

MC74ACT241

Octal Buffer/Line Driver with 3-State Outputs

The MC74ACT241 is an octal buffer and line driver designed to be employed as a memory address driver, clock driver and bus oriented transmitter or receiver which provides improved PC board density.

Features

- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Outputs Source/Sink 24 mA
- TTL Compatible Inputs
- Pb-Free Packages are Available

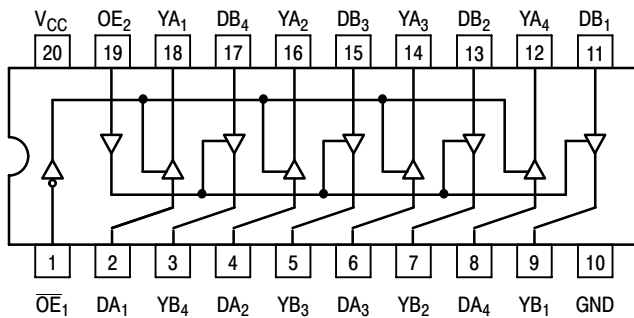


Figure 1. Pinout: 20-Lead Packages Conductors (Top View)

TRUTH TABLE

Inputs		Outputs
\overline{OE}_1	D	(Pins 12, 14, 16, 18)
L	L	L
L	H	H
H	X	Z

H = HIGH Voltage Level
 L = LOW Voltage Level
 X = Immaterial
 Z = High Impedance

TRUTH TABLE

Inputs		Outputs
OE_2	D	(Pins 3, 5, 7, 9)
H	L	L
H	H	H
L	X	Z

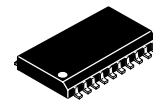
H = HIGH Voltage Level
 L = LOW Voltage Level
 X = Immaterial
 Z = High Impedance



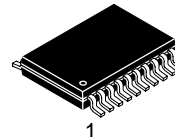
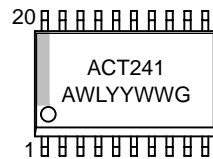
ON Semiconductor®

<http://onsemi.com>

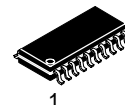
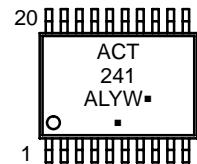
MARKING DIAGRAMS



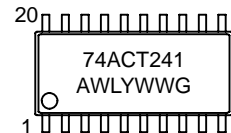
1
SOIC-20W
DW SUFFIX
CASE 751D



1
TSSOP-20
DT SUFFIX
CASE 948E



1
SOEIAJ-20
M SUFFIX
CASE 967



A = Assembly Location
 WL, L = Wafer Lot
 YY, Y = Year
 WW, W = Work Week
 G or ■ = Pb-Free Package
 (Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 5 of this data sheet.

MC74ACT241

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CC}	DC Supply Voltage	-0.5 to +7.0	V
V _I	DC Input Voltage	-0.5 ≤ V _I ≤ V _{CC} + 0.5	V
V _O	DC Output Voltage (Note 1)	-0.5 ≤ V _O ≤ V _{CC} + 0.5	V
I _{IK}	DC Input Diode Current	±20	mA
I _{OK}	DC Output Diode Current	±50	mA
I _O	DC Output Sink/Source Current	±50	mA
I _{CC}	DC Supply Current per Output Pin	±50	mA
I _{GND}	DC Ground Current per Output Pin	±100	mA
T _{STG}	Storage Temperature Range	-65 to +150	°C
T _L	Lead temperature, 1 mm from Case for 10 Seconds	260	°C
T _J	Junction temperature under Bias	+150	°C
θ _{JA}	Thermal Resistance	SOIC TSSOP 96 128	°C/W
P _D	Power Dissipation in Still Air at 85°C	SOIC TSSOP 500 450	mW
MSL	Moisture Sensitivity	Level 1	
F _R	Flammability Rating	Oxygen Index: 30% – 35%	UL 94 V-0 @ 0.125 in
V _{ESD}	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3) Charged Device Model (Note 4) > 2000 > 200 > 1000	V
I _{Latchup}	Latchup Performance	Above V _{CC} and Below GND at 85°C (Note 5)	±100 mA

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. I_O absolute maximum rating must be observed.
2. Tested to EIA/JESD22-A114-A.
3. Tested to EIA/JESD22-A115-A.
4. Tested to JESD22-C101-A.
5. Tested to EIA/JESD78.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Typ	Max	Unit
V _{CC}	DC Input Voltage (Referenced to GND)	4.5		5.5	V
V _{in} , V _{out}	DC Input Voltage, Output Voltage (Referenced to GND)	0		V _{CC}	V
T _A	Operating Temperature, All Package Types	-40	25	+85	°C
t _r , t _f	Input Rise and Fall Time (Note 7)	V _{CC} = 4.5 V 0 V _{CC} = 5.5 V 0	10 8.0	10 8.0	ns/V
I _{OH}	Output Current – High	–	–	-24	mA
I _{OL}	Output Current – Low	–	–	24	mA

6. Unused Inputs may not be left open. All inputs must be tied to a high voltage level or low logic voltage level.
7. V_{in} from 0.8 V to 2.0 V; refer to individual Data Sheets for devices that differ from the typical input rise and fall times.

MC74ACT241

DC CHARACTERISTICS

Symbol	Parameter	V _{CC} (V)	T _A = +25°C		T _A = -40°C to +85°C		Unit	Conditions
			Typ	Guaranteed Limits				
V _{IH}	Minimum High Level Input Voltage	4.5	1.5	2.0	2.0	2.0	V	V _{OUT} = 0.1 V or V _{CC} - 0.1 V
		5.5	1.5	2.0	2.0	2.0		
V _{IL}	Maximum Low Level Input Voltage	4.5	1.5	0.8	0.8	0.8	V	V _{OUT} = 0.1 V or V _{CC} - 0.1 V
		5.5	1.5	0.8	0.8	0.8		
V _{OH}	Minimum High Level Output Voltage	4.5	4.49	4.4	4.4	4.4	V	I _{OUT} = -50 μA
		5.5	5.49	5.4	5.4	5.4		
V _{OL}	Maximum Low Level Output Voltage	4.5	0.001	0.1	0.1	0.1	V	I _{OUT} = 50 μA
		5.5	0.001	0.1	0.1	0.1		
I _{IN}	Maximum Input Leakage Current	4.5	-	±0.1	±1.0	±1.0	μA	V _I = V _{CC} , GND
		5.5	-	±0.1	±1.0	±1.0		
ΔI _{CCCT}	Additional Maximum I _{CC} /Input	5.5	0.6	-	1.5	1.5	mA	V _I = V _{CC} - 2.1 V
I _{OZ}	Maximum 3-State Current	5.5	-	±0.5	±5.0	±5.0	μA	V _I (OE) = V _{IL} , V _{IH} V _I = V _{CC} , GND V _O = V _{CC} , GND
I _{OLD} I _{OHD}	†Minimum Dynamic Output Current	5.5	-	-	75	75	mA	V _{OLD} = 1.65 V Max V _{OHD} = 3.85 V Min
		5.5	-	-	-75	-75		
I _{CC}	Maximum Quiescent Supply Current	5.5	-	8.0	80	80	μA	V _{IN} = V _{CC} or GND

*All outputs loaded; thresholds on input associated with output under test.

†Maximum test duration 2.0 ms, one output loaded at a time.

AC CHARACTERISTICS t_r = t_f = 3.0 ns (For Figures and Waveforms, See Figures 2, 3, and 4.)

Symbol	Parameter	V _{CC} * (V)	T _A = +25°C C _L = 50 pF			T _A = -40°C to +85°C C _L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
t _{PLH}	Propagation Delay Data to Output	5.0	1.5	6.5	9.0	1.5	10.0	ns
t _{PHL}	Propagation Delay Data to Output	5.0	1.5	7.0	9.0	1.5	10.0	ns
t _{PZH}	Output Enable Time	5.0	1.5	6.0	9.0	1.0	10.0	ns
t _{PZL}	Output Enable Time	5.0	1.5	7.0	10.0	1.5	11.0	ns
t _{PHZ}	Output Disable Time	5.0	1.5	8.0	10.5	1.5	11.5	ns
t _{PLZ}	Output Disable Time	5.0	2.0	7.0	10.5	1.5	11.5	ns

*Voltage Range 5.0 V is 5.0 V ±0.5 V

CAPACITANCE

Symbol	Parameter	Value Typ	Unit	Test Conditions
C _{IN}	Input Capacitance	4.5	pF	V _{CC} = 5.0 V
C _{PD}	Power Dissipation Capacitance	45	pF	V _{CC} = 5.0 V

MC74ACT241

SWITCHING WAVEFORMS

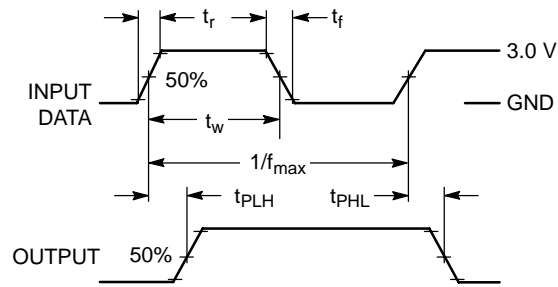


Figure 2.

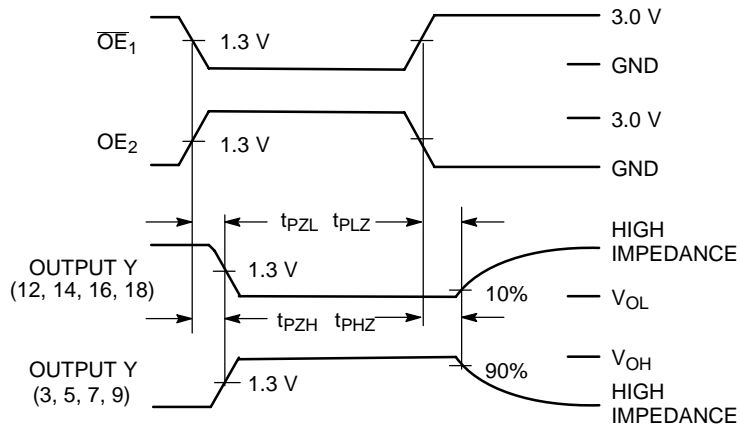
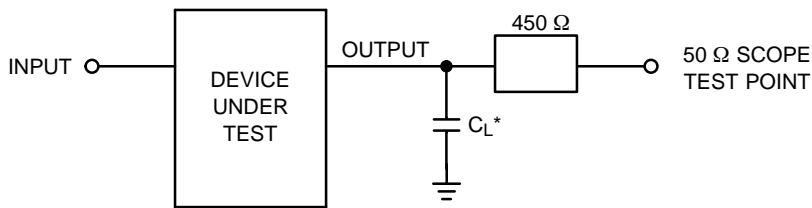


Figure 3.



*Includes all probe and jig capacitance

Figure 4. Test Circuit

MC74ACT241

ORDERING INFORMATION

Device	Package	Shipping†
MC74ACT241DW	SOIC-20	38 Units / Rail
MC74ACT241DWG	SOIC-20 (Pb-Free)	
MC74ACT241DWR2	SOIC-20	1000 / Tape & Reel
MC74ACT241DWR2G	SOIC-20 (Pb-Free)	
MC74ACT241DTR2	TSSOP-20*	2500 / Tape & Reel
MC74ACT241DTR2G	TSSOP-20*	
MC74ACT241MEL	SOEIAJ-20	2000 / Tape & Reel
MC74ACT241MELG	SOEIAJ-20 (Pb-Free)	

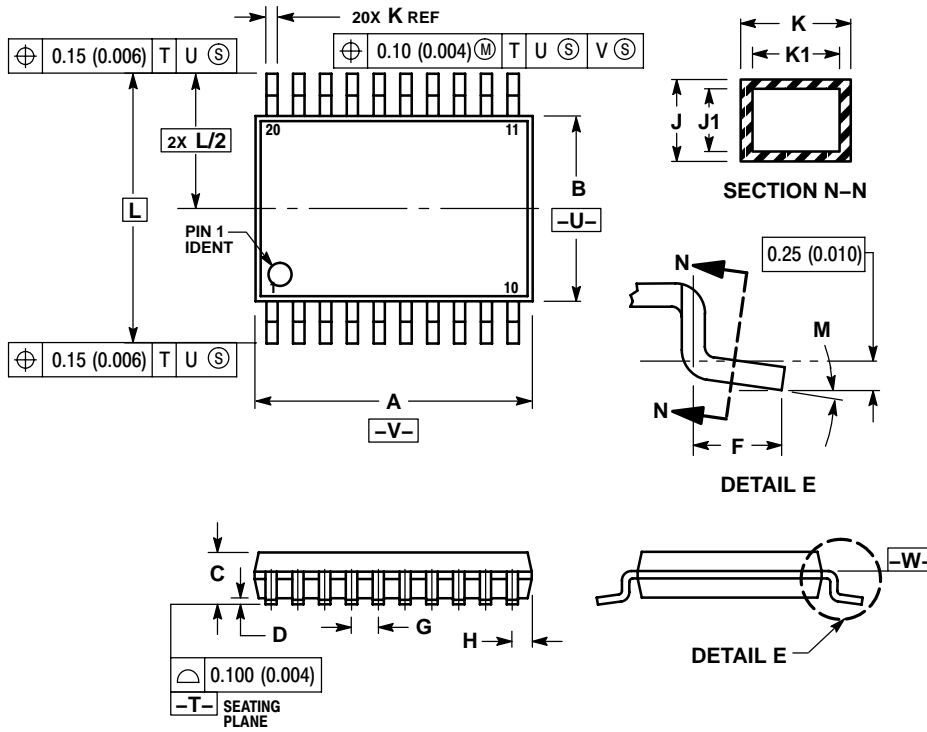
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*These packages are inherently Pb-Free.

MC74ACT241

PACKAGE DIMENSIONS

TSSOP-20
DT SUFFIX
CASE 948E-02
ISSUE C

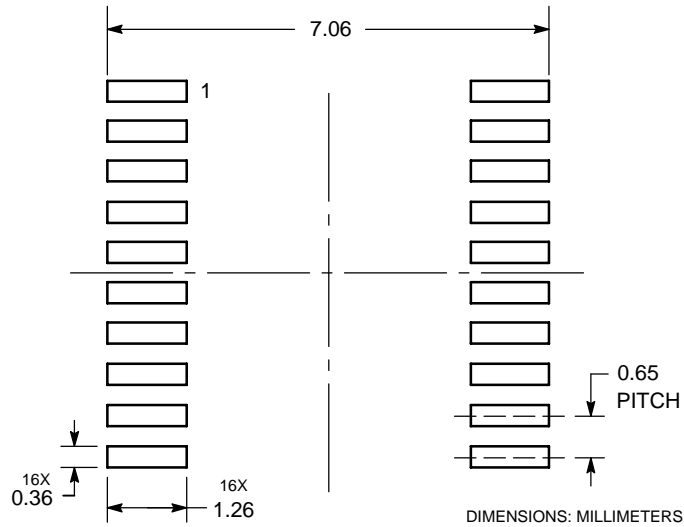


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
5. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
6. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
7. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.40	6.60	0.252	0.260
B	4.30	4.50	0.169	0.177
C	---	1.20	---	0.047
D	0.05	0.15	0.002	0.006
F	0.50	0.75	0.020	0.030
G	0.65 BSC		0.026 BSC	
H	0.27	0.37	0.011	0.015
J	0.09	0.20	0.004	0.008
J1	0.09	0.16	0.004	0.006
K	0.19	0.30	0.007	0.012
K1	0.19	0.25	0.007	0.010
L	6.40 BSC		0.252 BSC	
M	0°	8°	0°	8°

SOLDERING FOOTPRINT*

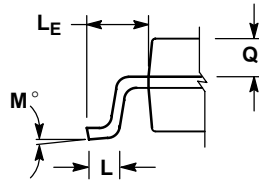
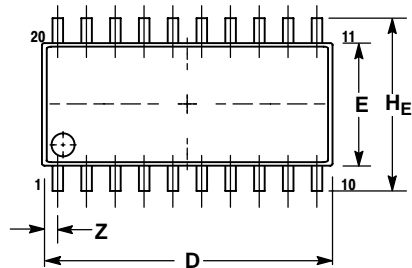


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

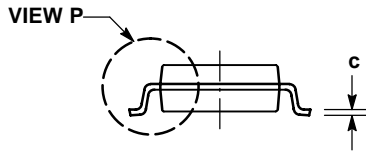
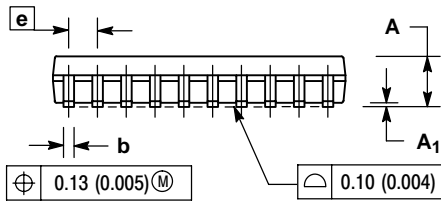
MC74ACT241

PACKAGE DIMENSIONS

SOEIAJ-20
M SUFFIX
CASE 967-01
ISSUE A



DETAIL P



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS AND ARE MEASURED AT THE PARTING LINE. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
5. THE LEAD WIDTH DIMENSION (b) DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE LEAD WIDTH DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. MINIMUM SPACE BETWEEN PROTRUSIONS AND ADJACENT LEAD TO BE 0.46 (0.018).

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	---	2.05	---	0.081
A ₁	0.05	0.20	0.002	0.008
b	0.35	0.50	0.014	0.020
c	0.15	0.25	0.006	0.010
D	12.35	12.80	0.486	0.504
E	5.10	5.45	0.201	0.215
e	1.27 BSC		0.050 BSC	
HE	7.40	8.20	0.291	0.323
L	0.50	0.85	0.020	0.033
LE	1.10	1.50	0.043	0.059
M	0°	10°	0°	10°
Q ₁	0.70	0.90	0.028	0.035
Z	---	0.81	---	0.032

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.