

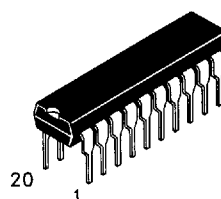
Technical Data

DV74AC240 and DV74AC241 Available Q2 1995

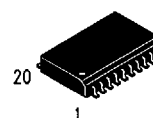
**Octal Buffer/Line Driver
with 3-state Outputs**

These devices are octal buffer and line drivers designed to be used as a memory address driver, clock driver and bus oriented transmitter or receiver which provides improved PC board density.

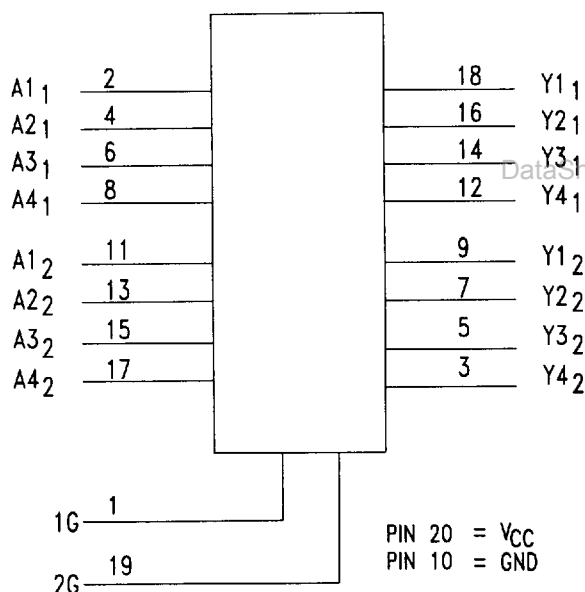
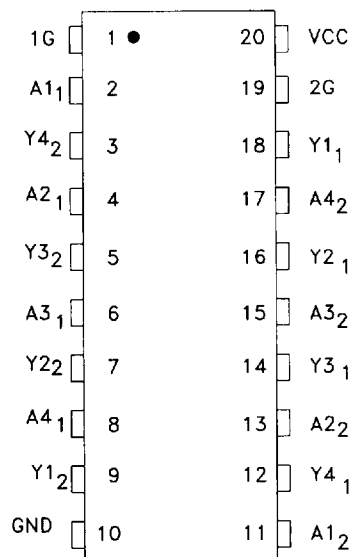
- Advanced very high speed CMOS
- Outputs source/sink 24 mA
- Transmission line driving 50 ohms
- ACT has TTL compatible inputs
- AC Device Operation from 2 to 6 volts guaranteed
- DC & AC Parameters guaranteed over -40 to +85°C

**DV74AC240, 241, 244
DV74ACT240, 241, 244**

N Suffix
Plastic DIP
AVG-005 Case



D Suffix
Plastic SOP
AVG-006 Case

LOGIC DIAGRAM**PIN ASSIGNMENT**

Note: Please refer to appropriate truth table for signal phases.

AC240, ACT240

Inputs		Output
G _n	A _n	Y _n
L	L	H
L	H	L
H	X	Z

AC241-ACT241

Inputs		Output	Inputs		Output
1G	A _n	Y _n	2G	A _n	Y _n
L	L	L	H	L	L
L	H	H	H	H	H
H	X	Z	L	X	Z

AC244, ACT244

Inputs		Output
G _n	A _n	Y _n
L	L	L
L	H	H
H	X	Z

H=HIGH Voltage Level

L=LOW Voltage Level

Z=High Impedance

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ABSOLUTE MAXIMUM RATINGS

Maximum ratings are those values beyond which damage to the device may occur.

Symbol	Parameter	AC240, 241, 244 ACT240, 241, 244	Unit
V _{CC}	DC Supply Voltage (Referenced to GND)	– 0.5 to +7.0	V
V _{IN}	DC Input Voltage (Referenced to GND)	– 0.5 to V _{CC} + 0.5	V
V _{OUT}	DC Output Voltage (Referenced to GND)	– 0.5 to V _{CC} + 0.5	V
I _{IN}	DC Input Current, per Pin	± 20	mA
I _{OUT}	DC Output Sink/Source Current, per Pin	± 50	mA
I _{CC}	DC V _{CC} or GND Current per Output Pin	± 50	mA
T _{STG}	Storage Temperature	– 65 to +150	°C

GUARANTEED OPERATING CONDITIONS

Symbol	Parameter		Min	Typ	Max	Unit
V _{CC}	Supply Voltage	'AC	2.0	5.0	6.0	V
		'ACT	4.5	5.0	5.5	
V _{IN} , V _{OUT}	DC Input Voltage, Output Voltage, (Ref. to GND)		0		V _{CC}	V
t _r , t _f	Input Rise and Fall Time (Note 1) 'AC Devices	V _{CC} @ 3.0 V			150	ns/V
		V _{CC} @ 4.5 V			40	ns/V
		V _{CC} @ 5.5 V			25	ns/V
t _r , t _f	Input Rise and Fall Time (Note 2) 'ACT Devices	V _{CC} @ 4.5 V			10	ns/V
		V _{CC} @ 5.5 V			8.0	ns/V
T _A	Operating Ambient Temperature Range		−40		85	°C
C _{PD}	Power Dissipation Capacitance	V _{CC} = 5.0 V		45		pF
C _{IN}	Input Capacitance V _{CC} = 5.0 V	V _{CC} = 5.0 V		4.5		pF

1. V_{IN} from 30% to 70% V_{CC}

2. V_{IN} from 0.8 to 2.0 V

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	AC240,241,244			Unit
				T _A = +25°C		T _A = –40 to +85°C	
				Typ	Guaranteed Limits		
V _{IH}	Minimum High Level Input Voltage	V _{OUT} = 0.1V or V _{CC} – 0.1 V	3.0	1.5	2.1	2.1	V
			4.5	2.25	3.15	3.15	
			5.5	2.75	3.85	3.85	
V _{IL}	Maximum Low Level Input Voltage	V _{OUT} = 0.1V or V _{CC} – 0.1 V	3.0	1.5	0.9	0.9	V
			4.5	2.25	1.35	1.35	
			5.5	2.75	1.65	1.65	
V _{OH}	Minimum High Level Output Voltage	I _{OUT} = –50 μA	3.0	2.99	2.9	2.9	V
			4.5	4.49	4.4	4.4	
			5.5	5.49	5.4	5.4	
		V _{IN} = V _{IL} or V _{IH}					V
		–12mA	3.0		2.56	2.46	
		I _{OH} –24mA	4.5		3.86	3.76	
		–24 mA	5.5		4.86	4.76	

240,241,244

Symbol	Parameter	Conditions	V _{CC} (V)	AC240,241,244			Unit
				T _A = +25°C		T _A = -40 to +85°C	
				Typ	Guaranteed Limits		
V _{OL}	Maximum Low Level Output Voltage	I _{OUT} = 50 μA	3.0	0.002	0.1	0.1	V
			4.5	0.001	0.1	0.1	
			5.5	0.001	0.1	0.1	
		V _{IN} = V _{IL} or V _{IH} 12mA	3.0		0.36	0.44	V
		I _{OH} 24mA	4.5		0.36	0.44	
		24 mA	5.5		0.36	0.44	
I _{IN}	Maximum Input Leakage Current	V _I =V _{CC} , GND	5.5		±0.1	±1.0	μA
I _{OZ}	Maximum 3-state current	V _I , OE = V _{CC} , GND V _O =V _{CC} , GND	5.5		±0.5	±5.0	μA
I _{CC}	Maximum Quiescent Supply Current	V _{IN} = V _{CC} or GND	5.5		8.0	80	μA

AC CHARACTERISTICS

Symbol	Parameter (C _L = 50 pF)	V _{CC} ±10% (V)	AC240				Unit
			T _A = +25°C		T _A = - 40°C to +85°C		
			Min	Max	Min	Max	
t _{PLH}	Propagation Delay Data to Output	3.3 5.0	1.5 1.5	8.0 6.5	1.0 1.0	9.0 7.0	ns
t _{PHL}		3.3 5.0	1.5 1.5	8.0 6.0	1.0 1.0	8.5 6.5	
t _{PZH}	Output Enable Time	3.3 5.0	1.5 1.5	10.5 7.0	1.0 1.0	11.0 8.0	ns
t _{PZL}		3.3 5.0	1.5 1.5	10 8.0	1.0 1.0	11.0 8.5	
t _{PHZ}	Output Disable Time	3.3 5.0	1.5 1.5	10.0 9.0	1.0 1.0	10.5 9.5	ns
t _{PLZ}		3.3 5.0	1.5 1.5	10.5 9.0	1.0 1.0	11.5 9.5	

Symbol	Parameter (C _L = 50 pF)	V _{CC} ±10% (V)	AC241				Unit
			T _A = +25°C		T _A = - 40°C to +85°C		
			Min	Max	Min	Max	
t _{PLH}	Propagation Delay Data to Output	3.3 5.0	1.5 1.5	9.0 7.0	1.5 1.0	10.0 7.5	ns
t _{PHL}		3.3 5.0	1.5 1.5	9.0 7.0	1.0 1.0	10.5 7.5	
t _{PZH}	Output Enable Time	3.3 5.0	1.5 1.5	12.5 9.0	1.0 1.0	13.0 9.5	ns
t _{PZL}		3.3 5.0	1.5 1.5	12.0 9.0	1.5 1.0	13.0 9.5	ns
t _{PHZ}	Output Disable Time	3.3 5.0	1.5 1.5	12.0 10.0	2.0 1.0	12.5 10.5	ns
t _{PLZ}		3.3 5.0	1.5 1.5	12.5 10.0	1.0 1.0	13.5 10.5	ns

Symbol	Parameter (C _L = 50 pF)	V _{CC} (V)	AC244				Unit
			T _A = +25°C		T _A = - 40°C to +85°C		
			Min	Max	Min	Max	
t _{PLH}	Propagation Delay Data to Output	3.3	2.0	9.0	1.5	10.0	ns
t _{PHL}		5.0	1.5	7.0	1.0	7.5	
t _{PZH}	Output Enable Time	3.3	2.0	9.0	2.0	10.0	ns
t _{PZL}		5.0	1.5	7.0	1.0	7.5	
t _{PHZ}	Output Diable Time	3.3	2.0	10.5	1.5	11.0	ns
t _{PLZ}		5.0	1.5	7.0	1.5	8.0	
		3.3	2.5	10.0	2.0	11.0	ns
		5.0	1.5	8.0	1.5	8.5	
		3.3	3.0	10.0	1.5	10.5	ns
		5.0	2.5	9.0	1.0	9.5	
		3.3	2.5	10.5	2.5	11.5	ns
		5.0	2.0	9.0	2.0	9.5	

ACT — 240,241,244

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	ACT240,241,244			Unit
				T _A = +25°C		T _A = -40 to +85°C	
				Typ	Guaranteed Limits		
V _{IH}	Minimum High Level Input Voltage	V _{OUT} = 0.1V or V _{CC} - 0.1 V	4.5 5.5	1.5 1.5	2.0 2.0	2.0 2.0	V
V _{IL}	Maximum Low Level Input Voltage	V _{OUT} = 0.1V or V _{CC} - 0.1 V	4.5 5.5	1.5 1.5	0.8 0.8	0.8 0.8	V
V _{OH}	Minimum High Level Output Voltage	I _{OUT} = -50 μA	4.5 5.5	4.49 5.49	4.4 5.4	4.4 5.4	V
		V _{IN} = V _{IL} or V _{IH} I _{OH} -24mA -24 mA	4.5 5.5		3.86 4.86	3.76 4.76	V
V _{OL}	Maximum Low Level Output Voltage	I _{OUT} = 50 μA	4.5 5.5	0.001 0.001	0.1 0.1	0.1 0.1	V
		V _{IN} = V _{IL} or V _{IH} I _{OL} 24mA 24 mA	4.5 5.5		0.36 0.36	0.44 0.44	V
I _{IN}	Maximum Input Leakage Current	V _I =V _{CC} , GND	5.5		±0.1	±1.0	μA
I _{OZ}	Maximum 3-State Current	V _{IN} (OE)=V _{IL} ,V _{IH} V _{IN} =V _{CC} , GND V _{OUT} =V _{CC} , GND	5.5		±0.5	±5.0	μA
ΔI _{CCT}	Additional Max I _{CC} /Input	V _{IN} =V _{CC} - 2.1 V	5.5	0.6		1.5	mA
I _{CC}	Maximum Quiescent Supply Current	V _{IN} = V _{CC} or GND	5.5		8.0	80	μA

240,241,244

AC CHARACTERISTICS

Symbol	Parameter (C _L = 50 pF)	V _{CC} ±10% (V)	ACT240				Unit
			T _A = +25°C		T _A = - 40°C to +85°C		
			Min	Max	Min	Max	
t _{PLH}	Propagation Delay, Data to Output	5.0	1.5	8.5	1.5	9.5	ns
t _{PHL}		5.0	1.5	7.5	1.5	8.5	ns

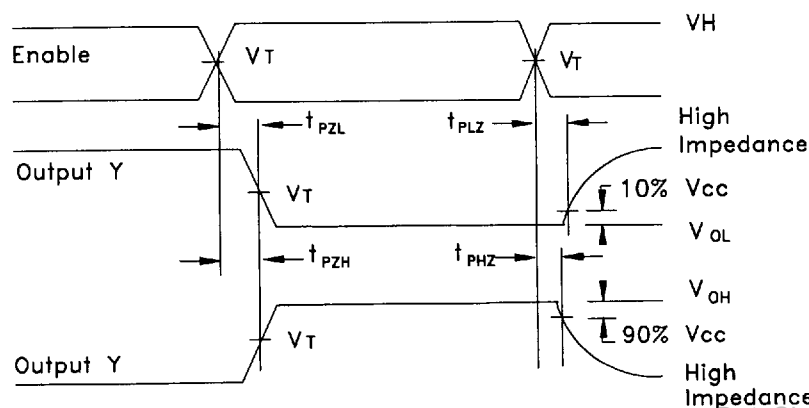
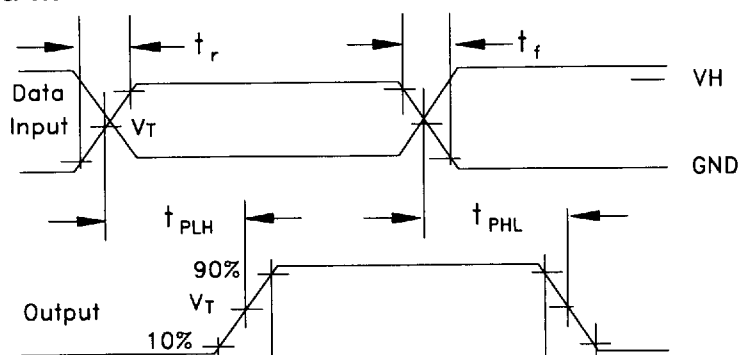
Symbol	Parameter (C _L = 50 pF)	V _{CC} ±10% (V)	ACT240				Unit
			T _A = +25°C		T _A = − 40°C to +85°C		
			Min	Max	Min	Max	
tpZH	Output Enable Time	5.0	1.5	8.5	1.0	9.5	ns
tpZL		5.0	2.0	9.5	1.5	10.5	ns
tpHZ	Output Disable Time	5.0	2.0	9.5	2.0	10.5	ns
tpLZ		5.0	2.5	10.0	2.0	10.5	ns

Symbol	Parameter	$V_{CC} \pm 10\% \text{ (V)}$	ACT241				Unit
			Min	Max	Min	Max	
t_{PLH}	Propagation Delay, Data to Output	5.0	1.5	9.0	1.5	10.0	ns
t_{PHL}		5.0	1.5	9.0	1.5	10.0	ns
t_{PZH}	Output Enable Time	5.0	1.5	9.0	1.0	10.0	ns
t_{PZL}		5.0	1.5	10.0	1.5	11.0	ns
t_{PHZ}	Output Disable Time	5.0	1.5	10.5	1.5	11.5	ns
t_{PLZ}		5.0	2.0	10.5	1.5	11.5	ns

Symbol	Parameter	$V_{CC} \pm 10\% \text{ (V)}$	ACT244				Unit
			Min	Max	Min	Max	
t_{PLH}	Propagation Delay, Data to Output	5.0	2.0	9.0	1.5	10.0	ns
t_{PHL}		5.0	2.0	9.0	1.5	10.0	ns
t_{PZH}	Output Enable Time	5.0	1.5	8.5	1.0	9.5	ns
t_{PZL}		5.0	2.0	9.5	1.5	10.5	ns
t_{PHZ}	Output Disable Time	5.0	2.0	9.5	1.5	10.5	ns
t_{PLZ}		5.0	2.5	10.0	2.0	10.5	ns

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