

GENERAL DESCRIPTION

The SGM7SZ244S is an octal buffer/line driver with 3-state outputs, which can accept supply voltage range from 1.8V to 5.5V.

The device can be used as two 4-bit buffers or one 8-bit buffer. The $\overline{1OE}$ and $\overline{2OE}$ are two output enable inputs, and each controls four of the 3-state outputs. When \overline{nOE} is set high, the outputs are in high-impedance state. When \overline{nOE} is set low, data transmits from the nAn inputs to the nYn outputs.

The SGM7SZ244S is available in Green TSSOP-20, TQFN-3×3-20L and TQFN-5.5×3.5-24L packages. It operates over an ambient temperature range of -40°C to +125°C.

FUNCTION TABLE

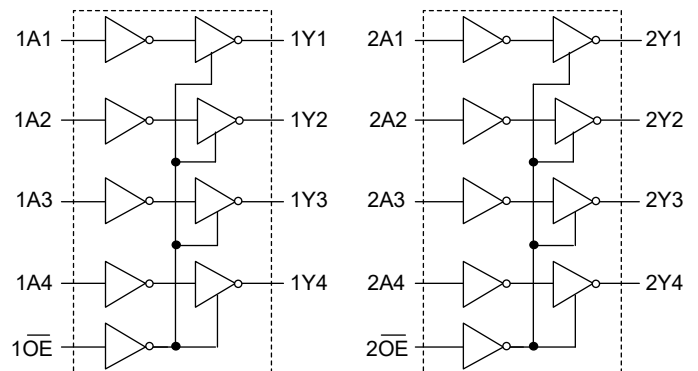
CONTROL INPUT	INPUT	OUTPUT
\overline{nOE}	nAn	nYn
L	H	H
L	L	L
H	X	Z

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

FEATURES

- **Wide Supply Voltage Range: 1.8V to 5.5V**
- **Input and Output Interface Capability to 5.5V System Environment**
- **+7.8mA/-7.8mA Output Current at $V_{CC} = 5.0V$**
- **3-State Buffers**
- **Support Partial Power-Down Mode**
- **-40°C to +125°C Operating Temperature Range**
- **Available in Green TSSOP-20, TQFN-3×3-20L and TQFN-5.5×3.5-24L Packages**

LOGIC DIAGRAM



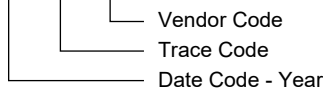
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM7SZ244S	TSSOP-20	-40°C to +125°C	SGM7SZ244SXTS20G/TR	SGM06MXTS20 XXXXX	Tape and Reel, 4000
	TQFN-3x3-20L	-40°C to +125°C	SGM7SZ244SXTQG20G/TR	SGM 0D3QG XXXXX	Tape and Reel, 4000
	TQFN-5.5x3.5-24L	-40°C to +125°C	SGM7SZ244SXTQQ24G/TR	SGM7SZ244S XTQQ XXXXX	Tape and Reel, 3000

MARKING INFORMATION

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

XXXXX



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 Range, V_{CC} -0.3V to 6.0V
- Input Voltage, V_I ⁽²⁾ -0.3V to 6.0V
- Output Voltage, V_O ⁽²⁾
 - High-State or Low-State..... -0.3V to MIN(6.0V, $V_{CC} + 0.3V$)
 - 3-State Mode -0.3V to 6.0V
- Input Clamp Current, I_{IK} ($V_I < 0V$) -20mA
- Output Clamp Current, I_{OK} ($V_O < 0V$) -20mA
- Continuous Output Current, I_O ($V_O = 0V$ to V_{CC}) $\pm 40mA$
- Continuous Current through V_{CC} or GND..... $\pm 70mA$
- Junction Temperature ⁽³⁾ +150°C
- Storage Temperature Range..... -65°C to +150°C
- Lead Temperature (Soldering, 10s)..... +260°C
- ESD Susceptibility
 - HBM..... 2000V
 - CDM 1000V

RECOMMENDED OPERATING CONDITIONS

- Supply Voltage Range, V_{CC} 1.8V to 5.5V
- Input Voltage Range, V_I 0V to 5.5V
- Output Voltage, V_O
 - High-State or Low-State..... 0V to V_{CC}
 - 3-State Mode 0V to 5.5V
- Operating Temperature Range -40°C to +125°C

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.

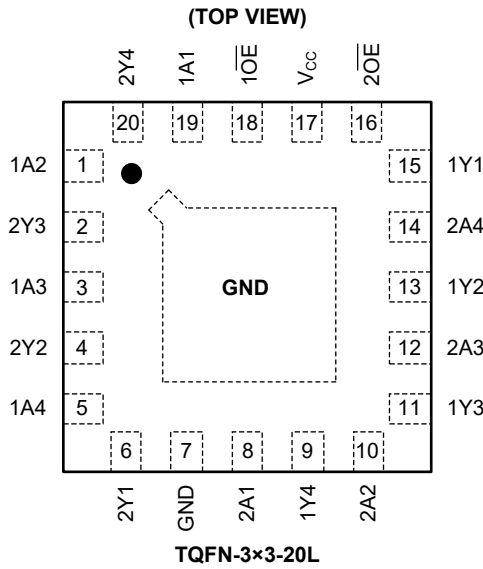
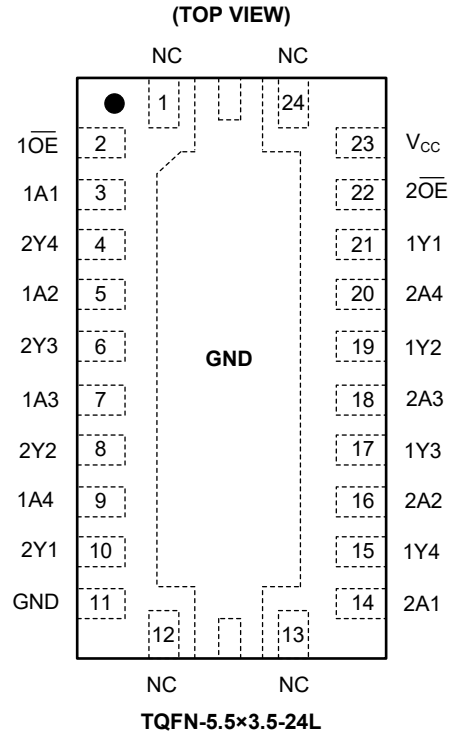
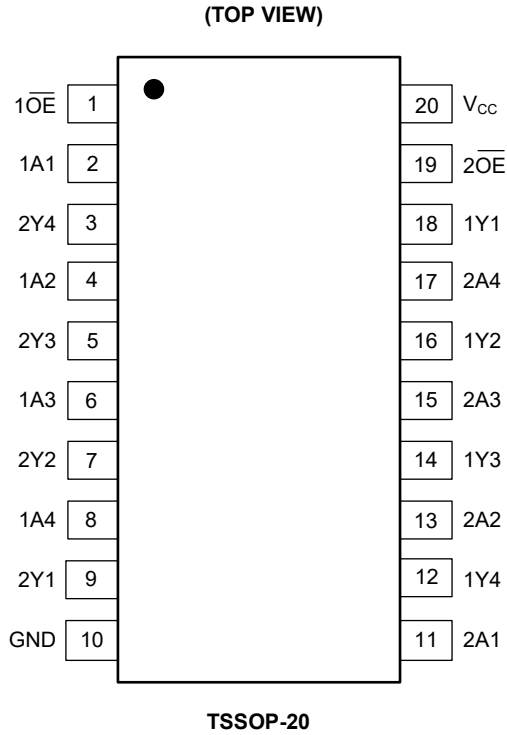
ESD SENSITIVITY CAUTION

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 CONFIGURATIONS

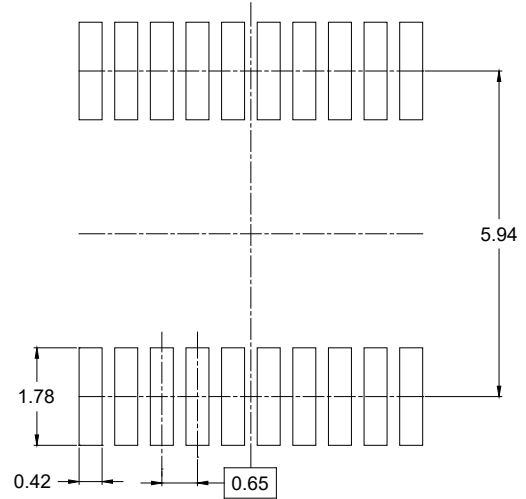
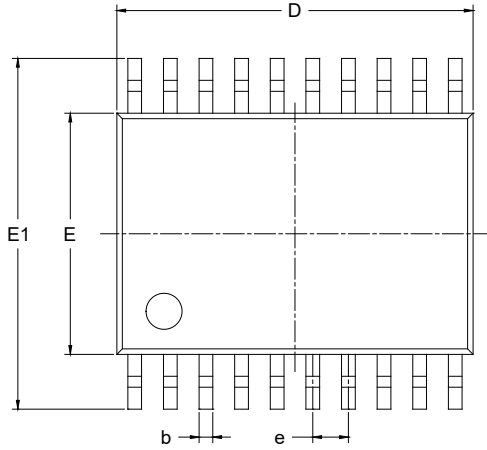


PIN DESCRIPTION

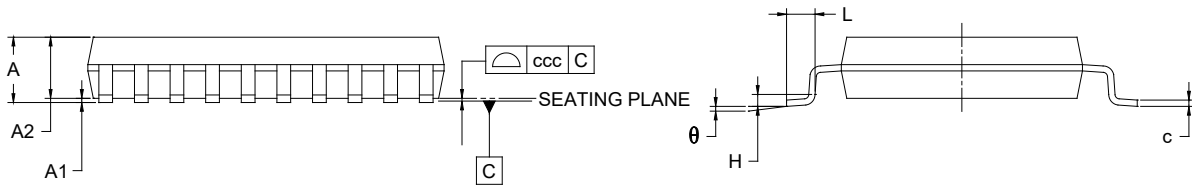
PIN			NAME	FUNCTION
TSSOP-20	TQFN-3×3-20L	TQFN-5.5×3.5-24L		
1, 19	18, 16	2, 22	1 $\overline{O}E$, 2 $\overline{O}E$	Output Enable Inputs (Active Low).
2, 4, 6, 8	19, 1, 3, 5	3, 5, 7, 9	1A1, 1A2, 1A3, 1A4	Data Inputs.
3, 5, 7, 9	20, 2, 4, 6	4, 6, 8, 10	2Y4, 2Y3, 2Y2, 2Y1	Data Outputs.
10	7	11	GND	Ground.
11, 13, 15, 17	8, 10, 12, 14	14, 16, 18, 20	2A1, 2A2, 2A3, 2A4	Data Inputs.
12, 14, 16, 18	9, 11, 13, 15	15, 17, 19, 21	1Y4, 1Y3, 1Y2, 1Y1	Data Outputs.
20	17	23	V _{CC}	Supply Voltage.
–	–	1, 12, 13, 24	NC	No Connection.
–	Exposed Pad	Exposed Pad	GND	Connect it to GND internally. This pad is not an electrical connection point.

PACKAGE OUTLINE DIMENSIONS

TSSOP-20



RECOMMENDED LAND PATTERN (Unit: mm)



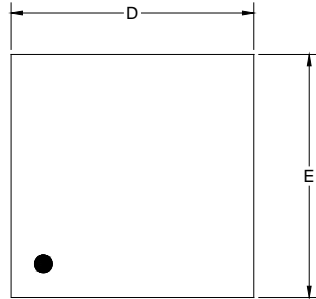
Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	-	-	1.200
A1	0.050	-	0.150
A2	0.800	-	1.050
b	0.190	-	0.300
c	0.090	-	0.200
D	6.400	-	6.600
E	4.300	-	4.500
E1	6.200	-	6.600
e	0.650 BSC		
L	0.450	-	0.750
H	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

NOTES:

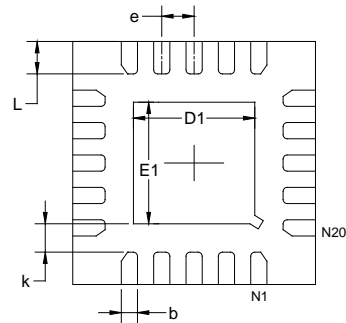
1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.
3. Reference JEDEC MO-153.

PACKAGE OUTLINE DIMENSIONS

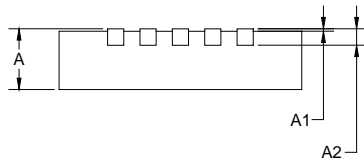
TQFN-3x3-20L



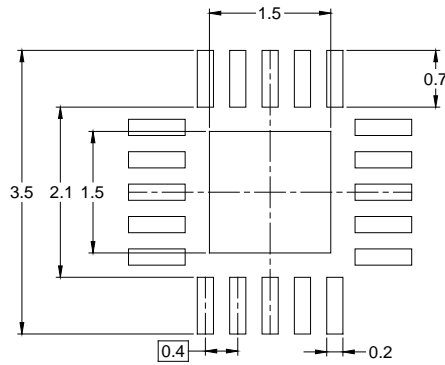
TOP VIEW



BOTTOM VIEW



SIDE VIEW



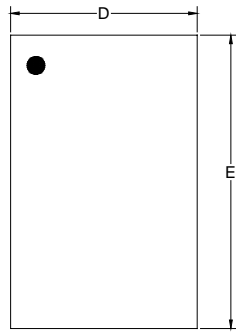
RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.203 REF		0.008 REF	
D	2.924	3.076	0.115	0.121
D1	1.400	1.600	0.055	0.063
E	2.924	3.076	0.115	0.121
E1	1.400	1.600	0.055	0.063
k	0.200 MIN		0.008 MIN	
b	0.150	0.250	0.006	0.010
e	0.400 TYP		0.016 TYP	
L	0.324	0.476	0.013	0.019

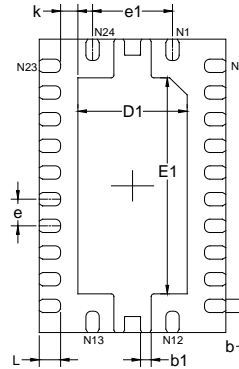
NOTE: This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

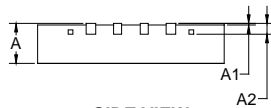
TQFN-5.5x3.5-24L



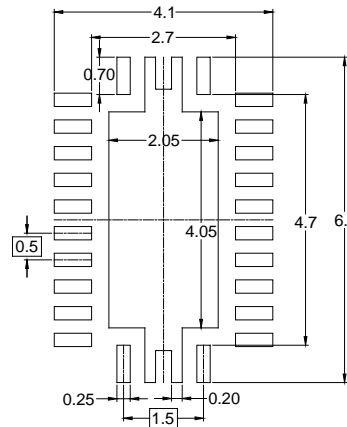
TOP VIEW



BOTTOM VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.203 REF		0.008 REF	
D	3.400	3.600	0.134	0.142
D1	1.950	2.150	0.077	0.085
E	5.400	5.600	0.213	0.220
E1	3.950	4.150	0.156	0.163
k	0.325 REF		0.013 REF	
b	0.200	0.300	0.008	0.012
b1	0.150	0.250	0.006	0.010
L	0.300	0.500	0.012	0.020
e	0.500 BSC		0.020 BSC	
e1	1.500 BSC		0.059 BSC	

NOTE: This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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
TQFN-3×3-20L	13"	12.4	3.30	3.30	1.10	4.0	8.0	2.0	12.0	Q2
TQFN-5.5×3.5-24L	13"	12.4	3.80	5.80	1.00	4.0	8.0	2.0	12.0	Q1

DD0001

PACKAGE INFORMATION

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