74LVC541A
Octal Buffer/Line Driver with 5V Tolerant Inputs/Outputs

GENERAL DESCRIPTION

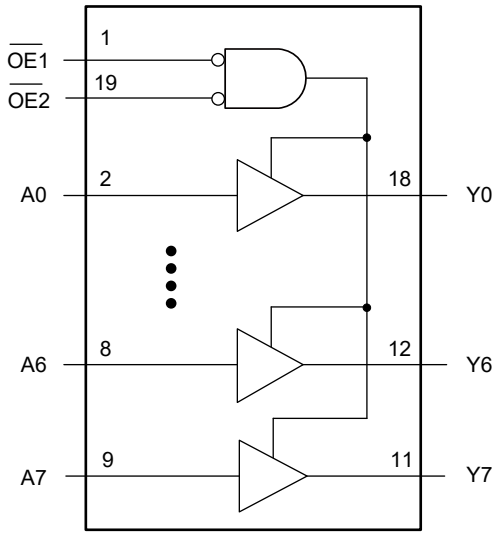
The 74LVC541A is an octal buffer/line driver with 3-state outputs. $\overline{OE}1$ and $\overline{OE}2$ are two output enable inputs. When $\overline{OE}1$ and $\overline{OE}2$ are low, data transmits from An inputs to the Yn outputs. When $\overline{OE}1$ or $\overline{OE}2$ is high, all outputs are in high-impedance state. Both 3.3V and 5V devices can drive inputs, enabling this device to operate as translator in a mixed 3.3V and 5V system environment. All inputs support Schmitt-trigger action, allowing slower input rise and fall time.

This device is highly suitable for partial power-down applications using power-off leakage current (I_{OFF}) circuit. When the device is powered down, the current backflow will be prevented from passing through the device.

FEATURES

- **Supply Voltage Range: 1.2V to 3.6V**
- **Over-Voltage Tolerant Inputs up to 5.5 V**
- **CMOS Low Power Dissipation**
- **+24mA/-24mA Output Current**
- **Support Partial Power-down Mode**
- **-40℃ to +125℃ Operating Temperature Range**
- **Available in a Green TSSOP-20 Package**

LOGIC DIAGRAM



FUNCTION TABLE

INPUT			OUTPUT
$\overline{OE}1$	$\overline{OE}2$	An	Yn
L	L	L	L
L	L	H	H
X	H	*X*	Z
H	*X*	*X*	Z

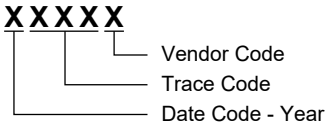
H = High Voltage Level
L = Low Voltage Level
Z = High-Impedance State
X = Don't Care

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
74LVC541A	TSSOP-20	-40℃ to +125℃	74LVC541AXTS20G/TR	04QXTS20 XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS (1)

Supply Voltage, V_{CC} ..... -0.5V to 6.5V
Input Voltage, V_I (2) ..... -0.5V to 6.5V
Output Voltage, V_O (2)
High-State or Low-State..... -0.5V to MIN (6.5V, V_{CC} + 0.5V)
3-State or Power-down Mode ..... -0.5V to 6.5V
Input Clamping Current, I_{IK} (V_I < 0V) .....-50mA
Output Clamping Current, I_{OK} (V_O > V_{CC} or V_O < 0V)... ±50mA
Output Current, I_O
High-State .....-50mA
Low-State..... 50mA
Supply Current, I_{CC} 100mA
Ground Current, I_{GND} .....-100mA
Junction Temperature (3) .....+150℃
Storage Temperature Range .....-65℃ to +150℃
Lead Temperature (Soldering, 10s).....+260℃
ESD Susceptibility
HBM.....6000V
CDM..... 1000V

RECOMMENDED OPERATING CONDITIONS

Function Supply Voltage, V_{CC} ..... 1.2V (MIN)
Operating Supply Voltage, V_{CC} .....1.65V to 3.6V
Input Voltage, V_I .....0V to 5.5V
Output Voltage, V_O
High-State or Low-State..... 0V to V_{CC}
3-State or Power-down Mode .....0V to 5.5V
Input Transition Rise and Fall Rate, Δt/ΔV
V_{CC} = 2.3V to 2.7V ..... 20ns/V (MAX)
V_{CC} = 2.7V to 3.6V ..... 10ns/V (MAX)
Operating Temperature Range .....-40℃ to +125℃

OVERSTRESS CAUTION

1. Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.

2. The input and output negative voltage ratings may be exceeded if the input and output clamp current ratings are observed.

3. The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

ESD SENSITIVITY CAUTION

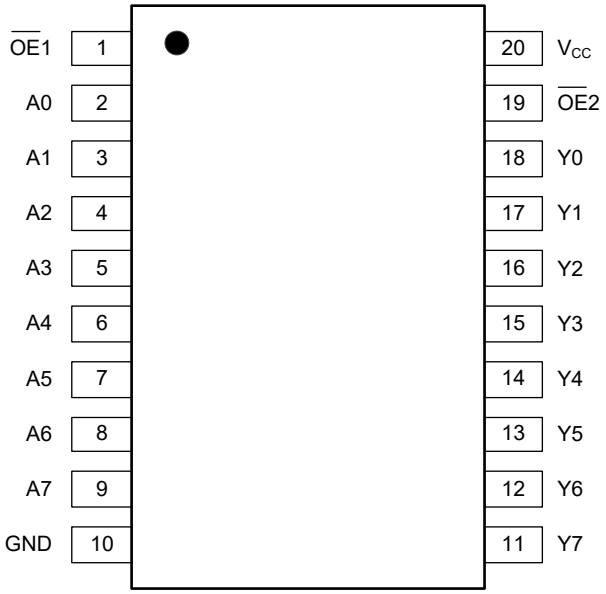
This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION

(TOP VIEW)



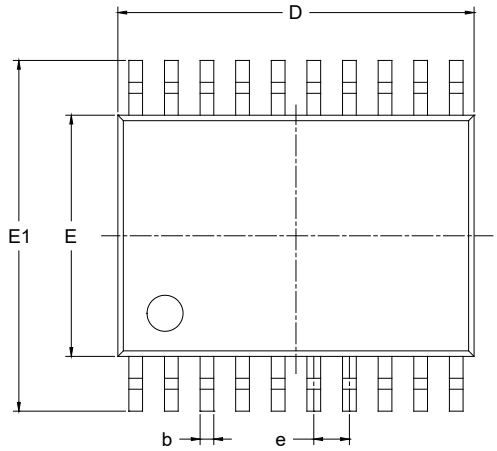
TSSOP-20

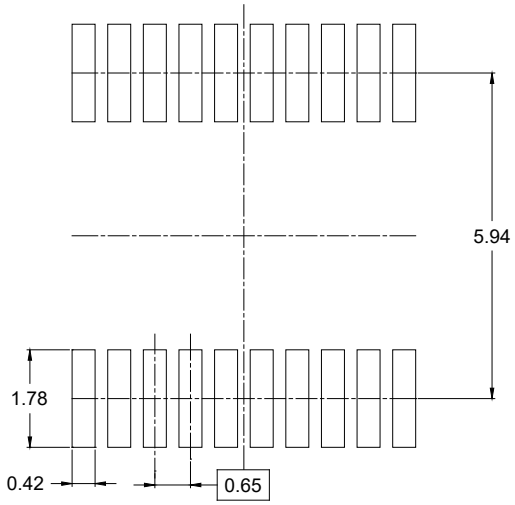
PIN DESCRIPTION

PIN	NAME	FUNCTION
1, 19	$\overline{OE}$1, $\overline{OE}$2	Output Enable Inputs (Active Low).
2, 3, 4, 5, 6, 7, 8, 9	A0, A1, A2, A3, A4, A5, A6, A7	Data Inputs.
18, 17, 16, 15, 14, 13, 12, 11	Y0, Y1, Y2, Y3, Y4, Y5, Y6, Y7	Data Outputs.
10	GND	Ground.
20	V_{CC}	Supply Voltage.

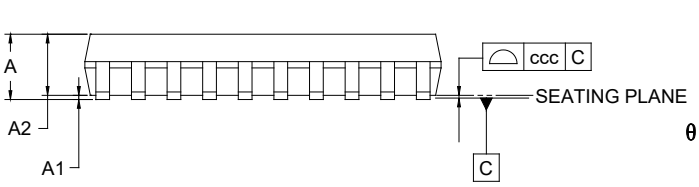
PACKAGE OUTLINE DIMENSIONS

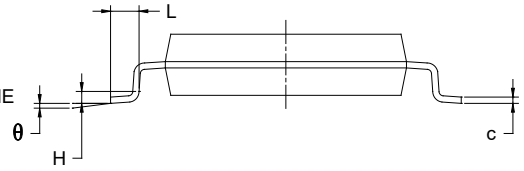
TSSOP-20





RECOMMENDED LAND PATTERN (Unit: mm)



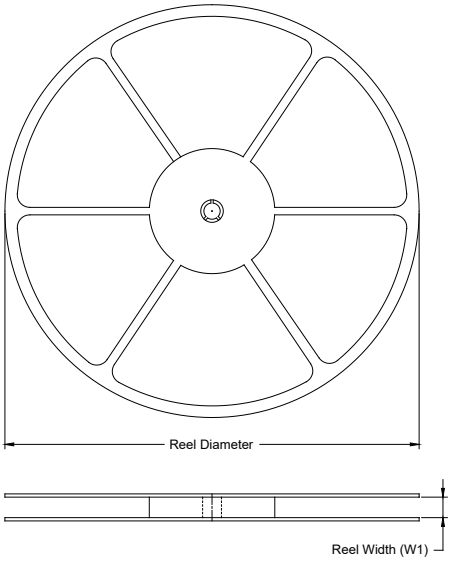


Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	-	-	1.200
A1	0.050	-	0.150
A2	0.800	-	1.050
b	0.190	-	0.300
c	0.090	-	0.200
D	6.400	-	6.600
E	4.300	-	4.500
E1	6.200	-	6.600
e	0.650 BSC		
L	0.450	-	0.750
H	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

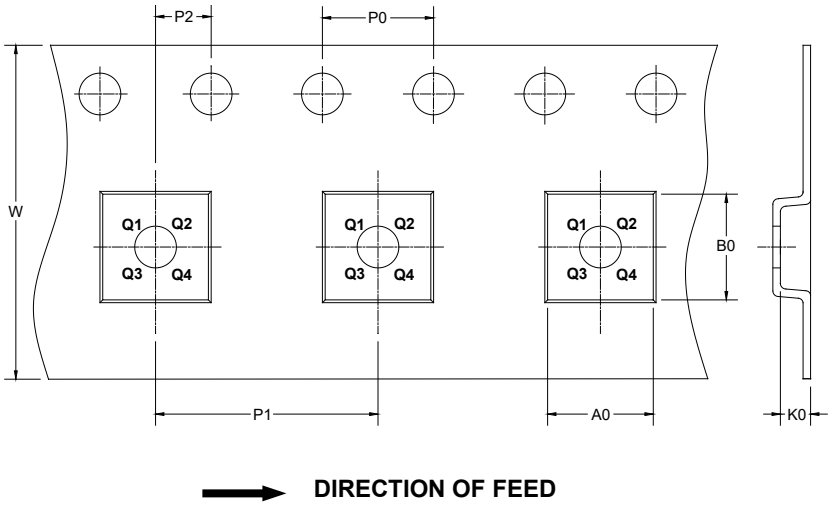
NOTES:
1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.
3. Reference JEDEC MO-153.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



DIRECTION OF FEED

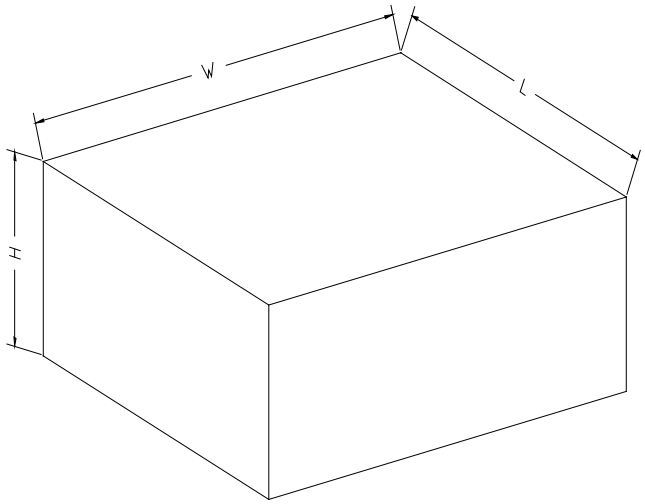
NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TSSOP-20	13″	16.4	6.80	6.90	1.50	4.0	8.0	2.0	16.0	Q1

DD0001

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13″	386	280	370	5

DD0002