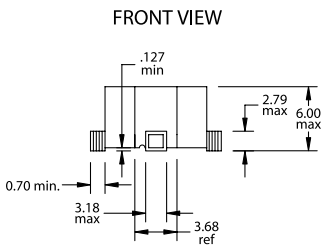


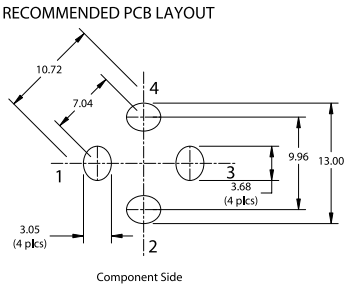


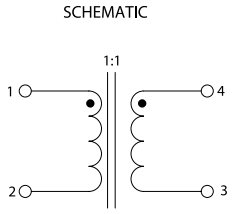


CMS2

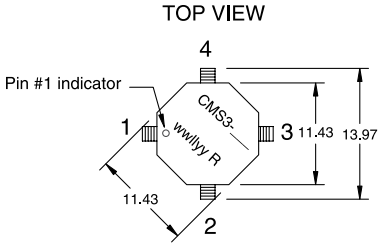


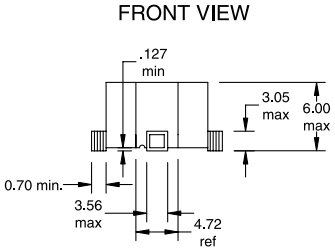


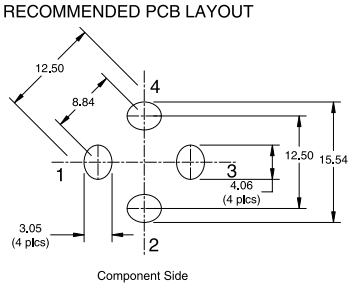


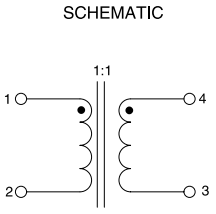


CMS3







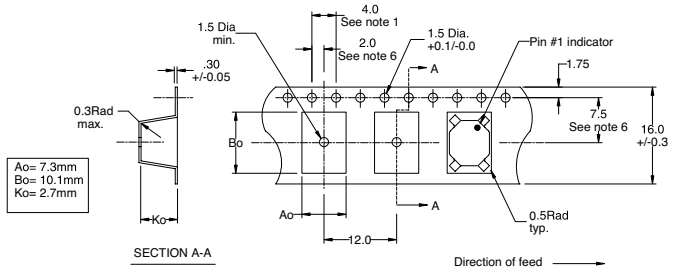


wwllyy = Date code R = Revision level

Packaging Information

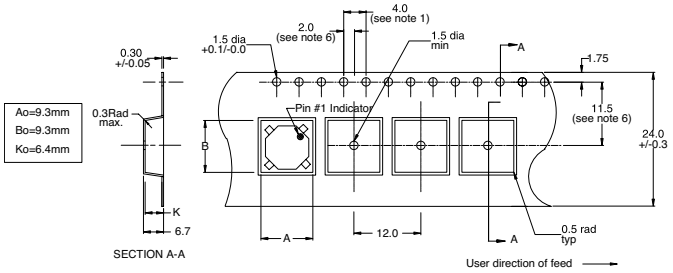
CMS1

Supplied in tape and reel packaging, 2,000 parts per 13" diameter reel



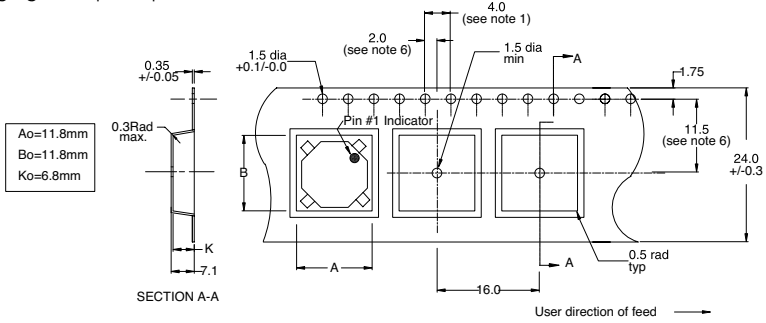
CMS2

Supplied in tape and reel packaging, 800 parts per 13" diameter reel

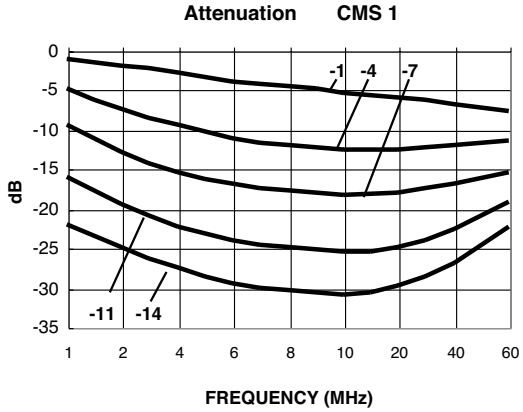


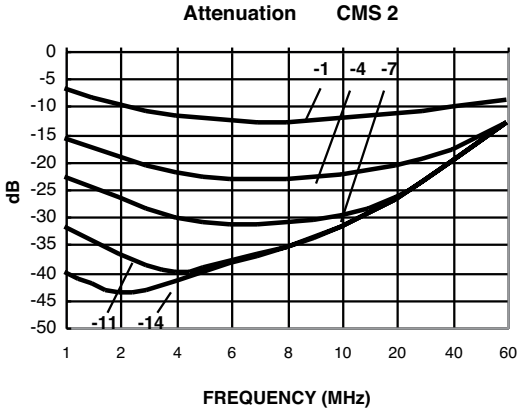
CMS3

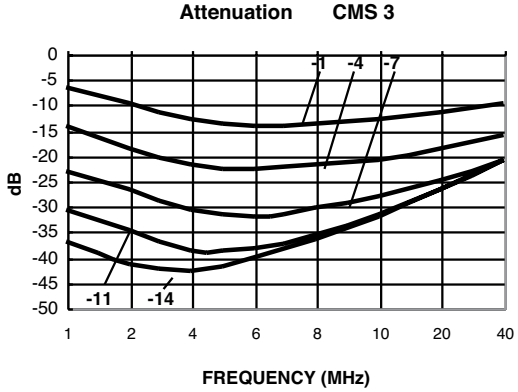
Supplied in tape and reel packaging, 600 parts per 13" diameter reel



Attenuation Curves

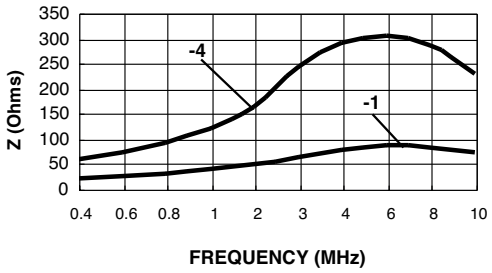




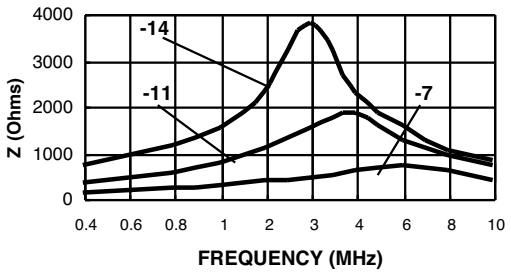


Impedance Curves

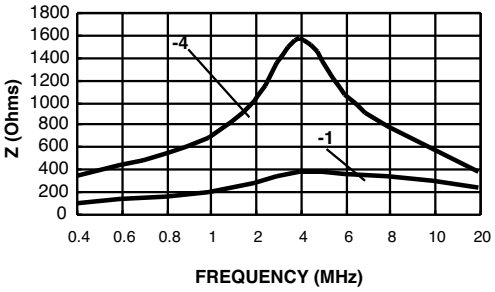
Impedance CMS1-1 & 4



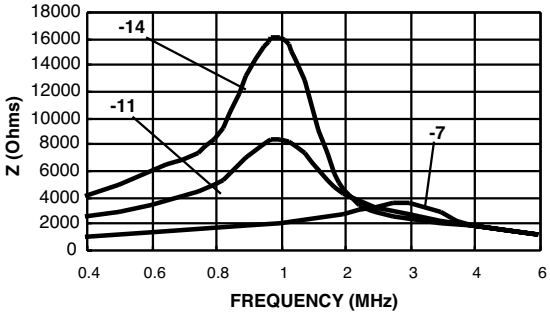
Impedance CMS1 - 7,11, & 14



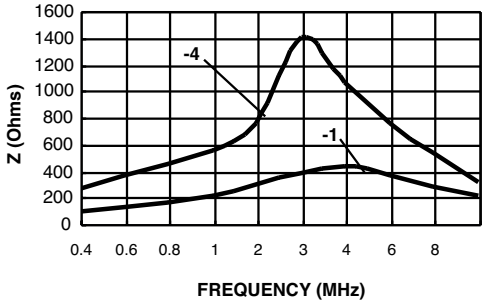
Impedance CMS2 - 1 & 4



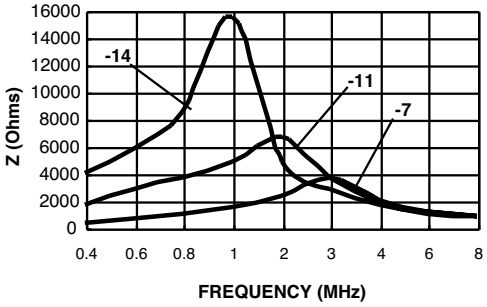
Impedance CMS2 - 7,11, & 14



Impedance CMS3 - 1 & 4



Impedance CMS3 - 7,11, & 14



Solder reflow profile

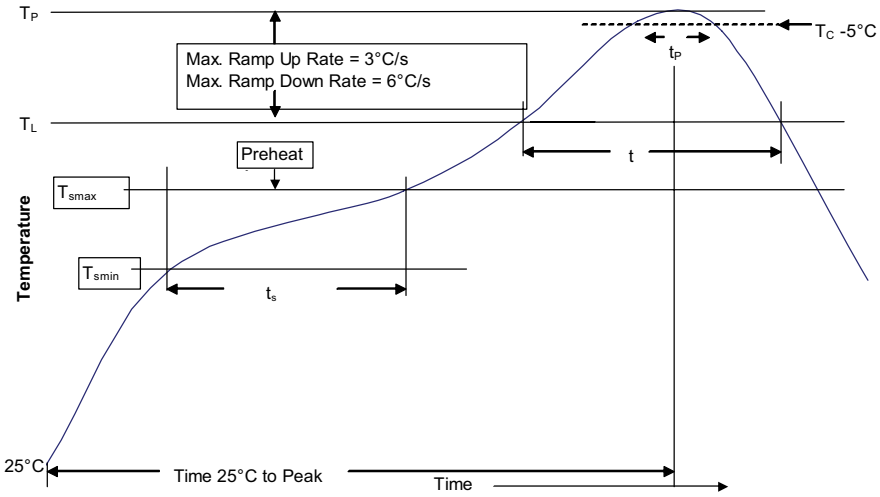


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5mm)	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume mm^3 >2000
<1.6mm	260°C	260°C	260°C
1.6 – 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Reference J-STD-020

Profile feature		Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	• Temperature min. (T_{smin})	100 °C	150 °C
	• Temperature max. (T_{smax})	150 °C	200 °C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Average ramp up rate T_{smax} to T_p		3 °C/ second Max.	3 °C/ second Max.
Liquidous temperature (T_L) Time at liquidous (t_L)		183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (T_P)*		Table 1	Table 2
Time (t_p)** within 5 °C of the specified classification temperature (T_C)		20 seconds**	30 seconds**
Average ramp-down rate (T_p to T_{smax})		6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature		6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

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