

## VARIABLE OUTPUT MIL-STD-1553 TRANSCEIVER

### DESCRIPTION

Designed specifically for use in automatic test equipment where a variable transmitter output level is required, the DDC Model BUS-8559 transceiver is a complete transmitter and receiver conforming to MIL standards 1553A and 1553B.

The receiver section accepts phase-modulated bipolar data at the input and produces a bi-phase TTL signal at the output, see FIGURE 1. Outputs, DATA and  $\overline{\text{DATA}}$ , are positive and negative excursions of the input beyond an internally fixed threshold. The positive and negative thresholds are internally set at the factory for a nominal 1 V pk-pk signal, when measured at point "A" in FIGURE 2. An external strobe input is provided which allows the the receiver to be removed from the line. A logic "0" applied to RECEIVER STROBE will disable the receiver output.

The BUS-8559 transmitter section accepts bi-phase TTL data at the input and produces a nominal 0 to 27 V pk-pk differential output across a 145  $\Omega$  load. When the transmitter is

coupled to the data bus with the specified transformer\*, and isolated (on the data side) with two 55  $\Omega$  fault isolation resistors, and loaded with two 70  $\Omega$  terminations (plus additional receivers), the data bus signal produced is a nominal 0 to 7.5 V pk-pk when measured at the output side of the 55  $\Omega$  resistors.

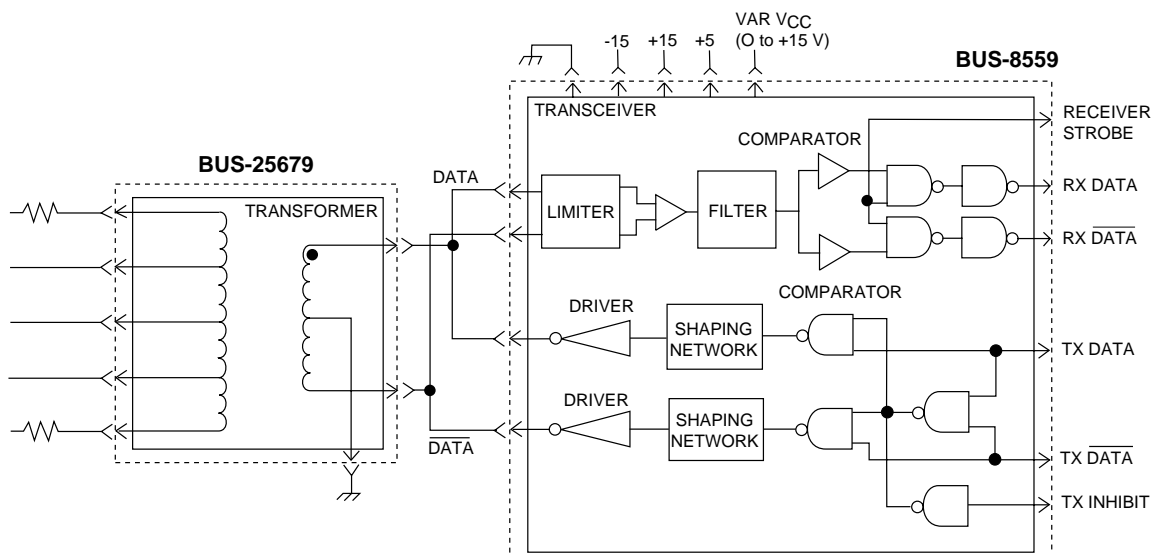
When both DATA and  $\overline{\text{DATA}}$  inputs are held low or high, the transmitter presents a high impedance to the line. An external inhibit input is also provided, which allows the transmitter output to be removed from the line. When a logic "1" is applied to the TX INHIBIT input, the transmitter is disabled, and the data inputs are ignored.

### APPLICATION

The BUS-8559 is suitable for any MIL-STD-1553 application which requires a transceiver. The BUS-8559 comes in a hermetic, 24-pin DDIP package which measures 1.4 x 0.8 x 0.2 inches.

### FEATURES

- **Variable Transmitter Output**
- **Transmitter/Receiver in a Single 24-Pin DDIP Hybrid**
- **Very Low Power Dissipation**
- **Improved Receiver Filtering Enhances System Bit Error Rate**
- **Meets MIL-STD-1553A and 1553B**
- **Power Supplies:  $\pm 15$  V or  $+15$  V and  $-12$  V**



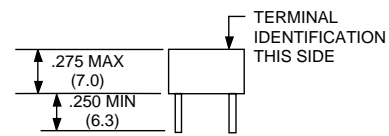
**BUS-8559 BLOCK DIAGRAM**

**SPECIFICATIONS FOR BUS-8559 HYBRID  
WITH BUS-25679 TRANSFORMER**

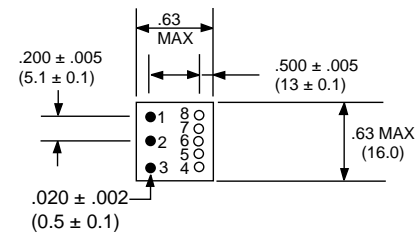
PARAMETER	VALUE																				
<b>RECEIVER SECTION</b>																					
Input Level	40 V pk-pk differential max																				
Input Impedance	4 kΩ differential min																				
Threshold Level	1 V pk-pk nominal, internally set (direct mode)																				
Output Levels	TTL, 10 LS loads																				
Outputs:																					
$V_{OL}$	0.6 V max																				
$V_{OH}$	2.5 V min																				
$I_{OL}$	4 mA max																				
$I_{OH}$	-400 μA max																				
<b>TRANSMITTER SECTION</b>																					
Input Levels	TTL, 2 LS loads																				
Inputs:																					
$V_{ih}$	2 V min																				
$V_{il}$	0.8 V max																				
$I_{ih}$	80 μA max																				
$I_{il}$	-3.2 mA																				
Output Level	0-27 V pk-pk nominal across 145 Ω load 0-20 V pk-pk nominal (measured at output of BUS-25679 XFMR output - XFMR coupled stub)																				
Rise/Fall Time	130 nsec typ																				
Output Noise	10 mV pk-pk differential max																				
Variable Vcc	0 to +15 V DC																				
<b>POWER SUPPLIES REQUIREMENTS</b>	<table border="1"> <thead> <tr> <th>P.S. VOLTS</th> <th>STDBY mA</th> <th>25% mA</th> <th>100% mA</th> </tr> </thead> <tbody> <tr> <td>+5 V</td> <td>25 max</td> <td>22 max</td> <td>21 max</td> </tr> <tr> <td>+15 V</td> <td>30 max</td> <td>30 max</td> <td>30 max</td> </tr> <tr> <td>-15 V</td> <td>30 max</td> <td>30 max</td> <td>30 max</td> </tr> <tr> <td>Vcc</td> <td>0</td> <td>70</td> <td>180</td> </tr> </tbody> </table>	P.S. VOLTS	STDBY mA	25% mA	100% mA	+5 V	25 max	22 max	21 max	+15 V	30 max	30 max	30 max	-15 V	30 max	30 max	30 max	Vcc	0	70	180
P.S. VOLTS	STDBY mA	25% mA	100% mA																		
+5 V	25 max	22 max	21 max																		
+15 V	30 max	30 max	30 max																		
-15 V	30 max	30 max	30 max																		
Vcc	0	70	180																		
NOTE: This unit will also operate with ±12 V P.S.																					
<b>TEMPERATURE RANGE</b>																					
Operating (Case temp.)	-55°C to +125°C																				
Storage	-55°C to +135°C																				
<b>PHYSICAL CHARACTERISTICS</b>																					
Size (24-pin DDIP hybrid)	1.4 x 0.8 x 0.2 inches (36 x 20 x 5 mm).																				
Weight	0.4 oz (11 g)																				

**BUS-8559 PIN FUNCTION TABLE**

PIN	FUNCTION	PIN	FUNCTION
1	TX Data Out	13	+15V DC
2	TX Data Out	14	N.C.
3	Gnd	15	RX Data In
4	N.C.	16	RX Data In
5	N.C.	17	N.C.
6	Variable Vcc	18	GND
7	RX Data Out	19	-15V DC
8	Strobe	20	+5V DC
9	GND	21	TX Inhibit
10	RX Data Out	22	TX Data In
11	N.C.	23	TX Data In
12	N.C.	24	N.C.



SIDE VIEW

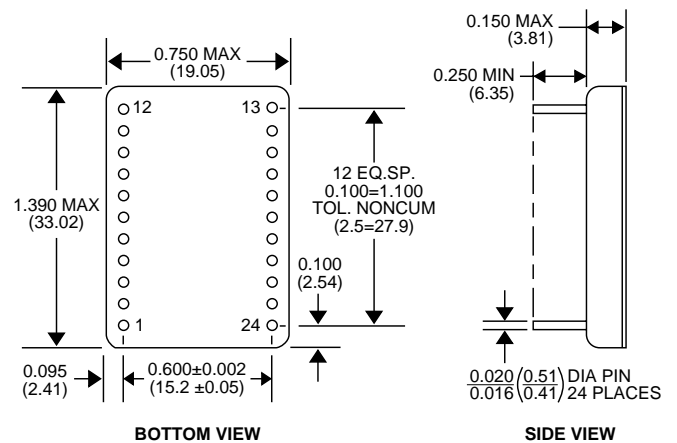


BOTTOM VIEW

NOTES:

1. All dimensions are in inches (millimeters).
2. Pin callouts on bottom view are for reference only.

**BUS-25679 TRANSFORMER OUTLINE**



BOTTOM VIEW

SIDE VIEW

**BUS-8559 MECHANICAL OUTLINE**

## ORDERING INFORMATION

BUS-8559-XX0X

**Supplemental Process Requirements:**

- S = Pre-Cap Source Inspection
- L = Pull Test
- Q = Pull Test and Pre-Cap Inspection
- Blank = None of the Above

**Process Requirements:**

- 0 = Standard DDC Processing, no Burn-In (See page xiii.)
- 1 = MIL-PRF-38534 Compliant
- 2 = B\*
- 3 = MIL-PRF-38534 Compliant with PIND Testing
- 4 = MIL-PRF-38534 Compliant with Solder Dip
- 5 = MIL-PRF-38534 Compliant with PIND Testing and Solder Dip
- 6 = B\* with PIND Testing
- 7 = B\* with Solder Dip
- 8 = B\* with PIND Testing and Solder Dip
- 9 = Standard DDC Processing with Solder Dip, no Burn-In (See page xiii.)

**Temperature Grade/Data Requirements:**

- 1 = -55°C to +125°C
- 2 = -40°C to +85°C
- 3 = 0°C to +70°C
- 4 = -55°C to +125°C with Variables Test Data
- 5 = -40°C to +85°C with Variables Test Data
- 8 = 0°C to +70°C with Variables Test Data

NOTE: The transceiver and transformer must be ordered as separate parts. Transformer P/N: BUS-25679

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Specifications are subject to change without notice.



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