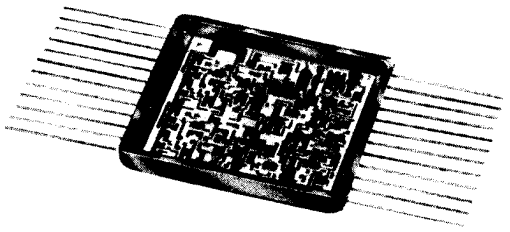
BUS-62300

DATA BUS TRANSMITTER



DESCRIPTION AND APPLICATIONS

The BUS-62300 transmitter meets the transmission requirements of the Command/Response Multiplex Data Bus set forth in McDonnell Douglas Specifications A-3818, A-4905, A-5232 and A-5690. It is completely compatible with receiver BUS-8555, CT-1078, CT-2078 and CT-3078. This transmitter is a form-fit-function replacement unit for CT-1077, CT-2077 and CT-3077. The BUS-62300 incorporates a linear phase equiripple filter design (see figure 1).

FEATURES

- *LINEAR PHASE EQUIRIPPLE FILTER DESIGN*
- *MEETS REQUIREMENTS OF McDONNELL DOUGLAS A-3818, A-5232, A-4905 AND A-5690*
- *MEETS MIL-STD-883*

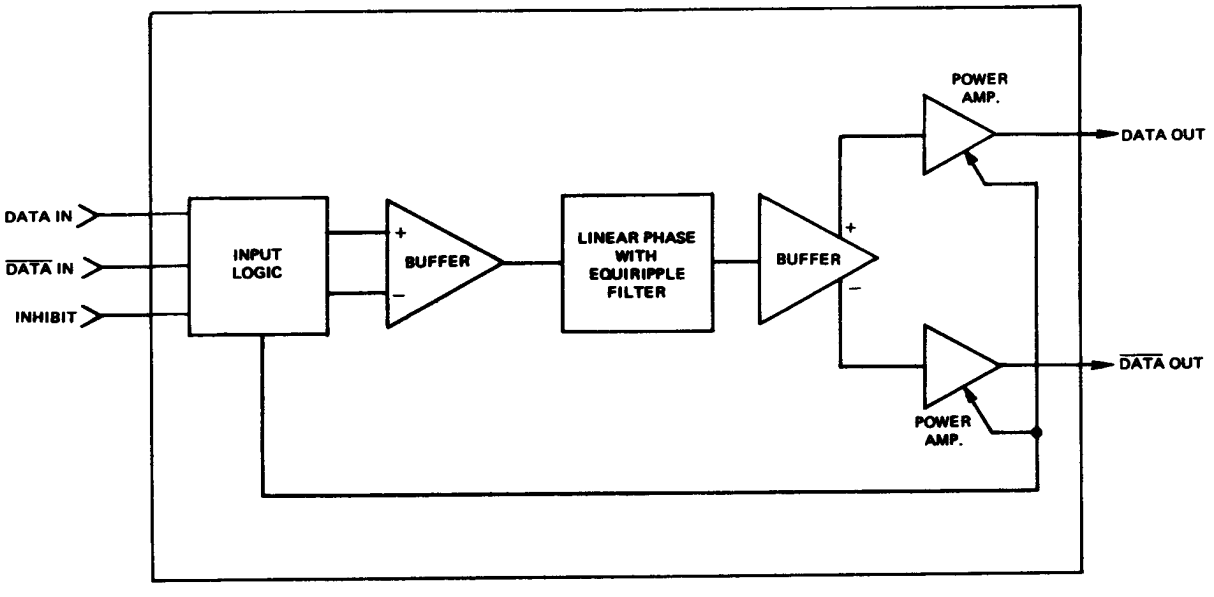


FIGURE 1. BLOCK DIAGRAM

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SPECIFICATIONS		
PARAMETER	**UNITS**	**VALUE**
INPUT LEVEL		
DATA and $\overline{\text{DATA}}$		TTL (Driving logic must sink 0.7mA max)
Inhibit		TTL to inhibit transmitter (Driving logic must sink 0.36 mA max)
OUTPUT CHARACTERISTICS		
DATA and $\overline{\text{DATA}}$ (differential)	V p-p	32±4 (no load)
Output Impedance	Ω	10 max when transmitting.
Harmonic Content		Filtered to eliminate harmonics above 1 MHz (see figure 3)
Differential Group Delay	ns	±35
Output Noise	mV	10 p-p
POWER REQUIREMENTS		
Range/Regulation	V	+5±5%|±12 to ±15
Current (see Figure 4)	mA	24 | 130 max†
		| 25 max††
Power Dissipation	watts	2.55 (100% duty cycle) @ ±12VDC
	watts	3.35 (100% duty cycle) @±15VDC
		† Transmitting (100% duty cycle)
		†† Standby
THERMAL CHARACTERISTICS		
Operating	°C	−55 to +125
Storage	°C	−55 to +150
PHYSICAL CHARACTERISTICS		
Size	in.	1.25 x 1.25 x 0.20 (32 x 32 x 5.1 mm)
Weight	oz	0.5 (14g)

TRANSMITTER WAVEFORM

The output waveform is derived from the referenced linear phase "low pass" filter which attenuates frequency components above 1 MHz. Unlike the trapezoidal waveform required in the MIL-STD-1553A/B specification, a sinusoidal waveform is required by all four McDonnell Douglas specifications. Figure 2 is an illustration of an actual output waveform from the BUS-62300. The crisp symmetrical biphase shape is directly attributed to our filter design.

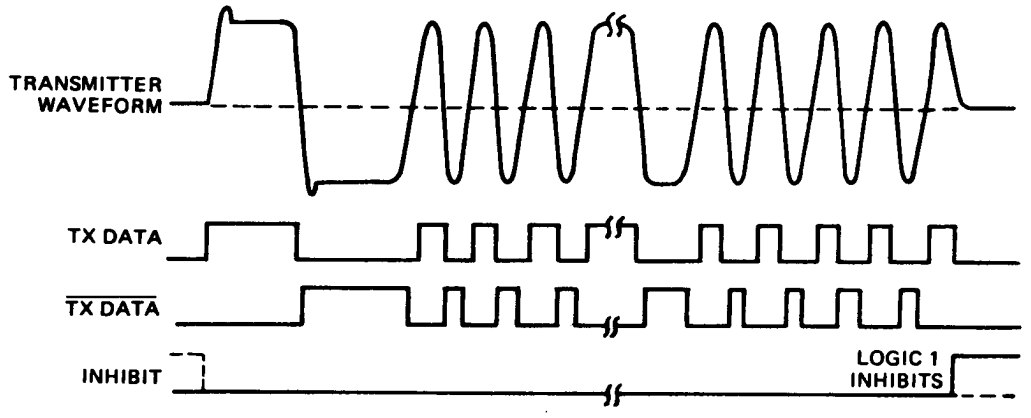
TECHNICAL INFORMATION

The BUS-62300 processes TTL biphase data from a Manchester II encoder, e.g. BUS-8937 hybrid*. When both DATA and $\overline{\text{DATA}}$ inputs are in the same logic state, the Transmitter is inhibited (logic "1" disables the power amplifier outputs) and precludes any transmission. Waveform shaping functions are illustrated in Figure 3 as a result of differential time delay and gain response. The final stage buffer, shown in Figure 1, provides a signal splitting function, which is equal to data phase shift from zero to 180 degrees (DATA and $\overline{\text{DATA}}$ respectively). The power amplifier boosts the signal to 30V, p-p nominal and provides a balanced low impedance output, without external gain circuitry.

SYSTEM COUPLING

Figure 4 illustrates a configuration of the BUS-62300 Transmitter coupled with the BUS-8555 Receiver to a 1:1 isolation transformer. When connected as shown, these devices provide a complete transmit/receive interface for McDonnell Douglas specifications A-3818, A-5232, A-5690 and A-4905. When the BUS-62300 is transmitting, a 30V, peak to peak, signal is produced. When used with a 1:1 isolation transformer and fault isolation resistors, the Bus voltage level is typically 7.5V, peak to peak, at the Bus connection points.

* Contact DDC for BUS-8937 Data Sheet



CAUTION: Complementary inputs on TX and $\overline{\text{TX}}$ for more than 10 seconds may cause permanent damage at high temperatures due to high power dissipation by output drivers.

FIGURE 2. OUTPUT WAVEFORM

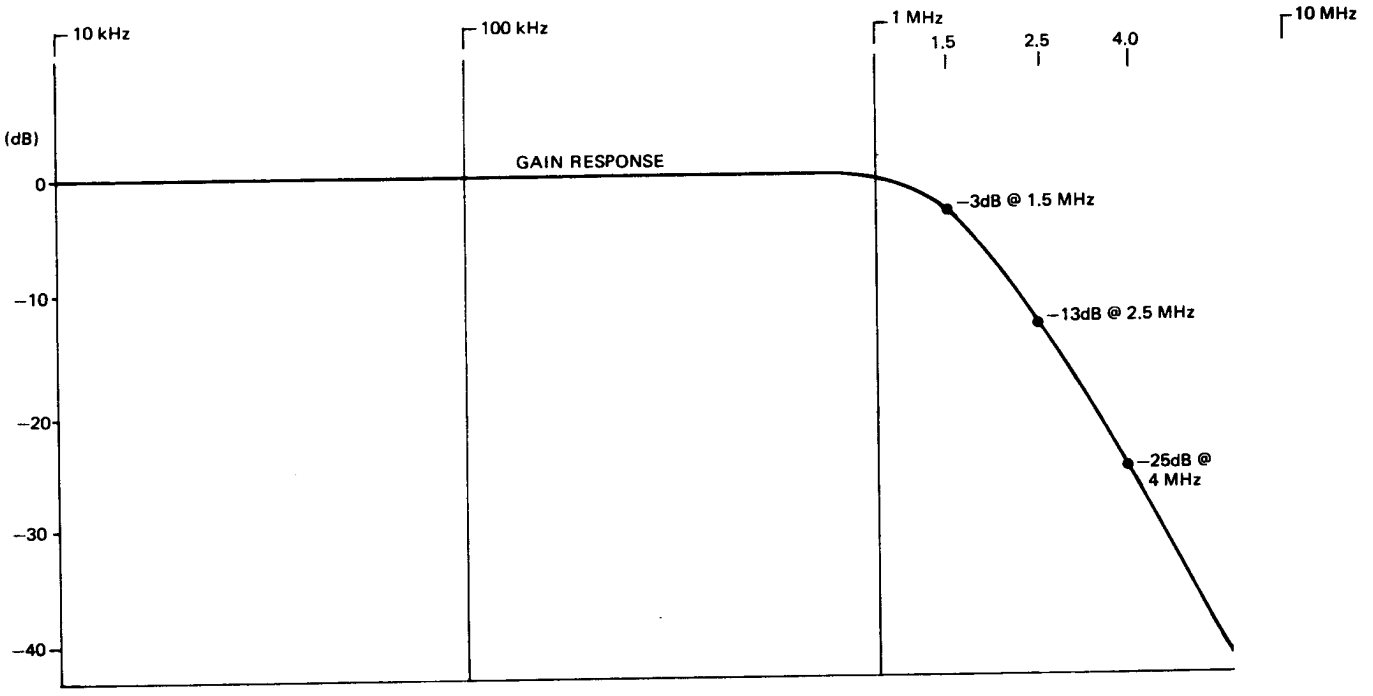
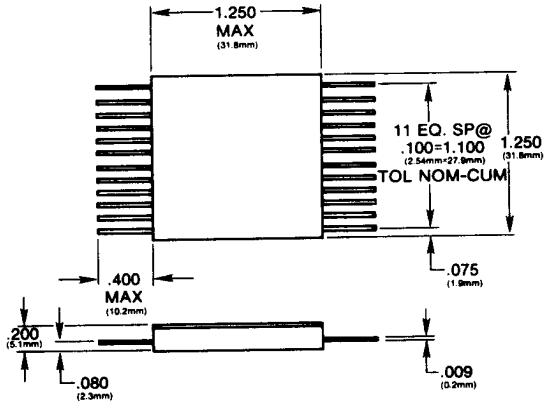
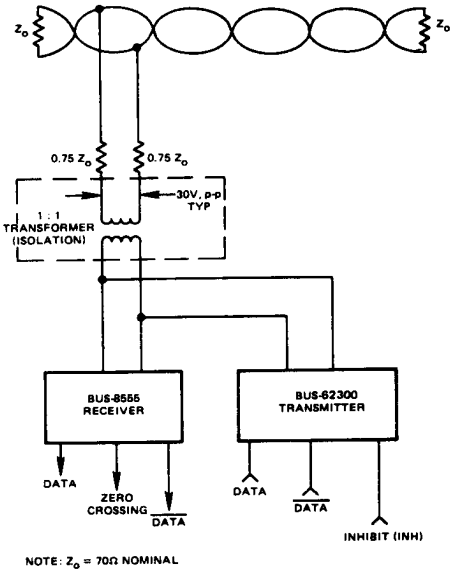


FIGURE 3. DIFFERENTIAL TIME DELAY AND GAIN RESPONSE

MECHANICAL OUTLINE



PIN CONNECTION TABLE			
PIN	FUNCTION	PIN	FUNCTION
1	+12V to +15V	13	
2		14	
3	$\overline{\text{DATA}}$ IN	15	
4	GND	16	$\overline{\text{DATA}}$ OUT
5	INHIBIT	17	
6	+5V	18	
7	DATA IN	19	
8		20	
9	CASE	21	DATA OUT
10	GND	22	
11		23	
12	−12V to −15V	24	



NOTE: Z_o = 70Ω NOMINAL

FIGURE 4. COUPLING DIAGRAM

ORDERING INFORMATION

ORDER: BUS-62300-883B

Reliability Grade:

883B = Fully compliant with MIL-STD-883.

—B = Screened to MIL-STD-883 but without QCI testing.

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