



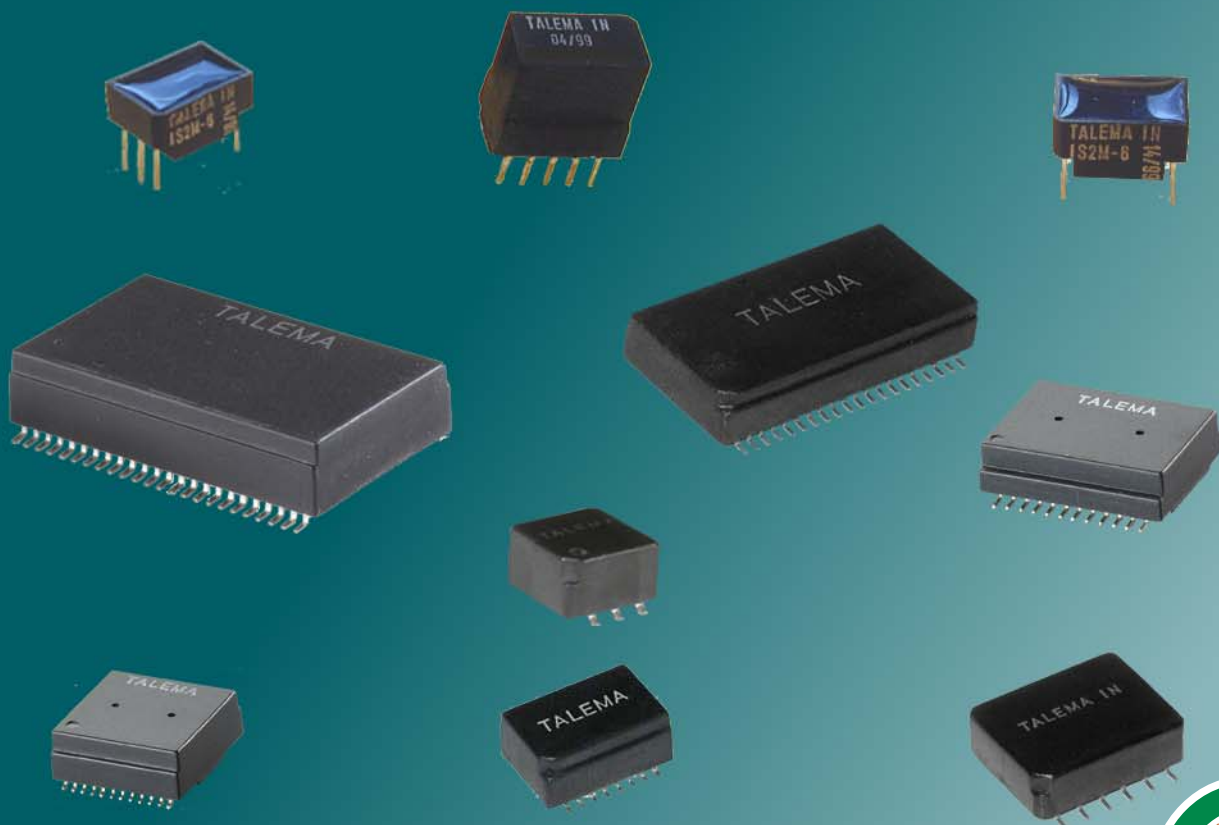
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- Interface Transformers •
- Common Mode Interface Chokes •
- SMD and Through Hole Packaging •
- Single, Dual and Octal Transformers •

SECTION 9

E1/T1/CEPT/ISDN-PRI - T3/E3/D3/STS-1 Interface Transformers for Telecommunication Products



Sales & Marketing, Design and Manufacturing Facilities
<http://www.talema-nuvotem.com>

Eastern Europe & Czech Republic
NT MAGNETICS s.r.o.
Chebská 27
322 00 Plzeň
Tel: Int. + 420 377 - 338 351
Fax: Int. + 420 377 - 338 350
Email: talema@talema.cz
Web Site: www.ntmagnetics.cz

Germany
TALEMA ELEKTRONIK GMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 - 841 00 - 0
Fax: Int. + 49 89 - 841 00 25
Email: info@talema.de

Ireland
NUVOTEMTEO.
Crolly
Co. Donegal
Tel: Int. + 353 74 - 954 8666
Fax: Int. + 353 74 - 954 8139
Email: info@nuvotem.com

India
TALEMA ELECTRONIC PVT. LTD.
Opposite the SIDCO Industrial Estate
Gins Towers
4/5S.H/1, Omalur Main Road
Salem - 636 004, Tamil Nadu
Tel: Int. + 91 427 - 244 1325
Fax: Int. + 91 427 - 243 0034
E-mail: talema@talemaindia.com
Web Site: www.talemaindia.com

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



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 procedures 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.

Performance has been proven in the many design in's of our products. The fact that we maintain a ship-to-stock vendor rating with over 200 national and international companies is, to us, the best testimonial of our commitment to quality.

ENVIRONMENT

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



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TELECOM PRODUCTS

E1 / T1 / PRI / CEPT

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IC - E1 / T1 / PRI / CEPT Transformer Selection Guide



Talema manufactures a wide range of transformers for all 1.544 and 2.048Mbps applications. A full listing of LIU Transceiver IC's with recommended Talema transformers is listed on the following cross reference chart.

Performance has been proven in the many design-ins of our products in these applications. Quality and consistency is guaranteed through 100% testing of the specified parameters for Primary Inductance, Leakage Inductance, Turns Ratio, DC resistance and Interwinding Capacitance. This ensures that the Return Loss and Pulse Waveshape requirements of ITU-T G.703 and ANSI T1.102 can be met. Additionally all parts are 100% tested for 1500V minimum isolation.

Temperature Performance

Products are offered with extended temperature (-40° to 85°C) as standard. Required minimum inductance levels are maintained at the lower temperature limits.

IC - Transformer Selection Guide for T1/E1/CEPT/ISDN-PRI Interface Modules

| IC Manufacturer | IC Part Number | Application | Talema Transformer Part Number | | | | |
|--|--|---|--------------------------------|---------------|-----------------|----------|-----------------|
| | | | Single Through Hole | | 12 Pin Dual SMD | | 16 Pin Dual SMD |
| | | | Transmit | Receive | Tx / Rx | Tx / Rx | Tx / Rs |
| Cologne Chip | HFC-E1 | S2M | -- | -- | -- | -- | MJM-032 |
| | 61318 | 120 E1 | IS2M-7 / -19 | IS2M-15 / -20 | - | MJS-018 | MJM-018 |
| | 61318 | 75 E1 | IS2M-17 / -27 | IS2M-15 / -20 | -- | -- | |
| | 61577 | T1 & E1 | IS2M-7 / -19 | IS2M-19 | MJS-017A | MJS-017 | MJM-017 |
| | 61304A, 61305A, 61535A, 61574A, 61575 | T1 | IS2M-8 / 21 | IS2M-21 / -19 | MJS-019A | MJS-019 | MJM-019 |
| | 61304A, 61305A, 61535A, 61574A, 61575 | 75 E1 | IS2M-12 | IS2M-7 / -19 | MJS-018A | MJS-025 | MJM-025 |
| | 61304A, 61305A, 61535A, 61574A, 61575 | 120 E1 | IS2M-12 | IS2M-7 / -19 | MJS-025A | MJS-025 | MJM-025 |
| | 61884 | T1/E1/J1 | -- | -- | MJS-017A | -- | |
| | 61582, 61583 | | IS2M-8 / -21 | IS2M-8 / -21 | MJS-013A | MJS-013 | MJM-013 |
| | 61310, 61581 | | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MJS-018 | MJM-018 |
| | 61310, 61581 | Host | IS2M-7 / -19 | IS2M-7 / -19 | -- | -- | MJM-026 |
| | 61880, 61881 | | IS2M-8 / -21 | IS2M-7 / -19 | MJS-019A | MJS-019 | MJM-019 |
| | 61584, 61584A | | IS2M-7 / -19 | IS2M-7 / -19 | MJS-017A | MJS-017 | MJM-017 |
| | 61582, 61583, 61584, 61584A | IQ5 | IS2M-8 / -21 | IS2M-8 / -21 | MJS-013A | MJS-013 | MJM-013 |
| Maxim (Dallas) | DS2196, DS2155, DS2149, DS2148 | | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MJS-018 | MJM-018 |
| | DS2151, DS2152, DS2153, DS2154 | | IS2M-8 / -21 | IS2M-15 / -20 | MJS-014A | MSJ-019 | MJM-019 |
| | DS2151, DS2152, DS2153, DS2154 | | IS2M-10 / -25 | IS2M-15 / -20 | MJS-031A | MSJ-028 | MJM-028 |
| | DS2148/Q48/Q348/349/Q59 | 3V | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MSJ-018 | MJM-018 |
| | DS2148, Q48 | 5V | IS2M-10 / -25 | IS2M-15 / -20 | MJS-031A | MSJ-028 | MJM-028 |
| | DS21352/Q352, DS21354/Q354 | T1/E1 | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MSJ-018 | MJM-018 |
| | DS21552/Q552, DS21554/Q554 | T1/E1 | IS2M-8 / -21 | IS2M-15 / 20 | MJS-014A | MSJ-019 | MJM-019 |
| | DS21552/Q552, DS21554/Q554 | T1/E1 | IS2M-10 / -25 | IS2M-15 / -20 | MJS-031A | MSJ-028 | MJM-028 |
| | DS26502, DS2503, DS21455, DS21458, DS26528 | | IS2M-7 | IS2M-15 | MJS-018A | MSJ-018 | MJM-018 |
| | Exar | XRT5683A, XRT59L91, XRT5894, XRT5897, XRT5997 | | IS2M-6 / -19 | IS2M-6 / -19 | MJS-017A | MSJ-017 |
| XRT5793, XRT5794 | | | IS2M-12 | IS2M-24 / -20 | MJS-046A | MSJ-025 | MJM-025 |
| XRT81L27, 82L24, 82D20 | | | IS2M-25 | IS2M-6 / -19 | MJS-017A | MSJ-028 | MJM-028 |
| XRT83L30, XRT83L34, XRT83L38 | | | IS2M-6 / -19 | IS2M-6 / -19 | MJS-018A | MSJ-018 | MJM-018 |
| XRT86L30, XRT86L32, XRT86L34, XRT86L38 | | | IS2M-6 | IS2M-24 | MJS-018A | MJS-018 | MJM-018 |
| T5684, XRT7288, 82D20 | | | IS2M-25 | IS2M-7 / -19 | MJS-028A | MSJ-028 | MJM-028 |
| IDT | 82V2044, 82V2048, 82V2048L, 82V2054, 82V2058 | | IS2M-6 | IS2M-6 | MJS-017A | MSJ-017 | MJM-043 |
| | 82V2041E, 82V2042E, 82V2044E, 82V2048E | | IS2M-6 | IS2M-24 | MJS-018A | MSJ-018 | MJM-018 |
| | 82V2081, 82V2082, 82V2084, 82V2088 | | IS2M-6 | IS2M-24 | MJS-018A | MSJ-018 | MJM-018 |
| | 82P2281, 82P2282, 82P2284, 82P2288 | | IS2M-6 | IS2M-24 | MJS-018A | MSJ-018 | MJM-018 |
| Infineon (Siemens) | PEB2254, PEB2255 | E1/T1/J1 | -- | -- | MJS-021A | MSJ-021 | MJM-010 |
| | PEB2254, PEB2255 | E1/T1/J1 | -- | -- | MJS-021A | MSJ-021 | MJM-021 |
| | PEB22504, PEB22554, PEB2256 | 3.3V | -- | -- | MJS-032A | -- | MJM-022 |



IC - Transformer Selection Guide for T1/E1/CEPT/ISDN-PRI Interface Modules

| IC Manufacturer | IC Part Number | Application | Talema Transformer Part Number | | | | | |
|----------------------------|--|---------------|--------------------------------|---------------|-----------------|----------|-----------------|---------|
| | | | Single Through Hole | | 12 Pin Dual SMD | | 16 Pin Dual SMD | |
| | | | Transmit | Receive | Tx / Rx | Tx / Rx | Tx / Rs | |
| Intel (Level One) | LXT300, LX301 | | IS2M-7 / -19 | IS2M-7 / -19 | MJS-017A | MSJ-017 | MJM-017 | |
| | LXT304, LXT305, LXT307 | T1/E1 | IS2M-7 / -19 | IS2M-7 / -19 | MJS-017A | MSJ-017 | MJM-017 | |
| | LXT304, LXT305, LXT307 | T1 | IS2M-8 / -21 | IS2M-7 / -19 | MJS-019A | MSJ-019 | MJM-019 | |
| | LXT304, LXT305, LXT307 | 75, 120 E1 | IS2M-12 | IS2M-7 / -19 | MJS-018A | MSJ-025 | MJM-025 | |
| | LXT304, LXT305, LXT307 | DSX-1, D4 | IS2M-11 | IS2M-7 | MJS-015A | MSJ-016 | MJM-016 | |
| | LXT310, LXT317, LXT318 | | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MSJ-018 | MJM-018 | |
| | LXT312, LXT313, LXT315 | | IS2M-26 | IS2M-15 / -20 | -- | -- | -- | |
| | LXT331 | T1/E1 | IS2M-7 / -19 | IS2M-7 / -19 | MJS-018A | MSJ-018 | MJM-018 | |
| | LXT331, LXT332 | | IS2M-11 | IS2M-7 | MJS-015A | MSJ-016 | MJM-016 | |
| | LXT331, LXT332 | | IS2M-8 / -21 | IS2M-7 / -19 | MJS-019A | MSJ-019 | MJM-019 | |
| | LXT331, LXT332 | | IS2M-7 / -19 | IS2M-7 / -19 | MJS-017A | MSJ-017 | MJM-017 | |
| | LXT334, LXT335 | T1/E1 | IS2M-7 / -19 | IS2M-7 / -19 | MJS-017A | MSJ-017 | MJM-017 | |
| | LXT334, LXT335 | 120/75 E1 | IS2M-10 / -25 | IS2M-7 / -19 | MJS-031A | MSJ-028 | MJM-028 | |
| | LXT334, LXT335 | 75 E1 | IS2M-12 | IS2M-7 / -19 | | MSJ-025 | MJM-025 | |
| | LXT334, LXT335 | | IS2M-16 | IS2M-15 | | | MJM-026 | |
| | LXT336 | | IS2M-7 | IS2M-20 | MJS-046A | MSJ-017 | MJM-024 | |
| | LXT350, LXT351, LXT359 | T1/E1 | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MJS-018 | MJM-018 | |
| | LXT350, LXT351 | | IS2M-11 | IS2M-7 | MJS-019A | MSJ-019 | MJM-019 | |
| | LXT350, LXT351 | 120 E1 | IS2M-11 | IS2M-7 | MJS-015A | MSJ-016 | MJM-016 | |
| | LXT360, LXT361, LXT362, LXT363 | T1/E1 | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MJS-018 | MJM-018 | |
| | LXT360, LXT361, LXT362, LXT363 | | IS2M-8 / -21 | IS2M-7 / 19 | MJS-019A | MSJ-019 | MJM-019 | |
| | LXT360, LXT361 | | IS2M-11 | IS2M-7 | | MSJ-016 | MJM-016 | |
| | LXT380, LXT381, LXT384, LXT386, LXT388 | T1/ E1 | IS2M-7 / -19 | IS2M-15 / -20 | MJS-018A | MSJ-018 | MJM-018 | |
| | LXT380, LXT381, LXT384, LXT386, LXT388 | | IS2M-11 | IS2M-7 | | MSJ-016 | MJM-016 | |
| | LXT3104, LXT3108 | | IS2M-15 / -20 | IS2M-15 / -20 | MJS-046A | MSJ-017 | MJM-017 | |
| | LXT3104, LXT3108 | | | | | | MJM-048 | |
| | Agere (Lucent) | T7288, T7290A | CEPT/E1 | IS2M-10 / -25 | IS2M-6 / -19 | MJS-028A | MSJ-028 | MJM-028 |
| | | T7289A | DS1 | IS2M-23 / -21 | IS2M-7 / -19 | MJS-019A | MSJ-019 | MJM-019 |
| T7630, T7688, T7690, T7698 | | CEPT | IS2M-10 / -25 | IS2M-10 / -25 | MJS-010A | MSJ-010 | | |
| T7630, T7688, T7690, T7698 | | DS1 | IS2M-23 / -21 | IS2M-23 / -21 | MJS-013A | MSJ-013 | MJM-013 | |
| T7693, T7697 | | CEPT | | | MJS-024A | | MJM-038 | |
| TLIU04C1 | | DS1 | IS2M-23 / -21 | IS2M-23 / -21 | MJS-013A | MSJ-013 | MJM-013 | |
| TLIU04C1 | CEPT | IS2M-10 / -25 | IS2M-10 / -25 | MJS-010A | MSJ-010 | | | |
| PMC-Sierra | PM4341, PM6341, PM4314 | | IS2M-25 | IS2M-7 / -19 | MJS-028A | MSJ-028 | MJM-028 | |
| | PM4318, PM4319, PM4323, PM4325 | | IS2M-7 / -19 | IS2M-7 / -19 | MJS-017A | MSJ-017 | MJM-017 | |
| | PM4351, PM4354 | COMET | | | MJS-024A | | MJM-038 | |
| Mindspeed (Conexant) | BT8510 | T1/E1 | IS2M-12 | IS2M-7 | MJS-018A | | MJM-031 | |
| | BT8510 | T1/E1 | IS2M-12 | IS2M-7 | MJS-025A | MSJ-025 | MJM-025 | |
| | BT8370, BT8375, BT8376 | Low Power | IS2M-8 | IS2M-15 | MSJ-014A | MSJ-019 | MJM-019 | |
| | BT8370, BT8375, BT8376 | Better RI | IS2M-25 | IS2M-15 | MJS-031A | MSJ-028 | MJM-028 | |
| Zarlink (Mitel) | MT9071, MT9076 | | | | MSJ-024A | | MJM-038 | |
| | MT9075, MT9076 | | | | MSJ-032A | | MJM-022 | |
| | MT9074, MT9075 | | IS2M-7 | IS2M-24 | MSJ-018A | MSJ-018 | MJM-018 | |

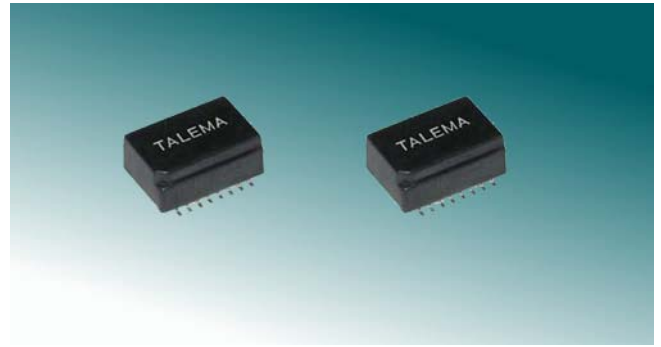
Notes:

1. Dallas IC's use either a 1:1.15 or a 1:1.36 ratio transformer depending on the application. Consult the Dallas application notes or contact Talema.
2. Consult Siemens Application Note 12.90 ('Just a Single Line Transformer Type for all IPAT (PEB2235) Applications') for calculation of resistor values.
3. The Dual Transformer types MDM-010 and MDM-021 are electrically identical but have different schematics. Either part may be used with the PEB2254 and PEB2255.
4. See Level One Application Note 118 ('Transformer Specifications for Level One Transceiver Applications') for further details on the choice of transformer ratios.

E1/T1/ PRI/CEPT Dual Transformer Modules

Features

- SMD design ideal for pick and place compatability while providing unrivaled coplanarity
- controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- ideal for all 1.544 and 2.048 Mbs interface applications
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C
- fully RoHS compliant and meets lead free reflow level J-STD-020C



Electrical Specifications @ 25°C

Turns Ratio: **Bold** = IC side windings

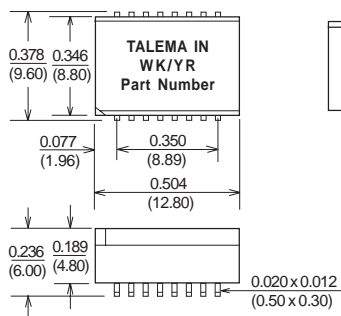
MJM Series - Dual Transformers

| Part Number | Transformer - I | | | | | | Transformer - II | | | | | | Schematic |
|-------------|--------------------|-------------------------|------------------------|------|-----------|--------------|--------------------|-------------------------|------------------------|------|-----------|-------------|-----------|
| | Turns Ratio +/-5% | L _P (mH Min) | R _{CU} (Ohms) | | Pri. Pins | Sec. Pins | Turns Ratio +/-5% | L _P (mH Min) | R _{CU} (Ohms) | | Pri. Pins | Sec. Pins | |
| | | | Pri. | Sec. | | | | | Pri. | Sec. | | | |
| MJM-010 | 1ct: 1.41ct | 1.2 | 0.41 | 0.58 | 16-15-14 | 1-2-3 | 1ct: 1.41ct | 1.2 | 0.41 | 0.58 | 11-10-9 | 6-7-8 | A |
| MJM-013 | 1ct: 1.15ct | 1.2 | 0.39 | 0.44 | 1-2-3 | 16-15-14 | 1ct: 1.15ct | 1.2 | 0.39 | 0.44 | 6-7-8 | 11-10-9 | A |
| MJM-016 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 6-7-8 | 11-10-9 | 1ct: 2.3ct | 1.2 | 0.39 | 0.88 | 16-15-14 | 1-2-3 | A |
| MJM-017 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 16-15-14 | 1-2-3 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 6-7-8 | 11-10-9 | A |
| MJM-018 | 1ct: 1ct | 1.2 | 0.39 | 0.38 | 16-15-14 | 1-2-3 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 6-7-8 | 11-10-9 | A |
| MJM-019 | 1:1.15ct | 1.2 | 0.39 | 0.44 | 16-14 | 1-2-3 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 6-7-8 | 11-10-9 | B |
| MJM-021 | 1ct: 1.41ct | 1.2 | 0.41 | 0.58 | 1-2-3 | 16-15-14 | 1ct: 1.41ct | 1.2 | 0.41 | 0.58 | 11-10-9 | 6-7-8 | A |
| MJM-022 | 1ct: 1ct | 1.0 | 0.39 | 0.39 | 11-10-9 | 6-7-8 | 1ct: 2.4ct | 1.0 | 0.41 | 0.90 | 1-2-3 | 16-15-14 | A |
| MJM-023 | 1:1ct | 1.2 | 0.39 | 0.39 | 16-14 | 1-2-3 | 1:1ct | 1.2 | 0.39 | 0.39 | 6-8 | 11-10-9 | C |
| MJM-024 | 1ct: 1ct | 1.0 | 0.39 | 0.39 | 6-7-8 | 11-10-9 | 1ct: 1.67ct | 1.0 | 0.39 | 0.66 | 16-15-14 | 1-2-3 | A |
| MJM-025 | 1:1/1.26 | 1.2 | 0.39 | 0.48 | 16-14 | 1-2-3 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 6-7-8 | 11-10-9 | B |
| MJM-026 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 16-15-14 | 1-2-3 | 1ct: 1.5ct | 1.2 | 0.39 | 0.58 | 6-7-8 | 11-10-9 | A |
| MJM-027 | 1:2ct | 1.6 | 0.41 | 0.83 | 16-14 | 1-2-3 | 2:1 | 1.6 | 0.41 | 0.21 | 6-8 | 11-9 | D |
| MJM-028 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 16-15-14 | 1-2-3 | 1:1.36ct | 1.2 | 0.39 | 0.52 | 6-8 | 11-10-9 | E |
| MJM-029 | 1:2.42ct | 1.2 | 0.39 | 0.94 | 16-14 | 1-2-3 | 1:2.42ct | 1.2 | 0.39 | 0.94 | 6-8 | 11-10-9 | C |
| MJM-030 | 2:1:1 | 1.2 | 0.46 | 0.26 | 16-14 | 1-2, 3-4 | 2:1:1 | 1.2 | 0.46 | 0.26 | 11-9 | 5-6, 7-8 | F |
| MJM-031 | 2ct:1/1.26 | 1.5 | 0.41 | 0.52 | 1-2-3 | 16-15-14 | 2ct:1/1.26 | 1.5 | 0.41 | 0.52 | 11-10-9 | 6-7-8 | A |
| MJM-032 | 1:2.42 | 1.2 | 0.39 | 0.94 | 16-14 | 1-2-3 | 1:1ct | 1.2 | 0.39 | 0.39 | 6-8 | 11-10-9 | C |
| MJM-033* | 1:1.9/2.4 | 1.0 | 0.41 | 0.94 | 16-15-14 | 1-2-3 | 0.79:1.9/1 | 1.0 | 0.40 | 0.75 | 6-7-8 | 11-10-9 | A |
| MJM-034 | 1ct: 1.5ct | 1.5 | 0.41 | 0.62 | 1-2-3 | 16-15-14 | 1ct: 1.5ct | 1.5 | 0.41 | 0.62 | 6-7-8 | 11-10-9 | A |
| MJM-035 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 6-7-8 | 11-10-9 | 1ct: 1.36ct | 1.2 | 0.39 | 0.52 | 1-2-3 | 16-15-14 | A |
| MJM-036 | 2cs:1.57/2 | 1.5 | 0.41 | 0.82 | 1-2 | | 2cs:1.57/2 | 1.5 | 0.41 | 0.82 | 5-6 | | G |
| MJM-037 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 16-15-14 | 1-2-3 | 1ct: 1.36ct | 1.2 | 0.39 | 0.53 | 6-7-8 | 11-10-9 | A |
| MJM-038 | 1ct: 2.42ct | 1.2 | 0.39 | 0.94 | 1-2-3 | 16-15-14 | 1ct: 2.42ct | 1.2 | 0.39 | 0.94 | 6-7-8 | 11-10-9 | A |
| MJM-039 | 1:2/2.4 | 1.0 | 0.39 | 0.94 | 1-3 | 16-15-14 | 1:0.79/1 | 1.0 | 0.39 | 0.39 | 6-8 | 11-10-9 | H |
| MJM-040 | 1ct: 2.4ct | 1.2 | 0.39 | 0.94 | 1-2-3 | 16-15-14 | 1ct: 2.4ct | 1.2 | 0.39 | 0.94 | 6-7-8 | 11-10-9 | A |
| MJM-041 | 1:2ct | 1.2 | 0.39 | 0.77 | 1-3 | 16-15-14 | 1:2cs | 1.2 | 0.39 | 0.77 | 11-9 | 5-6,7-8 | J |
| MJM-042 | 1:1.36ct | 1.2 | 0.39 | 0.53 | 16-14 | 1-2-3 | 1:2ct | 1.2 | 0.39 | 0.77 | 6-8 | 11-10-9 | C |
| MJM-043 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 1-2-3 | 16-15-14 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 6-7-8 | 11-10-9 | A |
| MJM-044 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 1-2-3 | 16-15-14 | 1:1 | 1.2 | 0.39 | 0.39 | 6-8 | 11-9 | K |
| MJM-045 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 1-2-3 | 16-15-14 | 1ct: 2.42ct | 1.2 | 0.39 | 0.95 | 6-7-8 | 11-10-9 | A |
| MJM-046 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 1-2-3 | 16-15-14 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 6-7-8 | 11-10-9 | A |
| MJM-047 | 1ct: 1.26ct | 1.2 | 0.39 | 0.50 | 1-2-3 | 16-15-14 | 1ct: 1.26ct | 1.2 | 0.39 | 0.50 | 6-7-8 | 11-10-9 | A |
| MJM-048 | 1ct: 1:0.8 | 1.2 | 0.39 | 0.39 | 16-15-14 | 1-2, 3-4 | 1ct: 1:0.8 | 1.2 | 0.39 | 0.39 | 11-10-9 | 5-6, 7-8 | G |
| MJM-049 | 1ct: 1.58:2 | 1.2 | 0.39 | 0.80 | 2-3-4 | 16-15, 14-13 | 1:1.65:2 | 1.2 | 0.39 | 0.80 | 6-7 | 12-11, 10-9 | L |
| MJM-050 | 1ct: 1:1 | 1.2 | 0.39 | 0.39 | 16-15-14 | 1-2, 3-4 | 1ct: 1:1 | 1.2 | 0.39 | 0.39 | 11-10-9 | 5-6, 7-8 | G |
| MJM-051 | 1ct: 2.4ct | 1.2 | 0.39 | 0.94 | 1-2-3 | 16-15-14 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 6-7-8 | 11-10-9 | A |

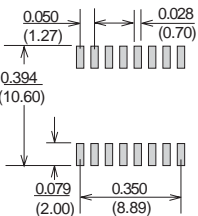
* MJM-033 Turns Ratio: Pins 16-14:1-2 = 1:1.9, Pins 16-14:1-3=1:2.4; Pins 6-8:9-11=0.79:1.9, Pins 6-8:11-10=0.79:1



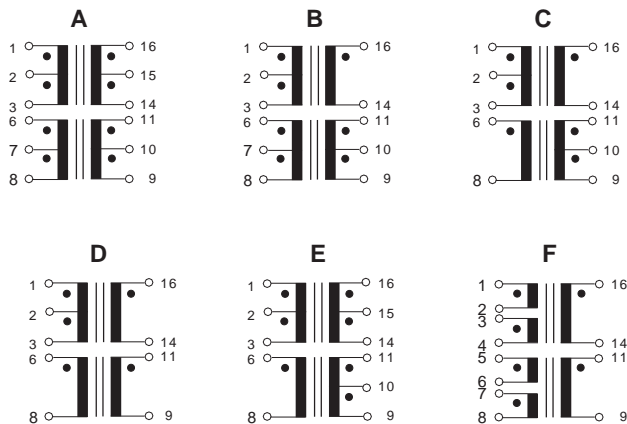
MJM Dimensions



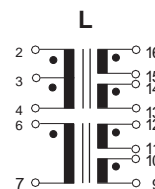
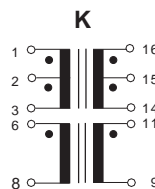
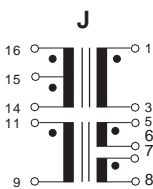
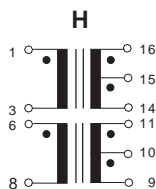
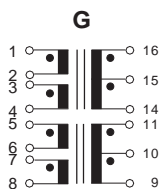
Suggested Pad Layout



Schematics



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



Sales & Marketing, Design and Manufacturing Facilities

<http://www.talema-nuvotem.com>

Eastern Europe & Czech Republic
 NTMAGNETICS s.r.o.
 Chebská 27
 322 00 Plzeň
 Tel: Int. + 420 377 - 338 351
 Fax: Int. + 420 377 - 338 350
 Email: talema@talema.cz
 Web Site: www.ntmagnetics.cz

Germany
 TALEMA ELEKTRONIK GMBH
 Sembdnerstr. 5, Postfach 2523
 82110 Germering
 Tel: Int. + 49 89 - 841 00 - 0
 Fax: Int. + 49 89 - 841 00 25
 Email: info@talema.de

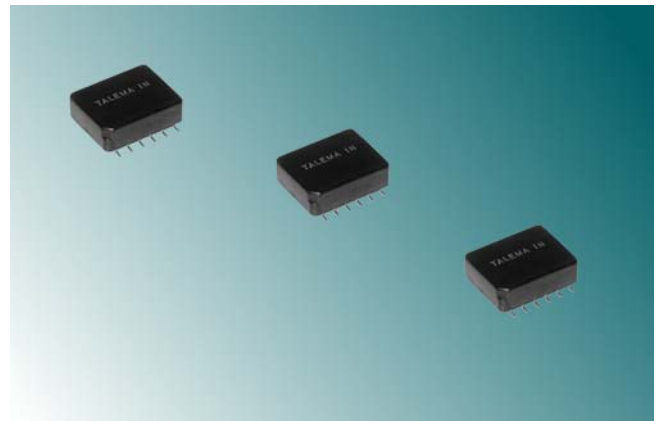
Ireland
 NUVOTEMTEO.
 Crollý
 Co. Donegal
 Tel: Int. + 353 74 - 954 8666
 Fax: Int. + 353 74 - 954 8139
 Email: info@nuvotem.com

India
 TALEMA ELECTRONIC PVT. LTD.
 Opposite the SIDCO Industrial Estate
 Gins Towers
 4/5S.H/1, Omalur Main Road
 Salem - 636 004, Tamil Nadu
 Tel: Int. + 91 427 - 244 1325
 Fax: Int. + 91 427 - 243 0034
 E-mail: talema@talemaindia.com
 Web Site: www.talemaindia.com

E1/T1/ PRI/CEPT Dual Transformer Modules

Features

- SMD design ideal for pick and place compatability while providing unrivaled coplanarity
- common mode choke included on both Tx and Rx channels for optimum EMI performance
- controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C
- fully RoHS compliant and meets lead free reflow level J-STD-020C



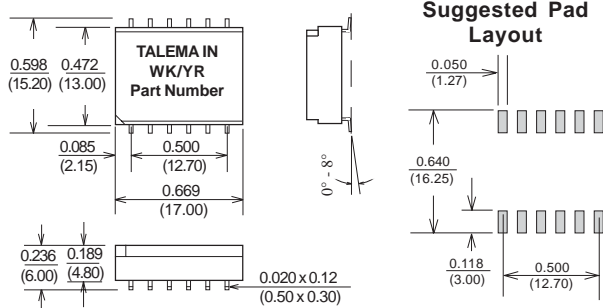
Electrical Specifications @ 25°C

Turns Ratio: **Bold** = IC side windings

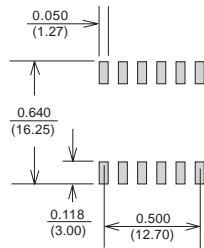
MJS Series - Dual Transformers

| Part Number | Transformer - I | | | | | | Transformer - II | | | | | | Schematic |
|-------------|--------------------|--------------|------------|------|-----------|-----------|--------------------|--------------|------------|------|-----------|-----------|-----------|
| | Turns Ratio +/-2% | OCL (mH Min) | DCR (Ohms) | | Pri. Pins | Sec. Pins | Turns Ratio +/-2% | OCL (mH Min) | DCR (Ohms) | | Pri. Pins | Sec. Pins | |
| | | | Pri. | Sec. | | | | | Pri. | Sec. | | | |
| MJS-010 | 1ct: 1.36ct | 1.2 | 1.20 | 1.40 | 1-2-3 | 12-11-10 | 1ct: 1.36ct | 1.2 | 1.20 | 1.40 | 4-5-6 | 9-8-7 | A |
| MJS-013 | 1ct: 1.15ct | 1.2 | 1.20 | 1.40 | 1-2-3 | 12-11-10 | 1ct: 1.15ct | 1.2 | 1.20 | 1.40 | 4-5-6 | 9-8-7 | A |
| MJS-016 | 1ct: 2.3ct | 1.2 | 1.20 | 2.10 | 12-11-10 | 1-2-3 | 1ct: 2ct | 1.2 | 1.20 | 2.10 | 4-5-6 | 9-8-7 | A |
| MJS-017 | 1ct: 2ct | 1.2 | 1.00 | 1.70 | 12-11-10 | 1-2-3 | 1ct: 2ct | 1.2 | 1.00 | 1.70 | 4-5-6 | 9-8-7 | A |
| MJS-018 | 1ct: 1ct | 1.2 | 1.00 | 1.00 | 1-2-3 | 12-11-10 | 1ct: 2ct | 1.2 | 1.00 | 1.80 | 4-5-6 | 9-8-7 | A |
| MJS-019 | 1: 1.15ct | 1.2 | 1.00 | 1.20 | 12-10 | 1-2-3 | 1ct: 2ct | 1.2 | 1.00 | 2.00 | 4-5-6 | 9-8-7 | B |
| MJS-021 | 1ct: 1.41ct | 1.2 | 1.40 | 1.20 | 12-11-10 | 1-2-3 | 1ct: 1.41ct | 1.2 | 1.40 | 1.20 | 9-8-7 | 4-5-6 | A |
| MJS-023 | 1ct: 1.15ct | 1.6 | 1.20 | 1.40 | 12-11-10 | 1-2-3 | 1ct: 1ct | 1.6 | 1.20 | 1.20 | 4-5-6 | 9-8-7 | A |
| MJS-024 | 1ct: 1ct | 1.2 | 1.00 | 1.00 | 1-2-3 | 12-11-10 | 1ct: 1ct | 1.2 | 1.00 | 1.00 | 4-5-6 | 9-8-7 | A |
| MJS-025 | 1: 1/1.26 | 1.2 | 1.00 | 1.10 | 12-10 | 1-2-3 | 1ct: 2ct | 1.2 | 1.00 | 1.70 | 4-6 | 9-8-7 | C |
| MJS-027 | 1: 2ct | 1.6 | 1.10 | 1.10 | 1-3 | 12-11-10 | 2:1 | 1.6 | 1.10 | 0.70 | 4-6 | 9-7 | D |
| MJS-028 | 1ct: 2ct | 1.2 | 0.70 | 1.20 | 12-11-10 | 1-2-3 | 1: 1.36ct | 1.2 | 0.70 | 0.90 | 4-6 | 9-8-7 | E |
| MSJ-029 | 1ct: 1 | 0.7 | 0.25 | 0.80 | 1-2-3 | 12-10 | 1: 1.36ct | 0.7 | 0.50 | 0.40 | 9-7 | 4-5-6 | G |
| MSJ-030 | 1: 2ct | 1.2 | 0.70 | 1.20 | 12-10 | 1-2-3 | 1: 1.14ct | 1.2 | 0.70 | 0.90 | 4-6 | 9-8-7 | C |
| MJS-031 | 1ct: 2ct | 1.2 | 0.70 | 1.20 | 1-2-3 | 12-11-10 | 1:1 | 1.2 | 0.70 | 0.70 | 5-6 | 8-7 | F |
| MSJ-036 | 1ct: 2ct | 1.2 | 0.70 | 1.10 | 12-11-10 | 1-2-3 | 1: 1.08ct | 1.2 | 0.70 | 0.90 | 4-6 | 9-8-7 | E |
| MSJ-037 | 1: 1/1.26 | 1.5 | 0.80 | 1.00 | 12-10 | 1-2-3 | 1: 1/1.26 | 1.5 | 0.80 | 1.00 | 9-7 | 4-5-6 | G |

MSJ Series



Suggested Pad Layout

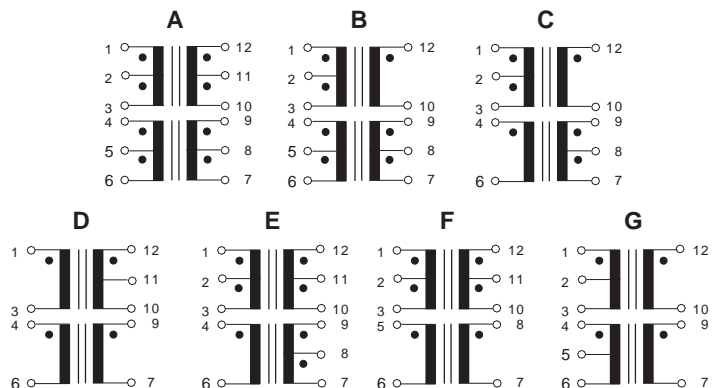


Surface Coplanarity will be 0.004(0.10) maximum

Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Schematic

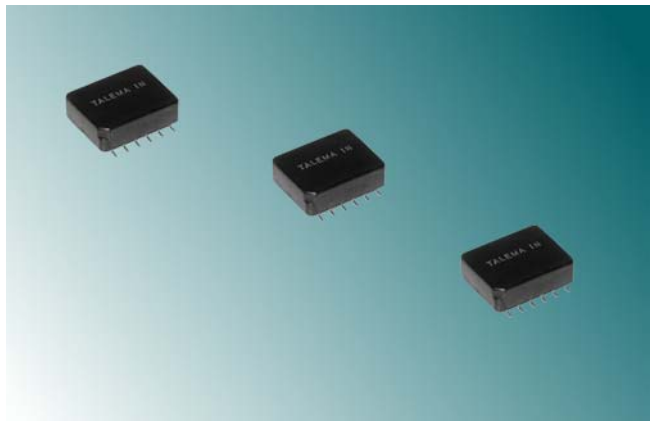




E1/T1/ PRI/CEPT Dual Transformer Modules

Features

- SMD design ideal for pick and place compatibility while providing unrivaled coplanarity
- common mode choke included on both Tx and Rx channels for optimum EMI performance
- controlled parameters ensure full compliance with ITU-TG.703 when matched with recommended IC
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C
- fully RoHS compliant and meets lead free reflow level J-STD-020C



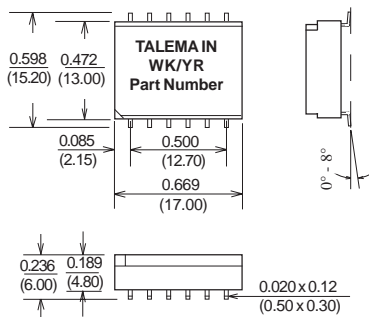
Electrical Specifications @ 25°C

Turns Ratio: **Bold** = IC side windings

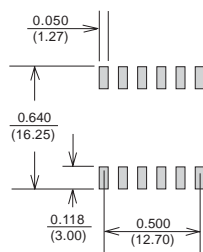
MJS Series - Dual Transformers with Common Mode Chokes on Tx & Rx Channels

| Part Number | Transformer - I | | | | | | | | Transformer - II | | | | | | | |
|-------------|--------------------|--------------|-------------------------|--------------------------|------------|------|-----------|-----------|--------------------|--------------|-------------------------|--------------------------|------------|-------|-----------|-----------|
| | Turns Ratio +/-2% | OCL (mH Min) | L _L (μH Max) | C _{WW} (pF Max) | DCR (Ohms) | | Pri. Pins | Sec. Pins | Turns Ratio +/-2% | OCL (mH Min) | L _L (μH Max) | C _{WW} (pF Max) | DCR (Ohms) | | Pri. Pins | Sec. Pins |
| | | | | | Pri. | Sec. | | | | | | | Pri. | Sec. | | |
| MJS-010A | 1ct: 1.36ct | 1.2 | 0.60 | 30 | 0.80 | 1.10 | 1-3 | 12-10 | 1ct: 1.36ct | 1.2 | 0.60 | 30 | 0.80 | 1.10 | 4-6 | 9-7 |
| MJS-013A | 1ct: 1.15ct | 1.2 | 0.60 | 35 | 0.80 | 0.95 | 1-3 | 12-10 | 1ct: 1.15ct | 1.2 | 0.60 | 35 | 0.80 | 0.95 | 4-6 | 9-7 |
| MJS-014A | 1ct: 1.15ct | 1.2 | 0.60 | 35 | 0.90 | 1.05 | 1-3 | 12-10 | 1ct: 1ct | 1.2 | 0.60 | 35 | 0.90 | 0.90 | 4-6 | 9-7 |
| MJS-015A | 1ct: 2.3ct | 1.2 | 0.60 | 25 | 0.60 | 1.40 | 1-3 | 12-10 | 1ct: 2ct | 1.2 | 0.60 | 25 | 0.60 | 1.20 | 4-6 | 9-7 |
| MJS-017A | 1ct: 2ct | 1.2 | 0.60 | 25 | 0.60 | 1.20 | 1-3 | 12-10 | 1ct: 2ct | 1.2 | 0.60 | 25 | 0.60 | 1.20 | 4-6 | 9-7 |
| MJS-018A | 1ct: 1ct | 1.2 | 0.60 | 35 | 0.90 | 0.90 | 1-3 | 12-10 | 1ct: 2ct | 1.2 | 0.60 | 35 | 0.90 | 1.80 | 4-6 | 9-7 |
| MJS-019A | 1ct: 1.15ct | 1.2 | 0.60 | 35 | 0.80 | 0.95 | 1-3 | 12-10 | 1ct: 2ct | 1.2 | 0.60 | 35 | 0.80 | 11.60 | 4-6 | 9-7 |
| MJS-021A | 1ct: 1.41ct | 1.2 | 0.60 | 30 | 0.70 | 1.00 | 1-3 | 12-10 | 1ct: 1.41ct | 1.2 | 0.60 | 30 | 0.70 | 1.00 | 4-6 | 9-7 |
| MJS-024A | 1ct: 2.42ct | 1.2 | 0.60 | 25 | 0.60 | 1.50 | 1-3 | 12-10 | 1ct: 2.42ct | 1.2 | 0.60 | 25 | 0.60 | 1.50 | 4-6 | 9-7 |
| MJS-025A | 1ct: 1.26ct | 1.2 | 0.60 | 30 | 0.80 | 1.00 | 1-3 | 12-10 | 1ct: 2ct | 1.2 | 0.60 | 30 | 0.80 | 1.60 | 4-6 | 9-7 |
| MJS-028A | 1ct: 2ct | 1.2 | 0.60 | 30 | 0.70 | 1.20 | 1-3 | 12-10 | 1ct: 1.36ct | 1.2 | 0.60 | 30 | 0.70 | 0.90 | 4-6 | 9-7 |
| MJS-031A | 1ct: 1ct | 1.2 | 0.60 | 35 | 0.90 | 0.90 | 1-3 | 12-10 | 1ct: 1.36ct | 1.2 | 0.60 | 35 | 0.90 | 1.20 | 4-6 | 9-7 |
| MJS-032A | 1ct: 2.4ct | 1.2 | 0.60 | 35 | 0.90 | 2.10 | 1-3 | 12-10 | 1ct: 1ct | 1.2 | 0.60 | 35 | 0.90 | 0.90 | 4-6 | 9-7 |
| MJS-046A | 1ct: 1ct | 1.2 | 0.60 | 35 | 0.90 | 0.90 | 1-3 | 12-10 | 1ct: 1ct | 1.2 | 0.60 | 35 | 0.90 | 0.90 | 4-6 | 9-7 |

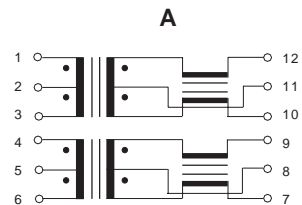
Package



Suggested Pad Layout



Schematic



Surface Coplanarity will be 0.004(0.10) maximum

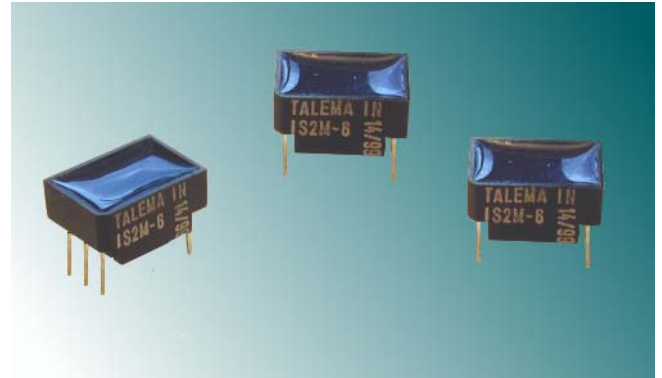
Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

E1/T1/ PRI/CEPT Single Transformers

Features

- industry standard through-hole footprints
- wide range compatible with all common transceiver IC's
- controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- ideal for all 1.544 and 2.048 Mbs interface applications
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C
- fully RoHS compliant



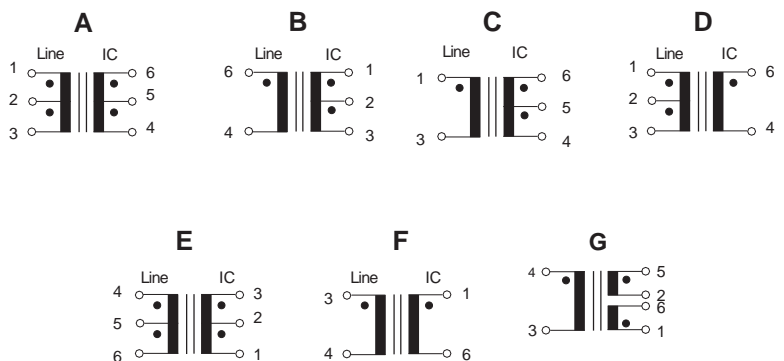
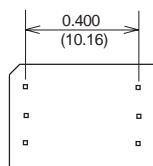
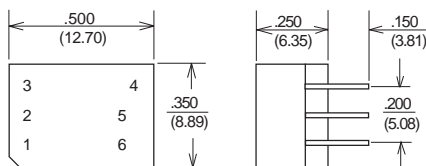
Electrical Specifications @ 25°C

Turns Ratio: **Bold** = IC side windings

| IS2M Series Transformers | | | | | | | | |
|--------------------------|--------------------|------------------|-----------------------------|-------------------|-------------------|--------------------------|-----------------|-----------|
| Part Number | Turns Ratio ±5% | OCL (mH Min.) | L _L (µH Max.) | DCR Pri (Ohms) | DCR Sec (Ohms) | V _P (Vrms) | Primary Pins | Schematic |
| IS2M-6 | 1ct: 2ct | 1.2 | 0.5 | 0.7 | 1.2 | 1500 | 1-3 | A |
| IS2M-7 | 1: 2ct | 1.2 | 0.5 | 0.7 | 1.2 | 1500 | 6-4 | B |
| IS2M-8 | 1: 1.15ct | 1.5 | 0.6 | 0.7 | 0.9 | 1500 | 6-4 | B |
| IS2M-10 | 1: 1.36ct | 1.2 | 0.8 | 0.5 | 0.8 | 1500 | 1-3 | C |
| IS2M-11 | 1: 2.3ct | 1.2 | 0.8 | 0.7 | 1.4 | 1500 | 1-3 | C |
| IS2M-12 | 1: 1/1.26 | 1.5 | 0.5 | 0.7 | 0.9 | 1500 | 6-4 | B |
| IS2M-15 | 1ct: 1 | 1.2 | 0.5 | 0.7 | 0.7 | 1500 | 1-3 | D |
| IS2M-16 | 1: 1.5ct | 1.2 | 0.6 | 0.7 | 1.0 | 1500 | 6-4 | B |
| IS2M-17 | 1: 1.53 | 1.2 | 0.8 | 0.5 | 1.0 | 1500 | 3-4 | F |
| IS2M-18 | 1: 1.185 | 1.2 | 0.5 | 0.7 | 0.8 | 1500 | 3-4 | F |
| IS2M-19 | 1ct: 2ct | 1.2 | 1.0 | 1.0 | 2.0 | 1500 | 6-4 | E |
| IS2M-20 | 1ct: 1ct | 1.2 | 1.0 | 1.0 | 1.0 | 1500 | 1-3 | A |
| IS2M-21 | 1: 1.15ct | 1.5 | 1.0 | 1.0 | 1.0 | 1500 | 6-4 | B |
| IS2M-23 | 1: 1.14ct | 1.2 | 1.0 | 0.7 | 0.8 | 1500 | 1-3 | C |
| IS2M-24 | 1: 1 | 1.2 | 0.5 | 0.7 | 0.7 | 1500 | 1-6 | F |
| IS2M-25 | 1: 1.36 | 1.2 | 0.8 | 0.7 | 0.9 | 1500 | 3-4 | F |
| IS2M-26 | 1ct: 3ct | 1.2 | 0.8 | 0.7 | 2.1 | 1500 | 1-3 | A |
| IS2M-27 | 1: 1.583ct | 1.2 | 0.6 | 0.7 | 1.0 | 1500 | 6-4 | B |

IS2M Series

Schematic



Note: Unused pins not provided

Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise



MJE Series • T1/E1/CEPT/ISDN-PRI SMD Transformers

Features

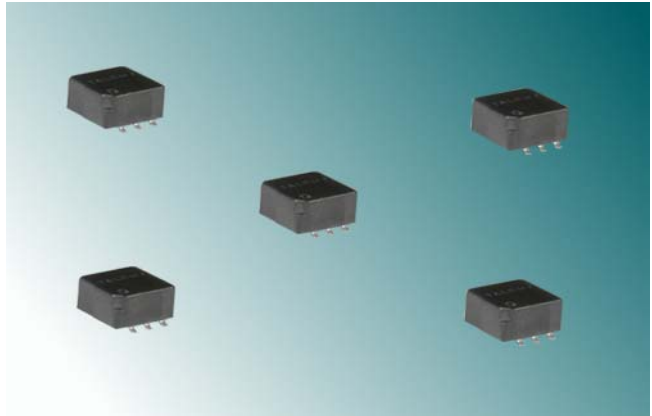
- low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- low leakage inductance
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications

Ratings@ 25°C ambient

Minimum isolation voltage: 1500 Vrms

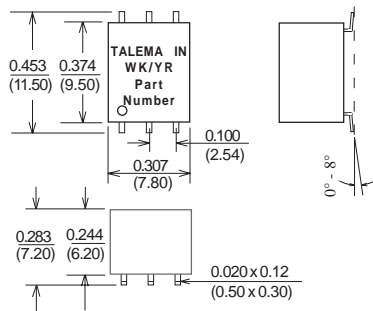
Extended Operating Temperature Range: -40° to +85°C



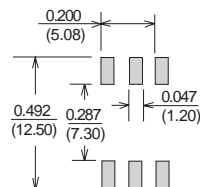
Electrical Specifications @ 25°C

| MJE Series • T1/E1/CEPT/ISDN-PRI SMD Transformers | | | | | | | | | |
|---|----------------------|-------------------------|----------------------------------|-------------------------|------------|------|-----------------------|--------------|-----------|
| Extended Operating Temperature Range -40°C to +85°C | | | | | | | | | |
| Part Number | OCL Primary (mH Min) | Turns Ratio Pri/Sec ±2% | C _{WW} Pri/Sec (pF Max) | L _L (µH Max) | DCR (Ohms) | | V _P (Vrms) | Primary Pins | Schematic |
| | | | | | Pri. | Sec. | | | |
| MJE-10A | 1.2 | 1ct:1.36ct | 30 | 0.200 | 0.80 | 1.10 | 1500 | 1-3 | A |
| MJE-12B | 1.2 | 1:1/1.26 | 35 | 0.250 | 0.80 | 1.00 | 1500 | 1-3 | B |
| MJE-20A | 1.2 | 1ct:1ct | 35 | 0.200 | 0.90 | 0.90 | 1500 | 1-3 | A |

MJE



Suggested Pad Layout



Schematic



Surface coplanarity will be 0.004 (0.01) maximum

Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Sales & Marketing, Design and Manufacturing Facilities

<http://www.talema-nuvotem.com>

Eastern Europe & Czech Republic

NTMAGNETICS s.r.o.
Chebská 27
322 00 Plzeň
Tel: Int. + 420 377 - 338 351
Fax: Int. + 420 377 - 338 350
Email: talema@talema.cz
Web Site: www.ntmagnetics.cz

Germany

TALEMA ELEKTRONIK GMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 - 841 00 - 0
Fax: Int. + 49 89 - 841 00 25
Email: info@talema.de

Ireland

NUVOTEM TEO.
Crollly
Co. Donegal
Tel: Int. + 353 74 - 954 8666
Fax: Int. + 353 74 - 954 8139
Email: info@nuvotem.com

India

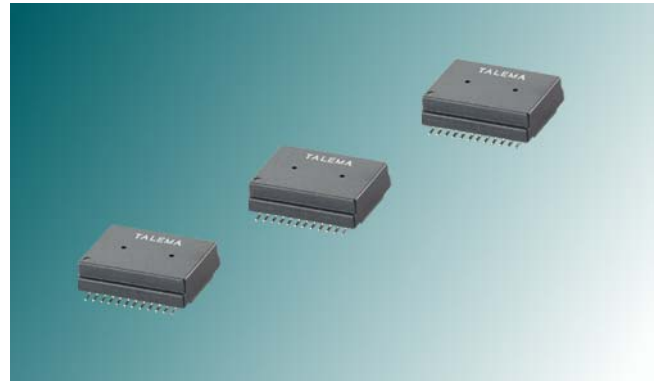
TALEMA ELECTRONIC PVT. LTD.
Opposite the SIDCO Industrial Estate
Gins Towers
4/SS.H/1, Omalur Main Road
Salem - 636 004, Tamil Nadu
Tel: Int. + 91 427 - 244 1325
Fax: Int. + 91 427 - 243 0034
E-mail: talema@talemaindia.com
Web Site: www.talemaindia.com

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

E1/T1/ PRI/CEPT Dual Transformer Modules

Features

- SMD design ideal for pick and place compatability while providing unrivaled coplanarity
- controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- ideal for all 1.544 and 2.048 Mbs interface applications
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C
- fully RoHS compliant and meets lead free reflow level J-STD-020C



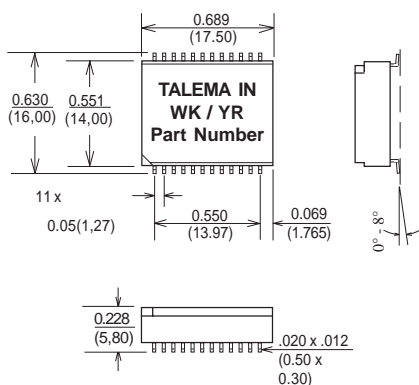
Electrical Specifications @ 25°C

Turns Ratio: **Bold** = IC side windings

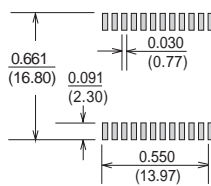
MGJ Series - Dual Port Transformers

| Part Number | Transformer - Transmit | | | | Primary Pins | Transformer - Receive | | | | Schematic | |
|-------------|------------------------|-------------------------|------------------------|------|--------------|-----------------------|-------------------------|------------------------|------|---------------|---|
| | Turns Ratio +/-2% | L _P (mH Min) | R _{CU} (Ohms) | | | Turns Ratio +/-2% | L _P (mH Min) | R _{CU} (Ohms) | | | |
| | | | Pri. | Sec. | | | | Pri. | Sec. | | |
| MGJ-100A | 1ct: 2.42ct | 1.2 | 0.39 | 0.94 | 4-6 & 10-12 | 1ct: 2.42ct | 1.2 | 0.39 | 0.94 | 1-3 & 7-9 | A |
| MGJ-101A | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 4-6 & 10-12 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 24-22 & 18-16 | A |
| MGJ-102A | 1ct: 1.15ct | 1.2 | 0.39 | 0.44 | 4-5 & 10-12 | 1ct: 1.15ct | 1.2 | 0.39 | 0.44 | 1-3 & 10-12 | A |
| MGJ-103A | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 4-6 & 10-12 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 1-3 & 7-9 | A |
| MGJ-104A | 1ct: 2.3ct | 1.2 | 0.39 | 0.90 | 4-6 & 10-12 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 24-22 & 18-16 | A |
| MGJ-105A | 1ct: 1.36ct | 1.2 | 0.39 | 0.53 | 4-6 & 10-12 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 24-22 & 18-16 | A |
| MGJ-106A | 1ct: 1.36ct | 1.2 | 0.39 | 0.53 | 4-6 & 10-12 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 24-22 & 18-16 | A |
| MGJ-107A | 1ct: 1.15ct | 1.2 | 0.39 | 0.44 | 4-6 & 10-12 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 1-3 & 7-9 | A |
| MGJ-108B | 1ct: 2.4ct | 1.2 | 0.39 | 0.94 | 1-3 & 10-12 | 1ct: 1ct | 1.2 | 0.39 | 0.39 | 21-19 & 18-16 | B |
| MGJ-109B | 1ct: 1.41ct | 1.2 | 0.39 | 0.58 | 1-3 & 10-12 | 1ct: 1.41ct | 1.2 | 0.39 | 0.58 | 21-19 & 18-16 | B |
| MGJ-110B | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 1-3 & 10-12 | 1ct: 2ct | 1.2 | 0.39 | 0.77 | 21-19 & 18-16 | B |

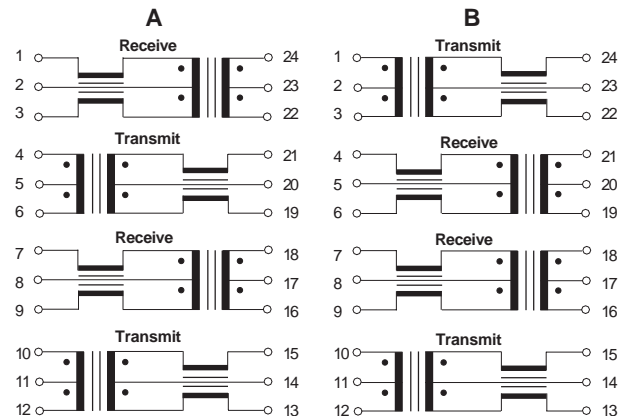
Dimensions



Suggested Pad Layout



Schematics



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



IC - Transformer Selection Guide for T1/E1/CEPT/ISDN-PRI Quad Ports

| IC Manufacturer | IC Part Number | Application | Turns Ratio Pri:Sec ±2% | | Talema Part Number |
|------------------------|--------------------------------------|---------------|-------------------------|------------|--------------------|
| | | | Transmit | Receive | |
| Mindspeed (Conexant) | BT8510 | T1/E1 | 1:1/1.26 | 1:2CT | MJQ-007-40 |
| | CN8380 | | 1:2CT | 1CT:2 | MJQ-020-40 |
| | BT8370, BT8375, BT8376 | Better RI | 1:1.36CT | 1:2CT | MJQ-001-40 |
| | BT8370, BT8375, BT8376 | Low Power | 1:1.15 | 1:2CT | MJQ-002-40 |
| Cirrus Logic (Crystal) | 61318 | 120 E1 | 1:2CT | 1:1CT | MJQ-003-40 |
| | 61577 | T1/E1 | 1:2CT | 1:2CT | MJQ-006-40 |
| | 61304A/5A/535A/547A/75 | T1 | 1:1.15 | 1:2CT | MJQ-002-40 |
| | 61304A/5A/535A/547A/75 | 75 E1 | 1:2CT | 1:1CT | MJQ-003-40 |
| | 61304A/5A/535A/547A/75 | 120 E1 | 1:1/1.26 | 1:2CT | MJQ-007-40 |
| | 61582, 61583 | | 1:1.14 | 1:1.14CT | MJQ-009-40 |
| | 61310, 61581 | | 1:2CT | 1:1CT | MJQ-003-40 |
| | 61881 | | 1:1.15 | 1:2CT | MJQ-002-40 |
| | 61584, 61584A | IQ3 | 1:2CT | 1:2CT | MJQ-006-40 |
| | 61584, 61582, 61583, 61583A | IQ5 | 1:1.14 | 1:1.14CT | MJQ-009-40 |
| Maxim (Dallas) | DS2196 | | 1:2CT | 1:1CT | MJQ-003-40 |
| | DS2151, DS2152, DS2153, DS2154 | | 1:1.15 | 1:2CT | MJQ-002-40 |
| | DS2151, DS2152, DS2153, DS2154 | | 1:1.36CT | 1:2CT | MJS-001-40 |
| | DS2148, DS21Q48 | 3V | 1:2CT | 1:1CT | MJQ-003-40 |
| | DS2148, DS21Q48 | 5V | 1:1.36CT | 1:2CT | MJQ-001-40 |
| | DS21352, DS21Q352, DS21354, DS21Q354 | | 1:2CT | 1:1CT | MJQ-003-40 |
| | DS21552, DS21Q552, DS21554, DS21Q554 | | 1:1.15 | 1:2CT | MJQ-002-40 |
| | DS21552, DS21Q552, DS21554, DS21Q554 | | 1:1.36CT | 1:2CT | MJQ-001-40 |
| Exar | T5683A, 59L91, T5894, T5897, T5997 | - | 1:2CT | 1:2CT | MJQ-006-40 |
| | T5791, T5993, T5994, T5995 | | 1:1/1.26 | 1:2CT | MJQ-007-40 |
| | T5684, T7288, 81L27, 82L24, 82D20 | | 1:1.36CT | 1:2CT | MJQ-001-40 |
| | 83L30, 83L34, 83L38 | | 1:2CT | 1:2CT | MJQ-006-40 |
| Infineon (Siemens) | PEB2254, PEB2255 | E1/T1/J1 | 1CT:1.41 | 1CT:1.41 | MJQ-016-40 |
| | PEB22504, PEB22554 | 3.3V | 1:2.4 | 1:1 | MJQ-022-40 |
| | PEB22504 | 5V | 1:1.5 | 1.41:1 | MJQ-026-40 |
| | PEB2256 | 3.3V E1/T1/J1 | 1:2.4 | 1:1 | MJQ-022-40 |
| Intel (Level One) | LXT300, LXT301 | - | 1:2CT | 1:2CT | MJQ-006-40 |
| | LXT304, LXT305, LXT307 | E1/T1 | 1:2CT | 1:2CT | MJQ-006-40 |
| | LXT304, LXT305, LXT307 | T1 | 1:1.15 | 1:2CT | MJQ-002-40 |
| | LXT304, LXT305, LXT307 | 75E1, 120E1 | 1:1/1.26 | 1:2CT | MJQ-007-40 |
| | LXT310, LXT317, LXT318 | | 1:2CT | 1:1CT | MJQ-003-40 |
| | LXT331 | E1/T1 | 1:2CT | 1:1CT | MJQ-003-40 |
| | LXT331, LXT332 | | 1:2CT | 1:2CT | MJQ-006-40 |
| | LXT331, LXT332 | | 1:1.15 | 1:2CT | MJQ-002-40 |
| | LXT334, LXT335 | E1/T1 | 1:2CT | 1:2CT | MJQ-006-40 |
| | LXT334, LXT335 | 120/75 E1 | 1:1.36CT | 1:2CT | MJQ-001-40 |
| | LXT334, LXT335 | 75 E1 | 1:1/1.26 | 1:2CT | MJQ-007-40 |
| | LXT336 | | 1:2CT | 1:2CT | MJQ-006-40 |
| | LXT350, LXT351, LXT359 | E1/T1 | 1:2CT | 1:1CT | MJQ-003-40 |
| | LXT350, LXT351 | | 1:1.15 | 1:2CT | MJQ-002-40 |
| | LXT360, LXT361, LXT362, LXT363 | T1 / E1 | 1:2CT | 1:1CT | MJQ-003-40 |
| | LXT360, LXT361, LXT362, LXT363 | | 1:1.15 | 1:2CT | MJQ-002-40 |
| | LXT380/381/384/386/388 | T1 / E1 | 1:2CT | 1:1CT | MJQ-003-40 |
| LXT380/381/384/386/388 | T1 / E1 | 1:2CT | 1CT:2 | MJQ-020-40 | |
| LXT3104, LXT3108 | | 1:2CT | 1:1CT | MJQ-003-40 | |
| Lucent | T7288, T7290A | CEPT | 1:1.36CT | 1:2CT | MJQ-001-40 |
| | T7289A | DS1 | 1:1.15 | 1:2CT | MJQ-002-40 |
| | T7688, T7690, T7698 | CEPT | 1:1.36 | 1:1.36CT | MJQ-012-40 |
| | T7688, T7690, T7698 | DS1 | 1:1.14 | 1:1.14CT | MJQ-009-40 |
| | T7693, T7697 | CEPT | 1:2.42 | 1:2.42 | MJQ-028-40 |
| | TLIU04C1 | DS1 | 1:1.14 | 1:1.14CT | MJQ-009-40 |
| | TLIU04C1 | CEPT | 1:1.36 | 1:1.36CT | MJQ-012-40 |
| Zarlink (Mitel) | MT9071, MT9076 | | 1:2.42 | 1:2.42 | MJQ-028-40 |
| | MT9075, MT9076 | | 1:2.4 | 1:1 | MJQ-022-40 |
| | MT9074, MT9075 | | 1:2CT | 1:1CT | MJQ-003-40 |
| PMC-Sierra | PM4341, PM6341, PM4314 | - | 1:1.36CT | 1:2CT | MJQ-001-40 |
| | PM4318 | - | 1:2CT | 1:2CT | MJQ-006-40 |
| | PM4351, PM4354 | Comet | 1:2.42 | 1:2.42 | MJQ-028-40 |

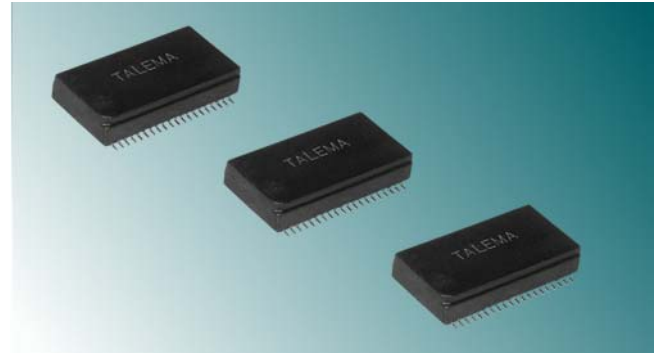
Notes:

- Dallas IC's use either a 1:1.15 or a 1:1.36 ratio transformer depending on the application. Consult the Dallas application notes or contact Talema.
- P/N MJQ-007-J - To obtain a 1:1 secondary ratio connect the following secondary contacts: 40-39, 35-34, 30-29 and 25-24; a secondary ratio of 1:1.26 is obtained by connecting contacts: 40-38, 35-33, 30-28 and 25-23.

MJQ Series • T1/CEPT/E1/PRI Transformer Modules for Quad Ports

Features

- designed for optimum compatibility with all established interface IC's - see listing on last page
- module contains eight transformers for Quad T1/E1 Ports
- SMD design provides consistent and reliable coplanarity - fully pick and place compatible
- controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- ideal for all 1.544 and 2.048 Mbs interface applications
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C



- fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications @ 25°C

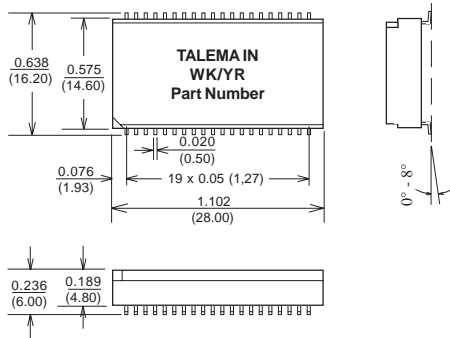
Turns Ratio: **Bold** = IC side windings

MJQ Transformer Modules for Quad T1/E1 Ports

| Part Number | Transformer | Turns Ratio (Pri:Sec +/-2%) | OCL (mH Min.) | L _L (µH Max) | C _{WW} (pF Max) | DCR (mOhms) | | Pins | | Schematic |
|-------------|-------------|-----------------------------|---------------|-------------------------|--------------------------|-------------|-----|----------------------------|----------------------------|-----------|
| | | | | | | Pri | Sec | Primary | Secondary | |
| MJQ-001-40 | Transmit | 1:1.36CT | 1.2 | 0.6 | 35 | 390 | 550 | 24-25, 29-30, 34-35, 39-40 | 16-18, 11-13, 6-8, 1-3 | C |
| | Receive | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 4-5, 9-10, 14-15, 19-20 | 36-38, 31-33, 26-28, 21-23 | |
| MJQ-002-40 | Transmit | 1:1.15 | 1.2 | 0.6 | 35 | 390 | 450 | 1-2, 6-7, 11-12, 16-17 | 39-40, 34-35, 29-30, 24-25 | A |
| | Receive | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 21-23, 26-28, 31-33, 36-38 | 18-20, 13-15, 8-10, 3-5 | |
| MJQ-003-40 | Transmit | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 1-2, 6-7, 11-12, 16-17 | 38-40, 33-35, 28-30, 23-25 | B |
| | Receive | 1:1CT | 1.2 | 0.6 | 35 | 390 | 390 | 21-22, 26-27, 31-32, 36-37 | 18-20, 13-15, 8-10, 3-5 | |
| MJQ-006-40 | Transmit | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 4-5, 9-10, 14-15, 19-20 | 36-38, 31-33, 26-28, 21-23 | C |
| | Receive | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 24-25, 29-30, 34-35, 39-40 | 16-18, 11-13, 6-8, 1-3 | |
| MJQ-007-40 | Transmit | 1:1/1.26 | 1.2 | 0.6 | 35 | 390 | 490 | 1-2, 6-7, 11-12, 16-17 | 38-40, 33-35, 28-30, 23-25 | B |
| | Receive | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 21-22, 26-27, 31-32, 36-37 | 18-20, 13-15, 8-10, 3-5 | |
| MJQ-009-40 | Transmit | 1:1.14 | 1.2 | 0.6 | 35 | 390 | 440 | 1-2, 6-7, 11-12, 16-17 | 39-40, 34-35, 29-30, 24-25 | A |
| | Receive | 1:1.14CT | 1.2 | 0.6 | 35 | 390 | 440 | 36-38, 31-33, 26-28, 21-23 | 3-5, 8-10, 13-15, 18-20 | |
| MJQ-012-40 | Transmit | 1:1.36 | 1.2 | 0.4 | 20 | 390 | 540 | 1-2, 6-7, 11-12, 16-17 | 39-40, 34-35, 29-30, 24-25 | A |
| | Receive | 1:1.36CT | 1.2 | 0.5 | 20 | 390 | 540 | 36-38, 31-33, 26-28, 21-23 | 3-5, 8-10, 13-15, 18-20 | |
| MJQ-015-40 | Transmit | 1:1.15 | 1.2 | 0.6 | 35 | 390 | 450 | 1-3, 6-8, 11-13, 16-18 | 38-40, 33-35, 28-30, 23-25 | E |
| | Receive | 1:1.15 | 1.2 | 0.6 | 35 | 390 | 450 | 4-5, 9-10, 14-15, 19-20 | 36-37, 31-32, 26-27, 21-22 | |
| MJQ-016-40 | Transmit | 1CT:1.41 | 1.2 | 0.6 | 35 | 420 | 580 | 1-3, 6-8, 11-13, 16-18 | 39-40, 34-35, 29-30, 24-25 | C |
| | Receive | 1CT:1.41 | 1.2 | 0.6 | 35 | 420 | 580 | 21-23, 26-28, 31-33, 36-38 | 19-20, 14-15, 9-10, 4-5 | |
| MJQ-017-40 | Transmit | 1:2 | 1.2 | 0.6 | 35 | 390 | 780 | 1-3, 6-8, 11-13, 16-18 | 38-40, 33-35, 28-30, 23-25 | E |
| | Receive | 1:2 | 1.2 | 0.6 | 35 | 390 | 780 | 4-5, 9-10, 14-15, 19-20 | 36-37, 31-32, 26-27, 21-22 | |
| MJQ-020-40 | Transmit | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 4-5, 9-10, 14-15, 19-20 | 36-38, 31-33, 26-28, 21-23 | C |
| | Receive | 1CT:2 | 1.2 | 0.6 | 35 | 390 | 780 | 1-3, 6-8, 11-13, 16-18 | 39-40, 34-35, 29-30, 24-25 | |
| MJQ-021-40 | Transmit | 1:2 | 1.2 | 0.6 | 35 | 390 | 780 | 1-2, 9-10, 11-12, 19-20 | 39-40, 31-32, 29-30, 21-22 | D |
| | Receive | 1:2CT | 1.2 | 0.6 | 35 | 390 | 780 | 23-25, 26-28, 33-35, 36-38 | 16-18, 13-15, 6-8, 3-5 | |
| MJQ-022-40 | Transmit | 1:2.4 | 1.0 | 0.5 | 35 | 390 | 390 | 1-2, 8-9, 11-12, 18-19 | 39-40, 32-33, 29-30, 22-23 | F |
| | Receive | 1:1 | 1.0 | 0.5 | 35 | 410 | 900 | 24-25, 27-28, 34-35, 37-38 | 16-17, 13-14, 6-7, 3-4 | |
| MJQ-023-40 | Transmit | 1:1.70 | 1.2 | 0.8 | 35 | 390 | 670 | 1-2, 6-7, 11-12, 16-17 | 39-40, 34-35, 29-30, 24-25 | A |
| | Receive | 1:1.36CT | 1.2 | 0.6 | 35 | 390 | 540 | 21-23, 26-28, 31-33, 36-38 | 18-20, 13-15, 8-10, 3-5 | |
| MJQ-024-40 | Transmit | 1:1.36CT | 1.2 | 0.6 | 35 | 390 | 540 | 24-25, 29-30, 34-35, 39-40 | 16-18, 11-13, 6-8, 1-3 | C |
| | Receive | 1:1CT | 1.2 | 0.6 | 35 | 390 | 390 | 4-5, 9-10, 14-15, 19-20 | 36-38, 31-33, 26-28, 21-23 | |
| MJQ-026-40 | Transmit | 1:1.5 | 1.0 | 0.5 | 35 | 390 | 580 | 1-2, 8-9, 11-12, 18-19 | 39-40, 32-33, 29-30, 22-23 | F |
| | Receive | 1.41:1 | 1.0 | 0.5 | 35 | 390 | 390 | 24-25, 27-28, 34-35, 37-38 | 16-17, 13-14, 6-7, 3-4 | |
| MJQ-028-40 | Transmit | 1:2.42 | 1.2 | 0.6 | 35 | 390 | 940 | 1-3, 6-8, 11-13, 16-18 | 38-40, 33-35, 28-30, 23-25 | E |
| | Receive | 1:2.42 | 1.2 | 0.6 | 35 | 390 | 940 | 4-5, 9-10, 14-15, 19-20 | 36-37, 31-32, 26-27, 21-22 | |
| MJQ-029-40 | Transmit | 1:2.1CT | 1.2 | 0.6 | 35 | 390 | 810 | 1-2, 6-7, 11-12, 16-17 | 38-40, 33-35, 28-30, 23-25 | B |
| | Receive | 1:2.1CT | 0.6 | 0.6 | 35 | 280 | 590 | 21-22, 26-27, 31-32, 36-37 | 18-20, 13-15, 8-10, 3-5 | |
| MJQ-030-40 | Transmit | 1:2.45CT | 1.2 | 0.6 | 35 | 390 | 960 | 1-2, 6-7, 11-12, 16-17 | 38-40, 33-35, 28-30, 23-25 | B |
| | Receive | 1:2.45CT | 0.6 | 0.6 | 35 | 280 | 690 | 21-22, 26-27, 31-32, 36-37 | 18-20, 13-15, 8-10, 3-5 | |
| MJQ-031-40 | Transmit | 1:2/2.4 | 1.0 | 1.0 | 35 | 410 | 900 | 1-2, 9-10, 11-12, 19-20 | 38-40, 33-31, 30-28, 23-21 | G |
| | Receive | 1:0.79/1 | 1.0 | 1.0 | 35 | 390 | 390 | 37-36, 35-34, 27-26, 25-24 | 3-5, 6-8, 13-15, 16-18 | |

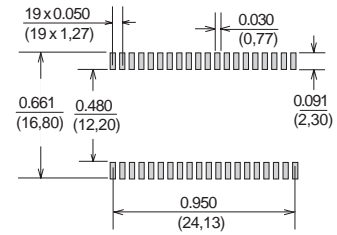
Packaging & Dimensions for SMD Quad Port Transformer Modules

MJQ Series Quad Module Package



Surface coplanarity will be <math><0.004 (0.10)</math>

Suggested Pad Layout

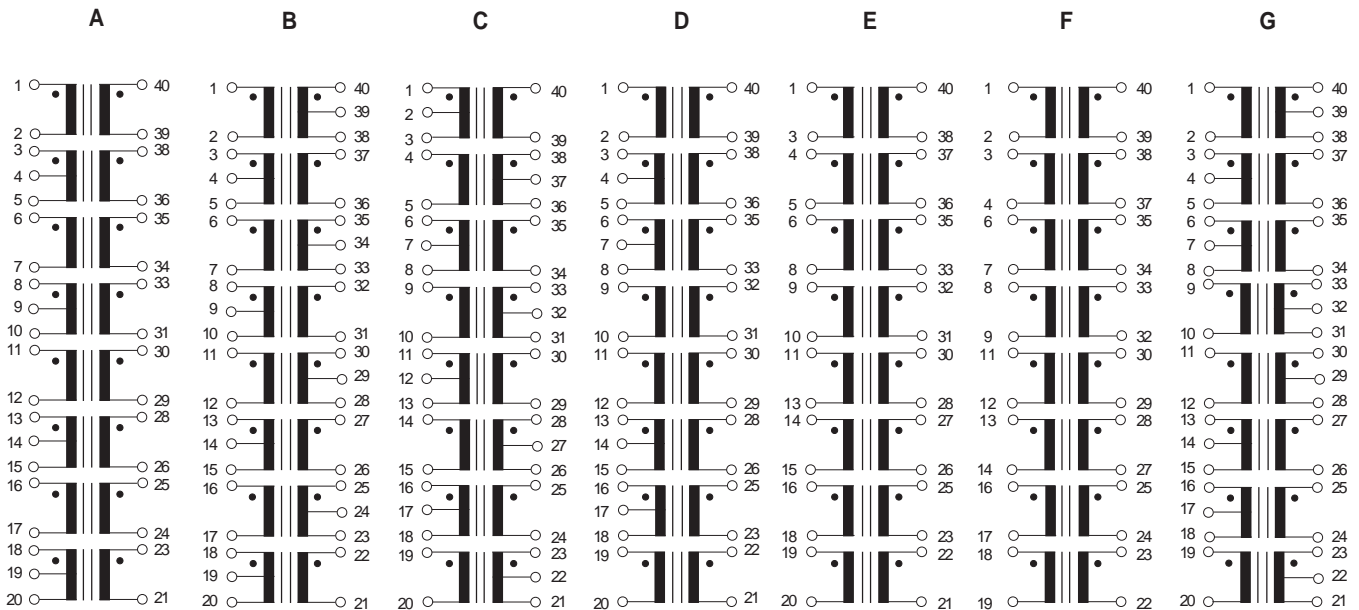


Weight: ~5 grams

Dimensions: Inches (Millimeters)

Tolerance: $\pm 0.010 (0.25)$ unless specified otherwise

Schematics



Sales & Marketing, Design and Manufacturing Facilities

<http://www.talema-nuvotem.com>

Eastern Europe & Czech Republic

NTMAGNETICS s.r.o.
Chebská 27
322 00 Plzeň
Tel: Int. + 420 377 - 338 351
Fax: Int. + 420 377 - 338 350
Email: talema@talema.cz
Web Site: www.ntmagnetics.cz

Germany

TALEMA ELEKTRONIK GMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 - 841 00 - 0
Fax: Int. + 49 89 - 841 00 25
Email: info@talema.de

Ireland

NUVOTEMTEO.
Crolly
Co. Donegal
Tel: Int. + 353 74 - 954 8666
Fax: Int. + 353 74 - 954 8139
Email: info@nuvotem.com

India

TALEMA ELECTRONIC PVT. LTD.
Opposite the SIDCO Industrial Estate
Gins Towers
4/5S.H/1, Omalur Main Road
Salem - 636 004, Tamil Nadu
Tel: Int. + 91 427 - 244 1325
Fax: Int. + 91 427 - 243 0034
E-mail: talema@talemaindia.com
Web Site: www.talemaindia.com

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



T1/E1 Octal 75/120 Ohm Matching Transformer Module

Features

- module contains eight transformers for Quad T1/E1 Ports
- SMD design provides consistent and reliable coplanarity - fully pick and place compatible
- controlled parameters ensure full compliance with ITU-T G.703 when matched with recommended IC
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- 1500Vrms minimum isolation voltage
- extended operating temperature: -40° to +85°C
- fully RoHS compliant and meets lead free reflow level J-STD-020C



Electrical Specifications @ 25°C

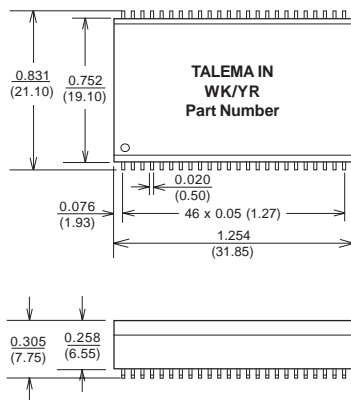
Turns Ratio: **Bold** = IC side windings

Eight 75/120 Ohm Matching Transformer Module for Quad T1/E1 Ports

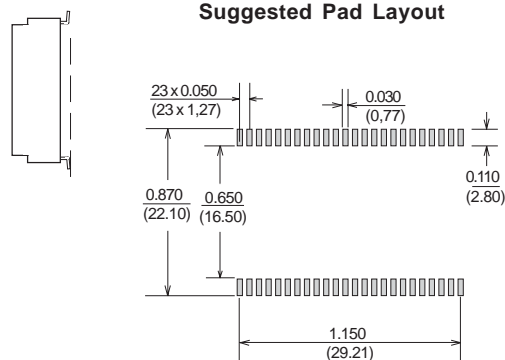
Extended Operating Temperature Range: -40° to +85°C

| Part Number | Transformer | Turns Ratio (Pri:Sec +/-2%) | OCL (mH Min.) | L _L (μH Max) | C _{WW} (pF Max) | DCR (mOhms) | | Pins Primary : Secondary |
|-------------|-----------------|-----------------------------|---------------|-------------------------|--------------------------|-------------|-----|--|
| | | | | | | Pri | Sec | |
| 20362 | TX - 120/75 Ohm | Chip : Line 1 : 1.9/2.4 | 1.0 | 0.8 | 50 | 0.9 | 1.4 | (1:3) : (48-47)/(48-46), (7-9) : (42-41)/(42-40) (13-15) : (36-35)/(36-34), (19-21) : (30-29)/(30-28) |
| | RX - 120 Ohm | Line : Chip 1 : 1.9 | | | | | | (45-43) : (4-6), (39-37) : (10-12) (33-31) : (16-18), (27-25) : (22-24) |
| | RX - 75 Ohm | Line : Chip 1 : 2.4 | | | | | | (45-44) : (4-6), (39-38) : (10-12) (33-32) : (16-18), (27-26) : (22-24) |

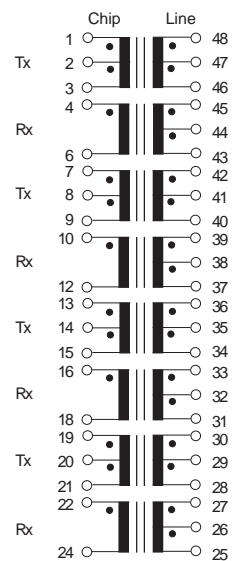
Quad Module Package



Suggested Pad Layout



Schematic



Surface coplanarity will be <0.004 (0.10)

Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Weight: ~ 8 grams



These transformers are typical for 75 ohm bandwidth applications requiring a very fast rise times

Talema manufactures a wide range of transmit and receive transformers for T3/DS3 applications using bit rates of 44.736 Mbps. These transformers can also be used with E3 interfaces at 34.368 Mbps and STS-1 applications at 51.84 Mbps. A listing of IC's with recommended Talema transformers is listed on the following cross reference chart.

Quality and consistency is guaranteed through 100% testing of the specified parameters for Primary Inductance, Leakage Inductance, Turns Ratio, DC resistance and Interwinding Capacitance. This ensures that the Return Loss and Pulse Waveshape requirements of CCITT G.703 and ATT T.A.34 can be met. Additionally all parts are 100% tested for 1500V minimum isolation.

Temperature Performance

Products are offered with extended temperature (-40° to 85°C) as standard. Required minimum inductance levels are maintained at the lower temperature limits.



ENVIRONMENT

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



IC - T3 / DS3 / E3 / STS-1 Interface Transformer Cross Reference Guide

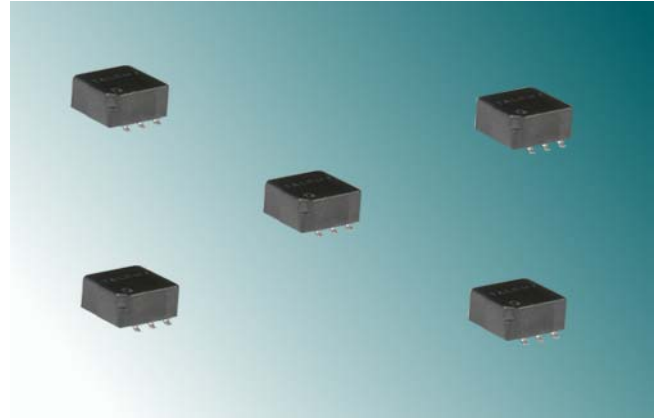
| IC Manufacturer | IC Part Number | Talema Transformer Part Number | | | | | |
|--------------------------------|-------------------------------|--------------------------------|-----------|----------------------|------------|----------------------|--------------|
| | | Single SMD Transformer | | | | Dual SMD | Tri-Port SMD |
| | | Standard Temperature | | Extended Temperature | | Extended Temperature | |
| | | Transmit | Receive | Transmit | Receive | TX & RX | TX & RX |
| Conexant (Rockwell) | CN8331, CN8332, CN8333 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | -- | -- |
| Infinion (Siemens) | PEB3452, PEB3460 | -- | -- | DJE-40-6E | DJE-100-6A | -- | -- |
| Lucent | T7296 | DJE-40-6A | -- | DJE-100-6A | -- | -- | -- |
| Exar | XRT75xxx | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| | XRT73L00 / 2 / 3 / 4 / 6 / 12 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| | XRT73LC03A / 04A, R12 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| | XRT7300, XRT7302 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| Maxim (Dallas) | DS3181 / 2 / 3 / 4 | DJE-19-6B | DJE-19-6B | DJE-40-6D | DJE-40-6D | -- | -- |
| | DS3150 / 1 / 2 / 3 / 4 | DJE-19-6B | DJE-19-6B | DJE-40-6D | DJE-40-6D | -- | -- |
| Mindspeed (Conexant) | CN28331, CN28332, CN28333 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| | M28335, M28356 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| | M28352, M28353, M28354 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | DTM-100 |
| TDK | 78P2241B | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| | 78P2242, 78P2243, 78P2244 | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| | 78P7200, 78P7200L | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| | 78P7203L, 78P7204L | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| | 78P2361, 78P2362 | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| Transwitch | MRT TXC-02050, E1 | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| | ART TXC-02020 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | -- |
| | ARTE TXC-02021 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | -- |
| | DART TXC-2030, DS3 | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | -- |
| | DART TXC-2030, E3 | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- |
| | DS3LIM-SN TXC-20153G | DJE-40-6A | DJE-40-6A | DJE-100-6A | DJE-100-6A | DJM-100B | -- |
| E3LIM TXC-20163 | DJE-19-6B | DJE-40-6A | DJE-40-6D | DJE-100-6A | DJM-100C/D | -- | |

DJE Series • T3/DS3/E3/STS-1 Interface Transformers

These miniature transformers are typical for 75 ohm bandwidth applications requiring a very fast rise times

Features

- low cost SMD for pick and place compatability while providing consistent and reliable coplanarity
- low leakage inductance
- 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

Ratings @ 25°C ambient

Minimum isolation voltage: 1500 Vrms

Extended Operating Temperature Range: -40° to +85°C

Test Conditions

Inductance measured @ 1MHz, 10mV

Interwinding Capacitance @ 100kHz/10mV

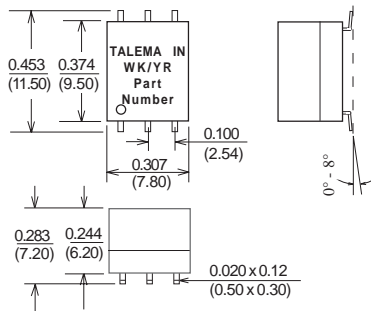
Leakage Inductance @ 100kHz/10mV

DJE Series • SMD Wideband Interface Transformers

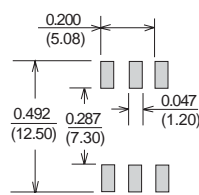
Extended Operating Temperature Range -40°C to +85°C

| Part Number | OCL Primary (µH Min) | OCL Primary @ -40°C (µH Min) | Turns Ratio Pri/Sec ±2% | L _L Pri/Sec (µH Max) | C _C Pri/Sec (pF Max) | Bandwidth 75 Ohms | | Isolation Voltage (Vrms Min) | Primary Pins | Schematic |
|-------------|----------------------|------------------------------|-------------------------|---------------------------------|---------------------------------|-------------------|------|------------------------------|--------------|-----------|
| | | | | | | Freq. (MHz) | | | | |
| | | | | | | Low | High | | | |
| DJE-19-6B | 19 | -- | 1:2CT | 0.06 | 10 | 0.250 | 500 | 1500 | 1-3 | B |
| DJE-40-6A | 40 | -- | 1:1 | 0.10 | 10 | 0.200 | 340 | 1500 | 1-3 | A |
| DJE-40-6B | 40 | 20 | 1:2CT | 0.11 | 12 | .250 | 500 | 1500 | 1-3 | B |
| DJE-40-6D | 40 | 20 | 1:2CT | 0.11 | 12 | .250 | 500 | 1500 | 4-6 | D |
| DJE-40-6E | 40 | 20 | 1CT:1CT | 0.10 | 10 | .250 | 340 | 1500 | 1-3 | E |
| DJE-45-6D | 40 | 20 | 1:1.155CT | 0.15 | 12 | .200 | 340 | 1500 | 4-6 | D |
| DJE-100-6A | 100 | 40 | 1:1 | 0.11 | 10 | .200 | 340 | 1500 | 1-3 | A |

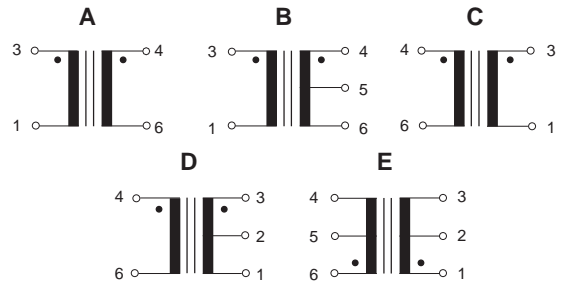
DJE-XXX-6X



Suggested Pad Layout



Schematics



Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Surface coplanarity will be 0.004 (0.01) maximum

Sales & Marketing, Design and Manufacturing Facilities

<http://www.talema-nuvotem.com>

Eastern Europe & Czech Republic

NT MAGNETICS s.r.o.
Chebská 27
322 00 Plzeň
Tel: Int. + 420 377 - 338 351
Fax: Int. + 420 377 - 338 350
Email: talema@talema.cz
Web Site: www.ntmagnetics.cz

Germany

TALEMA ELEKTRONIK GMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 - 841 00 - 0
Fax: Int. + 49 89 - 841 00 25
Email: info@talema.de

Ireland

NUVOTEM TEO.
Crolla
Co. Donegal
Tel: Int. + 353 74 - 954 8666
Fax: Int. + 353 74 - 954 8139
Email: info@nuvotem.com

India

TALEMA ELECTRONIC PVT. LTD.
Opposite the SIDCO Industrial Estate
Gins Towers
4/5S.H/1, Omalur Main Road
Salem - 636 004, Tamil Nadu
Tel: Int. + 91 427 - 244 1325
Fax: Int. + 91 427 - 243 0034
E-mail: talema@talemaindia.com
Web Site: www.talemaindia.com



DJM Series • T3/DS3/E3/STS-1 Dual Interface Transformers

These miniature modules contain both transmit and receive transformers designed for use in T3/DS3 applications using bit rates of 44.736Mbps, E3 interfaces at 34.368Mbps and STS-1 applications at 51.84 Mbps. The transformers are typical for 75 ohm bandwidth applications requiring a very fast rise times.

Features

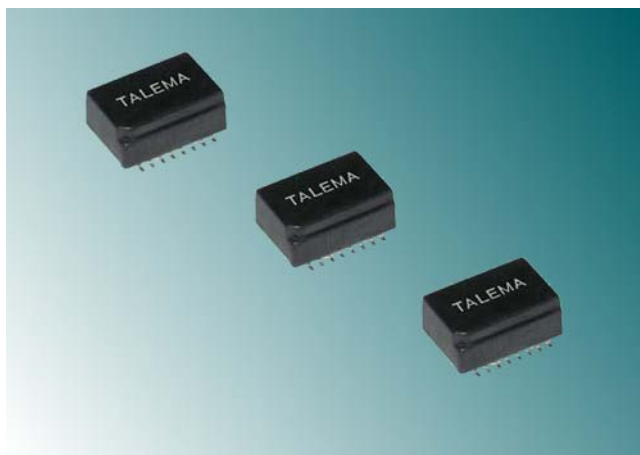
- low cost SMD for pick and place compatibility while providing consistent and reliable coplanarity
- low leakage inductance
- manufactured in an ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- fully RoHS compliant and meets lead free reflow level J-STD-020C

Electrical Specifications

Ratings @ 25°C ambient

Minimum isolation voltage: 1500 Vrms

Extended Operating Temperature Range: -40° to +85°C

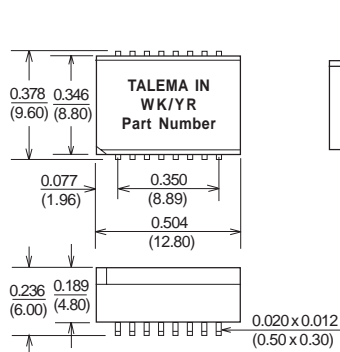


DJM Series • Dual SMD Wideband Interface Transformers

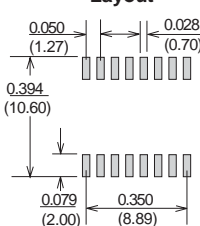
Extended Operating Temperature Range -40°C to +85°C

| Part Number | Turns Ratio Pri/Sec ±2% | | OCL Primary (µH Min) | | L _L (µH Max) | | C _{WW} (pF Max) | | Isolation Voltage (Vrms Min) | Primary Pins | | Schematic |
|-------------|----------------------------|-------|-------------------------|-----|----------------------------|------|-----------------------------|----|------------------------------------|-----------------|-------|-----------|
| | TX | RX | TX | RX | TX | RX | TX | RX | | TX | RX | |
| DJM-100A | 1:1 | 1:1 | 40 | 40 | 0.10 | 0.10 | 10 | 10 | 1500 | 1-2 | 7-8 | A |
| DJM-100B | 1ct:1ct | 1:1 | 100 | 100 | 0.11 | 0.11 | 10 | 10 | 1500 | 6-8 | 16-15 | B |
| DJM-100C | 1:2ct | 1:1 | 40 | 100 | 0.11 | 0.11 | 12 | 10 | 1500 | 16-14 | 6-8 | C |
| DJM-100D | 1:2ct | 1:1 | 100 | 100 | 0.12 | 0.11 | 12 | 10 | 1500 | 7-8 | 16-15 | D |
| DJM-100E | 1:2ct | 1:2ct | 40 | 40 | 0.11 | 0.11 | 12 | 12 | 1500 | 16-14 | 11-9 | E |

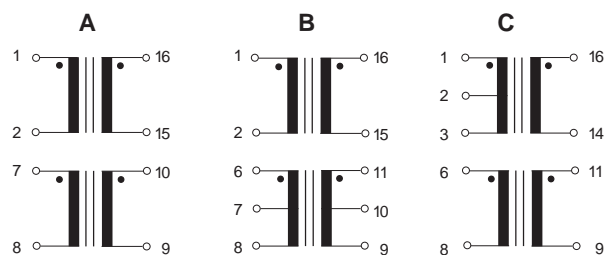
DJM Dimensions



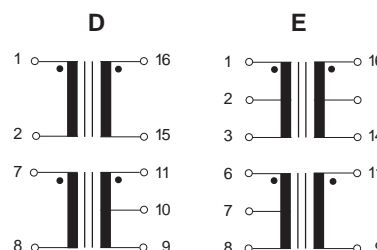
Suggested Pad Layout



Schematics



Surface coplanarity will be 0.004 (0.01) maximum



Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Germany: Int.+49 89 - 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>



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 compatibility while providing 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
- 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 +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 | Part Number | OCL (μH) ±30% | I _N (mA) | DCR (mOhms) | Number of Coils | Windings per Coil | Schematic |
|-------------------------|------------------|------------------------|----------------|--------------------|----------------------|-----------|---------------------------|------------------|------------------------|----------------|--------------------|----------------------|-----------|
| Two Data Lines | | | | | | | Four Data Lines | | | | | | |
| CTJ-2-110 | 11 | 300 | 160 | 1 | 2 | A | CFJ-4-330 | 33 | 550 | 65 | 1 | 4 | A |
| CTJ-2-101 | 100 | 300 | 180 | 1 | 2 | A | CFJ-4-470 | 47 | 540 | 80 | 1 | 4 | A |
| CTJ-2-471 | 470 | 200 | 380 | 1 | 2 | A | CFJ-4-101 | 100 | 360 | 160 | 1 | 4 | A |
| CTJ-2-102 | 1000 | 150 | 660 | 1 | 2 | A | CFJ-4-471 | 470 | 360 | 65 | 1 | 4 | A |
| CTJ-2-472 | 4700 | 150 | 1800 | 1 | 2 | A | CFJ-4-102 | 1000 | 300 | 85 | 1 | 4 | A |
| CLJ/CMJ-2-110 | 11 | 500 | 120 | 1 | 2 | A | CFJ-4-472 | 4700 | 220 | 430 | 1 | 4 | A |
| CLJ/CMJ-2-470 | 47 | 500 | 150 | 1 | 2 | A | CCJ-4-260 | 26 | 600 | 65 | 1 | 4 | B |
| CLJ/CMJ-2-101 | 100 | 500 | 260 | 1 | 2 | A | CCJ-4-470 | 47 | 500 | 100 | 1 | 4 | B |
| CLJ/CMJ-2-471 | 470 | 500 | 250 | 1 | 2 | A | CCJ-4-101 | 100 | 400 | 130 | 1 | 4 | B |
| CLJ/CMJ-2-102 | 1000 | 500 | 250 | 1 | 2 | A | CCJ-4-221 | 220 | 400 | 190 | 1 | 4 | B |
| CLJ/CMJ-2-472 | 4700 | 200 | 845 | 1 | 2 | A | CCJ-4-471 | 470 | 400 | 120 | 1 | 4 | B |
| CLJ/CMJ-2-103 | 10000 | 200 | 1200 | 1 | 2 | A | CCJ-4-102 | 1000 | 350 | 190 | 1 | 4 | B |
| CLJ/CMJ-2-473 | 47000 | 100 | 3450 | 1 | 2 | A | CCJ-4-152 | 1500 | 350 | 120 | 1 | 4 | B |
| CCJ-2-102 | 1000 | 550 | 140 | 1 | 2 | A | CCJ-4-502 | 5000 | 330 | 220 | 1 | 4 | B |
| CCJ-2-152 | 1500 | 550 | 100 | 1 | 2 | A | CCJ-4-123 | 12000 | 170 | 790 | 1 | 4 | B |
| CCJ-2-502 | 5000 | 500 | 180 | 1 | 2 | A | CCJ-4-583 | 58000 | 90 | 2350 | 1 | 4 | B |
| CCJ-2-123 | 12000 | 400 | 280 | 1 | 2 | A | | | | | | | |
| CCJ-2-283 | 28000 | 270 | 520 | 1 | 2 | A | CQJ-1.0-B | 1000 | 400 | 200 | 1 | 4 | B |
| CCJ-2-503 | 50000 | 200 | 1020 | 1 | 2 | A | CQJ-5.0-B | 5000 | 300 | 450 | 1 | 4 | B |
| CCJ-2-703 | 70000 | 170 | 1540 | 1 | 2 | A | CQJ-10-B | 10000 | 300 | 1060 | 1 | 4 | B |
| CDJ-1.0-A | 1000 | 600 | 190 | 1 | 2 | A | CQJ-58-B | 58000 | 200 | 2400 | 1 | 4 | B |
| CDJ-4.7-A | 4700 | 350 | 575 | 1 | 2 | A | CQJ-90-B | 90000 | 150 | 4150 | 1 | 4 | B |
| CDJ-12-A | 12000 | 300 | 680 | 1 | 2 | A | | | | | | | |
| CDJ-28-A | 28000 | 300 | 1020 | 1 | 2 | A | CUJ-240-16E | 24 | 800 | 45 | 2 | 2 | E |
| CDJ-50-A | 50000 | 300 | 1800 | 1 | 2 | A | CUJ-101-16E | 100 | 450 | 135 | 2 | 2 | E |
| CDJ-70-A | 70000 | 300 | 2150 | 1 | 2 | A | CUJ-102-16E | 1000 | 450 | 135 | 2 | 2 | E |
| | | | | | | | CUJ-472-16E | 4700 | 300 | 310 | 2 | 2 | E |
| Three Data Lines | | | | | | | Six Data Lines | | | | | | |
| CFJ-3-240 | 24 | 1000 | 45 | 1 | 3 | A | CUJ-240-16C | 24 | 650 | 45 | 2 | 3 | C |
| CFJ-3-102 | 1000 | 700 | 70 | 1 | 3 | A | CUJ-101-16C | 100 | 350 | 110 | 2 | 3 | C |
| CFJ-3-222 | 2200 | 600 | 125 | 1 | 3 | A | CUJ-102-16C | 1000 | 330 | 170 | 2 | 3 | C |
| CFJ-3-472 | 4700 | 350 | 340 | 1 | 3 | A | CUJ-472-16C | 4700 | 200 | 430 | 3 | 2 | D |
| Four Data Lines | | | | | | | Eight Data Lines | | | | | | |
| CLJ/CMJ-4-110 | 11 | 600 | 130 | 1 | 4 | A | CUJ-240-16A | 24 | 550 | 45 | 2 | 4 | A |
| CLJ/CMJ-4-470 | 47 | 500 | 180 | 1 | 4 | A | CUJ-101-16A | 100 | 250 | 240 | 2 | 4 | A |
| CLJ/CMJ-4-101 | 100 | 500 | 330 | 1 | 4 | A | CUJ-471-16A | 470 | 250 | 95 | 2 | 4 | A |
| CLJ/CMJ-4-471 | 470 | 500 | 240 | 1 | 4 | A | CUJ-472-16A | 4700 | 160 | 605 | 2 | 4 | A |
| CLJ/CMJ-4-102 | 1000 | 500 | 310 | 1 | 4 | A | | | | | | | |
| CLJ/CMJ-4-472 | 4700 | 300 | 860 | 1 | 4 | A | Sixteen Data Lines | | | | | | |
| CLJ/CMJ-4-123 | 12000 | 130 | 2300 | 1 | 4 | A | COJ-16-470 | 47 | 300 | 200 | 8 | 2 | -- |
| | | | | | | | COJ-16-502 | 5000 | 150 | 1900 | 8 | 2 | -- |

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

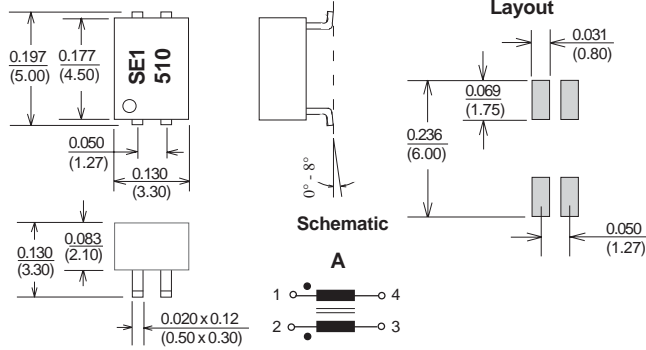
Packaging & Dimensions • SMD Data and Signal Line Filter Chokes

Dimensions: Inches (Millimeters)

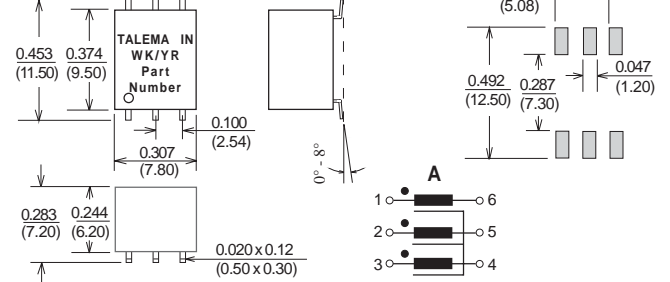
Tolerance: ± 0.010 (0.25) unless specified otherwise

Surface Coplanarity will be 0.004 (0.10) maximum

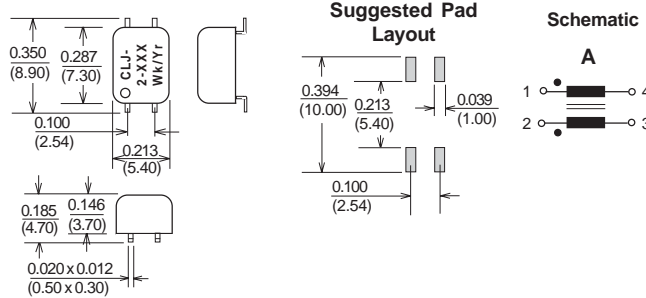
CTJ-2



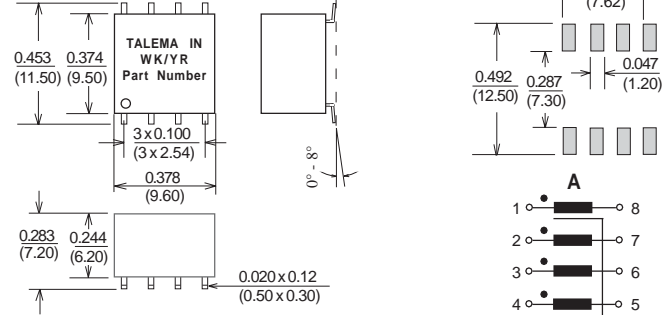
CFJ-3



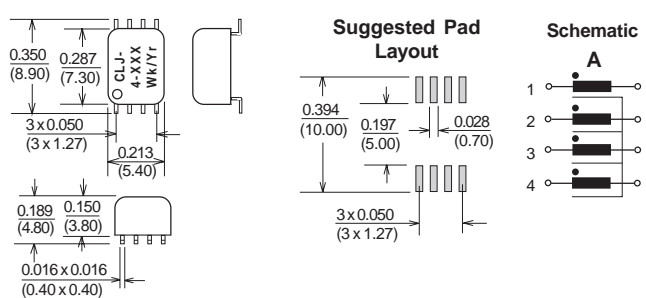
CLJ-2



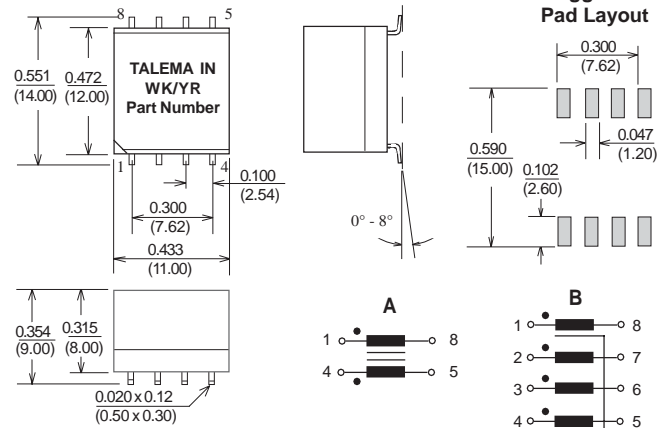
CFJ-4



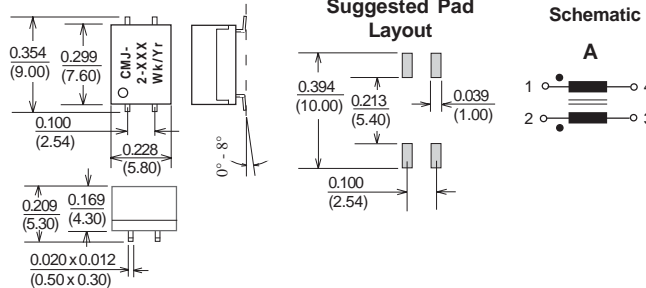
CLJ-4



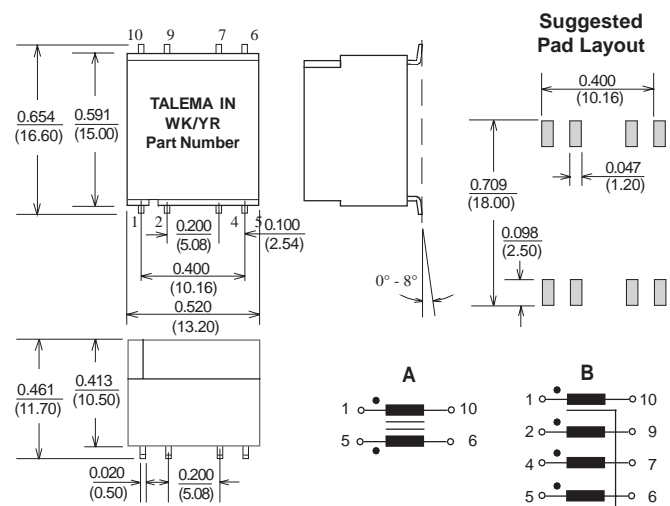
CCJ-2 / 4



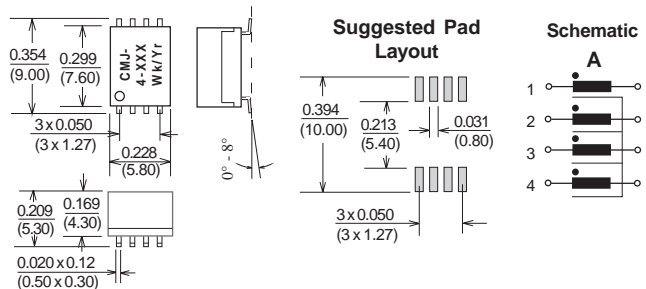
CMJ-2



CDJ / CQJ



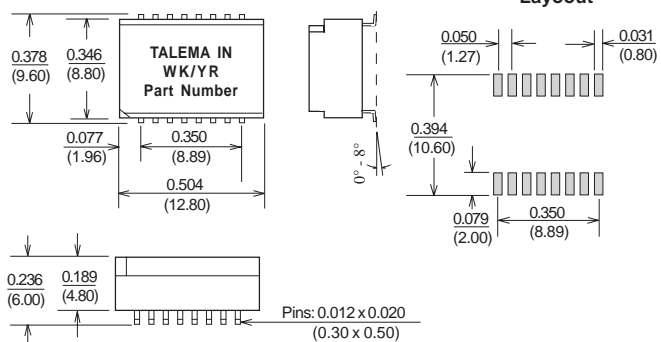
CMJ-4



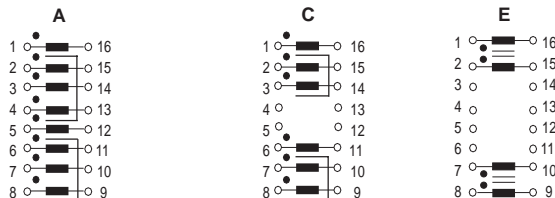


Dimensions: Inches (Millimeters)
Tolerance: ±0.010 (0.25) unless specified otherwise
Surface Coplanarity will be 0.004 (0.10) maximum

CUJ-XXX-16

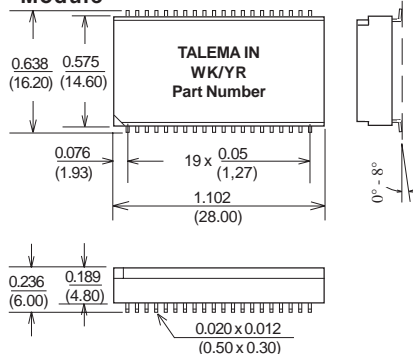


Schematics

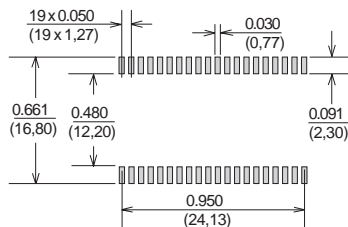


COJ

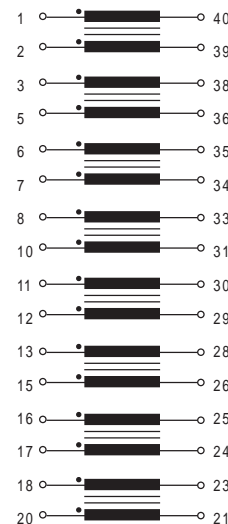
Module



Suggested Pad layout



Schematic



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

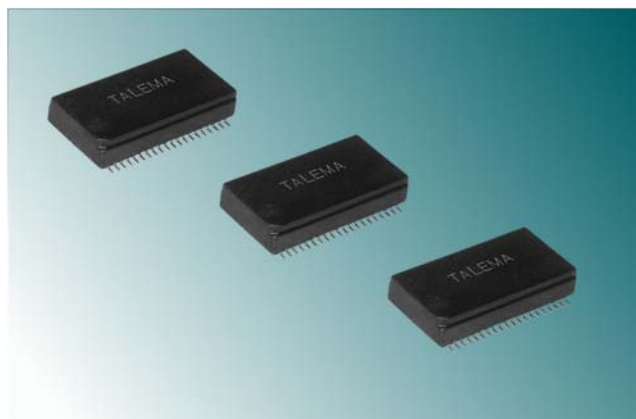
Features

- 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 compatibility 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

Ratings @ 25°C ambient
Test voltage between windings: 500 Vrms
Operating Temperature Range: 40°C to +85°C
Storage Temperature: -40°C to +125°C
Test Frequency: Inductance measured @ 100kHz/20mVrms

Standard packing in tape and reel
Weight: 4 grams



Application

The Talema 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 | 500MHz |
| COJ-16-470 | 16 | 47 | 200 | 13 | 27 | 40 | 44 | 42 | 36 | 26 | 15 |

Dimensions and Schematic as noted above

Authorised Talema Sales Representatives

Germany

PLZ 1, 4, 5, 6, 8 & 9

TALEMAELEKTRONIKGMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 841 00 - 0
Fax: Int. + 49 89 841 00 25
Email: info@talema.de

PLZ 2 & 3 (less 35 & 36)

H. J. MERCK & Co. GmbH
Hasenhöhe 128
22587 Hamburg
Tel: Int. + 49 40 87 08 63-0
Fax: Int. + 49 40 87 08 63-33
E-mail: info@hj-merck.de

PLZ 7

BERNDBIELER
Industrievertretung
Max-Eyth-Straße 1
72379 Hechingen
Tel: Int. + 49 7471 1804-0
Fax: Int. + 49 7471 1804-10
E-mail: bieler@bernd-bieler.de

Austria

TALEMAELEKTRONIKGMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 841 00 - 0
Fax: Int. + 49 89 841 00 25
Email: info@talema.de

Australia

TORTECH PTY. LTD.
POB 194
North Strathfield,
Sydney, N.S.W. 2137
Tel: Int. + 61 2 9642 6003
Fax: Int. + 61 2 9642 6127
E-Mail: tortech@ozemail.com.au
Web Site: www.tortech.com.au

Benelux

ISATRONICK B.V.B.A.
Doolhoflaan 17
B-2640 Mortsel
Tel: Int. + 32 3 448 1976
Fax: Int. + 32 3 448 1195
E-Mail: info@isatronick.be
Web Site: www.isatronick.be

Denmark & Sweden

NORDTEK DANMARK
Horsensvej 134
DK-8300 Odder
Tel: Int. + 45 86 554 344
Fax: Int. + 45 86 554 644
E-Mail: post@nordtek.dk
Web Site: www.nordtek.dk

France

E.S.I.A
5-7 Place Marcel Rebuffat
Courtaboeuf 7 Villejust
91971 Courtaboeuf Cedex
Tel: Int. + 33 1 6931 4410
Fax: Int. + 33 1 6931 4425
E-Mail: esia@wanadoo.fr
Web Site: www.esia.fr

Ireland

JOHN NELSON
9 Washington Park
Rathfarnham
Dublin 14
Tel: Int. + 353 1 493 9208
Fax: Int. + 353 1 494 5595
E-Mail: sales@nuvotem.com
Web Site: www.nuvotem.com

Italy

TECNOLASA ELETTRONICA
Via Macello, 65/B
I-39100 Bolzano
Tel: Int. + 39 0471 305 400
Fax: Int. + 39 0471 305 444
E-Mail: sales@tecnolasa.com

Spain

OTTORATING S.A.
Castellnou, 31-33
08017 Barcelona
Tel: Int.+34 93 252 2708
Fax: Int.+34 93 205 6264
E-mail: Info@rating.esl
Web Site: www.rating.es

Switzerland

BTB COMPONENTS SAG
Im Chlösterli 4
CH-8902 Urdorf
Tel: Int. + 41 44 734 4888
Fax: Int. + 41 44 734 4892
E-mail: info@btbcomponents.ch
Web Site: www.btbcomponents.ch

UK

DELTA COMPONENTS LTD.
The Courtyard
Seven Acres, Smallfield Road
Horne, Surrey RH6 9JP
Tel: Int. + 44 1342 844 555
Fax: Int. + 44 1342 844 552
E-Mail: sales@deltacomponents.com
Web Site: www.deltacomponents.com

USA

H. F. Transformers, Chokes & Inductors
ALFAMAG ELECTRONICS LLC
945 Parkwood
PO Box 668
Rolla, Missouri 65402
Tel: Int.+573 364 2422
Fax: Int.+573 364 5390
E-Mail: sales@alfamag.com
Web Site: www.alfamag.com

50/60 Hz Toroidal Transformers
AMVECO MAGNETICS, INC.
11222 Richmond Ave., Suite 120
Houston, TX 77042
E-Mail: sales@amveco.com
Web Site: www.amveco.com

Sales & Marketing, Design and Manufacturing Facilities

<http://www.talema-nuvotem.com>

Eastern Europe & Czech Republic

NTMAGNETICS s.r.o.
Chebská 27
322 00 Plzeň
Tel: Int. + 420 377 - 338 351
Fax: Int. + 420 377 - 338 350
Email: talema@talema.cz
Web Site: www.ntmagnetics.cz

Germany

TALEMAELEKTRONIKGMBH
Sembdnerstr. 5, Postfach 2523
82110 Germering
Tel: Int. + 49 89 - 841 00 - 0
Fax: Int. + 49 89 - 841 00 25
Email: info@talema.de

Ireland

NUVOTEM TEO.
Crolly
Co. Donegal
Tel: Int. + 353 74 - 954 8666
Fax: Int. + 353 74 - 954 8139
Email: info@nuvotem.com

India

TALEMA ELECTRONIC PVT. LTD.
Opposite the SIDCO Industrial Estate
Gins Towers
4/5S.H/1, Omalur Main Road
Salem - 636 004, Tamil Nadu
Tel: Int. + 91 427 - 244 1325
Fax: Int. + 91 427 - 243 0034
E-mail: talema@talemaindia.com
Web Site: www.talemaindia.com



nt
magnetics

nuvotem

Summary TOTAL PROGRAM

SECTION 1

- TOROIDAL 50/60Hz TRANSFORMERS



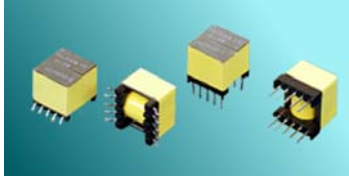
SECTION 2

- TOROIDAL PCB TRANSFORMERS



SECTION 3

- ELEVEN GOOD REASONS TO SELECT
TALEMA TOROIDAL TRANSFORMERS



SECTION 4

- CHOKES, INDUCTORS AND TRANSFORMERS
FOR POWER APPLICATIONS



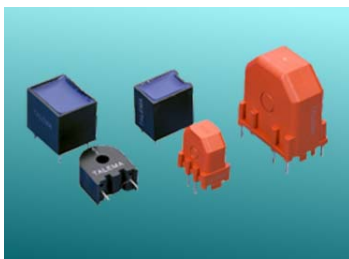
SECTION 5

- COMPONENTS FOR TELECOMMUNICATIONS
AND DATA LINE TECHNOLOGY



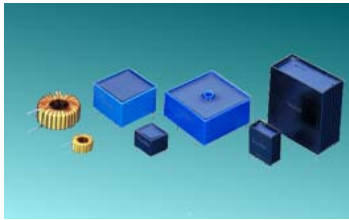
SECTION 6

- CURRENT COMPENSATED EMI
NOISE SUPPRESSION CHOKES



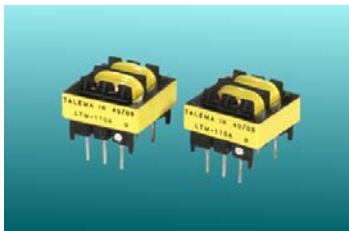
SECTION 7

- CURRENT SENSE TRANSFORMERS
AND INDUCTORS



SECTION 8

- LAN MAGNETIC COMPONENTS FOR
ETHERNET APPLICATIONS



SECTION 9

- T1/E1/CEPT-PRI - T3/DS3/E3/STS-1
FOR TELECOMMUNICATION PRODUCTS



SECTION 10

- U INTERFACE TRANSFORMERS FOR
COMMUNICATIONS AND DATA LINE
TECHNOLOGY

SECTION 11

- TRANSFORMERS FOR BROADBAND
ACCESS AND FIBRE CHANNEL INTERFACE

