



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

| IC Manufacturer | IC Part Number | Application | Turns Ratio Pri:Sec $\pm 2\%$ | | Talema Part Number |
|------------------------|--------------------------------------|---------------|-------------------------------|------------|--------------------|
| | | | Transmit | Receive | |
| Mindspeed (Conexant) | BT8510 | T1/E1 | 1:1/1.26 | 1:2CT | MJQ-007-40 |
| | CN8380 | | 1:2CT | 1CT2 | 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 | 1.4:1.1 | 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 | 1CT2 | 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:

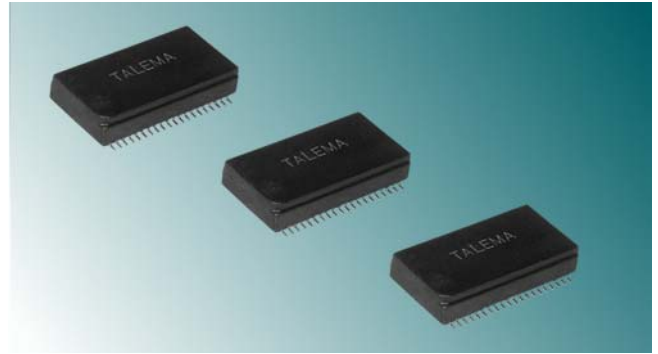
- Dallas IC's use either a 1:1.15 or a 1:1.36 ratio transformer depending on the application. Consult the Dallas application notes or contact Talema.
- P/N MJQ-007-J - To obtain a 1:1 secondary ratio connect the following secondary contacts: 40-39, 35-34, 30-29 and 25-24; a secondary ratio of 1:1.26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

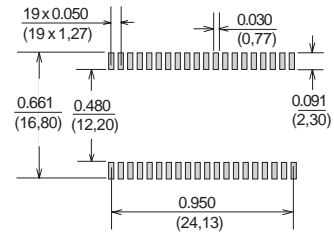
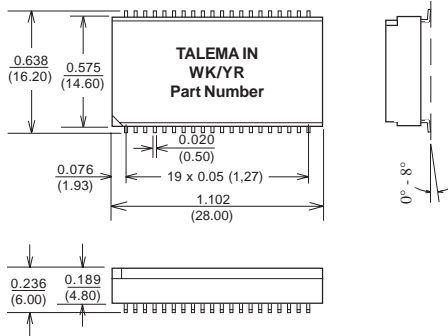
MJQ Transformer Modules for Quad T1/E1 Ports

| Part Number | Transformer | Turns Ratio (Pri:Sec +/-2%) | OCL (mH Min.) | L _L (μH Max) | C _{www} (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

Suggested Pad Layout



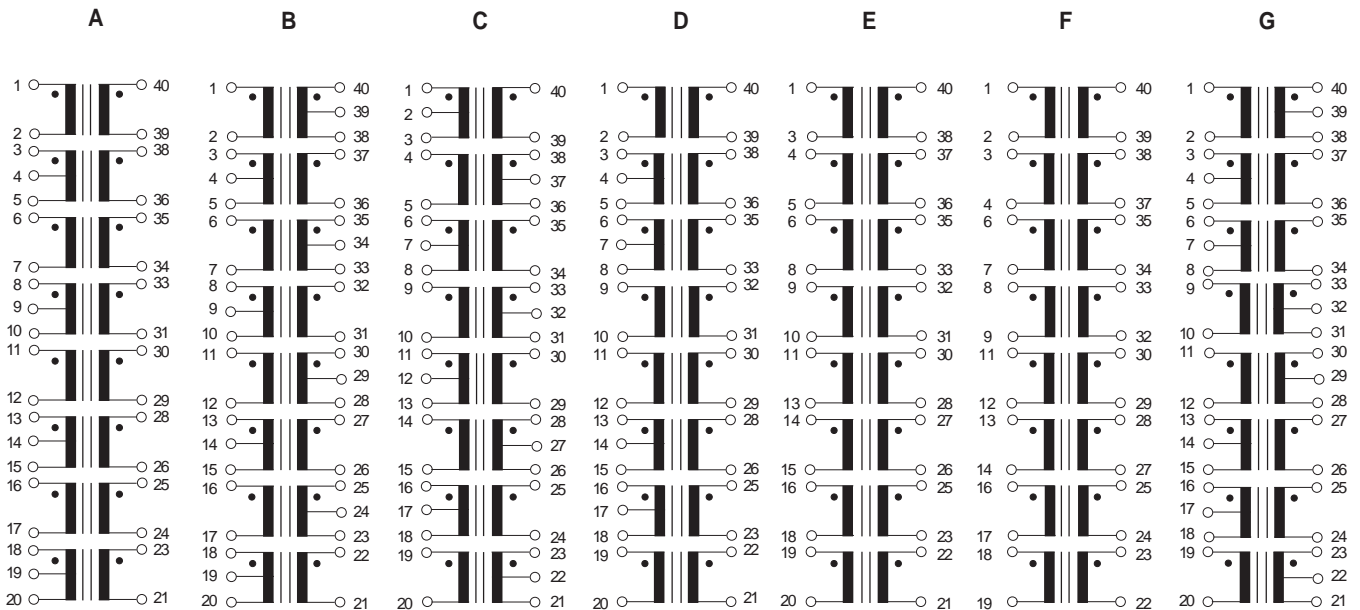
Surface coplanarity will be <0.004 (0.10)

Weight: ~5 grams

Dimensions: Inches (Millimeters)

Tolerance: ±0.010 (0.25) unless specified otherwise

Schematics



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