B
COMPONENT SOURCING

This information is provided to assist in sourcing the various parts used in the application of the MC145572 U–interface transceiver. The detailed specifications for these parts are available from the manufacturer and information presented here is only as current as the printing of this document. Contact your local Motorola representative or the Motorola factory applications staff for the latest updates on this information.

CAUTION

Motorola has conducted limited evaluation of third party components for use with the MC145572. This limited review suggests that the components included here appear to be suitable for applications using the MC145572. However, the evaluation did not include all specifications or parameters that may be applicable to particular designs, and the vendors included here represent only a partial list of component manufacturers. Motorola does not guarantee that these third party components will work in all applications. It is the responsibility of the equipment designer to verify that these components are suitable for their intended application.

B.1 TRANSFORMER SOURCES

Table B–1 lists sourcing information for the transformers used in the MC145572 line interface circuit.

Table B–1. U–Interface Transformer Vendors

Manufacturer	Part Number	Package Dimensions L x W x H	Fax Number	Contact/Phone No.
Midcom	671–7308	1.05″ x 0.92″ x 0.45″	(605) 886–4486	(605) 886–4385
Schott Corporation	671 46720	1.05″ x 0.92″ x 0.45″	(615) 885–0834	(615) 889–8800
APC	41018	19.6 mm x 25.1 mm x 13.2 mm	USA: (201) 368–1704 UK: (44) 1634–290–591	USA: (201) 368–1750 UK: (44) 1634–290–588
Pulse Engineering	PE 68628	1.05″ x 0.92″ x 0.45″	(619) 674–8262	(619) 674–8100
Valor Electronics	PT5062	0.82″ x 0.82″ x 0.675″	(619) 537–2525	(619) 537–2500

NOTES:
1. See Caution note above.
2. Part numbers subject to change.
3. APC also manufactures line interface modules.

B.2 2B1Q INTERFACE TRANSFORMER SPECIFICATION

A list of third party vendors and current qualification status appear in Table B–1. The transformer reference schematic appears in Figure B–1. The specifications in Table B–2 apply to the design of the U–interface transformer.

Any transformer manufactured to this specification must be verified for compliant transmission performance. It is also suggested that transformers manufactured for use in loop powered systems be required to remain within specification up to the maximum loop current which may be as high as 60 mA.

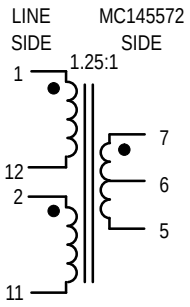

Figure B–1. Schematic Reference for U–Interface Transformer

Table B–2. Electrical Specification for the U–Interface Transformer, North American ISDN

Parameter	Pins Under Test	Min	Max	Unit	Notes
Operating Temperature		– 40	+ 85	°C	
Breakdown Voltage V ac (t = 1 s)	Each winding to all others and core	1500	—	V ac	1
Surge Voltage per Bellcore TR–NWT–001089 Issue 1, Table 4–2	Each winding to all others and core	2500	—	V dc	1
DC Insulation Resistance (500 V dc)	Each winding to all others and core	500	—	MΩ	
DC Resistance (T = 25°C) (Valhalla 4100)	(1 – 12) (2 – 11) (7 – 5)	1 1 1	6 6 9	Ω	2
Transformation Ratio (0.1 V ac, 20 kHz) (Waynekerr 3245)	(1 – 12):(2 – 11) (1 – 12:7 – 5)	0.99 0.615	1.01 0.635	—	
Inductance at 0.1 V ac, 10 kHz and 0.0 A dc or 0.08 A dc (Waynekerr 3245)	(1 – 11) strap (2 – 12)	26.5	29.5	mH	3
Leakage Inductance at 0.01 V ac, 100 kHz	(7 – 5) strap (1 – 12) (2 – 11)	—	20.0	µH	
Total Harmonic Distortion at 80 mA Winding Current, 4 V pk–pk (Measured Between 500 Hz and 100 kHz)	(7 – 5):(1 – 11) strap (12 – 2)	—	– 55	dB	
Peak Winding Current	(1 – 11) strap (2 – 12)	20	—	mA dc	4

NOTES:
1. European countries may have significantly higher requirements.
2. DC winding resistance should be kept as low as possible since it can change by ± 25% over the temperature range of – 40 to + 85°C. If the dc winding resistance is low with respect to the value of the series resistors connected between the Tx pins and the transformer, a change in temperature will have a lower effect on the output pulse amplitude than if the transformer dc winding resistance is a relatively high value and the series resistors have a lower value.
3. Operating point on B–H curve should be well below the ‘knee’, i.e. no saturation.
4. Since European ISDN power feeding and pair gain currents are greater, the value should be increased to 60 mA for such applications.

B.3 CRYSTAL SPECIFICATION

The MC145572 requires a pullable crystal due because it has an on–chip VCXO. Two crystal specifications are provided: one for LT mode and one for NT mode.

B.3.1 Pullable Crystal Specification for LT Mode Operation

1. Operating frequency: 20.48 MHz
2. Crystal shunt capacitance: C_O = 7.0 pF
3. Uncertainty at rated C_L:
   - Make tolerance: ± 20 ppm
   - 10 year drift: ± 15 ppm
   - Temperature (– 40 to + 85°C): ± 50 ppm See Notes 1 and 2
   - Total ± 85 ppm
4. Equivalent series resistance: $R_S \leq$ 20 ohms @ 1 mW drive.
5. Pull Range 360 ppm minimum pullability over a C_L range of 15 to 45 pF.
6. Package QC49
7. Calibration load capacitance 24 pF

NOTES:
1. – 40 to + 85°C required for transmission applications.
2. For room temperature, use 0 to 70°C.

B.3.2 Pullable Crystal Specification for NT Mode Operation

1. Operating frequency: 20.48 MHz
2. Crystal shunt capacitance: C_O = 7.0 pF
3. Uncertainty at rated C_L:
   - Make tolerance: ± 15 ppm
   - 10 year drift: ± 15 ppm
   - Temperature (– 40 to + 85°C): ± 20 ppm See Notes 1 and 2
   - Total ± 50 ppm
4. Equivalent series resistance: $R_S \leq$ 20 ohms @ 1 mW drive.
5. Pull Range 360 ppm minimum pullability over a C_L range of 15 to 45 pF.
6. Package QC49
7. Calibration load capacitance 24 pF

NOTES:
1. – 40 to + 85°C required for transmission applications.
2. For general terminal adapter applications, use 0 to 70°C.

B.4 CRYSTAL SOURCES

Table B–3 lists sourcing information for the crystals used in the MC145572.

Table B–3. Crystal Vendors

Manufacturer	Part Number	Mode	Contact Phone No.	Contact Fax No.
ECLIPTEK	ECX–2204–20.480 MHz	NT	(714) 433–1200	(714) 433–1234
ECLIPTEK	ECX–2203–20.480 MHz	LT	(714) 433–1200	(714) 433–1234
Hy–Q International	80635/01	NT	(606) 283–5000	(606) 283–0883
Hy–Q International	80634/01	LT	(606) 283–5000	(606) 283–0883
SaRonix	SRX5649(L)	—	(415) 856–6900	(415) 856–4732
Connor–Winfield	CW49–20.48	—	(708) 851–4722	(708) 851–5040

See Caution on page B–1.

B.5 ISDN CALL CONTROL SOURCE CODE SUPPLIERS

The following vendors provide ISDN call control and applications source code. These suppliers support most of the various national and regional ISDN call control specifications on a world–wide basis. This list may not be complete.

Table B–4. ISDN Call Control Source Code Suppliers

Manufacturer	Street Address	Contact Phone No.	Contact Fax No.
telenetworks	625 Second Street Petaluma, CA 94952 U.S.A. e–mail: info@tn.com	(707) 773–4000	(707) 773–4099
Trillium Digital Systems, Inc.	2001 S. Barrington Ave. Suite 215 Los Angeles, CA 90025 U.S.A.	(310) 575–0172	(310) 575–0172
TeleSoft International, Inc.	4029 S. Capital of Texas Hwy. S., Suite 220 Austin, TX 78704 U.S.A. e–mail: sales@telesoft–intl.com	(512) 373–4224	(512) 447–1024
OMNITEL	31 rue Jean Rostand 91893 ORSAY CEDEX France	(331) 69 85 50 44	(331) 69 85 54 26
OMNITEL	3880 S. Bascom Ave., Suite 116 San Jose, CA 95124 U.S.A. e–mail: 102766.2525@compuserve.com	(408) 369–7733	(408) 369–7722
Link Technology	23 Crescent Drive Holland, PA 18966 e–mail: linkisdn@interramp.com	(215) 357–3354	(215) 357–1670