TD74ABT241F/FW

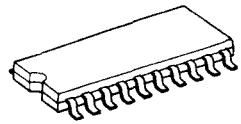
OCTAL BUS BUFFER

3-STATE, NON-INVERTING

The TD74ABT241 is an OCTAL BUS BUFFER with 3-STATE OUTPUTS which utilizes 1.0μm silicon gate Bi-CMOS technology to achieve operating speed faster than FAST parts and low power consumption.
The 241 has non-inverting outputs.
$\overline{OE}$ input controls four BUS BUFFERS.
This driver is designed to be used with 3-state memory address drivers, etc.
All inputs are equipped with protection circuits against static discharge or transient excess voltage.

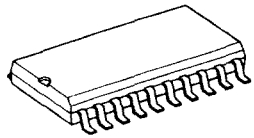
- High speed operation : tpd=3.5ns (Typ.)
- High drive capability : I_{OH}=-32mA (Max.)
  I_{OL}=64mA (Max.)
- Low power consumption : I_{CCD}=25mA (Typ.)
  I_{CCZ}=20μA (Typ.)
- ESD protection exceeds : 2000V (MIL Standard)
- Wide operating temperature range
  : Ta=-40~85°C
- The same pin connection and function as FAST(74F241)
- Power-up in high impedance state
- Power-down isolated Input/Output structure

TD74ABT241F



SOP20-P-300

TD74ABT241FW



SOL20-P-300

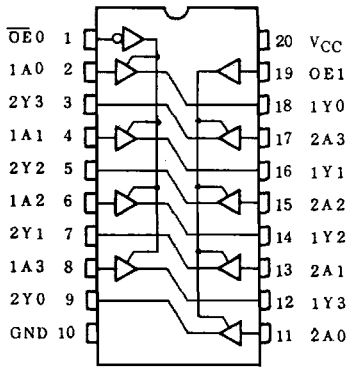
Weight SOP20-P-300 : 0.25g(Typ.)
SOL20-P-300 : 0.48g(Typ.)

TRUTH TABLE

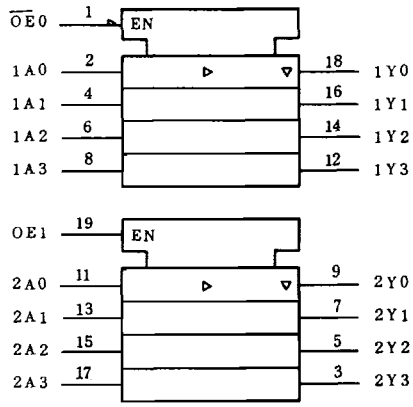
INPUTS			OUTPUTS
$\overline{OE}$	OE	An	Yn
L	H	L	L
L	H	H	H
H	L	X	Z

X: Don't Care
Z: High Impedance

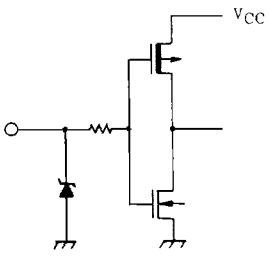
PIN CONNECTION (TOP VIEW)



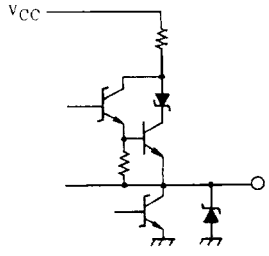
LOGIC SYMBOL



INPUT AND OUTPUT EQUIVALENT CIRCUIT



INPUT



OUTPUT

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V_{CC}	-0.5~7.0	V
DC Input Voltage		V_{IN}	-1.2~7.0	V
DC Output Voltage (Output in "H" or "Z" state)		V_O	-0.5~5.5	V
DC Output Voltage (Output in power off state)		V_O	-0.5~5.5	V
Input Clamp Diode Current ($V_{IN} < 0$)		I_{IK}	-50	mA
Output Clamp Diode Current ($V_O < 0$)		I_{OK}	-50	mA
High Level Output Current		I_{OH}	-64	mA
Low Level Output Current		I_{OL}	128	mA
DC Supply Current		I_{CC}	256	mA
DC Ground Current		I_{GND}	-512	mA
Power Dissipation	ABT241F	P_D	860	mW
	ABT241FW		390	
Operating Temperature		Topr	-40~85	°C
Storage Temperature		Tstg	-65~150	°C

RECOMMENDED OPERATING RANGE

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{CC}	4.5	5.0	5.5	V
Input Voltage	V_{IN}	0	-	V_{CC}	V
Output Voltage	V_O	0	-	V_{CC}	V
High Level Output Current	I_{OH}	-	-	-32	mA
Low Level Output Current	I_{OL}	-	-	64	mA
Operating Temperature	Topr	-40	25	85	°C
Input Transition Rise or Fall Rate*	$\Delta t/\Delta V$	0	-	5	ns/V

* As measured between 0.8V and 2.0V

DC ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{CC}=4.5∿5.5V, Ta=-40∿85°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	V_{CC}	MIN.	TYP.*	MAX.	UNIT
High Level Input Voltage	V_{IH}		-	2.0	-	-	V
Low Level Input Voltage	V_{IL}		-	-	-	0.8	V
Input Clamp Diode Voltage	V_{IK}	I_{IK}=-18mA	4.5	-	-	-1.2	V
High Level Output Voltage	V_{OH}	I_{OH}=-3.0mA	4.5	2.4	3.4	-	V
		I_{OH}=-3.0mA	4.75	2.7	3.4	-	
		I_{OH}=-32mA	4.5	2.0	-	-	
Low Level Output Voltage	V_{OL}	I_{OL}=48mA	4.5	-	-	0.5	V
		I_{OL}=64mA	4.5	-	-	0.55	
Input Current	I_I	V_{IN}=7.0V	5.5	-	-	100	μA
	I_{IH}	V_{IN}=2.7V or V_{CC}	5.5	-	-	±1.0	
	I_{IL}	V_{IN}=0.5V or GND	5.5	-	-	±1.0	
3-State Output Off Current	I_{OZH}	V_O=2.7V	5.5	-	-	50	μA
	I_{OZL}	V_O=0.5V	5.5	-	-	-50	
Short Circuit Current	I_{OS}	V_O=2.5V (Note 1)	5.5	-50	-	-180	mA
Static Power Supply Current (Total)	I_{CCL}	V_{IN}=V_{CC} or GND All outputs: Low state	5.5	-	30	40	mA
	I_{CCH}	V_{IN}=V_{CC} or GND All outputs: High state	5.5	-	20	50	μA
	I_{CCZ}	V_{IN}=V_{CC} or GND All outputs: High Impedance	5.5	-	20	50	
Static Power Supply Current (per bit) (Note 2)	ΔI_{CC1}	one input: V_{IN}=0.5V other inputs: V_{CC} or GND	-	-	-	1.5	mA
	ΔI_{CC2}	one input: V_{IN}=V_{CC}-2.1V other inputs: V_{CC} or GND	-	-	-	1.5	

* All typical values are at V_{CC}=5.0V, Ta=25°C

(Note 1) Not more than one output should be shorted at a time, nor for more than 1 second.

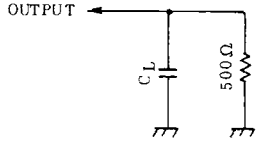
(Note 2) ΔI_{CC} specification is the increase in I_{CCH}, I_{CCL}, I_{CCZ}.

AC ELECTRICAL CHARACTERISTICS (INPUT $t_r=t_f=2.5ns$)

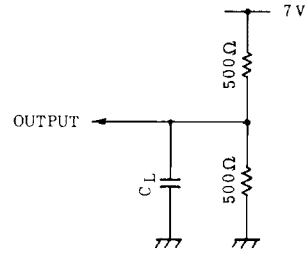
CHARACTERISTIC		SYMBOL	TEST CONDITION	Ta=25°C V_{CC}=5.0V			Ta=-40~85°C V_{CC}=5.0V±10%		UNIT
				MIN.	TYP.	MAX.	MIN.	MAX.	
Propagation Delay Time	A-Y	t_{pLH}	C_L=50pF	1.0	3.6	4.2	1.0	4.6	ns
		t_{pHL}		1.0	3.4	4.2	1.0	4.6	
3-State Output Enable Time	$\overline{OE}$-Y	t_{pZH}		2.1	4.6	5.4	2.1	6.4	ns
		t_{pZL}		2.1	6.2	7.6	2.1	8.6	
	OE-Y	t_{pZH}		2.1	4.6	5.4	2.1	6.4	
		t_{pZL}		2.1	6.2	7.6	2.1	8.6	
3-State Output Disable Time	$\overline{OE}$-Y	t_{pHZ}		2.1	4.9	6.1	2.1	6.6	ns
		t_{pLZ}		2.1	3.3	5.2	2.1	5.7	
	OE-Y	t_{pHZ}		2.1	4.9	6.1	2.1	6.6	
		t_{pLZ}		2.1	3.3	5.2	2.1	5.7	
Dynamic Supply Current		I_{CCD}	f=10MHz Outputs: Open	-	25		-		mA
Input Capacitance		C_{IN}	V_{IN}=0V or V_{CC}	-	8		-		pF
Output Capacitance		C_{OUT}	V_{IN}=0V or V_{CC}	-	15		-		pF

(*) .Measurement of t_{pLH}, t_{pHL}, t_{pZH} and t_{pHZ} connect output as Note 1.

.Measurement of t_{pZL} and t_{pLZ} connect output as Nolte 2.



Note 1



Note 2