



SGM4517X

0.9Ω, High Voltage, Dual, SPDT Analog Switch

GENERAL DESCRIPTION

The SGM4517X is a dual SPDT (single-pole/double-throw) analog switch. It can operate from a 2.7V to 24V single power supply or $\pm 2.7V$ to $\pm 12V$ dual supplies.

The SGM4517X features low on-resistance, high voltage and fast switching times. The high performances make it very suitable for multiple applications. In addition, the SGM4517X can be used as a dual 2-to-1 multiplexer because it has two normally open and close switches, respectively. Low crosstalk is also one of the important reasons that make it a good choice for battery-powered systems.

The SGM4517X is available in Green SOIC-14 and WLCSP-1.27×2.13-15B packages. It operates over an ambient temperature range of -40°C to $+125^{\circ}\text{C}$.

FEATURES

- **Dual Supplies Voltage Range: $\pm 2.7V$ to $\pm 12V$**
- **Single Supply Voltage Range: 2.7V to 24V**
- **Low On-Resistance: 0.9Ω (TYP)**
- **Fast Switching Times**
- **High Off-Isolation**
- **Very Low Crosstalk: -90dB at 1MHz**
- **1.8V Logic Control**
- **Rail-to-Rail Input and Output Operation**
- **Break-Before-Make Switching**
- **-40°C to $+125^{\circ}\text{C}$ Operating Temperature Range**
- **Available in Green WLCSP-1.27×2.13-15B and SOIC-14 Packages**

APPLICATIONS

Portable Equipment
Battery-Powered Systems

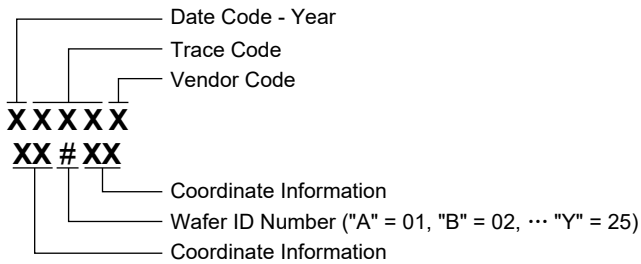
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM4517X	WLCSP-1.27×2.13-15B	-40°C to +125°C	SGM4517XG/TR	4517 XXXXX XX#XX	Tape and Reel, 3000
	SOIC-14	-40°C to +125°C	SGM4517XS14G/TR	SGM4517XS14 XXXXX	Tape and Reel, 2500

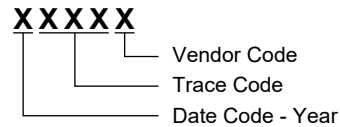
MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code. XX#XX = Coordinate Information and Wafer ID Number.

WLCSP-1.27×2.13-15B



SOIC-14



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.

SGM4517X

ABSOLUTE MAXIMUM RATINGS

V_{CC} to V_{EE}	0V to 26.4V
IN1, IN2, EN to GND.....	0V to 6V
Analog Voltage Range ⁽¹⁾	($V_{EE} - 0.3V$) to ($V_{CC} + 0.3V$)
Continuous Current from NO to COM.....	±350mA
Continuous Current from NC to COM.....	±350mA
Peak Current from NO to COM.....	±400mA
Peak Current from NC to COM.....	±400mA
I/O Clamp Current ($V_I < 0$).....	-30mA
Package Thermal Resistance	
WLCSP-1.27×2.13-15B, θ_{JA}	67.3°C/W
WLCSP-1.27×2.13-15B, θ_{JB}	10.4°C/W
WLCSP-1.27×2.13-15B, θ_{JC}	21.7°C/W
SOIC-14, θ_{JA}	93.4°C/W
SOIC-14, θ_{JB}	48.7°C/W
SOIC-14, θ_{JC}	48.6°C/W
Junction Temperature.....	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	±8000V
CDM	±1000V

NOTE:

1. Internal diodes will clamp voltages at NC, NO, or COM that exceed V_{CC} or GND. Limit the current through the forward diode to the maximum ratings.

RECOMMENDED OPERATING CONDITIONS

Dual Supply Operation.....	±2.7V to ±12V
Single Supply Operation	2.7V to 24V
Operating Temperature Range	-40°C to +125°C

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.

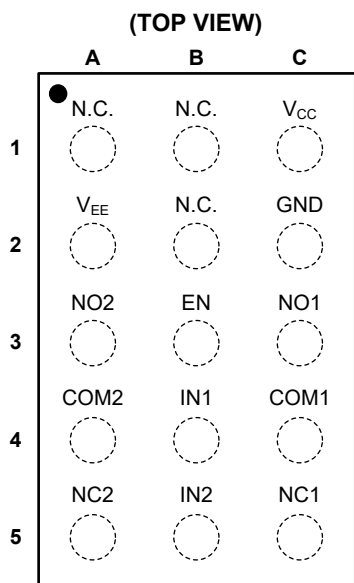
ESD SENSITIVITY CAUTION

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.

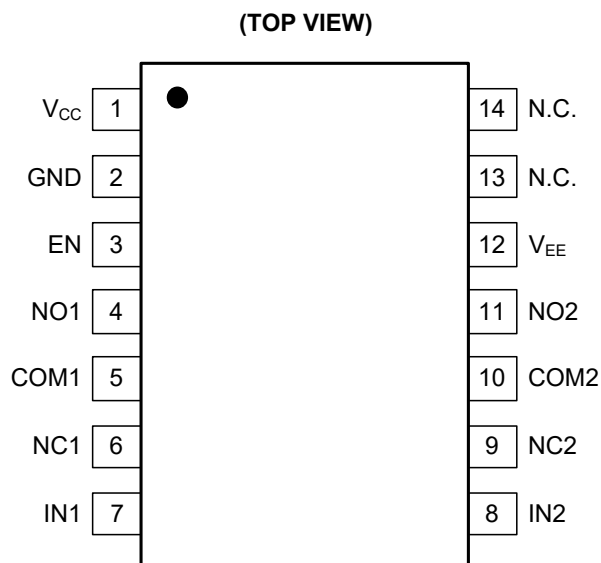
DISCLAIMER

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

PIN CONFIGURATIONS



WLCSP-1.27x2.13-15B



SOIC-14

PIN DESCRIPTION

PIN		NAME	FUNCTION
WLCSP-1.27x2.13-15B	SOIC-14		
A1, B1, B2	13, 14	N.C.	No Connection.
C1	1	V _{CC}	Power Supply Pin.
A2	12	V _{EE}	The Lowest Power Supply Pin. Connect to negative power supply for dual power supply application, or connect to GND for single power supply application.
C2	2	GND	Ground.
A3	11	NO2	Normally-Open Pin.
B3	3	EN	Enable Control Pin. When EN = "Low", both NC and NO are disconnected with COM, negative charge pump does not work and the SGM4517X is in shutdown state. When EN = "High", negative charge pump works, the SGM4517X is in working state, and NC or NO is connected with COM depending on the logical state of IN.
C3	4	NO1	Normally-Open Pin.
A4	10	COM2	Common Pin.
B4	7	IN1	Digital Control Pin. It is used to connect COM to NO or NC.
C4	5	COM1	Common Pin.
A5	9	NC2	Normally-Closed Pin.
B5	8	IN2	Digital Control Pin. It is used to connect COM to NO or NC.
C5	6	NC1	Normally-Closed Pin.

NOTE: NO, NC and COM pins may be an input or output.

FUNCTION TABLE

Table 1. Function Table of Switch 1:

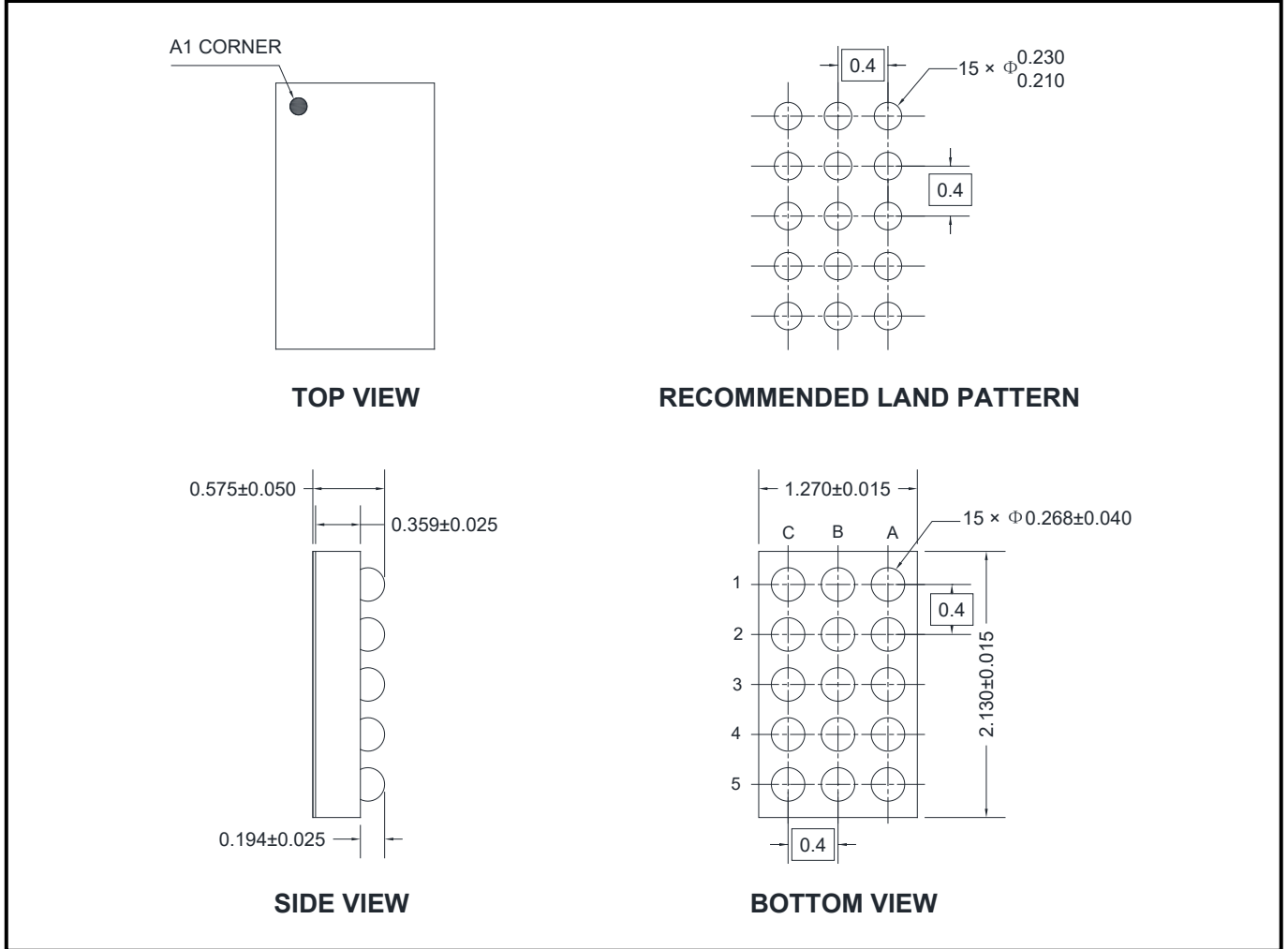
EN	IN1	COM1
0	X	COM1 is disconnected with NO1 and NC1
1	0	COM1 = NC1
1	1	COM1 = NO1

Table 2. Function Table of Switch 2:

EN	IN2	COM2
0	X	COM2 is disconnected with NO2 and NC2
1	0	COM2 = NC2
1	1	COM2 = NO2

PACKAGE OUTLINE DIMENSIONS

WLCSP-1.27×2.13-15B



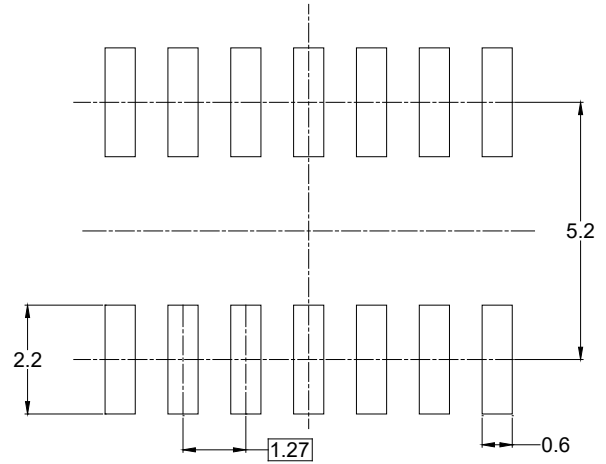
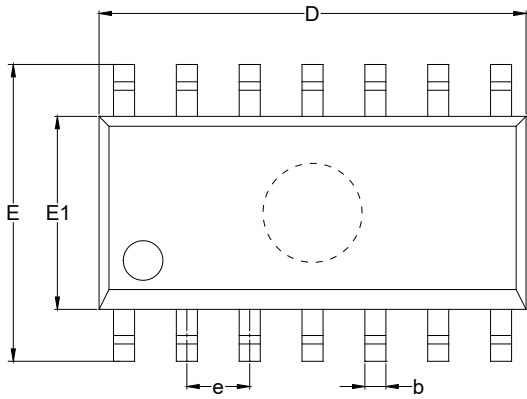
NOTES:

1. All linear dimensions are in millimeters.
2. This drawing is subject to change without notice.

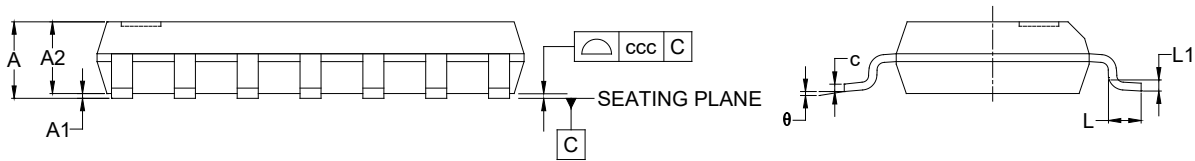
PACKAGE INFORMATION

PACKAGE OUTLINE DIMENSIONS

SOIC-14



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	1.750
A1	0.100	-	0.250
A2	1.250	-	-
b	0.310	-	0.510
c	0.100	-	0.250
D	8.450	-	8.850
E	5.800	-	6.200
E1	3.800	-	4.000
e	1.270 BSC		
L	0.400	-	1.270
L1	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

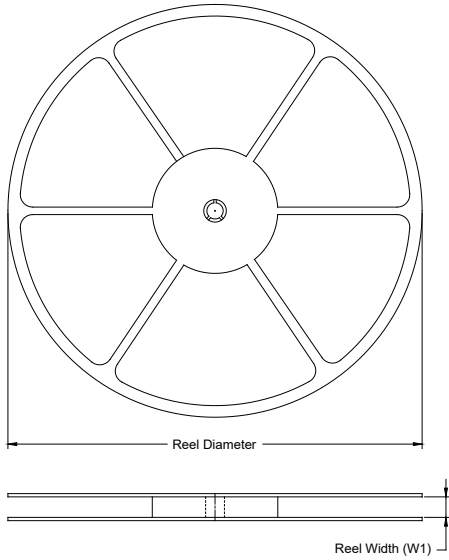
NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MS-012.

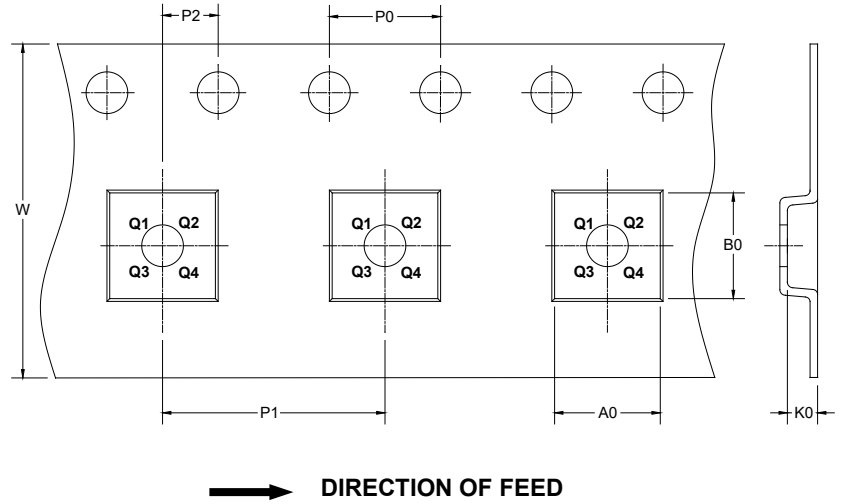
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

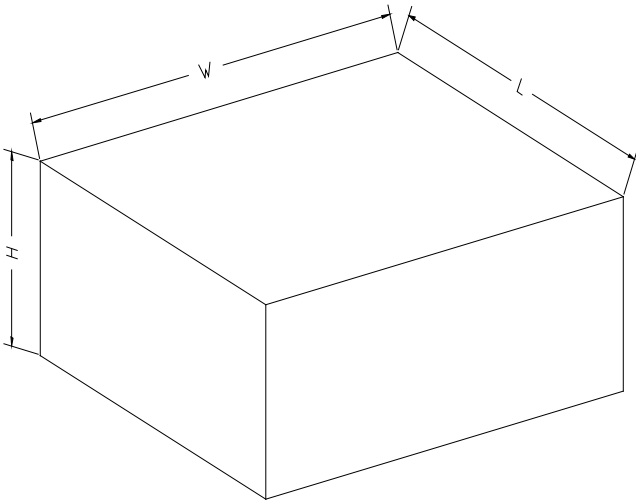
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
WLCSP-1.27×2.13-15B	7"	9.5	1.47	2.37	0.78	4.0	4.0	2.0	8.0	Q1
SOIC-14	13"	16.4	6.60	9.30	2.10	4.0	8.0	2.0	16.0	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
7" (Option)	368	227	224	8
7"	442	410	224	18
13"	386	280	370	5

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