

Am2946/Am2947

Octal Three-State Bidirectional Bus Transceivers

DISTINCTIVE CHARACTERISTICS

- 8-bit bidirectional data flow reduces system package count
- 3-state inputs/outputs for interfacing with bus-oriented systems; PNP inputs reduce input loading
- $V_{CC} - 1.15V_{OH}$ interfaces with TTL, MOS and CMOS
- 48mA, 300pF bus drive capability; Low power - 8mA per bidirectional bit
- Am2946 inverting transceivers; Am2947 noninverting transceivers; Transmit/Receive and Chip Disable simplify control logic
- Bus port stays in hi-impedance state during power up/down

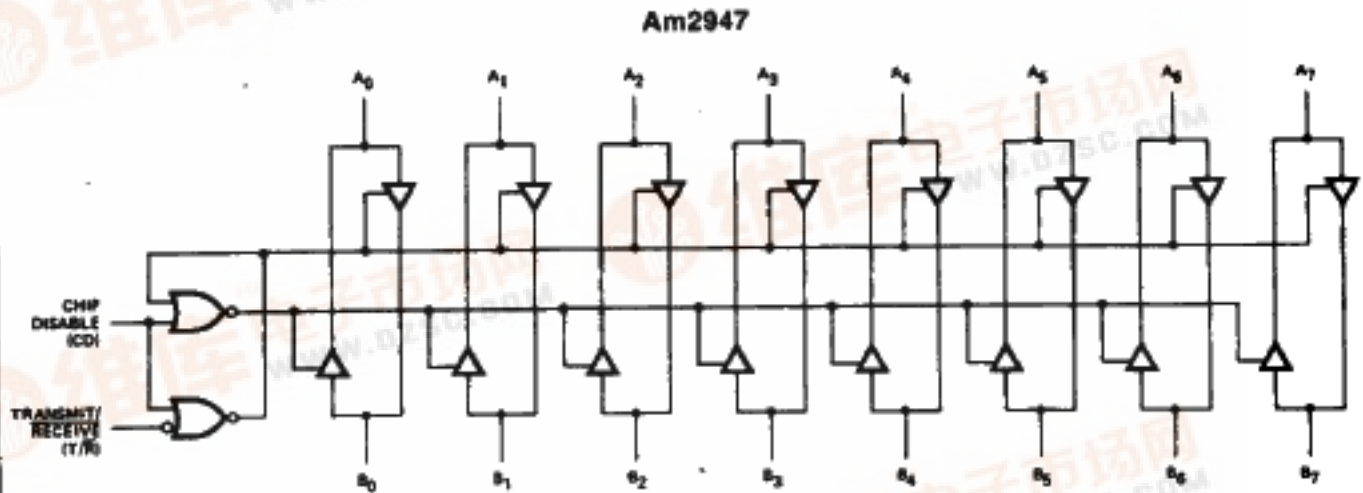
GENERAL DESCRIPTION

The Am2946 and Am2947 are 8-bit state Schottky transceivers. They provide bidirectional drive for bus-oriented microprocessor and digital communications systems. Straight through bidirectional transceivers are featured, with 24mA drive capability on the A ports and 48mA bus drive capability on the B ports. PNP inputs are incorporated to reduce input loading.

One input, Transmit/Receive, determines the direction of logic signals through the bidirectional transceiver. The Chip Disable input disables both A and B ports by placing them in a 3-state condition. Chip Disable is functionally the same as an active LOW chip select.

The output high voltage (V_{OH}) is specified at $V_{CC} - 1.15V$ minimum to allow interfacing with MOS, CMOS, TTL, ROM, RAM, or microprocessors.

BLOCK DIAGRAM



BD002530

Am2946 has inverting transceivers.



CONNECTION DIAGRAM Top View

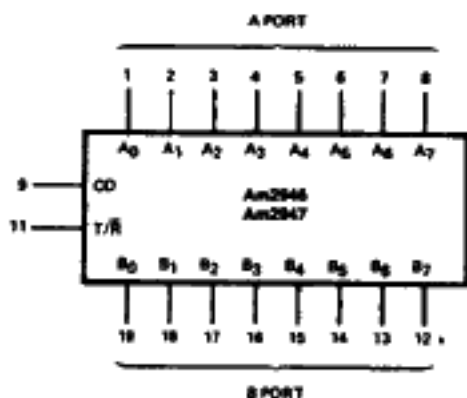
D-20-1



CD004780

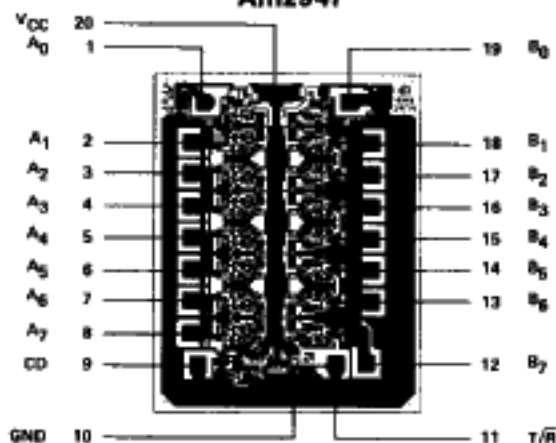
Note: Pin 1 is marked for orientation

LOGIC SYMBOL



LS001080

METALLIZATION AND PAD LAYOUT Am2947

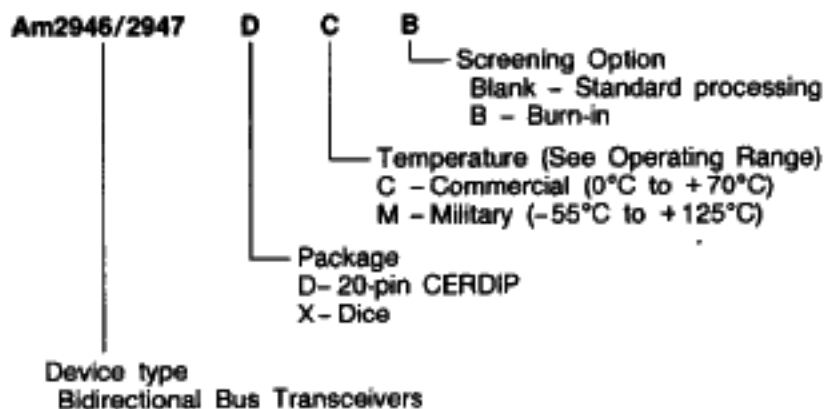


DIE SIZE .069" x .089"

Note: The Am2946 has inverting transceivers

ORDERING INFORMATION

AMD products are available in several packages and operating ranges. The order number is formed by a combination of the following: Device number, speed option (if applicable), package type, operating range and screening option (if desired).



Valid Combinations	
Am2946	PC
Am2947	DC, DCB, DM, DMB
	XC

Valid Combinations
Consult the AMD sales office in your area to determine if a device is currently available in the combination you wish.

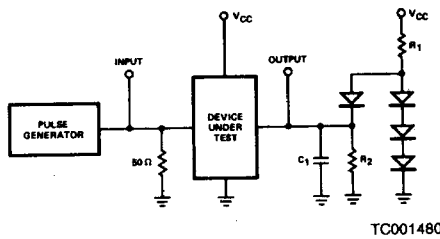
PIN DESCRIPTION

Pin No.	Name	I/O	Description
	A ₀ -A ₇	I/O	A port inputs/outputs are receiver output drivers when T/ \bar{R} is LOW and are transmit inputs when T/ \bar{R} is HIGH.
	B ₀ -B ₇	I/O	B port inputs/outputs are transmit output drivers when T/ \bar{R} is HIGH and receiver inputs when T/ \bar{R} is LOW.
9	CD	I	Chip Disable forces all output drivers into 3-state when HIGH (same function as active LOW chip select, \bar{CS}).
11	T/ \bar{R}	I	Transmit/Receive direction control determines whether A port or B port drivers are in 3-state. With T/ \bar{R} HIGH A port is the input and B port is the output. With T/ \bar{R} LOW A port is the output and B port is the input.

FUNCTION TABLE

Inputs	Conditions		
	L	L	H
Chip Disable	L	L	H
Transmit/Receive	L	H	X
A Port	Out	In	HI-Z
B Port	In	Out	HI-Z

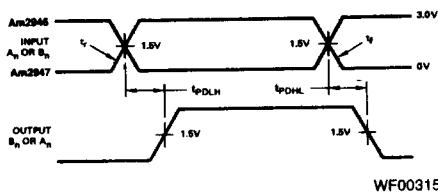
SWITCHING TEST CIRCUIT



TC001480

Note: C₁ includes test fixture capacitance.

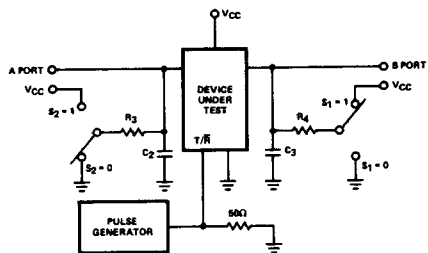
SWITCHING TIME WAVEFORM



WF003150

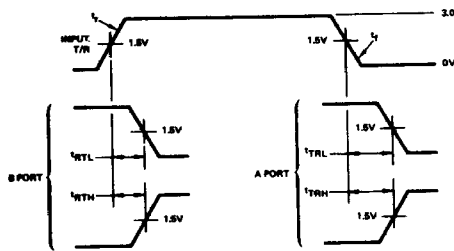
$t_r = t_f < 10\text{ns}$ 10% to 90%

Figure 1. Propagation Delay from A Port to B Port or from B Port to A Port.



TC001390

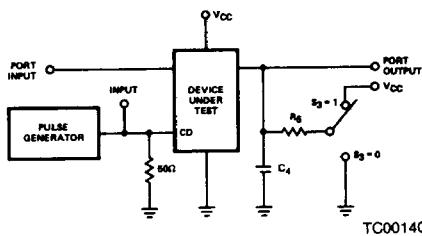
Note: C₂ and C₃ include test fixture capacitance.



WF003110

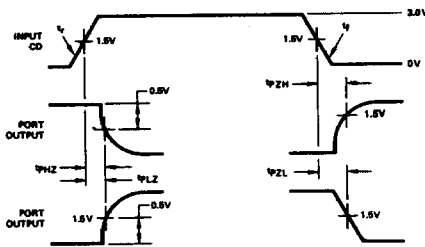
$t_r = t_f < 10\text{ns}$ 10% to 90%

Figure 2. Propagation Delay from T/R to A Port or B Port.



TC001400

Note: C₄ includes test fixture capacitance. Port input is in a fixed logical condition.



WF003011

$t_r = t_f < 10\text{ns}$ 10% to 90%

Figure 3. Propagation Delay from CD to A Port or B Port.

SWITCHING CHARACTERISTICS ($T_A = +25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$)
Am2946

Parameter	Description	Test Conditions	Typ (Note 1)	Max	Units
A PORT DATA/MODE SPECIFICATIONS					
t _{PDHLA}	Propagation Delay to a Logical "0" from B Port to A Port	CD = 0.4V, T/ \bar{R} = 0.4V (Figure 1) R ₁ = 1k, R ₂ = 5k, C ₁ = 30pF	8	12	ns
t _{PDLHA}	Propagation Delay to a Logical "1" from B Port to A Port	CD = 0.4V, T/ \bar{R} = 0.4V (Figure 1) R ₁ = 1k, R ₂ = 5k, C ₁ = 30pF	11	16	ns
t _{PLZA}	Propagation Delay from a Logical "0" to 3-State from CD to A Port	B ₀ to B ₇ = 2.4V, T/ \bar{R} = 0.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 15pF	10	15	ns
t _{PHZA}	Propagation Delay from a Logical "1" to 3-State from CD to A Port	B ₀ to B ₇ = 0.4V, T/ \bar{R} = 0.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 15pF	8	15	ns
t _{PZLA}	Propagation Delay from 3-State to a Logical "0" from CD to A Port	B ₀ to B ₇ = 2.4V, T/ \bar{R} = 0.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 30pF	19	25	ns
t _{PZHA}	Propagation Delay from 3-State to a Logical "1" from CD to A Port	B ₀ to B ₇ = 0.4V, T/ \bar{R} = 0.4V (Figure 3) S ₃ = 0, R ₅ = 5k, C ₄ = 30pF	19	25	ns
B PORT DATA/MODE SPECIFICATIONS					
t _{PDHLB}	Propagation Delay to a Logical "0" from A Port to B Port	CD = 0.4V, T/ \bar{R} = 2.4V (Figure 1) R ₁ = 100 Ω , R ₂ = 1k, C ₁ = 300pF	12	18	ns
		R ₁ = 667 Ω , R ₂ = 5k, C ₁ = 45pF	7	12	ns
t _{PDLHB}	Propagation Delay to a Logical "1" from A Port to B Port	CD = 0.4V, T/ \bar{R} = 2.4V (Figure 1) R ₁ = 100 Ω , R ₂ = 1k, C ₁ = 300pF	15	20	ns
		R ₁ = 667 Ω , R ₂ = 5k, C ₁ = 45pF	9	14	ns
t _{PLZB}	Propagation Delay from a Logical "0" to 3-State from CD to B Port	A ₀ to A ₇ = 2.4V, T/ \bar{R} = 2.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 15pF	13	18	ns
t _{PHZB}	Propagation Delay from a Logical "1" to 3-State from CD to B Port	A ₀ to A ₇ = 0.4V, T/ \bar{R} = 2.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 15pF	8	15	ns
t _{PZLB}	Propagation Delay from 3-State to a Logical "0" from CD to B Port	A ₀ to A ₇ = 0.4V, T/ \bar{R} = 2.4V (Figure 3) S ₃ = 1, R ₅ = 100 Ω , C ₄ = 300pF	25	35	ns
		S ₃ = 1, R ₅ = 667 Ω , C ₁ = 45pF	16	22	ns
t _{PZHB}	Propagation Delay from 3-State to a Logical "1" from CD to B Port	A ₀ to A ₇ = 0.4V, T/ \bar{R} = 2.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 300pF	22	35	ns
		S ₃ = 0, R ₅ = 5k, C ₁ = 45pF	14	22	ns
TRANSMIT RECEIVE MODE SPECIFICATIONS					
t _{TRL}	Propagation Delay from Transmit Mode to Receive a Logical "0", T/ \bar{R} to A Port	CD = 0.4V (Figure 2) S ₁ = 1, R ₄ = 100 Ω , C ₃ = 5pF S ₂ = 1, R ₃ = 1k, C ₂ = 30pF	23	33	ns
t _{TRH}	Propagation Delay from Transmit Mode to Receive a Logical "1", T/ \bar{R} to A Port	CD = 0.4V (Figure 2) S ₁ = 0, R ₄ = 100 Ω , C ₃ = 5pF S ₂ = 0, R ₃ = 5k, C ₂ = 30pF	22	33	ns
t _{RTL}	Propagation Delay from Transmit Mode to Receive a Logical "0", T/ \bar{R} to B Port	CD = 0.4V (Figure 2) S ₁ = 1, R ₄ = 100 Ω , C ₃ = 300pF S ₂ = 1, R ₃ = 300 Ω , C ₂ = 5pF	26	35	ns
t _{RTH}	Propagation Delay from Transmit Mode to Receive a Logical "1", T/ \bar{R} to B Port	CD = 0.4V (Figure 2) S ₁ = 0, R ₄ = 1k, C ₃ = 300pF S ₂ = 0, R ₃ = 300 Ω , C ₂ = 5pF	27	35	ns

Note: 1. All typical values given are for $V_{CC} = 5.0\text{V}$ and $T_A = 25^\circ\text{C}$.
 2. Only one output at a time should be shorted.

SWITCHING CHARACTERISTICS over operating range unless otherwise specified Am2946					
Parameter	Description	Test Conditions	COMMERCIAL Am2946	MILITARY Am2946	Units
			Max	Max	
A PORT DATA/MODE SPECIFICATIONS					
t_{PDHLA}	Propagation Delay to a Logical "0" from B Port to A Port	CD = 0.4V, T/R = 0.4V (Figure 1) R ₁ = 1k, R ₂ = 5k, C ₁ = 30pF	16	19	ns
t_{PDLHA}	Propagation Delay to a Logical "1" from B Port to A Port	CD = 0.4V, T/R = 0.4V (Figure 1) R ₁ = 1k, R ₂ = 5k, C ₁ = 30pF	20	23	ns
t_{PLZA}	Propagation Delay from a Logical "0" to 3-State from CD to A Port	B ₀ to B ₇ = 2.4V, T/R = 0.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 15pF	18	21	ns
t_{PHZA}	Propagation Delay from a Logical "1" to 3-State from CD to A Port	B ₀ to B ₇ = 0.4V, T/R = 0.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 15pF	18	21	ns
t_{PZLA}	Propagation Delay from 3-State to a Logical "0" from CD to A Port	B ₀ to B ₇ = 2.4V, T/R = 0.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 30pF	28	33	ns
t_{PZHA}	Propagation Delay from 3-State to a Logical "1" from CD to A Port	B ₀ to B ₇ = 0.4V, T/R = 0.4V (Figure 3) S ₃ = 0, R ₅ = 5k, C ₄ = 30pF	28	33	ns
B PORT DATA/MODE SPECIFICATIONS					
t_{PDHLB}	Propagation Delay to a Logical "0" from A Port to B Port	CD = 0.4V, T/R = 2.4V (Figure 1)	24	29	ns
		R ₁ = 100Ω, R ₂ = 1k, C ₁ = 300pF	16	19	ns
t_{PDLHB}	Propagation Delay to a Logical "1" from A Port to B Port	CD = 0.4V, T/R = 2.4V (Figure 1)	25	30	ns
		R ₁ = 100Ω, R ₂ = 1k, C ₁ = 300pF	19	22	ns
t_{PLZB}	Propagation Delay from a Logical "0" to 3-State from CD to B Port	A ₀ to A ₇ = 2.4V, T/R = 2.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 15pF	23	26	ns
		A ₀ to A ₇ = 0.4V, T/R = 2.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 15pF	18	21	ns
t_{PHZB}	Propagation Delay from a Logical "1" to 3-State from CD to B Port	A ₀ to A ₇ = 2.4V, T/R = 2.4V (Figure 3)	38	43	ns
		S ₃ = 1, R ₅ = 100Ω, C ₄ = 300pF	26	30	ns
t_{PZLB}	Propagation Delay from 3-State to a Logical "0" from CD to B Port	A ₀ to A ₇ = 0.4V, T/R = 2.4V (Figure 3)	38	43	ns
		S ₃ = 0, R ₅ = 1k, C ₄ = 300pF	26	30	ns
t_{PZHB}	Propagation Delay from 3-State to a Logical "1" from CD to B Port	A ₀ to A ₇ = 2.4V, T/R = 2.4V (Figure 3)	38	43	ns
		S ₃ = 0, R ₅ = 5k, C ₄ = 45pF	26	30	ns
TRANSMIT RECEIVE MODE SPECIFICATIONS					
t_{TRL}	Propagation Delay from Transmit Mode to Receive a Logical "0", T/R to A Port	CD = 0.4V (Figure 2) S ₁ = 1, R ₄ = 100Ω, C ₃ = 5pF S ₂ = 1, R ₃ = 1k, C ₂ = 30pF	38	43	ns
t_{TRH}	Propagation Delay from Transmit Mode to Receive a Logical "1", T/R to A Port	CD = 0.4V (Figure 2) S ₁ = 0, R ₄ = 100Ω, C ₃ = 5pF S ₂ = 0, R ₃ = 5k, C ₂ = 30pF	38	43	ns
t_{RTL}	Propagation Delay from Receive Mode to Transmit a Logical "0", T/R to B Port	CD = 0.4V (Figure 2) S ₁ = 1, R ₄ = 100Ω, C ₃ = 300pF S ₂ = 1, R ₃ = 300Ω, C ₂ = 5pF	41	47	ns
t_{RTH}	Propagation Delay from Receive Mode to Transmit a Logical "1", T/R to B Port	CD = 0.4V (Figure 2) S ₁ = 0, R ₄ = 1k, C ₃ = 300pF S ₂ = 0, R ₃ = 300Ω, C ₂ = 5pF	41	47	ns

SWITCHING CHARACTERISTICS ($T_A = +25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$)
Am2947

Parameter	Description	Test Conditions	Typ (Note 1)	Max	Units
A PORT DATA/MODE SPECIFICATIONS					
t_{PDHLA}	Propagation Delay to a Logical "0" from B Port to A Port	CD = 0.4V, T/R = 0.4V (Figure 1) $R_1 = 1\text{k}, R_2 = 5\text{k}, C_1 = 30\text{pF}$	14	18	ns
t_{PDLHA}	Propagation Delay to a Logical "1" from B Port to A Port	CD = 0.4V, T/R = 0.4V (Figure 1) $R_1 = 1\text{k}, R_2 = 5\text{k}, C_1 = 30\text{pF}$	13	18	ns
t_{PLZA}	Propagation Delay from a Logical "0" to 3-State from CD to A Port	B_0 to $B_7 = 0.4\text{V}$, T/R = 0.4V (Figure 3) $S_3 = 1, R_5 = 1\text{k}, C_4 = 15\text{pF}$	11	15	ns
t_{PHZA}	Propagation Delay from a Logical "1" to 3-State from CD to A Port	B_0 to $B_7 = 2.4\text{V}$, T/R = 0.4V (Figure 3) $S_3 = 0, R_5 = 1\text{k}, C_4 = 15\text{pF}$	8	15	ns
t_{PZLA}	Propagation Delay from 3-State to a Logical "0" from CD to A Port	B_0 to $B_7 = 0.4\text{V}$, T/R = 0.4V (Figure 3) $S_3 = 1, R_5 = 1\text{k}, C_4 = 30\text{pF}$	19	25	ns
t_{PZHA}	Propagation Delay from 3-State to a Logical "1" from CD to A Port	B_0 to $B_7 = 2.4\text{V}$, T/R = 0.4V (Figure 3) $S_3 = 0, R_5 = 5\text{k}, C_4 = 30\text{pF}$	19	25	ns
B PORT DATA/MODE SPECIFICATIONS					
t_{PDHLB}	Propagation Delay to a Logical "0" from A Port to B Port	CD = 0.4V, T/R = 2.4V (Figure 1) $R_1 = 100\Omega, R_2 = 1\text{k}, C_1 = 300\text{pF}$	18	23	ns
		$R_1 = 667\Omega, R_2 = 5\text{k}, C_1 = 45\text{pF}$	11	18	ns
t_{PDLHB}	Propagation Delay to a Logical "1" from A Port to B Port	CD = 0.4V, T/R = 2.4V (Figure 1) $R_1 = 100\Omega, R_2 = 1\text{k}, C_1 = 300\text{pF}$	16	23	ns
		$R_1 = 667\Omega, R_2 = 5\text{k}, C_1 = 45\text{pF}$	11	18	ns
t_{PLZB}	Propagation Delay from a Logical "0" to 3-State from CD to B Port	A_0 to $A_7 = 0.4\text{V}$, T/R = 2.4V (Figure 3) $S_3 = 1, R_5 = 1\text{k}, C_4 = 15\text{pF}$	13	18	ns
t_{PHZB}	Propagation Delay from a Logical "1" to 3-State from CD to B Port	A_0 to $A_7 = 2.4\text{V}$, T/R = 2.4V (Figure 3) $S_3 = 0, R_5 = 1\text{k}, C_4 = 15\text{pF}$	8	15	ns
t_{PZLB}	Propagation Delay from 3-State to a Logical "0" from CD to B Port	A_0 to $A_7 = 0.4\text{V}$, T/R = 2.4V (Figure 3) $S_3 = 1, R_5 = 100\Omega, C_4 = 300\text{pF}$	25	35	ns
		$R_3 = 1, R_5 = 667\Omega, C_1 = 45\text{pF}$	16	22	ns
t_{PZHB}	Propagation Delay from 3-State to a Logical "1" from CD to B Port	A_0 to $A_7 = 2.4\text{V}$, T/R = 2.4V (Figure 3) $S_3 = 0, R_5 = 1\text{k}, C_4 = 300\text{pF}$	26	35	ns
		$S_3 = 0, R_5 = 5\text{k}, C_1 = 45\text{pF}$	14	22	ns
TRANSMIT RECEIVE MODE SPECIFICATIONS					
t_{TRL}	Propagation Delay from Transmit Mode to Receive a Logical "0", T/R to A Port	CD = 0.4V (Figure 2) $S_1 = 1, R_4 = 100\Omega, C_3 = 5\text{pF}$ $S_2 = 1, R_3 = 1\text{k}, C_2 = 30\text{pF}$	28	38	ns
t_{TRH}	Propagation Delay from Transmit Mode to Receive a Logical "1", T/R to A Port	CD = 0.4V (Figure 2) $S_1 = 1, R_4 = 100\Omega, C_3 = 5\text{pF}$ $S_2 = 0, R_3 = 5\text{k}, C_2 = 30\text{pF}$	28	38	ns
t_{RTL}	Propagation Delay from Transmit Mode to Receive a Logical "0", T/R to B Port	CD = 0.4V (Figure 2) $S_1 = 1, R_4 = 100\Omega, C_3 = 300\text{pF}$ $S_2 = 0, R_3 = 300\Omega, C_2 = 5\text{pF}$	31	40	ns
t_{RTH}	Propagation Delay from Transmit Mode to Receive a Logical "1", T/R to B Port	CD = 0.4V (Figure 2) $S_1 = 0, R_4 = 1\text{k}, C_3 = 300\text{pF}$ $S_2 = 1, R_3 = 300\Omega, C_2 = 5\text{pF}$	31	40	ns

Note: 1. All typical values given are for $V_{CC} = 5.0\text{V}$ and $T_A = 25^\circ\text{C}$.
 2. Only one output at a time should be shorted.

SWITCHING CHARACTERISTICS over operating range unless otherwise specified Am2947					
Parameter	Description	Test Conditions	COMMERCIAL Am2947	MILITARY Am2947	Units
			Max	Max	
A PORT DATA/MODE SPECIFICATIONS					
t _{PDHLA}	Propagation Delay to a Logical "0" from B Port to A Port	CD = 0.4V, T/R = 0.4V (Figure 1) R ₁ = 1k, R ₂ = 5k, C ₁ = 30pF	21	24	ns
t _{PDLHA}	Propagation Delay to a Logical "1" from B Port to A Port	CD = 0.4V, T/R = 0.4V (Figure 1) R ₁ = 1k, R ₂ = 5k, C ₁ = 30pF	21	24	ns
t _{PLZA}	Propagation Delay from a Logical "0" to 3-State from CD to A Port	B ₀ to B ₇ = 0.4V, T/R = 0.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 15pF	18	21	ns
t _{PHZA}	Propagation Delay from a Logical "1" to 3-State from CD to A Port	B ₀ to B ₇ = 2.4V, T/R = 0.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 15pF	18	21	ns
t _{PZLA}	Propagation Delay from 3-State to a Logical "0" from CD to A Port	B ₀ to B ₇ = 0.4V, T/R = 0.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 30pF	28	33	ns
t _{PZHA}	Propagation Delay from 3-State to a Logical "1" from CD to A Port	B ₀ to B ₇ = 2.4V, T/R = 0.4V (Figure 3) S ₃ = 0, R ₅ = 5k, C ₄ = 30pF	28	33	ns
B PORT DATA/MODE SPECIFICATIONS					
t _{PDHLB}	Propagation Delay to a Logical "0" from A Port to B Port	CD = 0.4V, T/R = 2.4V (Figure 1)	28	34	ns
		R ₁ = 100Ω, R ₂ = 1k, C ₁ = 300pF R ₁ = 667Ω, R ₂ = 5k, C ₁ = 45pF	22	25	ns
t _{PDLHB}	Propagation Delay to a Logical "1" from A Port to B Port	CD = 0.4V, T/R = 2.4V (Figure 1)	28	34	ns
		R ₁ = 100Ω, R ₂ = 1k, C ₁ = 300pF R ₁ = 667Ω, R ₂ = 5k, C ₁ = 45pF	22	25	ns
t _{PLZB}	Propagation Delay from a Logical "0" to 3-State from CD to B Port	A ₀ to A ₇ = 0.4V, T/R = 2.4V (Figure 3) S ₃ = 1, R ₅ = 1k, C ₄ = 15pF	23	26	ns
t _{PHZB}	Propagation Delay from a Logical "1" to 3-State from CD to B Port	A ₀ to A ₇ = 2.4V, T/R = 2.4V (Figure 3) S ₃ = 0, R ₅ = 1k, C ₄ = 15pF	18	21	ns
t _{PZLB}	Propagation Delay from 3-State to a Logical "0" from CD to B Port	A ₀ to A ₇ = 0.4V, T/R = 2.4V (Figure 3)	38	43	ns
		S ₃ = 1, R ₅ = 100Ω, C ₄ = 300pF S ₃ = 1, R ₅ = 667Ω, C ₄ = 45pF	26	30	ns
t _{PZHB}	Propagation Delay from 3-State to a Logical "1" from CD to B Port	A ₀ to A ₇ = 2.4V, T/R = 2.4V (Figure 3)	38	43	ns
		S ₃ = 0, R ₅ = 1k, C ₄ = 300pF S ₃ = 0, R ₅ = 5k, C ₄ = 45pF	26	30	ns
TRANSMIT RECEIVE MODE SPECIFICATIONS					
t _{TRL}	Propagation Delay from Transmit Mode to Receive a Logical "0", T/R to A Port	CD = 0.4V (Figure 2) S ₁ = 0, R ₄ = 100Ω, C ₃ = 5pF S ₂ = 1, R ₃ = 1k, C ₂ = 30pF	42	48	ns
t _{TRH}	Propagation Delay from Transmit Mode to Receive a Logical "1", T/R to A Port	CD = 0.4V (Figure 2) S ₁ = 1, R ₄ = 100Ω, C ₃ = 5pF S ₂ = 0, R ₃ = 5k, C ₂ = 30pF	42	48	ns
t _{RTL}	Propagation Delay from Receive Mode to Transmit a Logical "0", T/R to B Port	CD = 0.4V (Figure 2) S ₁ = 1, R ₄ = 100Ω, C ₃ = 300pF S ₂ = 1, R ₃ = 300Ω, C ₂ = 5pF	45	51	ns
t _{RTH}	Propagation Delay from Receive Mode to Transmit a Logical "1", T/R to B Port	CD = 0.4V (Figure 2) S ₁ = 0, R ₄ = 1k, C ₃ = 300pF S ₂ = 1, R ₃ = 300Ω, C ₂ = 5pF	45	51	ns