SGM48761T
Low Voltage, 4:1, General Purpose Analog Multiplexer

GENERAL DESCRIPTION

The SGM48761T is a versatile analog multiplexer (MUX) that can be configured as a 4:1 single-channel MUX. It operates from a single power supply ranging from 1.08V to 5.5V and all control inputs support 1.2V and 1.8V logic levels.

The SGM48761T incorporates low-power operation, making it ideal for power-constrained environments. Additionally, its fail-safe logic circuitry safeguards the device against electrical damage by enabling voltage application to logic control pins prior to power supply activation.

The SGM48761T is available in Green MSOP-10 and UTDFN-2.5×1-10AL packages. It operates -40℃ to +125℃ operating temperature range.

APPLICATIONS

Industrial Equipment
Medical Equipment
Telecom Equipment
Wireless Equipment
Handheld Equipment

FEATURES

- **Wide Supply Range: 1.08V to 5.5V**
- **Low On-Resistance: 3.3Ω at V_{DD} = 5V**
- **Low Supply Current: 0.1μA (TYP) at V_{DD} = 5V**
- **Transition Time: 13ns at V_{DD} = 5V**
- **Rail-to-Rail Operation**
- **Bidirectional Signal Path**
- **1.2V, 1.8V Logic Compatible**
- **Low Supply Current at 1.2V Logic**
- **Fail-Safe Logic**
- **Break-Before-Make Switching**
- **-40℃ to +125℃ Operating Temperature Range**
- **Available in Green MSOP-10 and UTDFN-2.5×1-10AL Packages**

TYPICAL APPLICATION

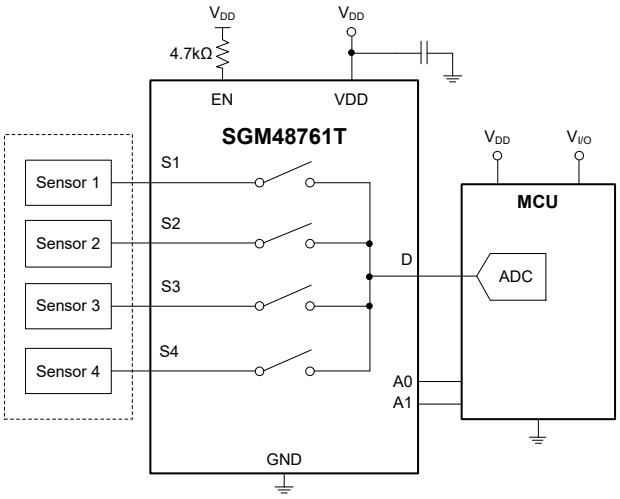


Figure 1. Typical Application Circuit

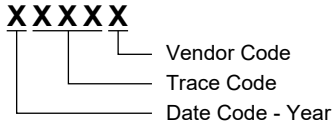
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM48761T	MSOP-10	-40℃ to +125℃	SGM48761TXMS10G/TR	SGM39R XMS10 XXXXX	Tape and Reel, 4000
	UTDFN-2.5×1-10AL	-40℃ to +125℃	SGM48761TXUGX10G/TR	39SXX	Tape and Reel, 3000

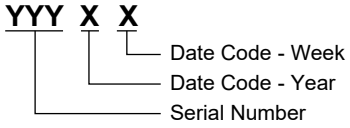
MARKING INFORMATION

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

MSOP-10



UTDFN-2.5×1-10AL



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_{DD} ..... -0.5V to 6V
Logic Control Input Pin Voltage (EN, A0, A1),
V_{SEL} or V_{EN} ..... -0.5V to 6V
Source or Drain Voltage (Sx, D),
V_S or V_D ..... -0.5V to (V_{DD} + 0.5V)
Source or Drain Continuous Current (Sx, D),
I_S or $I_{D(CONT)}$ ..... -30mA to 30mA
Package Thermal Resistance
MSOP-10, θ_{JA} ..... 145.3℃/W
MSOP-10, θ_{JB} ..... 93.1℃/W
MSOP-10, θ_{JC} ..... 61.4℃/W
UTDFN-2.5×1-10AL, θ_{JA} ..... 151.4℃/W
UTDFN-2.5×1-10AL, θ_{JB} ..... 52.9℃/W
UTDFN-2.5×1-10AL, θ_{JC} ..... 104℃/W
Junction Temperature ..... +150℃
Storage Temperature Range ..... -65℃ to +150℃
Lead Temperature (Soldering, 10s) ..... +260℃
ESD Susceptibility (2) (3)
HBM ..... ±8000V
CDM ..... ±1000V

NOTES:

1. All voltages are with respect to ground, unless otherwise specified.

2. For human body model (HBM), all pins comply with ANSI/ESDA/JEDEC JS-001 specifications.

3. For charged device model (CDM), all pins comply with ANSI/ESDA/JEDEC JS-002 specifications.

RECOMMENDED OPERATING CONDITIONS

Supply Voltage, V_{DD} ..... 1.08V to 5.5V
Logic Control Input Pin Voltage (EN, A0, A1),
V_{SEL} or V_{EN} ..... 0V to 5.5V
Source or Drain Voltage (Sx, D), V_S or V_D ..... 0V to V_{DD}
Operating Temperature Range ..... -40℃ to +125℃

OVERSTRESS CAUTION

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.

ESD SENSITIVITY CAUTION

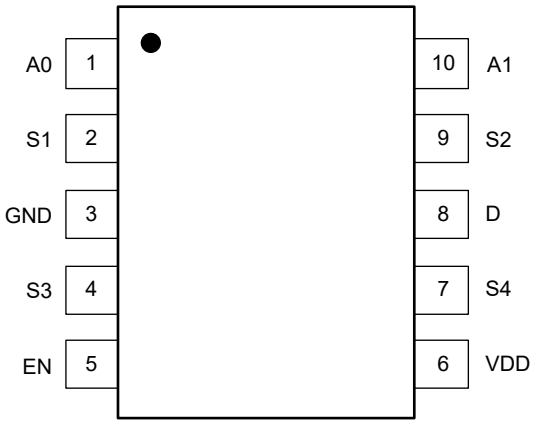
This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance 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.

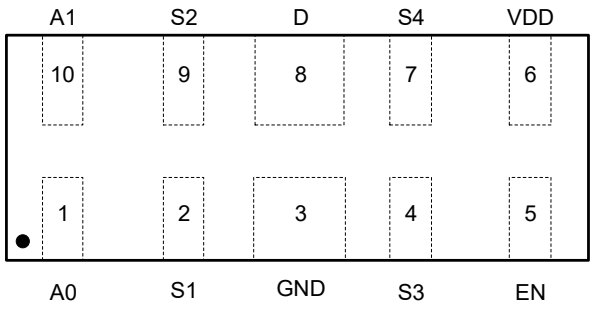
PIN CONFIGURATIONS

SGM48761T (TOP VIEW)



MSOP-10

SGM48761T (TOP VIEW)



UTDFN-2.5×1-10AL

PIN DESCRIPTION

PIN	NAME	TYPE (1)	FUNCTION
1, 10	A0, A1	I	Select Control Pins. Sets state of switches as shown in Table 1.
2, 4, 7, 9	S1, S3, S4, S2	I/O	Source Pins. Signal input or output paths.
3	GND	P	Ground Pin.
5	EN	I	Enable Control Input Pin (Active High). When EN is set to low, all switches are deactivated.
6	V_{DD}	P	Positive Power Supply.
8	D	I/O	Drain Pin. Signal input or output path.

NOTE:
1. I = input, O = output, I/O = input and output, P = power.

FUNCTIONAL BLOCK DIAGRAM

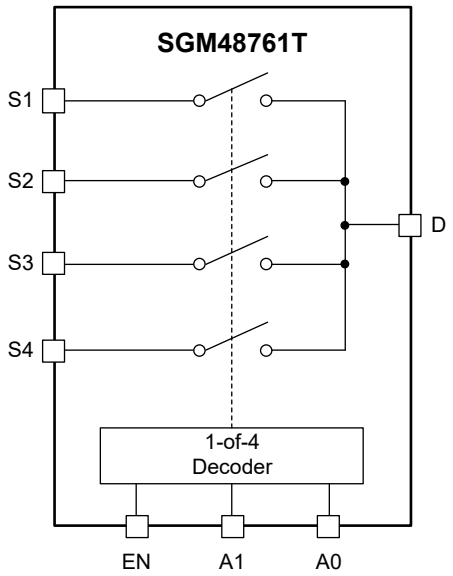


Figure 2. Block Diagram

FUNCTION TABLE

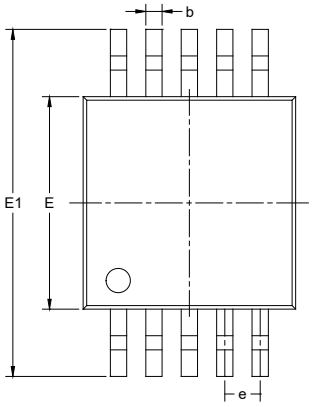
Table 1. Truth Table

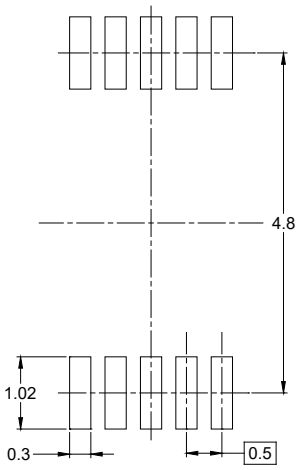
EN	A1	A0	Selected Channel Connected to Drain (D) Pin
0	*X* (1)	*X* (1)	All channels are off
1	0	0	D = Channel S1
1	0	1	D = Channel S2
1	1	0	D = Channel S3
1	1	1	D = Channel S4

NOTE: 1. *X*: don't care.

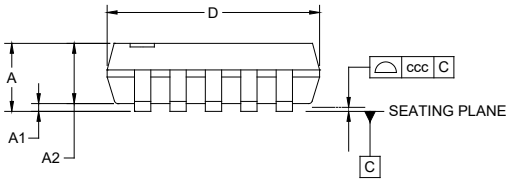
PACKAGE OUTLINE DIMENSIONS

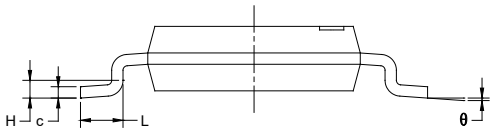
MSOP-10





RECOMMENDED LAND PATTERN (Unit: mm)



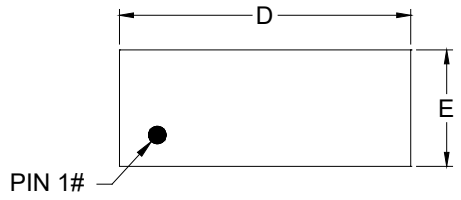


Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	1.100
A1	0.000	-	0.150
A2	0.750	-	0.950
b	0.170	-	0.330
c	0.080	-	0.230
D	2.900	-	3.100
E	2.900	-	3.100
E1	4.750	-	5.050
e	0.500 BSC		
H	0.250 TYP		
L	0.400	-	0.800
θ	0°	-	8°
ccc	0.100		

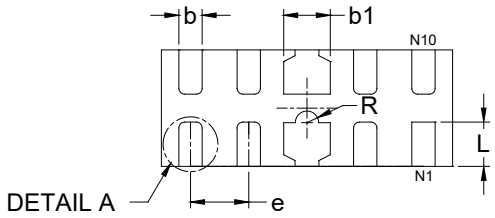
NOTES:
1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MO-187.

PACKAGE OUTLINE DIMENSIONS

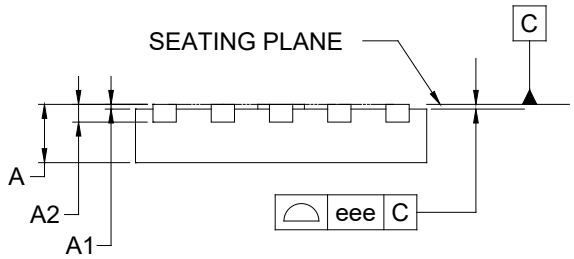
UTDFN-2.5×1-10AL



TOP VIEW



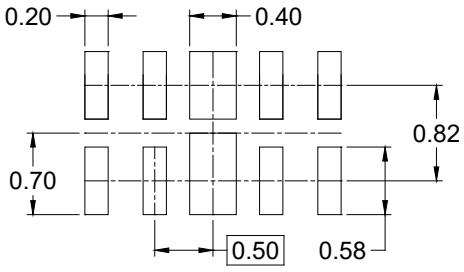
BOTTOM VIEW



SIDE VIEW



DETAIL A
ALTERNATE TERMINAL CONSTRUCTION



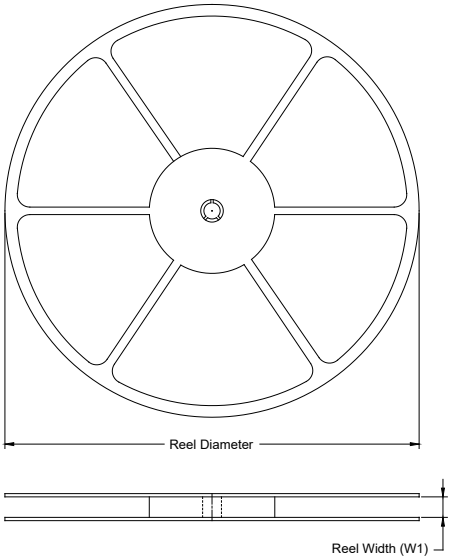
RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.450	-	0.550
A1	0.000	-	0.050
A2		0.150 REF	
b	0.150	-	0.250
b1	0.350	-	0.450
D	2.400	-	2.600
E	0.900	-	1.100
e		0.500 BSC	
L	0.280	-	0.480
R	0.050	-	0.150
eee		0.050	

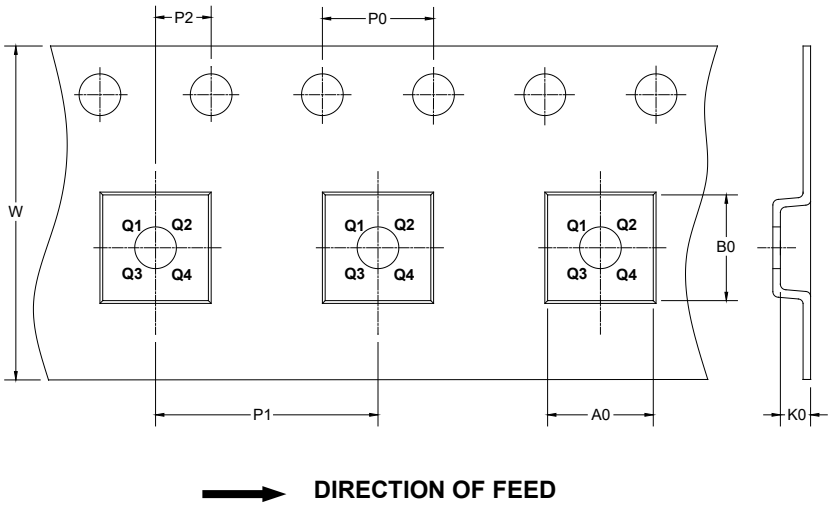
NOTE: This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



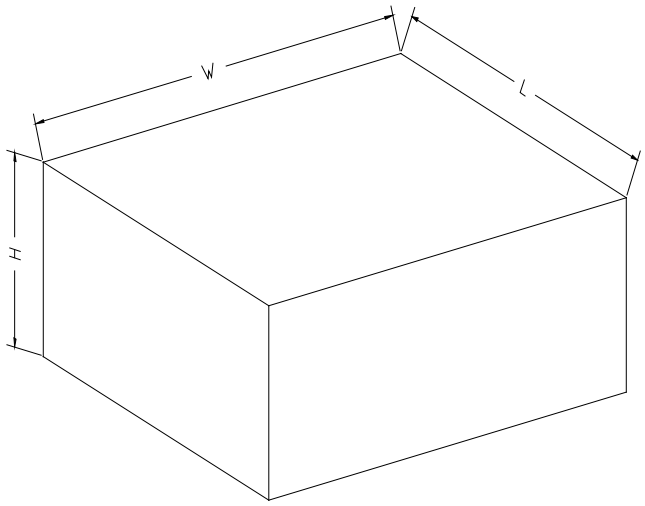
NOTE: The picture is only for reference. Please make the object as the standard.

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
MSOP-10	13"	12.4	5.20	3.30	1.50	4.0	8.0	2.0	12.0	Q1
UTDFN-2.5×1-10AL	7"	8.6	1.25	2.70	0.70	4.0	4.0	2.0	8.0	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
7″ (Option)	368	227	224	8
7″	442	410	224	18
13″	386	280	370	5

DD0002