

## 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 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.

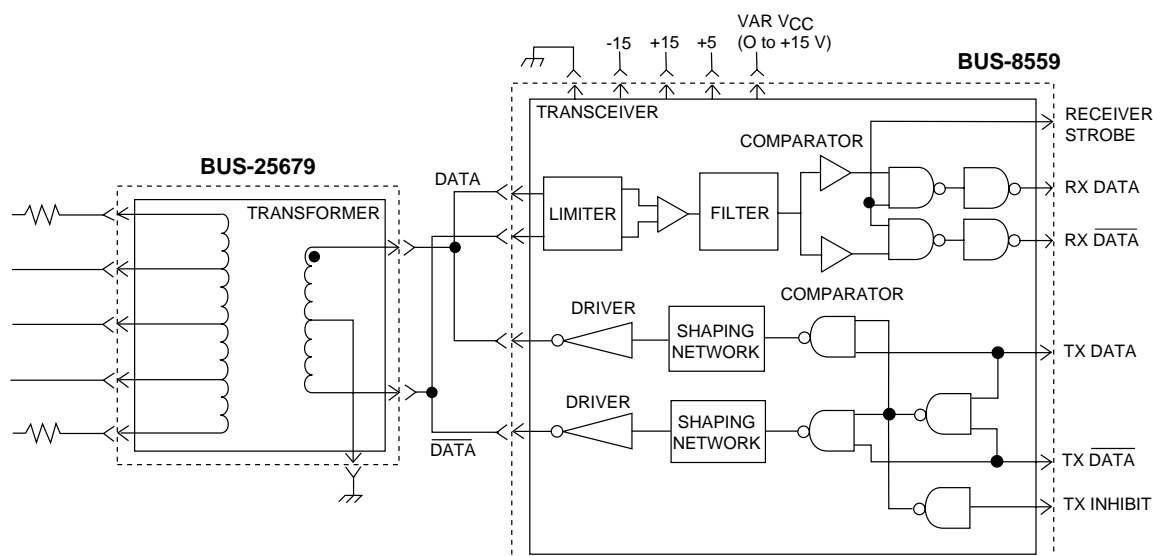
When both DATA and  $\overline{\text{DATA}}$  inputs are held low or high, the transmitter presents a high impedance to the line. An external inhibit input is also provided, which allows the transmitter output to be removed from the line. When a logic "1" is applied to the TX INHIBIT input, the transmitter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

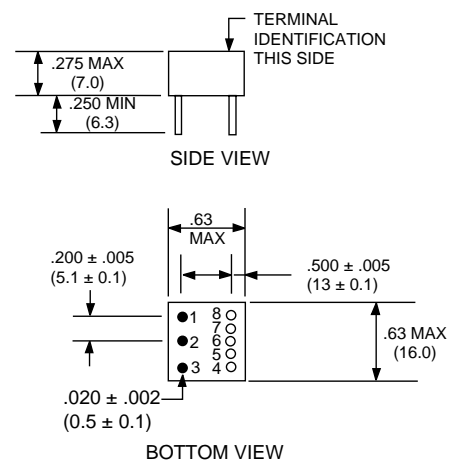
- **Variable Transmitter Output**
- **Transmitter/Receiver in a Single 24-Pin DDIP Hybrid**
- **Very Low Power Dissipation**
- **Improved Receiver Filtering Enhances System Bit Error Rate**
- **Meets MIL-STD-1553A and 1553B**
- **Power Supplies:**  
±15 V or  
+15 V and -12 V



**BUS-8559 BLOCK DIAGRAM**

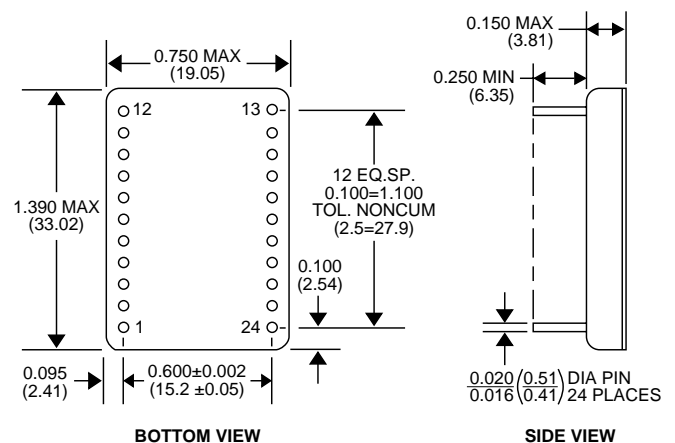
SPECIFICATIONS FOR BUS-8559 HYBRID WITH BUS-25679 TRANSFORMER				
PARAMETER	VALUE			
<b>RECEIVER SECTION</b>				
Input Level	40 V pk-pk differential max			
Input Impedance	4 kΩ differential min			
Threshold Level	1 V pk-pk nominal, internally set (direct mode)			
Output Levels	TTL, 10 LS loads			
Outputs:				
V <sub>OL</sub>	0.6 V max			
V <sub>OH</sub>	2.5 V min			
I <sub>OL</sub>	4 mA max			
I <sub>OH</sub>	-400 μA max			
<b>TRANSMITTER SECTION</b>				
Input Levels	TTL, 2 LS loads			
Inputs:				
V <sub>ih</sub>	2 V min			
V <sub>il</sub>	0.8 V max			
I <sub>ih</sub>	80 μA max			
I <sub>il</sub>	-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>	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.



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

## BUS-25679 TRANSFORMER OUTLINE



## 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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