

# Token Ring 20 Pin Transceiver Module

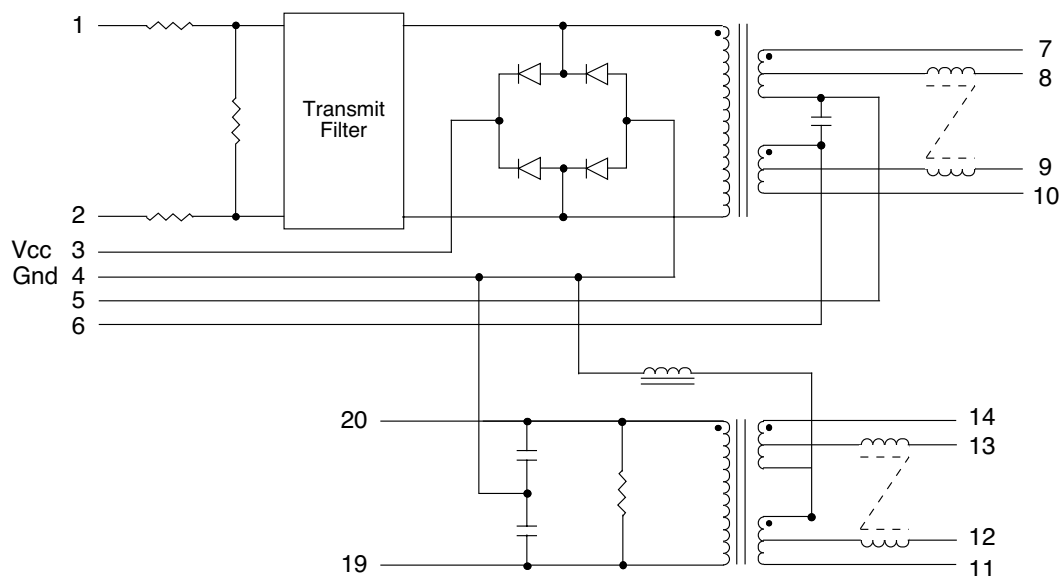
## Features

- Designed to interface with Texas Instrument's TI380C60
- Supports both STP and UTP Transmission
- IEEE 802.5 Compatible

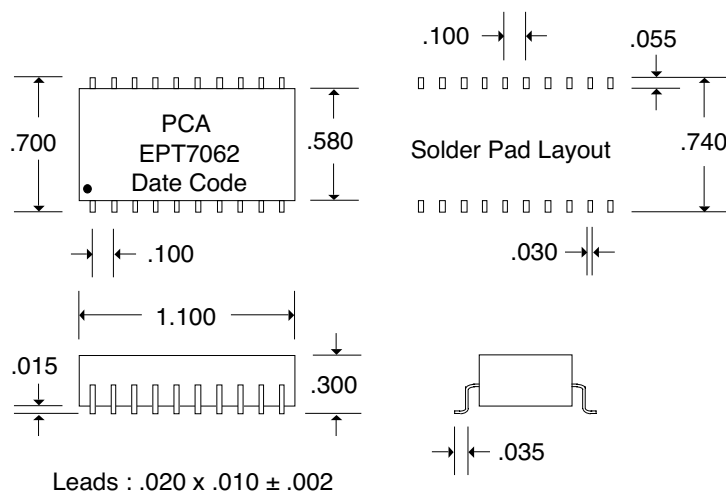
## Electrical Specifications @ 25°C

| PCA Part Number            |               |               | EPT7062      |                         |               |
|----------------------------|---------------|---------------|--------------|-------------------------|---------------|
| Characteristic Impedance   |               |               | 150 $\Omega$ |                         |               |
| Insertion Loss<br>Transmit | 1-16 MHz      | 24 MHz        | 32 MHz       | Return Loss<br>Transmit | 1-16 MHz      |
|                            | -0.8 dB Max.  | -1.7 dB Max.  | -7.0 dB Min. |                         | -19.0 dB Min. |
| Insertion Loss<br>Receive  | 1-16 MHz      | 24 MHz        |              | Return Loss<br>Receive  | 1-16 MHz      |
|                            | -0.5 dB Max.  | -0.5 dB Max.  |              |                         | -15.0 dB Min. |
| Common Mode<br>Rejection   | 1-20 MHz      | 100 MHz       | Crosstalk    | 8 MHz                   | 16 MHz        |
|                            | -70.0 dB Typ. | -45.0 dB Typ. |              | -80.0 dB Typ.           | -75.0 dB Typ. |
|                            |               |               |              | 32 MHz                  |               |
|                            |               |               |              | -60.0 dB Typ.           |               |

## Schematic



## Package



## Pin Descriptions for EPT7062

| Pin # | Symbol  | Schematic | Function / Description                                                                                                                             |
|-------|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | DROutA  | Tx+       | Unipolar Transmit output data from driver I.C.                                                                                                     |
| 2     | DROutB  | Tx-       | Unipolar Transmit output data from driver I.C.                                                                                                     |
| 3     | Vcc     | Vcc       | +5 Vdc ( $\pm 10\%$ ). Used to convert unipolar signals to zero-average balanced bipolar signals.                                                  |
| 4     | Ch Gnd  | Gnd       | May connect to chasis for reducing common mode noise.                                                                                              |
| 5     | PHOutA  | Ph+       | Phantom drive input port used to loop around an activated ring insertion command to the concentrator. Needs over voltage/current limit protection. |
| 6     | PHOutB  | Ph-       | Phantom drive input port used to loop around an activated ring insertion command to the concentrator. Needs over voltage/current limit protection. |
| 7     | XMIT/09 | Ts+       | Balanced bipolar signal for DB-9 pin 9, or MIC's orange wire.                                                                                      |
| 8     | XMIT/3  | Tu+       | Balanced bipolar signal for RJ-45 pin 3.                                                                                                           |
| 9     | XMIT/6  | Tu-       | Balanced bipolar signal for RJ-45 pin 6.                                                                                                           |
| 10    | XMIT/05 | Ts-       | Balanced bipolar signal for DB-9 pin 5, or MIC's black wire.                                                                                       |
| 11    | RCV/G6  | Rs-       | Balanced bipolar received data from DB-9 pin 6 or the MIC's green wire.                                                                            |
| 12    | RCV/5   | Ru-       | Balanced bipolar received data from RJ-45 pin 5                                                                                                    |
| 13    | RCV/4   | Ru+       | Balanced bipolar received data from RJ-45 pin 4.                                                                                                   |
| 14    | RCV/R1  | Rs+       | Balanced bipolar received data from DB-9 pin 1 or the MIC's red wire.                                                                              |
| 19    | RCVINB  | Rx-       | 1/2 of Balanced & Isolated receive data to the I.C.                                                                                                |
| 20    | RCVINA  | Rx+       | 1/2 of Balanced & Isolated receive data to the I.C.                                                                                                |
|       |         |           |                                                                                                                                                    |
|       |         |           |                                                                                                                                                    |
|       |         |           |                                                                                                                                                    |
|       |         |           |                                                                                                                                                    |
|       |         |           |                                                                                                                                                    |

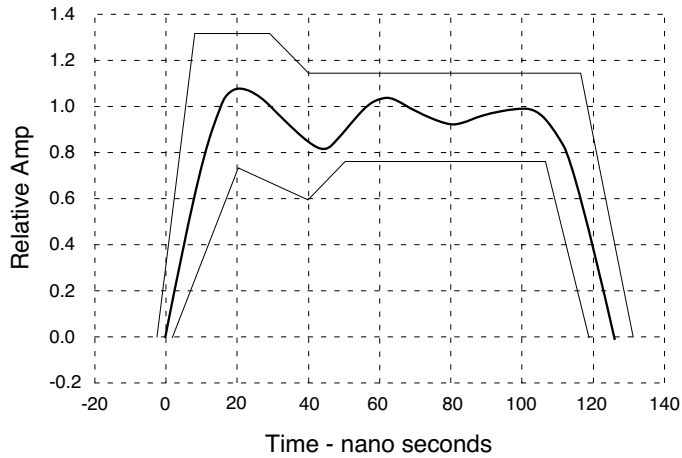
**Note : All other pins are not to be connected as they are manufacturing internal test points**

# Typical Waveform Templates (STP and UTP) for EPT7062

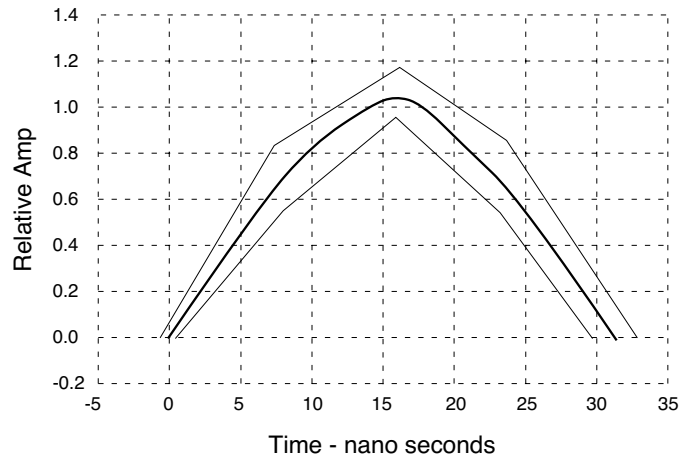
## Template Limits From IEEE 802.5 Specifications

TYPICAL RESPONSES @ 25°C

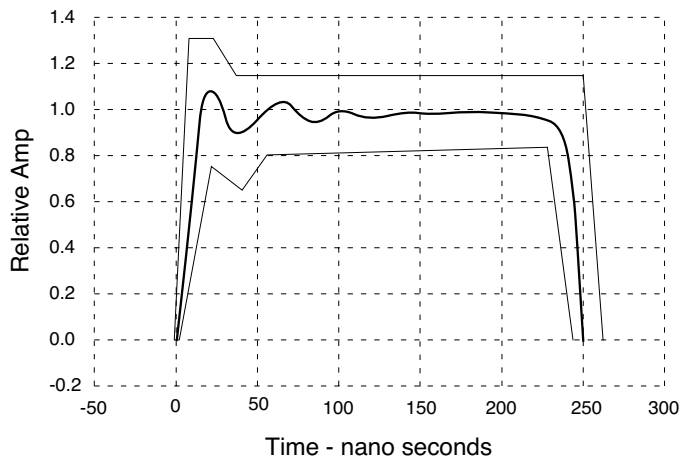
4 Mbps Binary Zero's



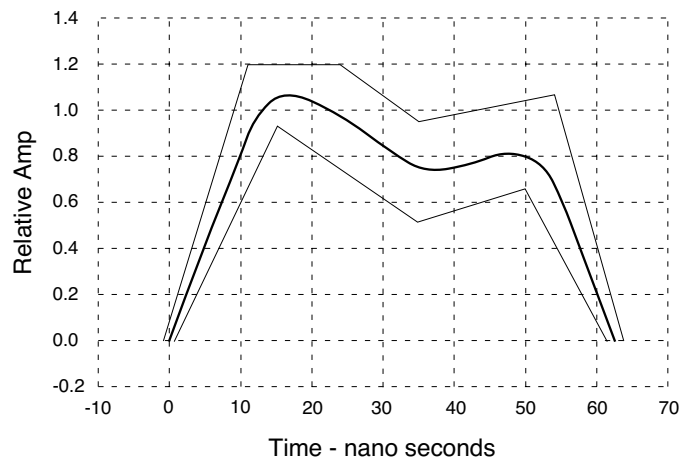
16 Mbps Binary Zero's



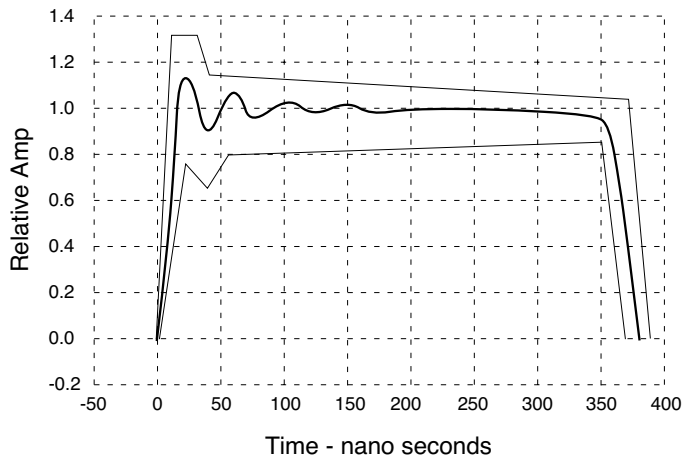
4 Mbps Binary One's



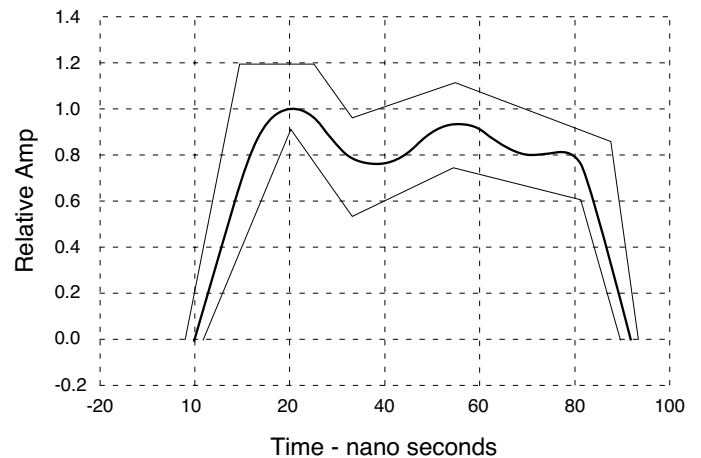
16 Mbps Binary One's



4 Mbps Start Delimiter

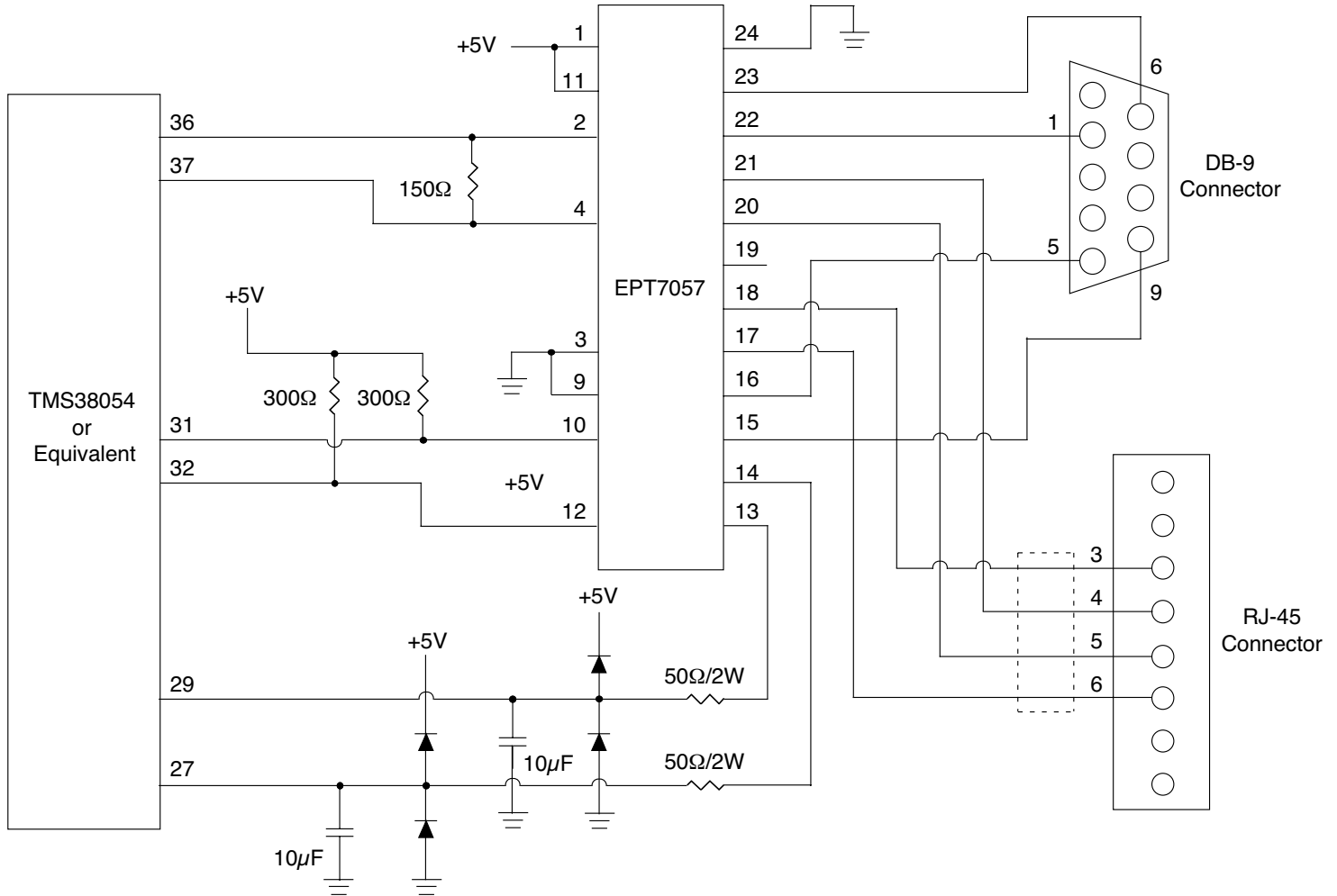


16 Mbps Start Delimiter



# Applications for EPT7062

## Typical Connection To TMS38054 or Equivalent



### Typical IEEE 802.5 Tx Differential Phase Delay:

| Frequency in MHz |    | Delay in nS |      |            |
|------------------|----|-------------|------|------------|
| F1               | F2 | Min.        | Typ. | Max.       |
| 2                | 4  | 0.0         |      | 0.4        |
| 8                | 4  | -0.3        |      | 0.0        |
| 8                | 16 | 0.6         | 0.8  | 1.0 (16-8) |
| 8                | 24 | 1.8         | 2.2  | 2.6 (24-8) |

$$tdiff = \frac{\text{Phase at } f1}{360 \times f1} - \frac{\text{Phase at } f2}{360 \times f2}$$

### Typical IEEE 802.5 Specified Tx Return Loss:

| Frequency<br>MHz | Loss<br>Min. dB |
|------------------|-----------------|
| 1 to 6 MHz       | -14             |
| 6 to 17 MHz      | -12             |
| 17 to 24 Hz      | -8              |