talema

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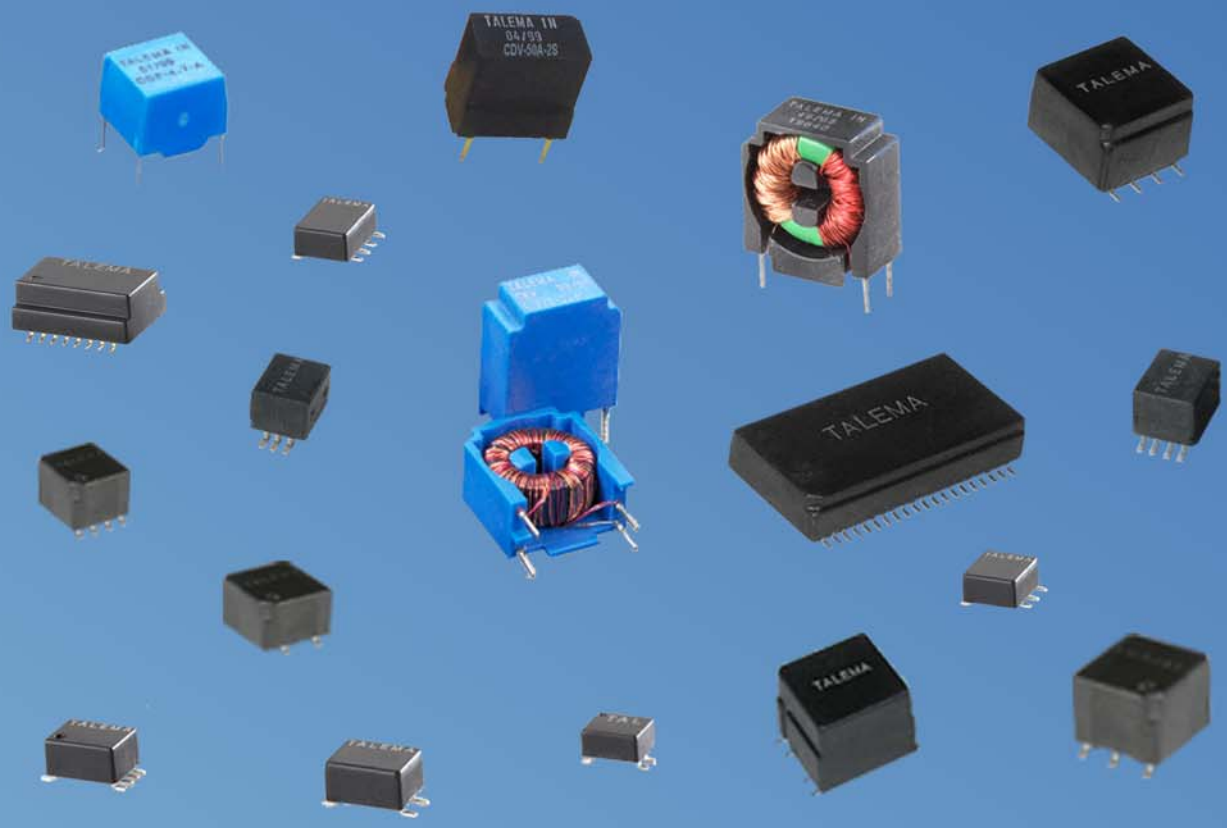
nuvotem

SMD and DIL •
EMI Noise Suppression •
Data and Signal Line Filters •
Common Mode Interface Chokes •

SECTION 6

Current Compensated EMI Noise Suppression Chokes



Compliance RoHS

Sales & Marketing, Design and Manufacturing Facilities

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THE TALEMA GROUP • Magnetic Components for ISDN / xDSL / LAN Data Communications

Common Mode Interface Chokes - DIL and SMD

TALEMA PROFILE

Founded in 1975, The TALEMA International Group has established itself as a world leader in the manufacture of toroidal transformers and related magnetic components. Our strong technical engineering expertise has contributed to the growth of our current workforce to over 1,200 employees in manufacturing locations in the Czech Republic and India.

Over the years The Talema Group has succeeded in designing, producing and delivering in excess of 50 million transformers to its customers. The recent incorporation of xDSL technology into our extensive range of Telecom and LAN magnetics offerings, such as ISDN, 10Base-T, Ethernet transformers for 100/1000Base-T, has broadened our market offering to an even higher level.

QUALITY

The TALEMA Group has a total commitment to quality and employs Lean Six Sigma training for engineering, production and administrative staff to help achieve a goal of zero defects. All facilities maintain very stringent Quality Control and Quality Assurance procedurees and are certified to and manufacture in accordance with ISO-9001:2000, TS-16949:2002 and meet a broad range of International Standards including UL, VDE, IEC, and EN.

ENVIRONMENT

All TALEMA International Group manufacturing facilities are RoHS compliant and all chokes, inductors and HF components are produced in an EMS facility which is certified to ISO-14001:2004.

DIL and SMD Common Mode Interface Chokes

Series	Inductance Range	Number of Lines	Mounting Style	No. Contacts & Pitch	Max. Board Area W x L x Ht (mm)	Data Sheet Page Nr.
CTJ-2-XXX Data Line	11µH - 4.7mH	2	"J" Lead SMD	4 x 1.27	5.0 x 3.3 x 3.3	3 - 4
CTJ-2-XXX-S Power Line	11µH - 51µH	2				
CLJ-2-XXX Data Line	5µH - 47mH	2	"J" Lead SMD	4 x 2.54	8.9 x 5.4 x 4.8	5 - 6
CLJ-2-XXX-S Power Line	6µH - 51µH	2				
CLJ-4-XXX	11µH - 12mH	4		8 x 1.27		7
CMJ-2-XXX	5µH - 47mH	2	"J" Lead SMD	4 x 2.54	9.0 x 5.8 x 5.3	8 - 9
CMJ-4-XXX	5µH - 12mH	4		8 x 1.27		10
CFJ-3-XXX	24µH - 4.7mH	3	"J" Lead SMD	6 x 2.54	11.5 x 7.8 x 7.2	11
CFJ-4-XXX	33µH - 4.7mH	4		8 x 2.54	11.5 x 9.6 x 7.2	
CSJ-2-XXX	11µH - 47mH	2	"J" Lead SMD	6 x 2.54	8.0 x 6.6 x 4.5	12 - 13
CSJ-3-XXX	11µH - 12mH	3				
CSJ-4-XXX	11µH - 12mH	4		8 x 2.54	8.0 x 9.14 x 4.5	
CCJ-2-XXX	26µH - 70mH	2	"J" Lead SMD	4 x 7.62	14.0 x 11.0 x 9.0	14 - 15
CCJ-4-XXX	26µH - 58mH	4		8 x 2.54		
CDJ-XXX	1.0mH - 70mH	2	"J" Lead SMD	4 x 10.16	16.6 x 13.2 x 11.7	16 - 18
CQJ-XXX	1.0mH - 90mH	4		8 x 2.54		
CDF-XXX	1.0mH - 70mH	2	Flat - THT	4 x 10.16	14.0 x 12.5 x 11.0	
CDV-XXX		2	Vertical - THT		9.0 x 14.0 x 14.5	
CQF-XXX	**1.0mH - 90mH**	4	Flat - THT	8 x 2.54	14.0 x 12.5 x 11.0	
CQV-XXX		4	Vertical - THT		9.0 x 14.0 x 14.5	
CKV-XXX Data Line	120µH - 68mH	2	Vertical - THT	4 x 2.54/5.08	7.4 x 15.2 x 17.6	19
CKV-XXX-S Power Line	4.7mH - 47mH	2				20
COJ-16-XXX	24µH - 5.0mH	16	"J" Lead SMD	40 x 1.27	16.2 x 28.0 x 6.0	21
CUJ-XXX-16E	24µH - 4.7mH	4	"J" Lead SMD	16 x 1.27	9.6 x 12.8 x 6.0	22 - 23
CUJ-XXX-16C		6				
CUJ-XXX-16D		6				
CUJ-XXX-16A		8				
CUJ-XXX-16B		8				
Data Line Filters		2 to 16	"J" Lead SMD	Various		24 - 26
Tube and Tape & Reel Packaging and Dimensions						26 - 28
Talema Manufacturing Locations and Authorized Sales Representatives						29

Visit our web site for detailed electrical and mechanical specifications for Talema's extensive line of LAN Magnetic Components for Ethernet & Telecom Applications - www.talema-nuvotem.com

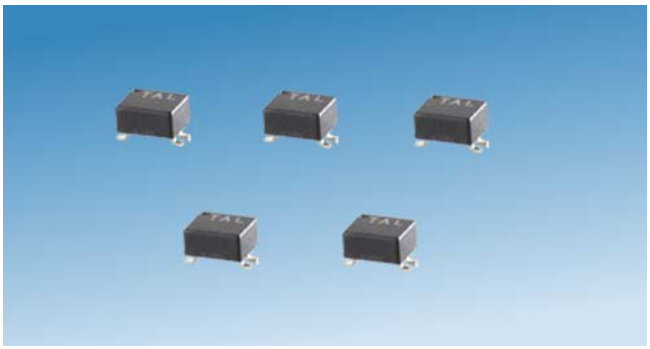
Germany: Int.+4989-841 00-0 • Ireland: Int.+35 374-954 8666 • Czech Rep: Int.+420 377 - 338 351 • India: Int.+91 427-244 1325
http://www.talema-nuvotem.com

(Feb-08)

CTJ-2 Series • Miniature SMD Common Mode Double Chokes

Features

- Miniature, low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- Extended Operating Temperature Range: -40° to +125°C
- Other inductance values and special types for operation at 150°C ambient are available upon request
- High attenuation over a wide frequency range - CAN bus types to 500MHz
- Available in Bifilar and Sector winding (Suffix SE)
- Materials: UL94-VO
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C



Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -40° to +125°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 40/125/56
Test voltage between windings: 500 Vrms

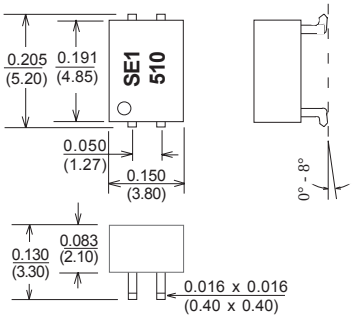
Test frequency

Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

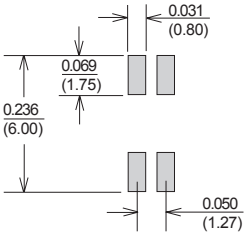
Weight: ~ 0.1 gram
Packaging: Tape & Reel

Part Number	L_N (µH)	I_N (mA)	R_{CU} (mOhms)	V_T (Vrms)	Number of Data Lines
Sector Winding for CAN bus and similiar applications					
CTJ-2-110SE	11	250	160	500	2
CTJ-2-220SE	22	250	195	500	2
CTJ-2-330SE	33	200	260	500	2
CTJ-2-510SE	51	200	300	500	2
Bifilar Winding for Data and Signal Lines					
CTJ-2-110	11	300	160	500	2
CTJ-2-101	100	300	180	500	2
CTJ-2-221	220	200	250	500	2
CTJ-2-471	470	200	380	500	2
CTJ-2-102	1000	150	660	500	2
CTJ-2-222	2200	150	840	500	2
CTJ-2-332	3300	150	1500	500	2
CTJ-2-472	4700	150	1800	500	2

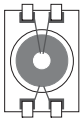
Dimensions



Suggested Pad Layout

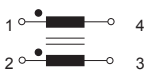


Bifilar (BE) Winding



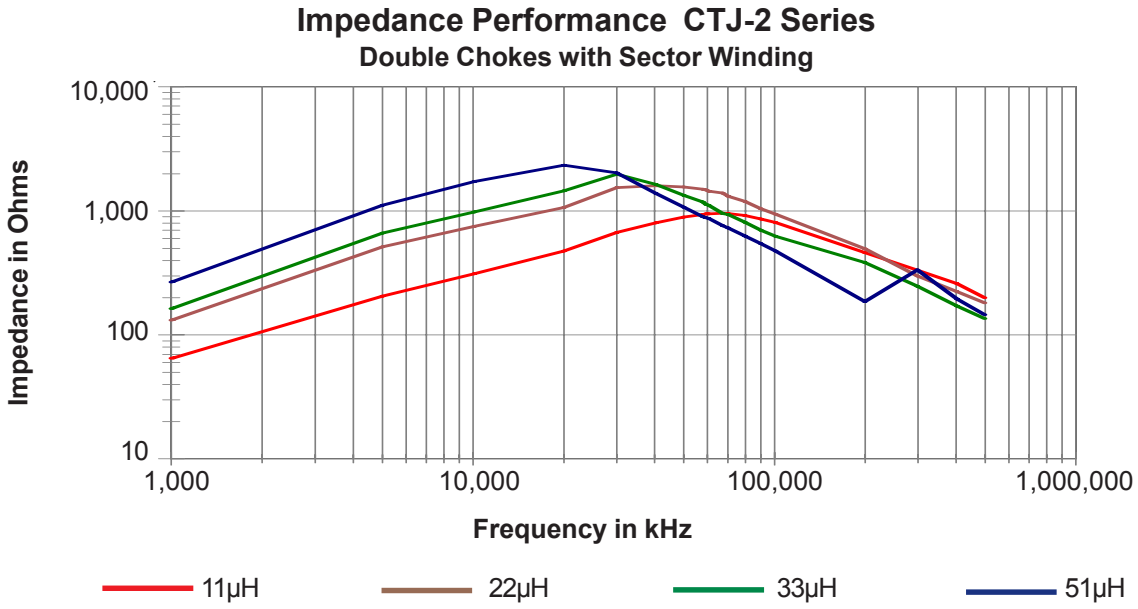
Sector (SE) Winding

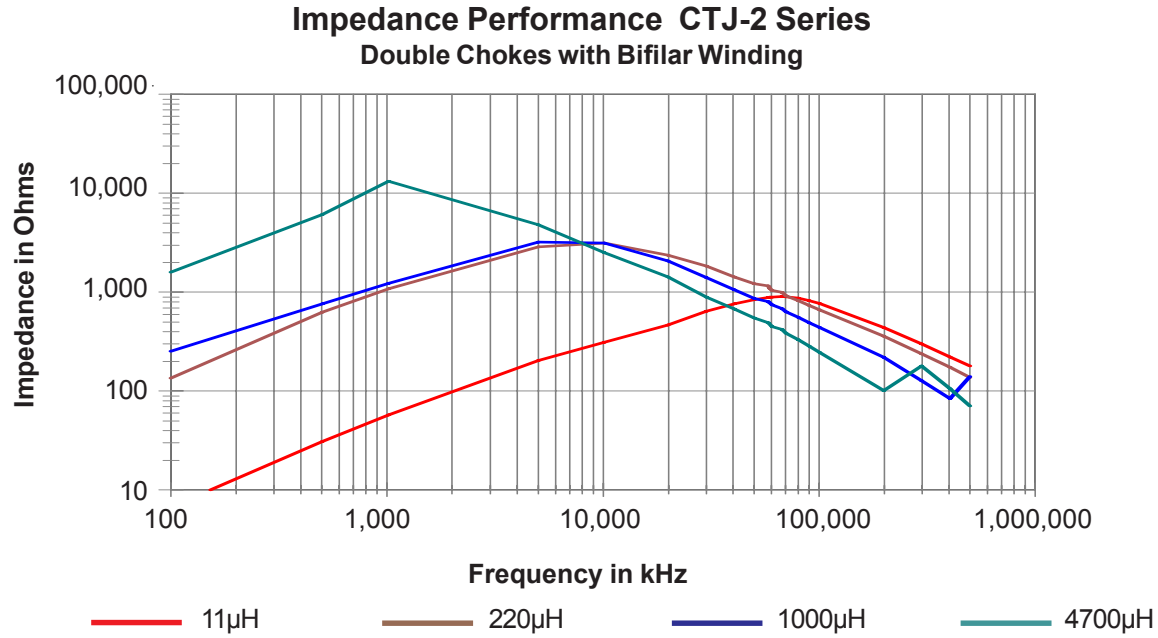
Schematic



Surface Coplanarity will be 0.004(0.10) maximum
Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

See following page for typical impedance curves

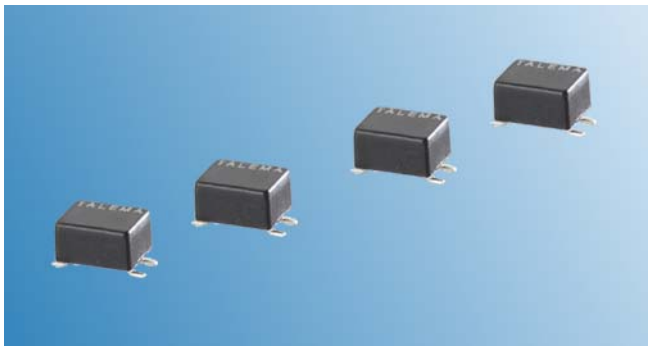

Impedance Performance CTJ-2 Series
Double Chokes with Sector Winding
Impedance in Ohms
10,000
1,000
100
10
1,000
10,000
100,000
1,000,000
Frequency in kHz
11µH
22µH
33µH
51µH


Impedance Performance CTJ-2 Series
Double Chokes with Bifilar Winding
Impedance in Ohms
100,000
10,000
1,000
100
10
100
1,000
10,000
100,000
1,000,000
Frequency in kHz
11µH
220µH
1000µH
4700µH

CLJ-2 Series • Miniature SMD Common Mode Double Chokes

Features

- Miniature, low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- Other inductance values, higher current ratings and special types for operation at 150°C ambient are available upon request
- High attenuation over a wide frequency range - CAN bus types to 500MHz
- Available in Bifilar and Sector (Suffix S) winding
- Materials: UL94-VO
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C



Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

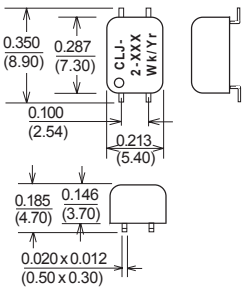
Test frequency

Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

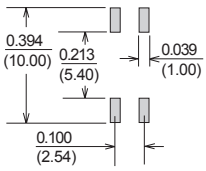
Weight: ~ 0.3 gram
Packaging: Tape & Reel

Part Number	OCL (µH) +50/-30%	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_T (Vrms)	Number of Data Lines
Sector Winding for CAN bus and similiar applications						
CLJ-2-060S	6	2500	0.40	70	500	2
CLJ-2-250S	25	800	0.95	110	500	2
CLJ-2-510S	51	800	2.00	160	500	2
Bifilar Winding for Data and Signal Lines						
CLJ-2-050	5	1200	0.05	56	500	2
CLJ-2-110	11	500	0.05	80	500	2
CLJ-2-250	25	500	0.08	110	500	2
CLJ-2-510	51	500	0.10	148	500	2
CLJ-2-101	100	500	0.11	315	500	2
CLJ-2-471	470	500	0.10	290	500	2
CLJ-2-102	1000	500	0.16	275	500	2
CLJ-2-222	2200	400	0.12	345	500	2
CLJ-2-472	4700	200	0.19	940	500	2
CLJ-2-103	10000	200	0.36	1400	500	2
CLJ-2-203	20000	140	1.00	1800	500	2
CLJ-2-473	47000	100	1.00	3900	500	2

Dimensions



Suggested Pad Layout



Bifilar Winding

Sector (CLJ-2-XXXS) Winding

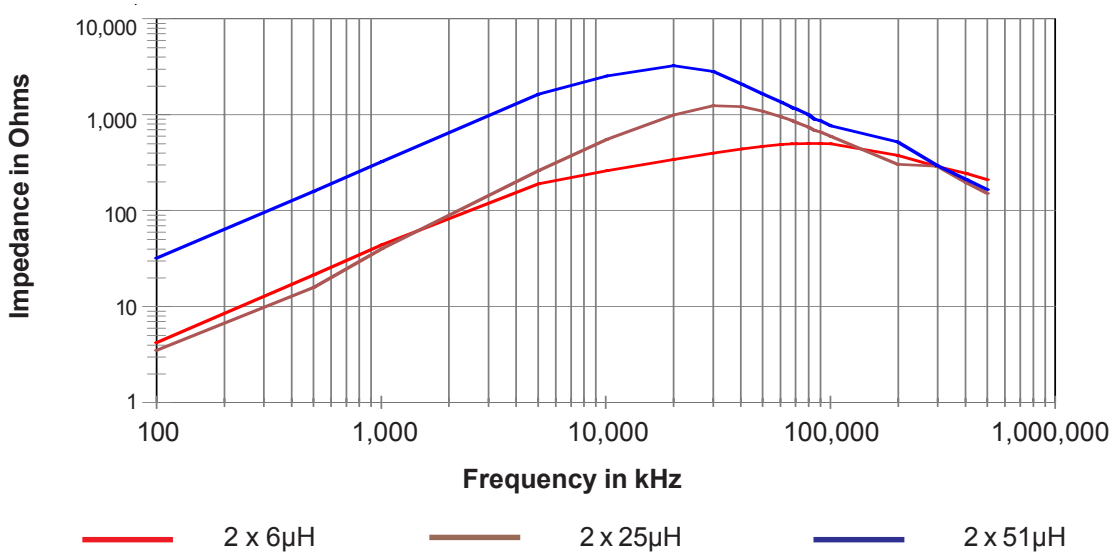
Schematic

Surface Coplanarity will be 0.004(0.10) maximum

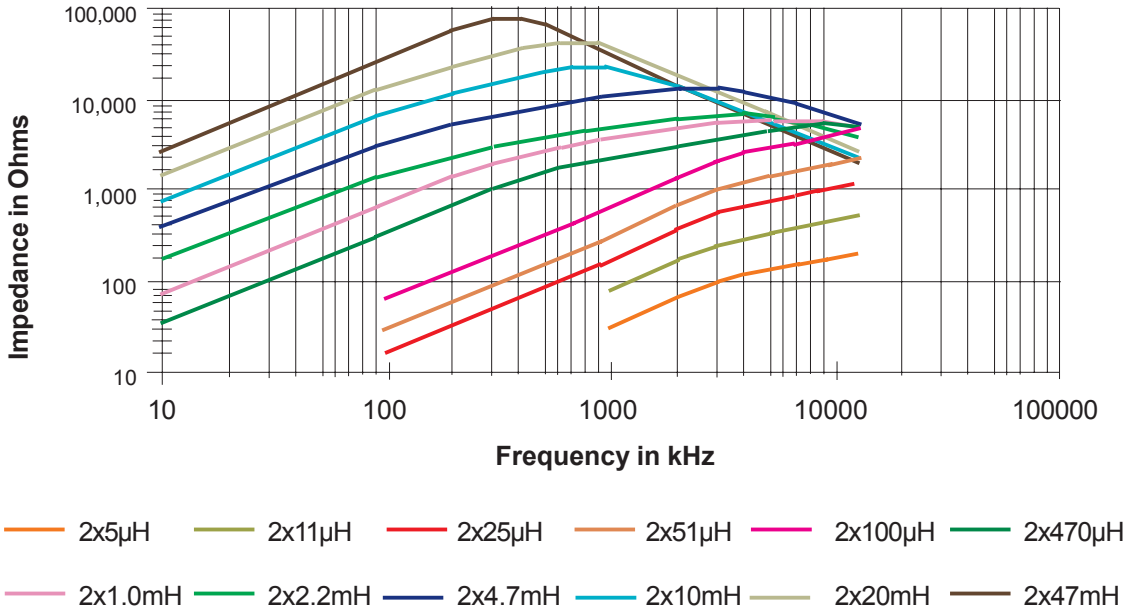
Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

See following page for typical impedance curves

Impedance Performance CLJ-2 Series
Double Chokes with Sector Winding



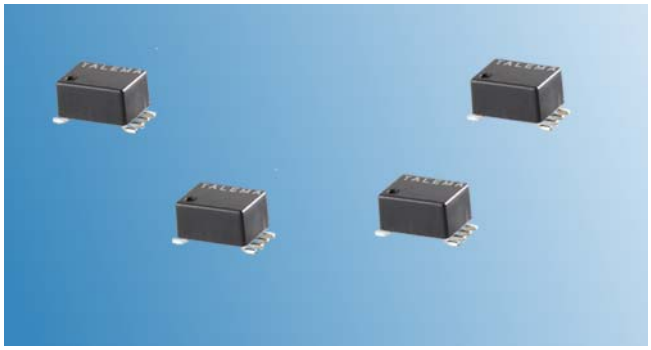
Impedance Performance CLJ-2 Series
Double Chokes with Bifilar Winding



CLJ-4 Series • Miniature SMD Common Mode Quad Chokes

Features

- Miniature, low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- Other inductance values, higher current ratings and special types for operation at 150°C ambient are available upon request
- High attenuation over a wide frequency range
- Materials: UL94-VO
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C



Electrical Specifications @ 25°C
Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

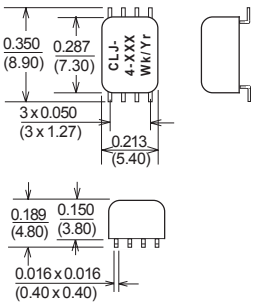
Test frequency
Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

Weight: ~ 0.3 gram
Packaging: Tape & Reel

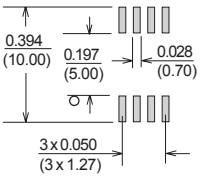
Miniature Common Mode Quad Chokes for Data and Signal Lines

Part Number	OCL (µH)	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_T (Vrms)	Number of Data Lines
CLJ-4-110	11	600	0.05	80	500	4
CLJ-4-470	47	500	0.01	200	500	4
CLJ-4-101	100	500	0.10	360	500	4
CLJ-4-471	470	500	0.15	280	500	4
CLJ-4-102	1000	500	0.09	350	500	4
CLJ-4-222	2200	400	0.06	650	500	4
CLJ-4-472	4700	300	0.09	910	500	4
CLJ-4-123	12000	130	0.36	2200	500	4

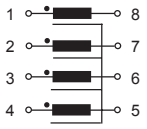
Dimensions



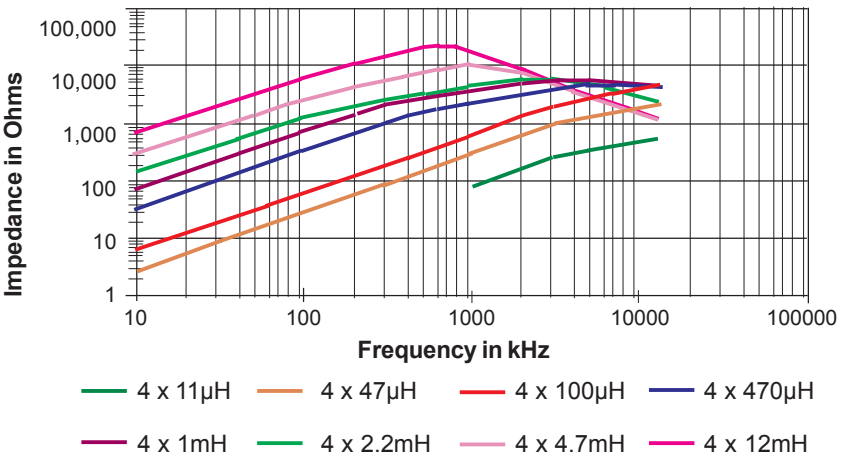
Suggested Pad Layout



Schematic



Impedance Performance
CLJ-4 Series Quad Chokes



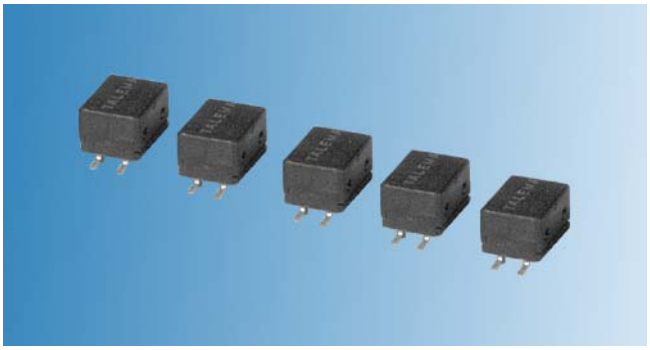
Surface Coplanarity will be 0.004(0.10) maximum

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

CMJ-2 Series • Miniature SMD Common Mode Double Chokes

Features

- Miniature, low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- Other inductance values and special types for operation at 150°C ambient are available upon request
- High attenuation over a wide frequency range - CAN bus types to 500MHz
- Available in Bifilar and Sector winding (Suffix S)
- Materials: UL94-VO
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C



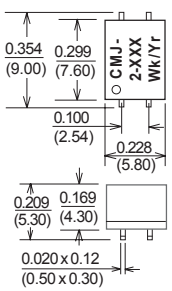
Electrical Specifications @ 25°C
Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

Test frequency
Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

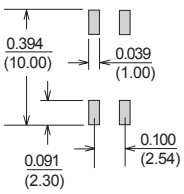
Weight: ~ 0.3 gram
Packaging: Tape & Reel

Part Number	OCL (µH) +50/-30%	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_T (Vrms)	Number of Data Lines
Sector Winding for CAN bus and similiar applications						
CMJ-2-060S	6	2500	0.40	22	500	2
CMJ-2-250S	25	800	1.50	112	500	2
CMJ-2-510S	51	800	2.00	148	500	2
Bifilar Winding for Data and Signal Lines						
CMJ-2-050	5	1200	0.05	100	500	2
CMJ-2-110	11	500	0.05	120	500	2
CMJ-2-250	25	500	0.10	96	500	2
CMJ-2-510	51	500	0.10	148	500	2
CMJ-2-101	100	500	0.25	260	500	2
CMJ-2-471	470	500	0.20	248	500	2
CMJ-2-102	1000	500	0.25	250	500	2
CMJ-2-222	2200	400	0.15	280	500	2
CMJ-2-472	4700	200	0.30	845	500	2
CMJ-2-103	10000	200	0.40	1200	500	2
CMJ-2-203	20000	140	0.70	1800	500	2
CMJ-2-473	47000	100	1.50	3450	500	2

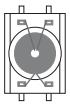
Dimensions



Suggested Pad Layout



Bifilar Winding



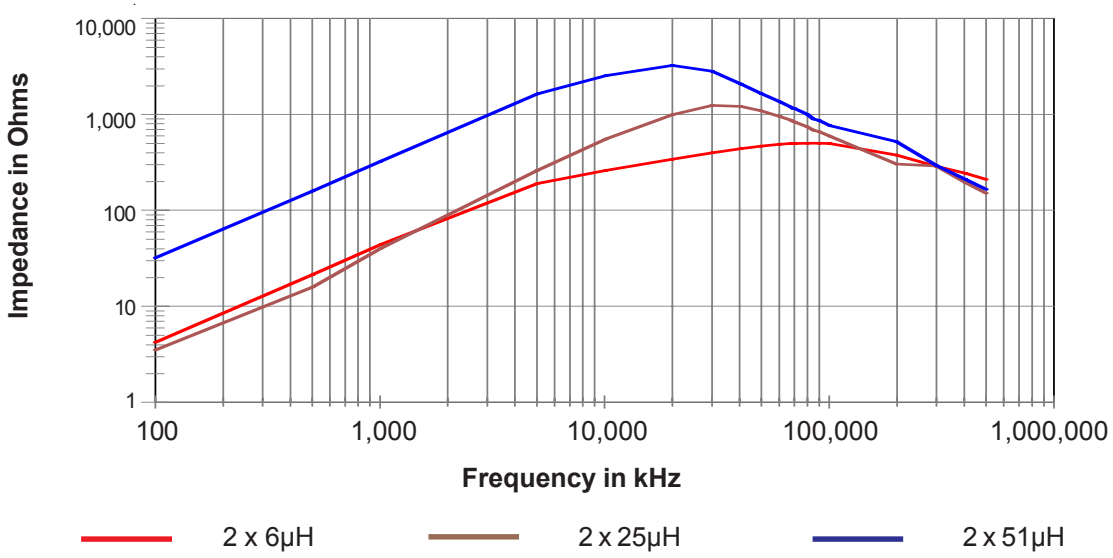
Sector CMJ-2-XXXS Winding

Schematic

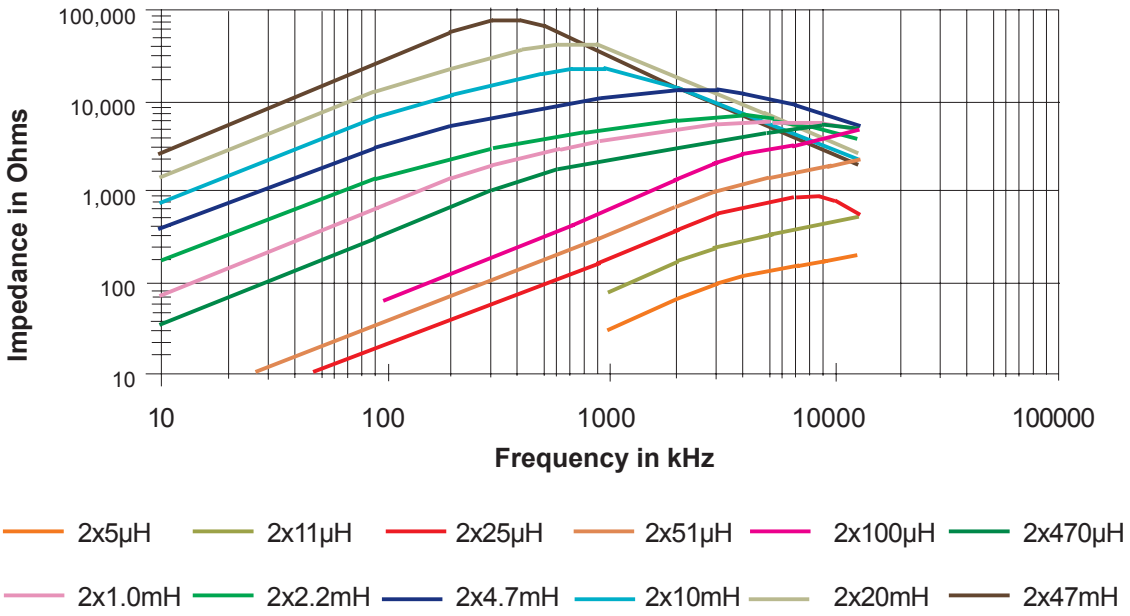
Surface Coplanarity will be 0.004(0.10) maximum

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

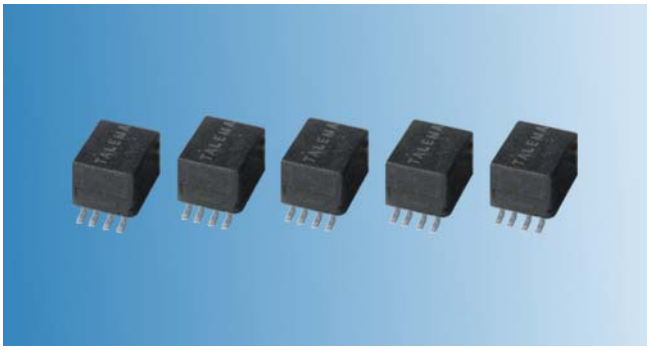
Impedance Performance CMJ-2 Series
Double Chokes with Sector Winding



Impedance Performance CMJ-2 Series
Double Chokes with Bifilar Winding



CMJ-4 Series • Miniature SMD Common Mode Quad Chokes



Features

- Miniature, low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- Other inductance values and special types for operation at 150°C ambient are available upon request
- High attenuation over a wide frequency range
- Materials: UL94-VO
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

Test frequency

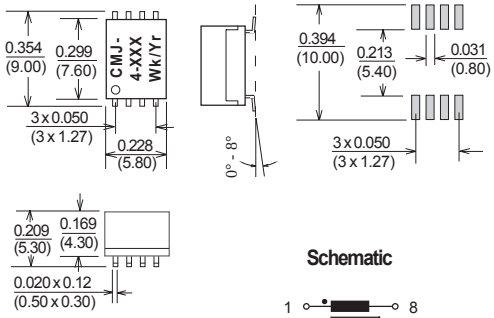
Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

Weight: ~ 0.3 gram
Packaging: Tape & Reel

Miniature Common Mode Quad Chokes for Data and Signal Lines

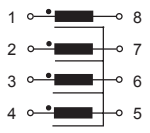
Part Number	OCL (µH)	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_T (Vrms)	Number of Data Lines
CMJ-4-110	11	600	0.10	130	500	4
CMJ-4-240	24	500	0.15	210	500	4
CMJ-4-470	47	500	0.25	260	500	4
CMJ-4-101	100	500	0.30	330	500	4
CMJ-4-471	470	500	0.15	255	500	4
CMJ-4-102	1000	500	0.25	310	500	4
CMJ-4-222	2200	400	0.40	570	500	4
CMJ-4-472	4700	300	0.45	850	500	4
CMJ-4-123	12000	130	0.60	2100	500	4

Dimensions

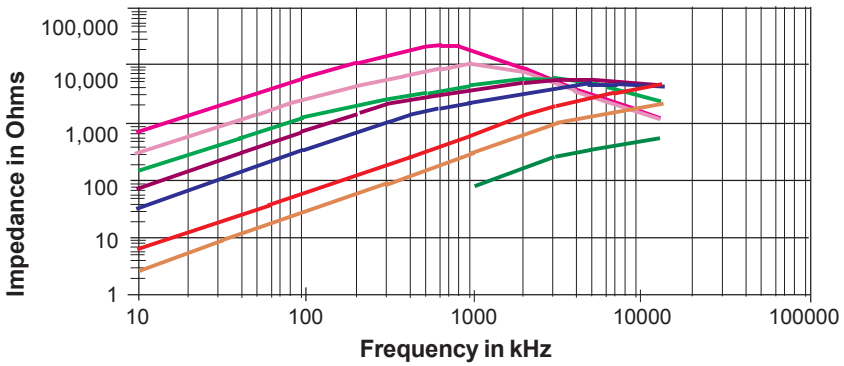


Suggested Pad Layout

Schematic



Impedance Performance
CMJ-4 Series Quad Chokes



Surface Coplanarity will be 0.004(0.10) maximum

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

CFJ Series • Common Mode Interface Chokes for Data and Signal Lines

Features

- Low cost, compact SMD for pick and place compatability while providing consistent and reliable coplanarity
- High attenuation over a wide frequency range
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Other inductance values available upon request
- Fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

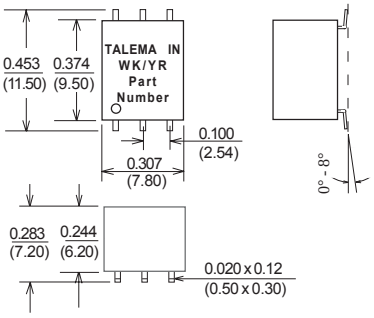
Test frequency

Nominal Inductance: measured @ 100kHz / 20 mVrms
Leakage Inductance: measured @ 100kHz / 100mVrms
Test Equipment: HP4192A

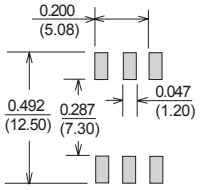
Common Mode Chokes for Data and Signal Line EMI Noise Suppression

Part Number	Number of Data Lines	OCL (µH ±30%)	I_N (mA)	DCR (mOhms Typ)	Number of Coils	Windings per Core	Schematic
Tri Chokes • 3 windings per core							
CFJ-3-240	3	24	1000	45	1	3	A
CFJ-3-101	3	100	700	110	1	3	A
CFJ-3-471	3	470	700	50	1	3	A
CFJ-3-681	3	681	700	55	1	3	A
CFJ-3-102	3	1000	700	70	1	3	A
CFJ-3-152	3	1500	650	105	1	3	A
CFJ-3-222	3	2200	600	125	1	3	A
CFJ-3-332	3	3300	400	215	1	3	A
CFJ-3-472	3	4700	350	340	1	3	A
Quad chokes • 4 windings per core							
CFJ-4-330	4	33	550	65	1	4	A
CFJ-4-470	4	47	540	80	1	4	A
CFJ-4-101	4	100	360	160	1	4	A
CFJ-4-471	4	471	450	65	1	4	A
CFJ-4-102	4	1000	450	85	1	4	A
CFJ-4-472	4	4700	220	430	1	4	A

CFJ-3



Suggested Pad Layout



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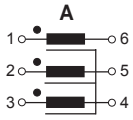
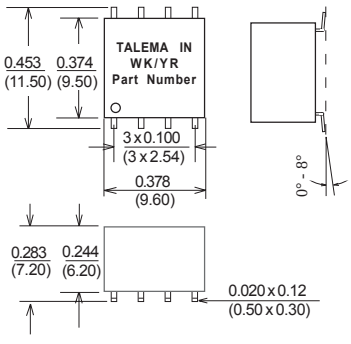
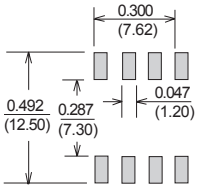


CFJ-4



Suggested Pad Layout



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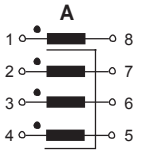


Surface Coplanarity will be 0.004(0.10) maximum

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25)

CSJ Series • Common Mode Interface Chokes for Data and Signal Lines

Features

- Low cost, compact SMD for pick and place compatability while providing consistent and reliable coplanarity
- High attenuation over a wide frequency range - to 500MHz
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Other inductance values available upon request
- Fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +125°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/125/56
Test voltage between windings: 500 Vrms

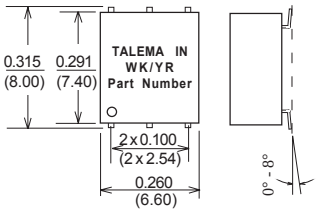
Test frequency

Nominal Inductance: measured @ 100kHz / 20 mVrms
Leakage Inductance: measured @ 100kHz / 100mVrms
Test Equipment: HP4192A

Common Mode Chokes for Data and Signal Line EMI Noise Suppression

Part Number	OCL (µH ±30%)	I_N (mA)	L_L (µH)	DCR (mOhms Typ)	V_T (Vrms)	Number of Data Lines
Double chokes • 2 windings per core						
CSJ-2-110	11	600	0.05	80	500	2
CSJ-2-470	47	500	0.10	148	500	2
CSJ-2-101	100	500	0.11	320	500	2
CSJ-2-471	471	500	0.15	290	500	2
CSJ-2-102	1000	500	0.16	275	500	2
CSJ-2-222	2200	400	0.12	345	500	2
CSJ-2-472	4700	300	0.19	940	500	2
CSJ-2-103	10000	200	0.36	1400	500	2
CSJ-2-203	20000	140	1.00	1800	500	2
CSJ-2-473	47000	100	1.00	3900	500	2
Tri chokes • 3 windings per core						
CSJ-3-110	11	600	0.05	80	500	3
CSJ-3-470	47	500	0.10	148	500	3
CSJ-3-101	100	500	0.11	320	500	3
CSJ-3-471	471	500	0.15	290	500	3
CSJ-3-102	1000	500	0.16	320	500	3
CSJ-3-222	2200	400	0.12	590	500	3
CSJ-3-472	4700	300	0.19	940	500	3
CSJ-3-123	12000	130	0.40	1800	500	3
Quad chokes • 4 windings per core						
CSJ-4-110	11	600	0.05	80	500	4
CSJ-4-470	47	500	0.10	200	500	4
CSJ-4-101	100	500	0.10	360	500	4
CSJ-4-471	471	500	0.15	280	500	4
CSJ-4-102	1000	500	0.09	350	500	4
CSJ-4-222	2200	400	0.06	650	500	4
CSJ-4-472	4700	300	0.09	910	500	4
CSJ-4-123	12000	130	0.36	2200	500	4

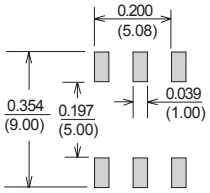
CSJ-2 & 3



Surface Coplanarity will be 0.004(0.10)

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25)

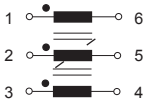
Suggested Pad Layout



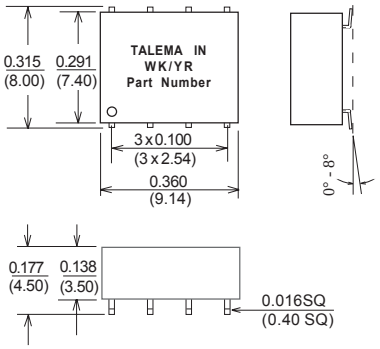
Schematic

2 Data Lines

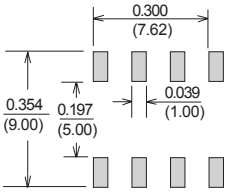
3 Data Lines



CSJ-4

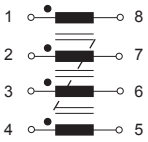


Suggested Pad Layout



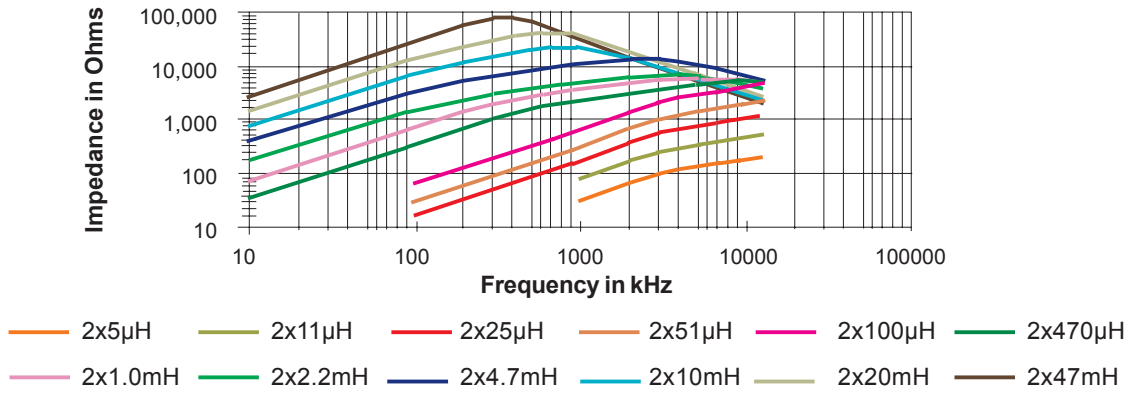
Schematic

4 Data Lines

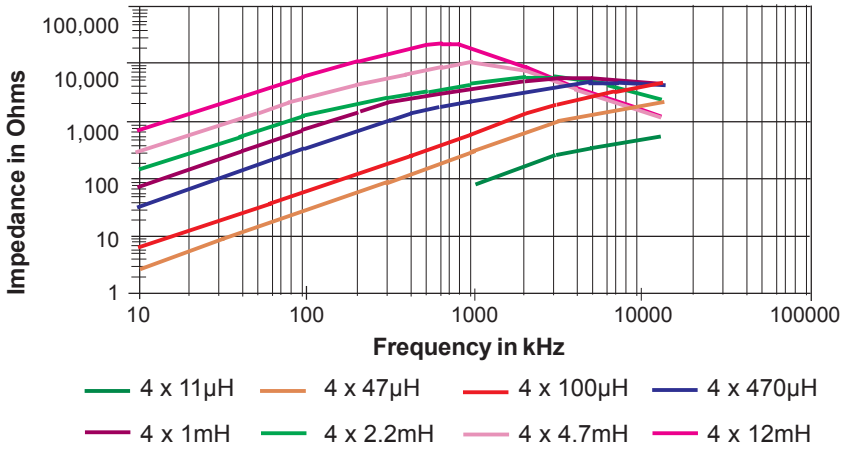


Impedance Performance

CSJ-2 Series Double Chokes with Bifilar Winding



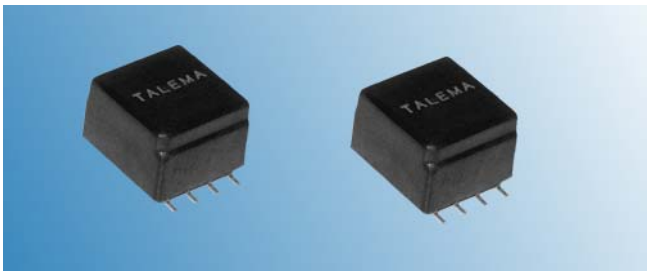
CSJ-4 Series Quad Chokes



CCJ Series • Common Mode Interface Chokes for Data and Signal Lines

Features

- Low cost, compact SMD for pick and place compatability while providing consistent and reliable coplanarity
- High attenuation over a wide frequency range
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Other inductance values available upon request
- fully RoHS compliant and meets lead free reflow level J-STD-020C

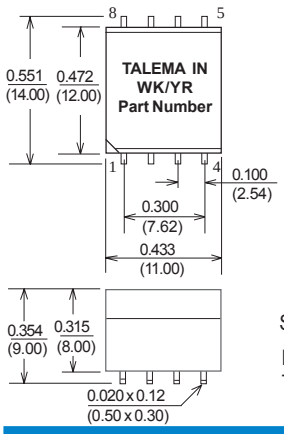


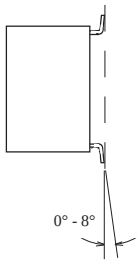
Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56

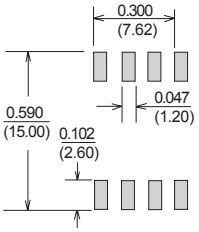
Test voltage between windings: 500 Vrms
Test frequency
Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

Part Number	Number of Data Lines	OCL (µH ±30%)	I_N (mA)	DCR (mOhms Typ.)	Number of Coils	Windings per Core	Schematic
Double Chokes							
CCJ-2-260	2	26	900	55	1	2	A
CCJ-2-102	2	1000	550	140	1	2	A
CCJ-2-152	2	1500	550	100	1	2	A
CCJ-2-222	2	2200	550	115	1	2	A
CCJ-2-332	2	3300	550	140	1	2	A
CCJ-2-502	2	5000	500	180	1	2	A
CCJ-2-682	2	6800	450	200	1	2	A
CCJ-2-103	2	10000	400	270	1	2	A
CCJ-2-123	2	12000	400	280	1	2	A
CCJ-2-203	2	20000	300	480	1	2	A
CCJ-2-283	2	28000	270	520	1	2	A
CCJ-2-503	2	50000	200	1020	1	2	A
CCJ-2-703	2	70000	170	1540	1	2	A
Quad Chokes • 4 windings per core							
CCJ-4-260	4	26	600	65	1	4	B
CCJ-4-470	4	47	500	100	1	4	B
CCJ-4-101	4	100	400	130	1	4	B
CCJ-4-221	4	220	400	190	1	4	B
CCJ-4-471	4	470	400	130	1	4	B
CCJ-4-681	4	680	400	140	1	4	B
CCJ-4-102	4	1000	350	190	1	4	B
CCJ-4-152	4	1500	350	120	1	4	B
CCJ-4-222	4	2200	350	140	1	4	B
CCJ-4-332	4	3300	350	180	1	4	B
CCJ-4-502	4	5000	330	230	1	4	B
CCJ-4-103	4	10000	230	430	1	4	B
CCJ-4-123	4	12000	170	790	1	4	B
CCJ-4-583	4	58000	90	2350	1	4	B

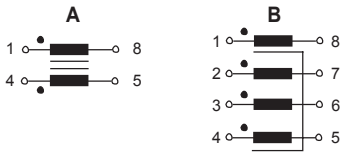




Suggested Pad Layout



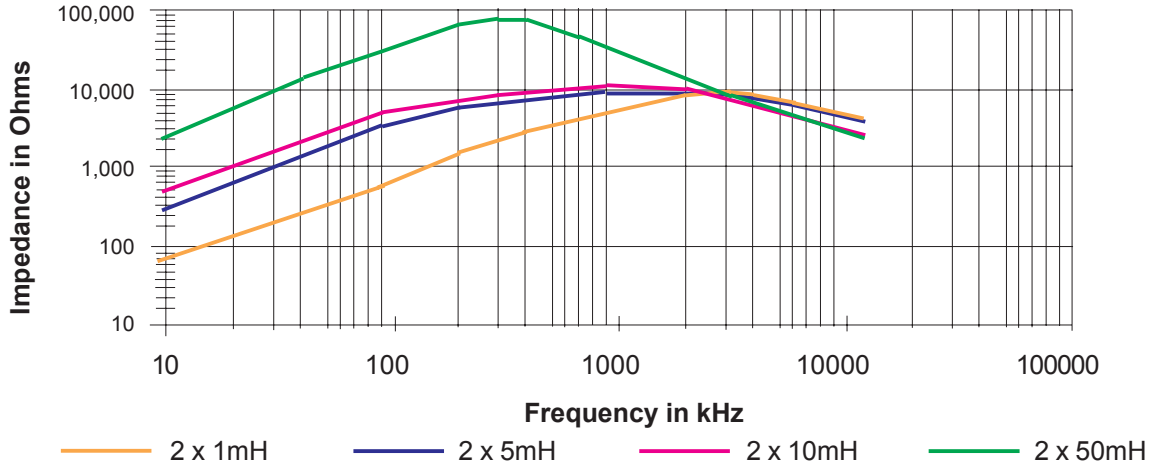
Schematics



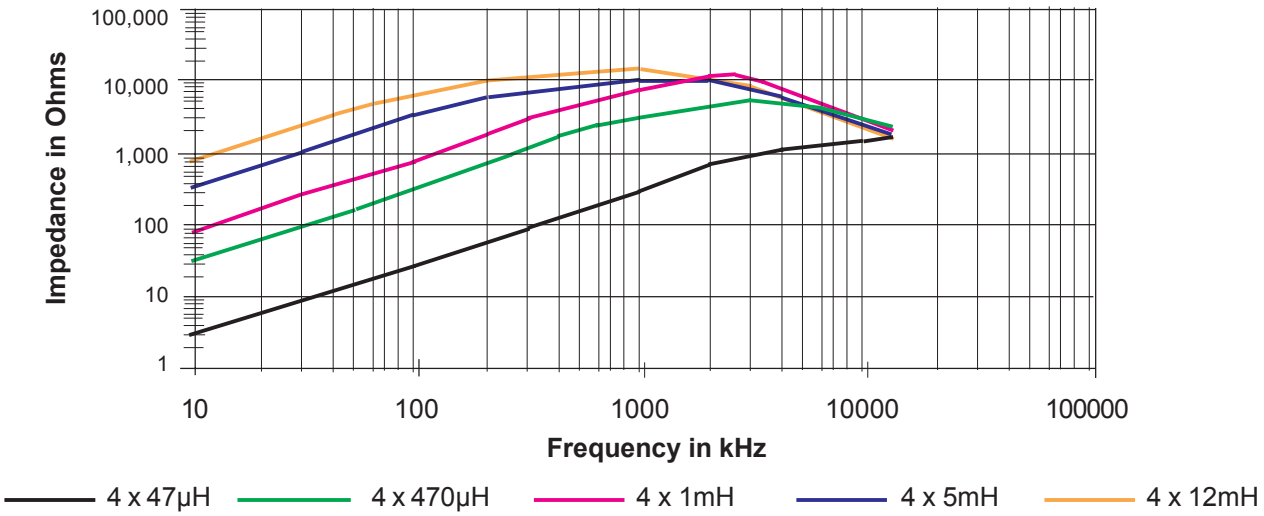
Surface Coplanarity will be 0.004(0.10) maximum

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

Impedance Performance
CCJ-2 Series Double Chokes



Impedance Performance
CCJ-4 Series Quad Chokes



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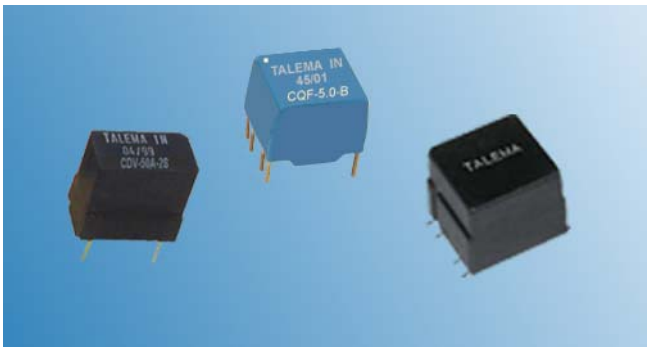
E-mail: talema@talemaindia.com
Web Site: www.talemaindia.com

CD & CQ Series Common Mode Interface Chokes for Data and Signal Lines



Features

- high attenuation over a wide frequency range
- low interwinding and coupling capacitance
- wide inductance range
- excellent quality at extremely competitive price due to high volume production
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- other inductance values available upon request
- fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

Test frequency
Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

Part Number	L_N (µH) ±30%	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_P (Vrms)	Windings per Core	Package	Schematic
CD Series - Double Chokes for EMI noise suppression								
CD__-1.0-A	1000	600	0.25	190	500	2	F / V	A
CD__-1.7-A	1700	550	0.42	200	500	2	F / V	A
CD__-2.2-A	2200	350	0.45	300	500	2	F / V	A
CD__-3.3-A	3300	350	0.50	370	500	2	F / V	A
CD__-4.7-A	4700	350	0.40	600	500	2	F / V	A
CD__-6.8-A	6800	350	0.55	510	500	2	F / V	A
CD__-10-A	10000	350	0.65	620	500	2	F / V	A
CD__-12-A	12000	300	0.70	680	500	2	F / V	A
CD__-15-A	15000	300	0.55	720	500	2	F / V	A
CD__-22-A	22000	300	0.85	920	500	2	F / V	A
CD__-28-A	28000	300	0.95	1020	500	2	F / V	A
CD__-33-A	33000	300	1.90	1120	500	2	F / V	A
CD__-50-A	50000	300	1.35	1800	500	2	F / V	A
CD__-70-A	70000	300	2.50	2100	500	2	F / V	A
CQ Series - Quad Chokes for EMI noise suppression								
CQ__-1.0-B	1000	400	0.20	200	500	4	F / V	B
CQ__-1.7-B	1700	350	0.40	260	500	4	F / V	B
CQ__-2.2-B	2200	300	0.45	310	500	4	F / V	B
CQ__-3.3-B	3300	300	0.50	380	500	4	F / V	B
CQ__-5.0-B	5000	300	0.30	430	500	4	F / V	B
CQ__-6.8-B	6800	300	0.55	850	500	4	F / V	B
CQ__-10-B	10000	300	0.65	1060	500	4	F / V	B
CQ__-12-B	12000	250	0.65	1120	500	4	F / V	B
CQ__-58-B	58000	200	1.40	2400	500	4	F / V	B
CQ__-90-B	90000	150	2.00	4150	500	4	F / V	B

When ordering Series CD or CQ, use suffix "F", "V" or "J" to designate desired package style.

CDF / CQF = Flat package, THT
CDV / CQV = Vertical package, THT
CDJ / CQJ = Flat package, SMD

Dimensions, Schematics and Impedance Curves on following two pages

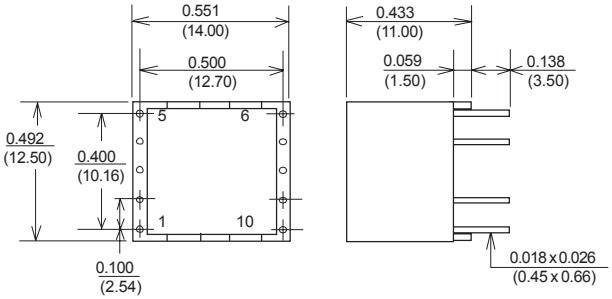
Packaging Style

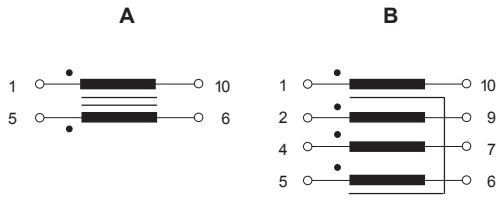
Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Package Style | **Schematics**

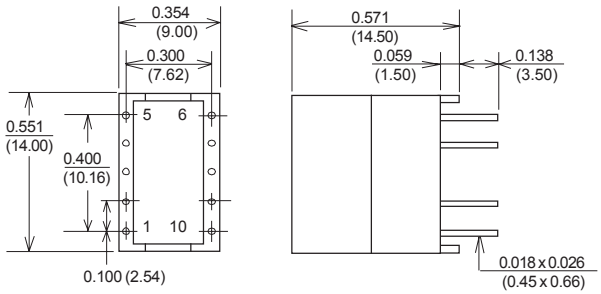
CDF / CQF

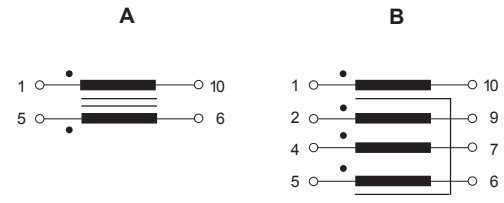




Note: Parts will be supplied with only the pins shown on schematics A (CDF style) and B (CQF style)

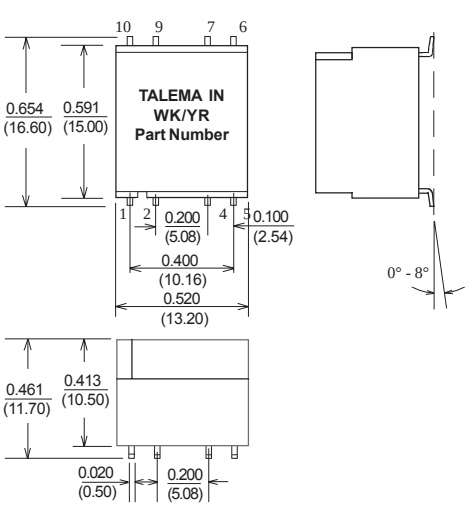
CDV / CQV



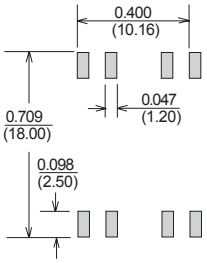


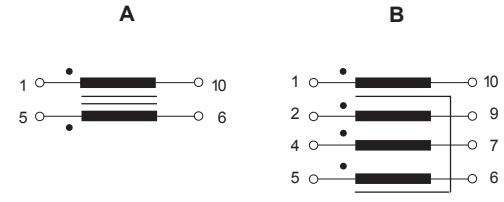
Note: Parts will be supplied with only the pins shown on schematics A (CDV style) and B (CQV style)

CDJ / CQJ



Suggested Pad Layout



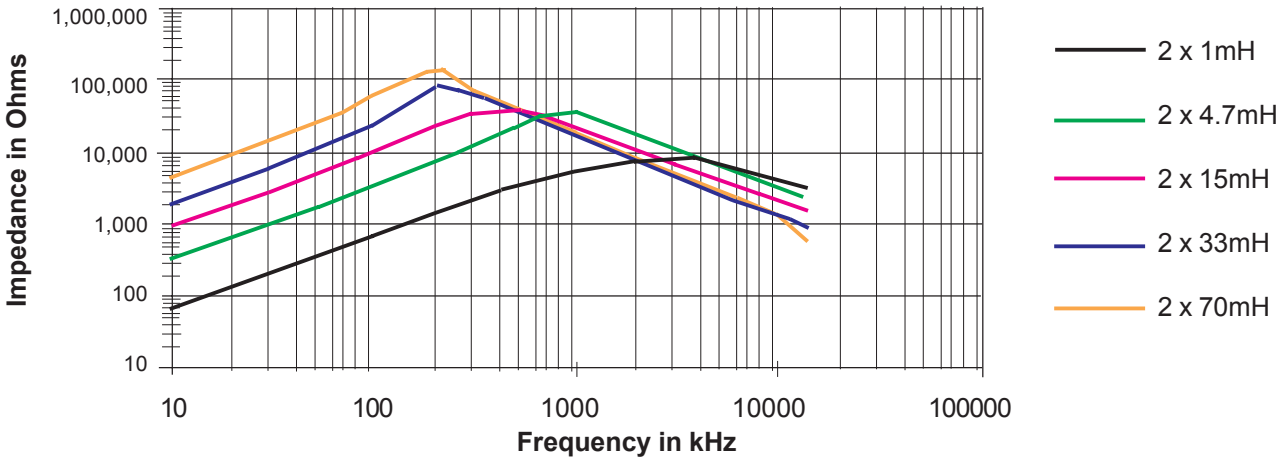


Surface Coplanarity will be 0.004(0.10) maximum

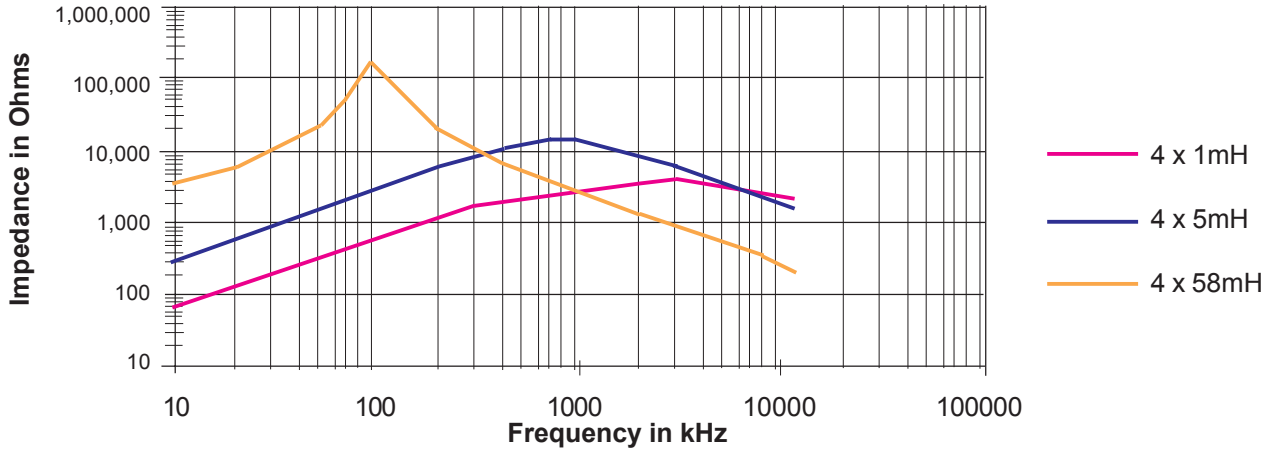
Note: Parts will be supplied with only the pins shown on schematics A (CDJ style, and B (CQJ style)

Impedance Performance

CD Series Double Chokes



CQ Series Quad Chokes



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CKV Series • Common Mode Interface Chokes for Data and Signal Lines

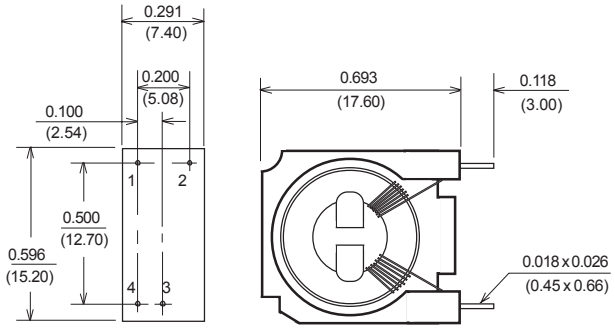
Features
- High attenuation over a wide frequency range
- Low interwinding and coupling capacitance
- Wide inductance range
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Other inductance values available upon request
- fully RoHS compliant

Electrical Specifications @ 25°C
Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

Test frequency:
Nominal Inductance: measured @ 100kHz, 100mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

CKV Series - Double Chokes for EMI noise suppression

Part Number	L_N (µH) ±30%	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_P (Vrms)	Windings per Core	Schematic
CKV-0.12	120	100	0.35	120	500	2	A
CKV-4.7	4700	100	1.00	900	500	2	A
CKV-10	10000	100	1.15	1300	500	2	A
CKV-16	16000	100	1.20	1600	500	2	A
CKV-38	38000	100	3.00	2100	500	2	A
CKV-68	68000	100	2.30	4630	500	2	A

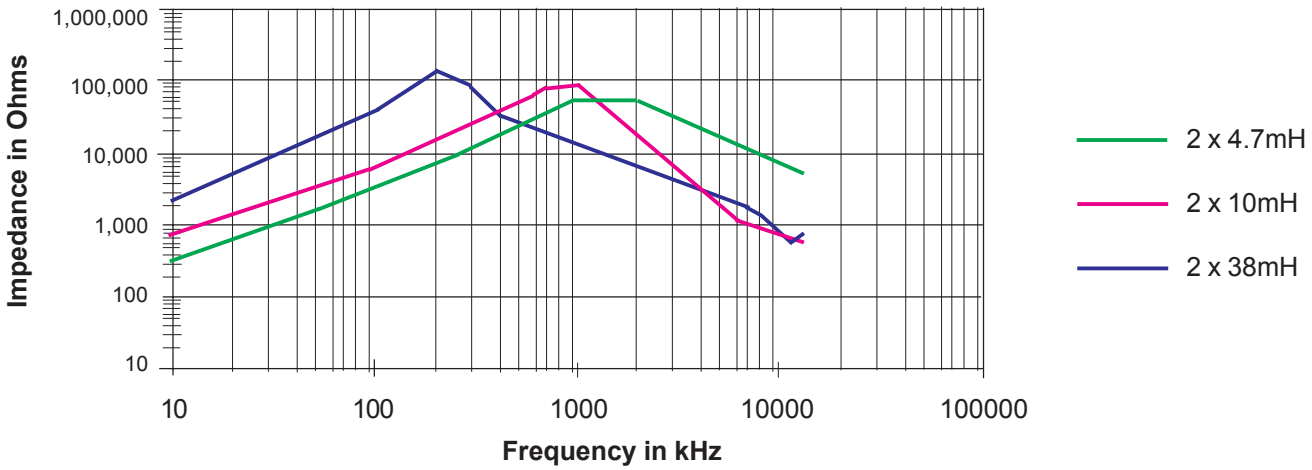


TALEMA IN
Part Nr.
Wk/Yr

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

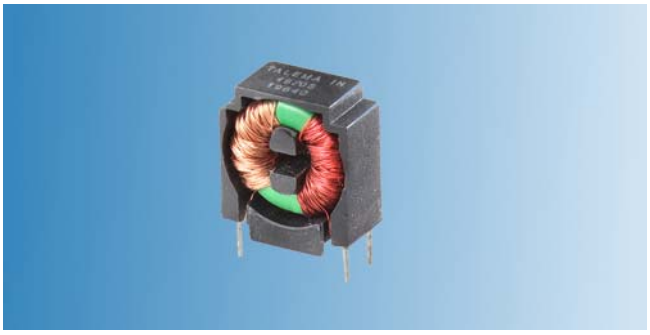
Schematic

Impedance Performance
Bifilar Winding



CKV Series • Current Compensated Double Chokes for Power Lines

Features
- High attenuation over a wide frequency range
- Low interwinding and coupling capacitance
- Sector Winding
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Flame retardant case per UL94V-O
- Other inductance values available upon request
- fully RoHS compliant



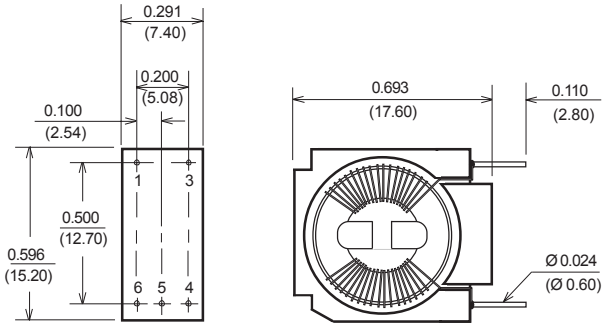
Electrical Specifications @ 25°C
Rated Voltage: 250Vac
Rated current @ 50/60Hz and 40°C ambient
Operating Temperature: -40° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 40/85/56

Test voltage: 1500 Vac, 2s line to line
Test Equipment: HP4192A

Weight: ~ 3 grams

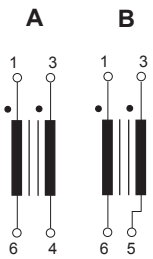
CKV Series - Current Compensated Double Chokes for Power Lines

Part Number	L_N (µH) -30/+50%	I_N (mA)	L_L (µH)	R_{CU} (mOhms)	V_P (Vrms)	Windings per Core	Schematic
CKV-4.7-S	4700	700	70	440	1500	2	A or B
CKV-6.8-S	6800	600	100	630	1500	2	A or B
CKV-10-S	10000	500	150	1000	1500	2	A or B
CKV-15-S	15000	400	225	1350	1500	2	A or B
CKV-30-S	30000	300	400	2200	1500	2	A or B
CKV-47-S	47000	250	750	2400	1500	2	A or B



TALEMA IN
Part Nr.
Wk/Yr

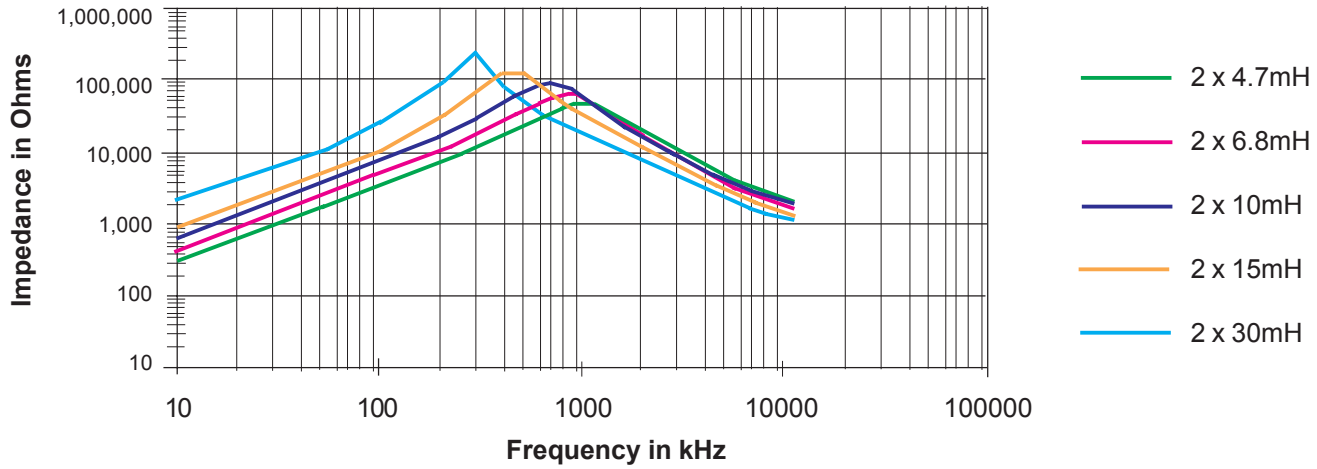
Schematic



Note: Normal pinning will be 1-3-4-6 Schematic A. If pinning 1-3-5-6 is required, Schematic B should be specified when ordering.

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

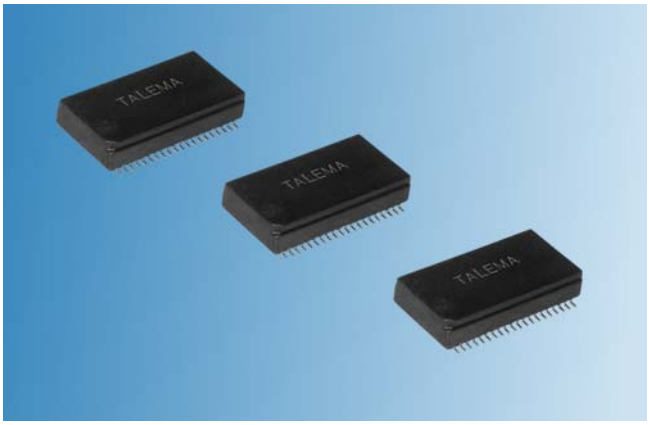
Impedance Performance
Sector Winding



COJ Series - Common Mode Octal Chokes for Quad Port T1/E1

Features

- Low profile (6.0mm) and light weight (4.0 g), Talema common mode choke modules provide excellent EMI reduction in Quad Port T1/E1 applications
- High density board placement with modular design
- SMD package facilitates pick and place compatability while ensuring consistent and reliable coplanarity
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C



Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms
Test Frequency: Inductance measured @ 100kHz/20mVrms

Standard packing: Tape and reel
Weight: ~ 4 grams

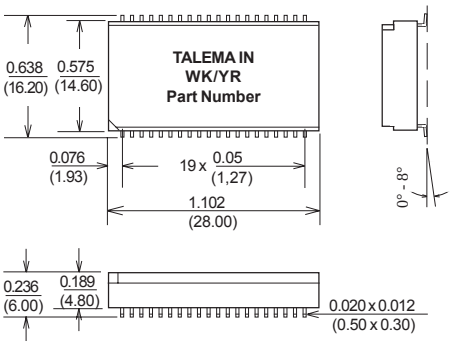
Application

The 16 data line common mode choke module has been designed for T1/E1 applications and provides excellent EMI suppression for data and signal line filtering

COJ Octal Common Mode Chokes for Data and Signal Line EMI Noise Suppression

Part Number	No. of Data Lines	OCL (µH Min.)	DCR (mOhms Typ.)	Common Mode Attenuation (dB Typ.)						
				100kHz	1MHz	10MHz	30MHz	50MHz	100MHz	300MHz
COJ-16-470	16	47	200	13	27	40	44	42	36	26
				100kHz	300kHz	1MHz	3MHz	5MHz	10MHz	30MHz
COJ-16-502	16	5000	1900	26	38	40	32	26	21	16

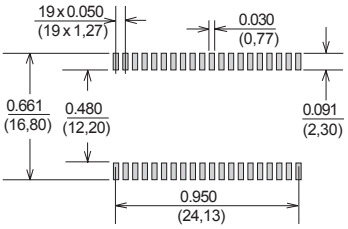
Package



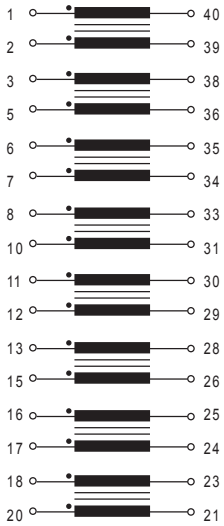
Surface coplanarity will be <0.004 (0.10)

Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise

Suggested Pad layout



Schematic



CUJ-16 • Miniature Chip Style SMD Common Mode Filter Chokes

Features

- EMI noise suppression for data and signal line filtering
- Low cost SMD common mode chokes are designed for pick and place compatability while providing consistent and reliable coplanarity
- High attenuation over a wide frequency range
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating Temperature: -25° to +85°C
Storage Temperature: -40° to +125°C
Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms

Test frequency

Nominal Inductance: measured @ 100kHz/20 mVrms
Leakage Inductance: measured @ 100kHz, 100mVrms
Test Equipment: HP4192A

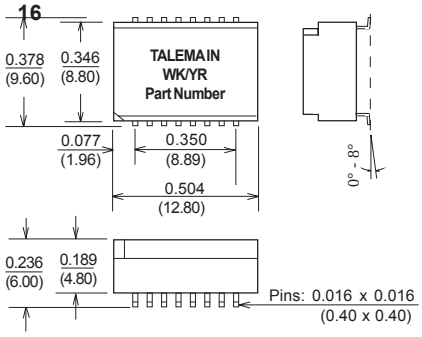
Common Mode Chokes for Data and Signal Line EMI Noise Suppression

Part Number	Number of Data Lines	OCL (µH) ±30%	I_N (mA)	DCR (mOhms)	Number of Coils	Windings per Coil	Schematic
CUJ-240-16E	4	24	800	45	2	2	E
CUJ-340-16E	4	34	700	55	2	2	E
CUJ-101-16E	4	100	450	135	2	2	E
CUJ-471-16E	4	470	450	95	2	2	E
CUJ-102-16E	4	1000	450	135	2	2	E
CUJ-472-16E	4	4700	300	310	2	2	E
CUJ-240-16C	6	24	650	45	2	3	C
CUJ-470-16C	6	47	450	90	2	3	C
CUJ-101-16C	6	100	350	170	2	3	C
CUJ-471-16C	6	470	350	95	2	3	C
CUJ-102-16C	6	1000	330	170	2	3	C
CUJ-472-16C	6	4700	200	430	2	3	C
CUJ-240-16D	6	24	600	75	3	2	D
CUJ-470-16D	6	47	500	110	3	2	D
CUJ-680-16D	6	68	450	135	3	2	D
CUJ-471-16D	6	470	350	220	3	2	D
CUJ-102-16D	6	1000	350	220	3	2	D
CUJ-472-16D	6	4700	190	750	3	2	D
CUJ-240-16A	8	24	550	45	2	4	A
CUJ-470-16A	8	47	400	90	2	4	A
CUJ-101-16A	8	100	250	240	2	4	A
CUJ-471-16A	8	470	250	95	2	4	A
CUJ-102-16A	8	1000	250	240	2	4	A
CUJ-472-16A	8	4700	160	600	2	4	A
CUJ-240-16B	8	24	430	130	4	2	B
CUJ-470-16B	8	47	360	180	4	2	B
CUJ-101-16B	8	100	300	260	4	2	B
CUJ-471-16B	8	470	300	180	4	2	B
CUJ-102-16B	8	1000	300	240	4	2	B
CUJ-472-16B	8	4700	160	1180	4	2	B

CUJ Packaging Style and Impedance Performance

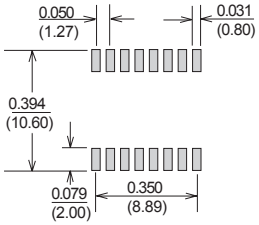
Dimensions: Inches (Millimeters) Tolerance: ±0.010 (0.25)

CUJ-XXX-16

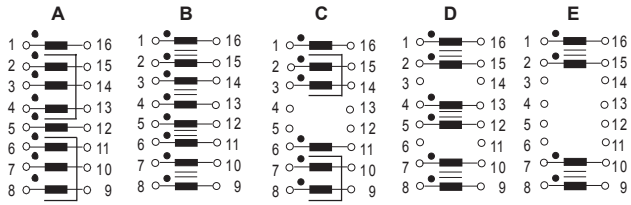


Surface Coplanarity will be 0.004(0.10) maximum

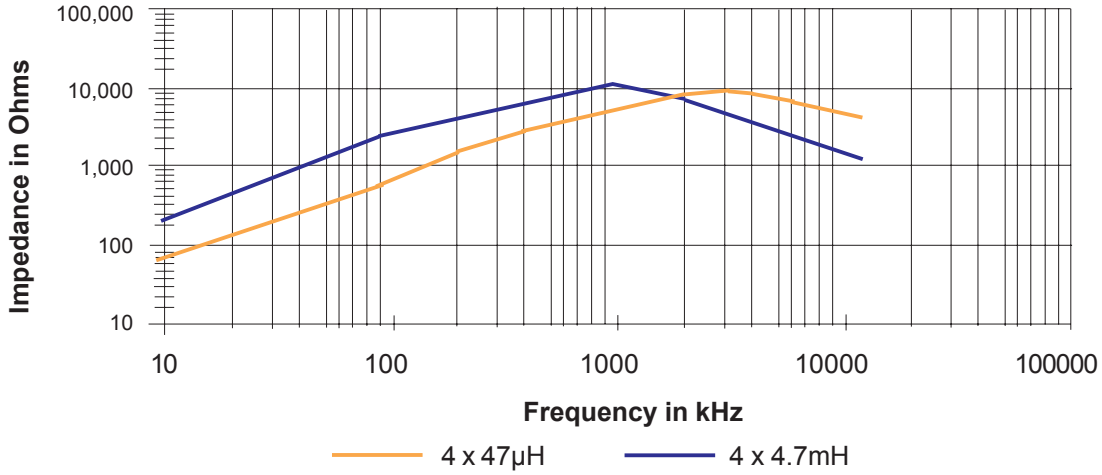
Suggested Pad Layout



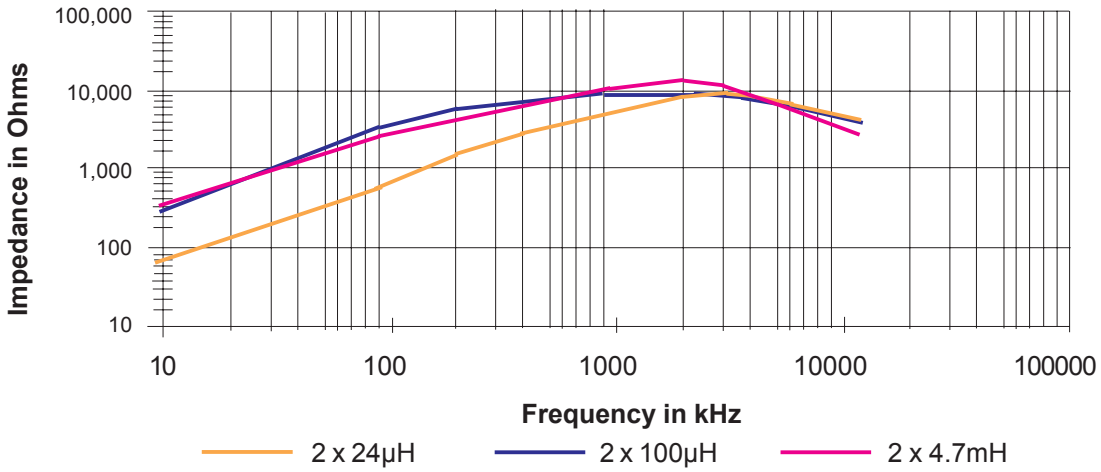
Schematics



Impedance Performance
CUJ-XXX-16A Series Quadfilar Winding



Impedance Performance
CUJ-XXX-16B Series Bifilar Winding



SMD Data and Signal Line Filter Chokes

Features

- EMI noise suppression for data and signal line filtering
- Miniature, low cost SMD common mode chokes are designed for pick and place compatability and provide reliable coplanarity
- High attenuation over a wide frequency range
- Manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Parts shown below meet all popular footprints
- Fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

Nominal Voltage: 42Vac (50/60Hz), 80Vdc
Operating temperature: -25° to +85°C
Storage temperature: -40° to +125°C

Climatic category: according to IEC68-1 25/85/56
Test voltage between windings: 500 Vrms
Test frequency: Inductance measured @ 100kHz / 20 mVrms
Test Equipment: HP4192A

Miniature Common Mode Chokes for Data and Signal Line EMI suppression

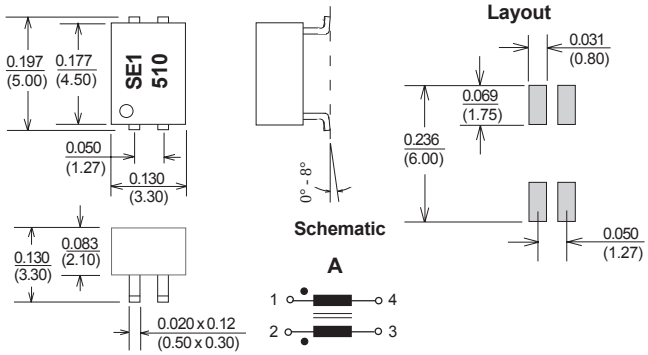
Part Number	OCL (µH) ±30%	I_N (mA)	DCR (mOhms)	Number of Coils	Windings per Coil	Schematic
Two Data Lines						
CTJ-2-110	11	300	160	1	2	A
CTJ-2-101	100	300	180	1	2	A
CTJ-2-471	470	200	380	1	2	A
CTJ-2-102	1000	150	660	1	2	A
CTJ-2-472	4700	150	1800	1	2	A
CLJ/CMJ-2-110	11	500	120	1	2	A
CLJ/CMJ-2-470	47	500	150	1	2	A
CLJ/CMJ-2-101	100	500	260	1	2	A
CLJ/CMJ-2-471	470	500	250	1	2	A
CLJ/CMJ-2-102	1000	500	250	1	2	A
CLJ/CMJ-2-472	4700	200	845	1	2	A
CLJ/CMJ-2-103	10000	200	1200	1	2	A
CLJ/CMJ-2-473	47000	100	3450	1	2	A
CCJ-2-102	1000	550	140	1	2	A
CCJ-2-152	1500	550	100	1	2	A
CCJ-2-502	5000	500	180	1	2	A
CCJ-2-123	12000	400	280	1	2	A
CCJ-2-283	28000	270	520	1	2	A
CCJ-2-503	50000	200	1020	1	2	A
CCJ-2-703	70000	170	1540	1	2	A
CDJ-1.0-A	1000	600	190	1	2	A
CDJ-4.7-A	4700	350	575	1	2	A
CDJ-12-A	12000	300	680	1	2	A
CDJ-28-A	28000	300	1020	1	2	A
CDJ-50-A	50000	300	1800	1	2	A
CDJ-70-A	70000	300	2150	1	2	A
Three Data Lines						
CFJ-3-240	24	1000	45	1	3	A
CFJ-3-102	1000	700	70	1	3	A
CFJ-3-222	2200	600	125	1	3	A
CFJ-3-472	4700	350	340	1	3	A
Four Data Lines						
CLJ/CMJ-4-110	11	600	130	1	4	A
CLJ/CMJ-4-470	47	500	180	1	4	A
CLJ/CMJ-4-101	100	500	330	1	4	A
CLJ/CMJ-4-471	470	500	240	1	4	A
CLJ/CMJ-4-102	1000	500	310	1	4	A
CLJ/CMJ-4-472	4700	300	860	1	4	A
CLJ/CMJ-4-123	12000	130	2300	1	4	A

Part Number	OCL (µH) ±30%	I_N (mA)	DCR (mOhms)	Number of Coils	Windings per Coil	Schematic
Four Data Lines						
CFJ-4-330	33	550	65	1	4	A
CFJ-4-470	47	540	80	1	4	A
CFJ-4-101	100	360	160	1	4	A
CFJ-4-471	470	360	65	1	4	A
CFJ-4-102	1000	300	85	1	4	A
CFJ-4-472	4700	220	430	1	4	A
CCJ-4-260	26	600	65	1	4	B
CCJ-4-470	47	500	100	1	4	B
CCJ-4-101	100	400	130	1	4	B
CCJ-4-221	220	400	190	1	4	B
CCJ-4-471	470	400	120	1	4	B
CCJ-4-102	1000	350	190	1	4	B
CCJ-4-152	1500	350	120	1	4	B
CCJ-4-502	5000	330	220	1	4	B
CCJ-4-123	12000	170	790	1	4	B
CCJ-4-583	58000	90	2350	1	4	B
CQJ-1.0-B	1000	400	200	1	4	B
CQJ-5.0-B	5000	300	450	1	4	B
CQJ-10-B	10000	300	1060	1	4	B
CQJ-58-B	58000	200	2400	1	4	B
CQJ-90-B	90000	150	4150	1	4	B
CUJ-240-16E	24	800	45	2	2	E
CUJ-101-16E	100	450	135	2	2	E
CUJ-102-16E	1000	450	135	2	2	E
CUJ-472-16E	4700	300	310	2	2	E
Six Data Lines						
CUJ-240-16C	24	650	45	2	3	C
CUJ-101-16C	100	350	110	2	3	C
CUJ-102-16C	1000	330	170	2	3	C
CUJ-472-16C	4700	200	430	3	2	D
Eight Data Lines						
CUJ-240-16A	24	550	45	2	4	A
CUJ-101-16A	100	250	240	2	4	A
CUJ-471-16A	470	250	95	2	4	A
CUJ-472-16A	4700	160	605	2	4	A
Sixteen Data Lines						
COJ-16-470	47	300	200	8	2	--
COJ-16-502	5000	150	1900	8	2	--

Dimensions: Inches (Millimeters)
Surface Coplanarity will be 0.004 (0.10) maximum

Tolerance: ±0.010 (0.25) unless specified otherwise

CTJ-2



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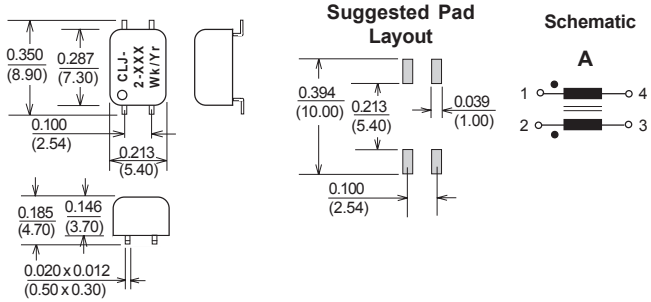

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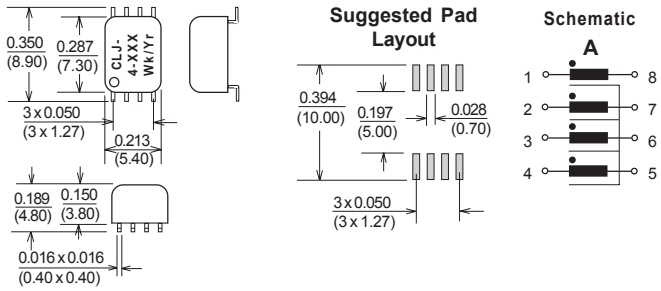

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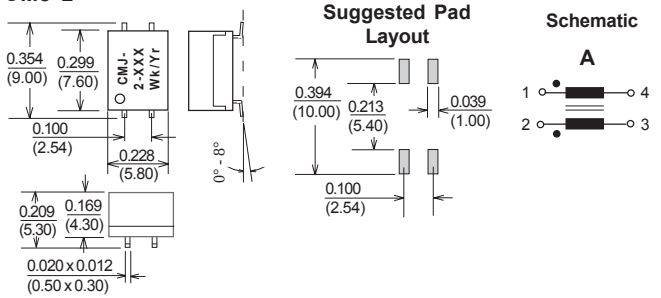

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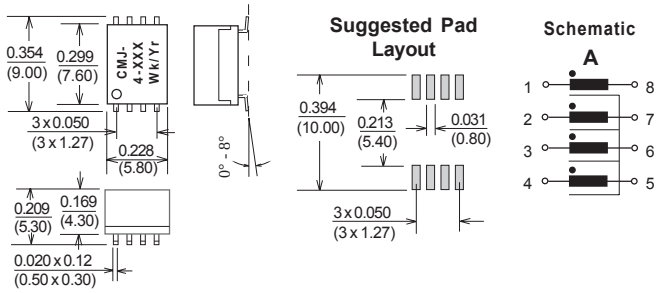
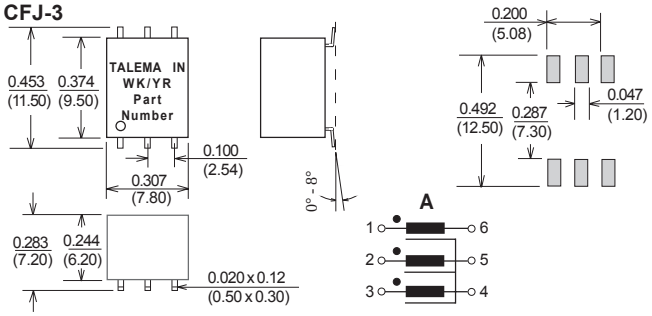
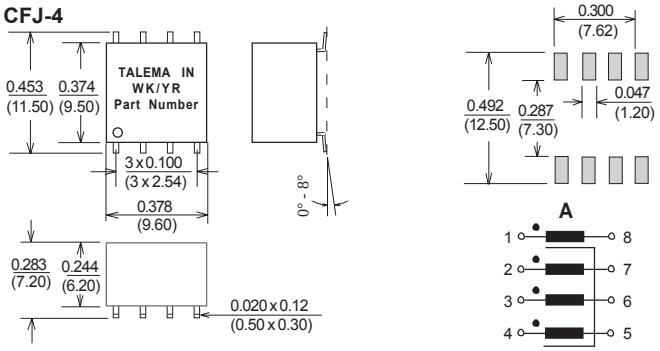


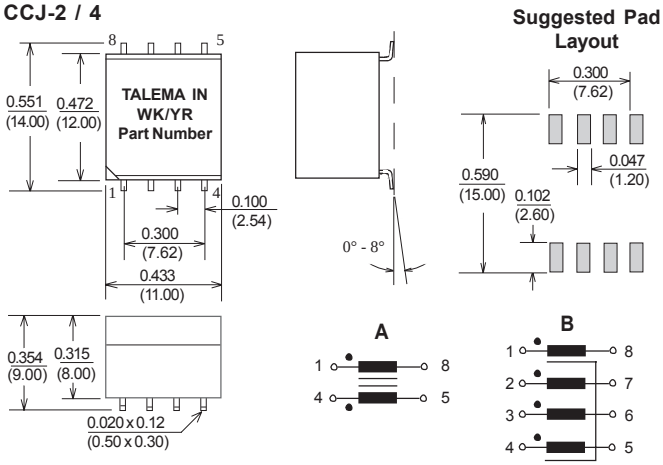
CFJ-3



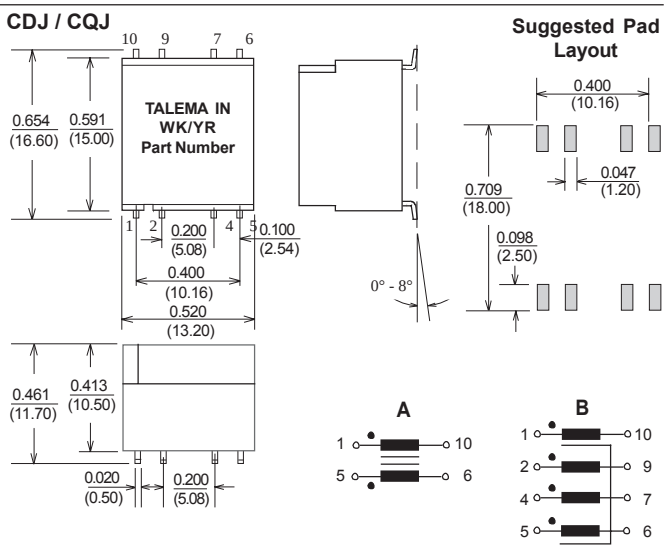
CFJ-4



CCJ-2 / 4



CDJ / CQJ

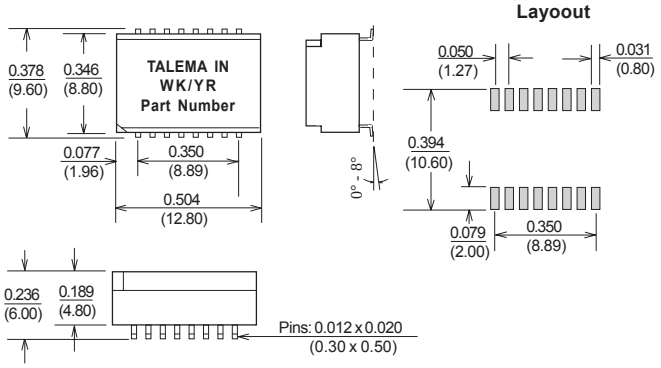


Packaging & Dimensions • SMD Data and Signal Line Filter Chokes

Dimensions: Inches (Millimeters)
Surface Coplanarity will be 0.004 (0.10) maximum

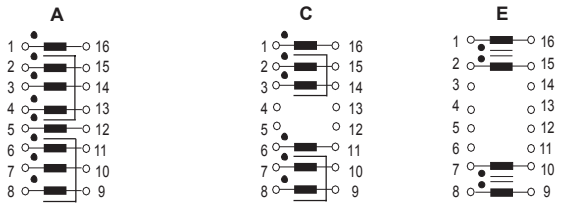
Tolerance: ±0.010 (0.25) unless specified otherwise

CUJ-XXX-16

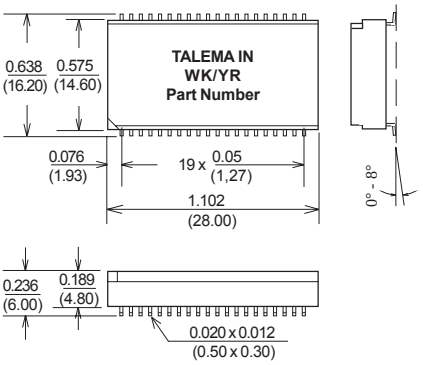


Suggested Pad Layoout

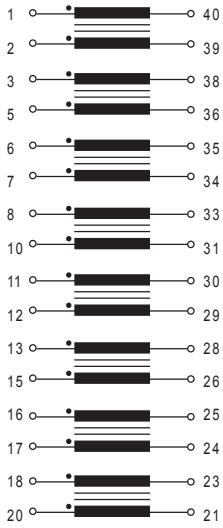
Schematics



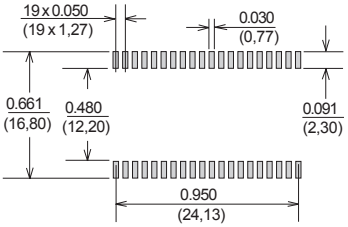
COJ Module



Schematic

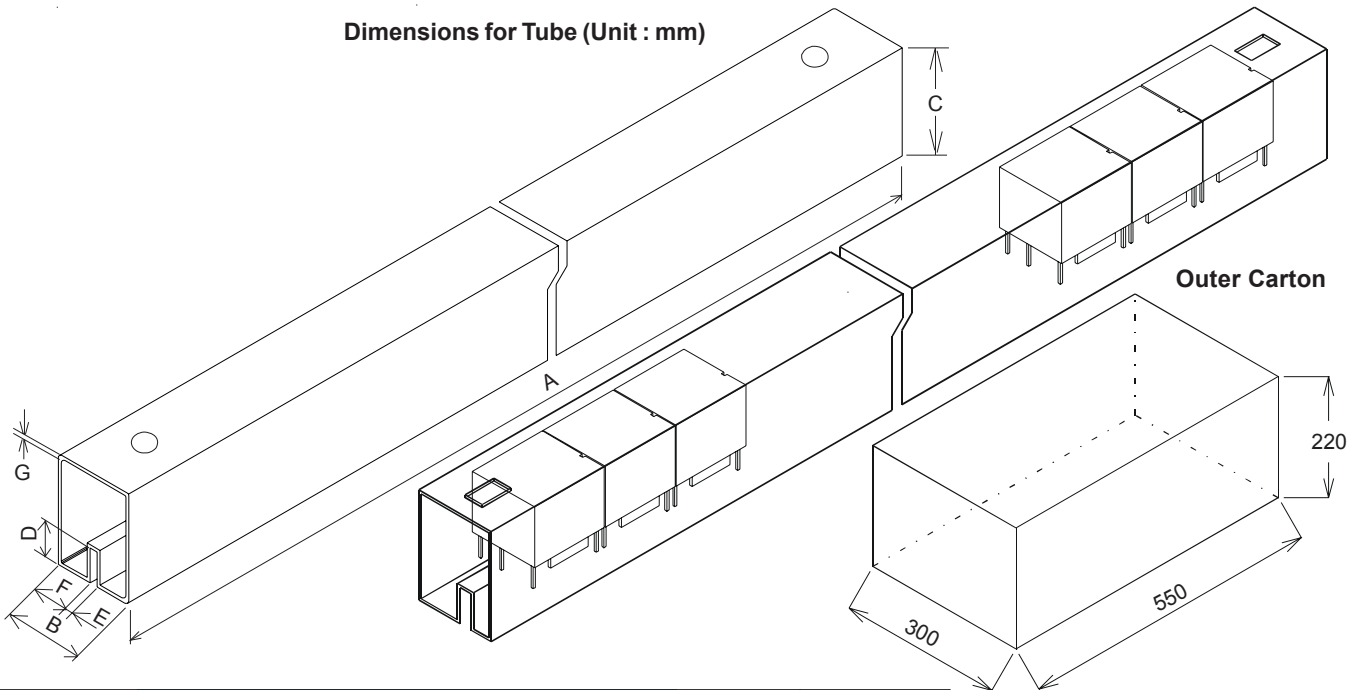


Suggested Pad layout



Tube Packaging and Dimensions

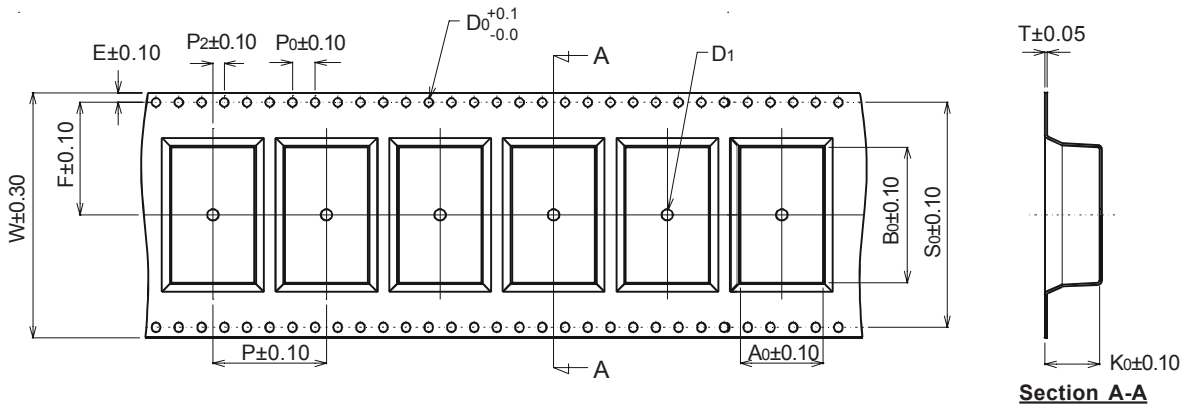
Dimensions for Tube (Unit : mm)



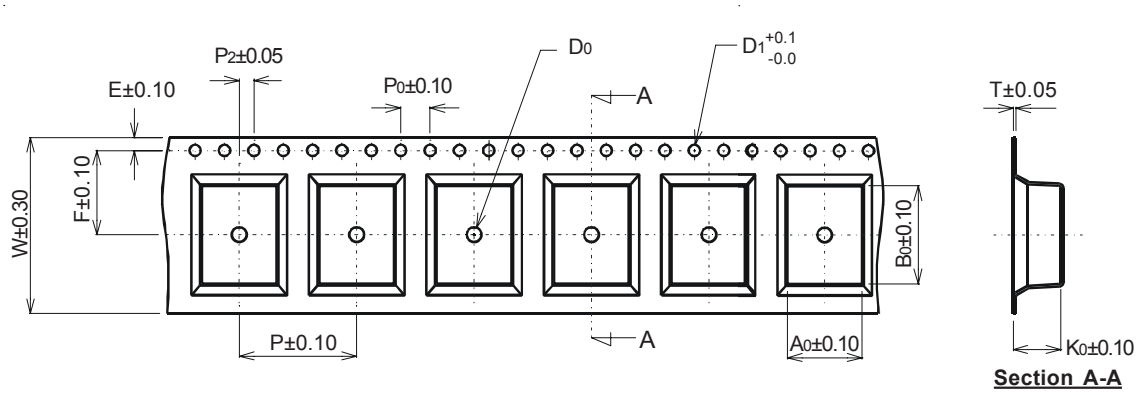
Type	Packing Tube Outer Dimensions (in mm)							Quantity (Pcs/Tube)	Quantity (Tube/Cased)
	A	B	C	D	E	F	G		
CDF / CQF	515.0	16.40	17.90	4.20	9.60	3.40	0.70	39	162/6318
CDV / CQV	515.0	16.40	22.40	7.00	1.60	7.40	0.70	54	103/5562
CKV	515.0	17.90	24.50	5.00	3.10	7.40	0.70	55	90/4950

Tape & Reel Packaging and Dimensions

Dimensions for Carrier Tape (Unit : mm)

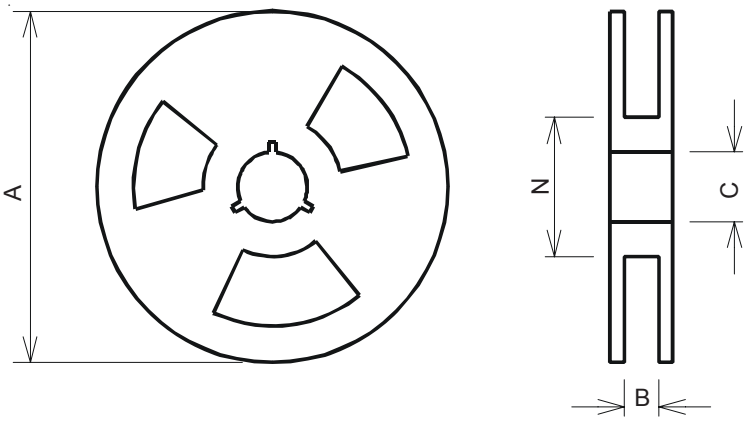


Type	Dimensions in mm													Reel Size	Quantity (Pcs/Reel)	Quantity (Reel/Cased)
	W	F	E	P_2	P_0	D_0	D_1	P	A_0	B_0	S_0	T	K_0			
CDJ	32.00	14.20	1.75	2.00	4.00	Ø1.50	Ø2.00	24.00	13.55	16.95	28.40	0.40	12.30	330x32	200	5/1000
CQJ	32.00	14.20	1.75	2.00	4.00	Ø1.50	Ø2.00	24.00	13.55	16.95	28.40	0.40	12.30	330x32	200	5/1000
COJ	44.00	20.20	1.75	2.00	4.00	Ø1.50	Ø2.00	24.00	16.75	28.40	40.40	0.40	6.70	330x44	400	5/2000

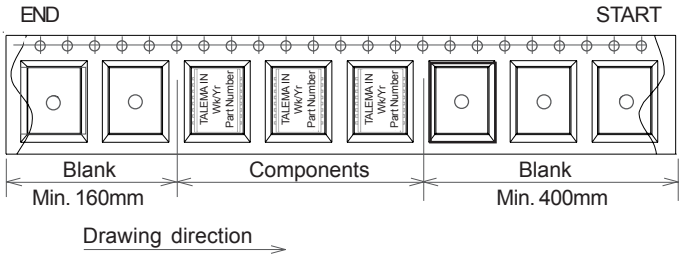


Type	Dimensions in mm												Reel Size	Quantity (Pcs/Reel)	Quantity (Reel/Cased)
	W	F	E	P_2	P_0	D_0	D_1	P	A_0	B_0	T	K_0			
CTJ	12.00	5.50	1.75	2.00	4.00	Ø1.50	Ø1.50	8.00	4.10	5.10	0.40	3.85	330x13	2000	5/10000
CLJ	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	12.00	6.10	9.30	0.35	5.80	330/24	1000	5/10000
CMJ	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	12.00	6.10	9.30	0.35	5.80	330/24	1000	5/10000
CFJ-3	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	20.00	11.90	8.20	0.40	7.60	330x24	600	5/3000
CFJ-4	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	16.00	10.10	12.10	0.40	7.60	330x24	600	5/3000
CSJ-2&3	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	12.00	6.90	8.30	0.40	5.00	330x24	600	5/3000
CSJ-4	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	16.00	9.45	8.30	0.40	5.00	330x24	600	5/3000
CCJ	24.00	11.50	1.75	2.00	4.00	Ø1.50	Ø1.50	20.00	11.20	14.60	0.40	8.55	330x24	400	5/2000
CUJ	24.00	11.50	1.75	2.00	4.00	Ø1.5	Ø1.50	16.00	10.20	13.35	0.35	6.55	330x24	600	5/3000

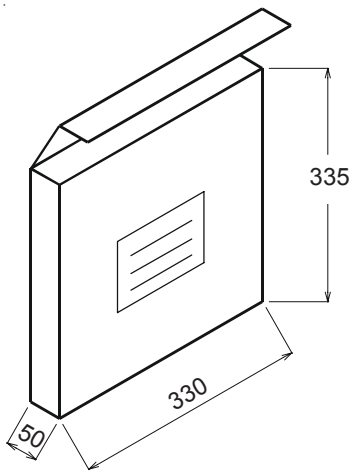
Reel Dimensions (Unit : mm)



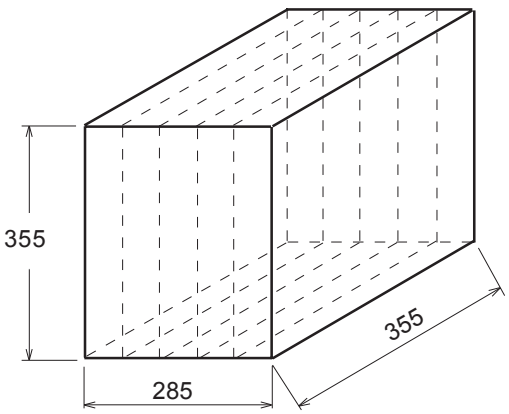
Reel Dimensions in mm				
Type	**A**	**B**	**C**	**N**
330 x 13	330	13	20.2	100
330 x 24	330	24	20.2	100
330 x 32	330	32	20.2	100
330 x 44	330	44	20.2	100



Inner Carton



Outer Carton



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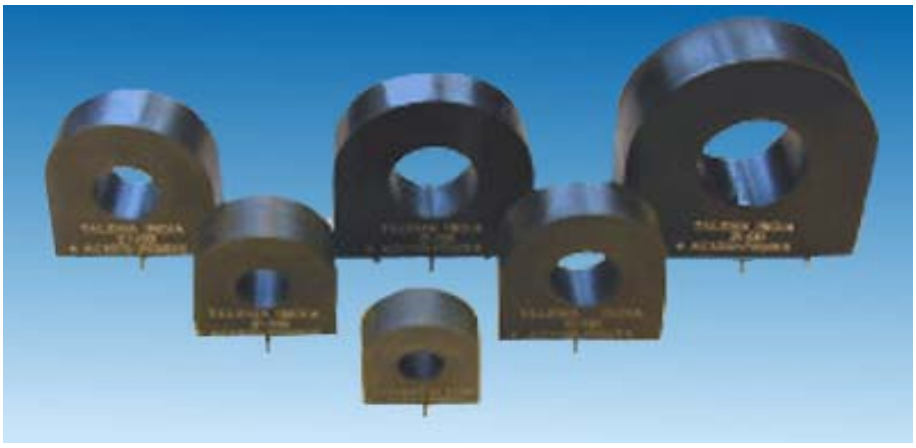

Summary
TOTAL PROGRAM