

GENERAL DESCRIPTION

The SGM45250 is a dual depletion single-pole single-throw (SPST) audio switch with negative swing. It provides excellent THD+N performance with minimal power consumption during signal conduction. The device can conduct signals when there is no V_{CC} available and isolate signals when V_{CC} is present. The high performances make it very suitable for multiple applications.

The SGM45250 is available in a Green WLCSP-1.22×1.39-9B package. It operates over an operating temperature range of -40°C to +125°C.

FEATURES

- DC Switch I/O Input Voltage, V_{SW} : -1.5V to 1.5V
- On-Resistance, R_{ON} : 0.55Ω (TYP)
- On-Resistance Flatness: 0.01Ω (TYP)
- Total Harmonic Distortion + Noise: -108dB (TYP)
- Off-Isolation: -72dB (TYP)
- Normally Closed when $V_{CC} \leq 0.2V$
- Switches Configurable through nEN Pins
- -40°C to +125°C Operating Temperature Range
- Available in a Green WLCSP-1.22×1.39-9B Package

APPLICATIONS

Smart Phones
Tablets
Ultra Books
Bluetooth Wireless Headset

TYPICAL APPLICATION

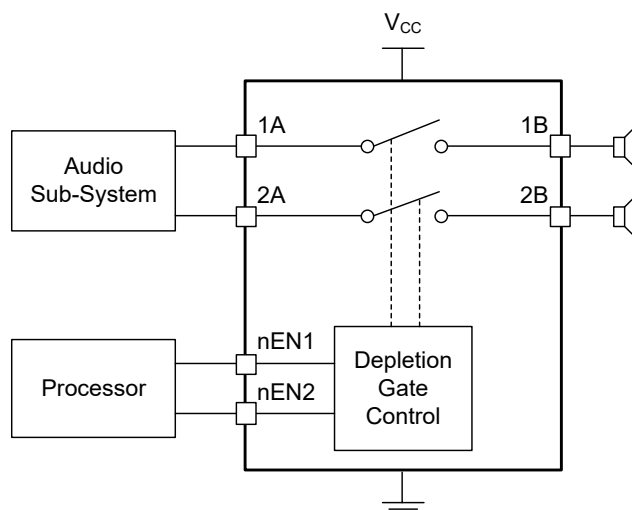


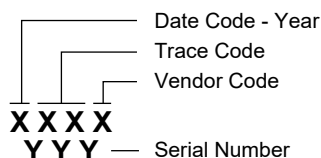
Figure 1. Typical Application Circuit

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM45250	WLCSP-1.22×1.39-9B	-40°C to +125°C	SGM45250XG/TR	XXXX 1C3	Tape and Reel, 4500

MARKING INFORMATION

NOTE: XXXX = 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

Supply Voltage, V_{CC}	-0.5V to 4.3V
nEN Input Voltage, V_{nEN}	-0.5V to 4.3V
DC Switch I/O Voltage (1A, 1B, 2A, 2B)	-2V to 2V
Switch I/O Current, I_{SW} , $V_{CC} = 0V$ (Switch Conducting)	350mA
Peak Switch Current, I_{SWPEAK} , Pulsed at 1ms Duration, < 10% Duty Cycle	500mA
Package Thermal Resistance	
WLCSP-1.22×1.39-9B, θ_{JA}	130.1°C/W
WLCSP-1.22×1.39-9B, θ_{JB}	32.8°C/W
WLCSP-1.22×1.39-9B, θ_{JC}	37.5°C/W
Junction Temperature	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s)	+260°C
ESD Susceptibility ^{(1) (2)}	
HBM.....	±4000V
CDM	±2000V

NOTES:

- For human body model (HBM), all pins comply with ANSI/ESDA/JEDEC JS-001 specifications.
- For charged device model (CDM), all pins comply with ANSI/ESDA/JEDEC JS-002 specifications.

RECOMMENDED OPERATING CONDITIONS

Supply Voltage with Depletion Switch Conducting (1A = 1B, 2A = 2B), $V_{CC(ON)}$	0V to 0.2V
Supply Voltage with Depletion Switch Isolated (1A ≠ 1B, 2A ≠ 2B, nEN1 = nEN2 = High), $V_{CC(OFF)}$	1.5V to 3V
DC Switch I/O Voltage (1A, 1B, 2A, 2B)	-1.5V to 1.5V
nEN Input Voltage, V_{nEN}	0V to 3V
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.

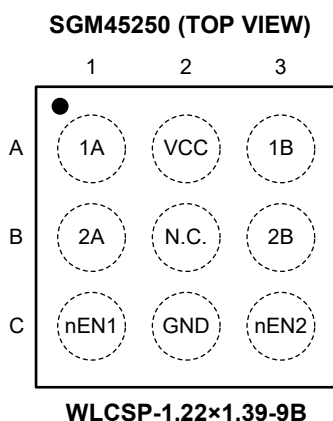
ESD SENSITIVITY CAUTION

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 CONFIGURATION



PIN DESCRIPTION

PIN	NAME	TYPE	FUNCTION
A1	1A	I/O	Analog Switch 1A Input/Output Port.
A2	VCC	P	Power Supply Input Pin.
A3	1B	I/O	Analog Switch 1B Input/Output Port.
B1	2A	I/O	Analog Switch 2A Input/Output Port.
B2	N.C.	—	No Connection.
B3	2B	I/O	Analog Switch 2B Input/Output Port.
C1	nEN1	I	Enable Control Input Pin of Analog Switch 1 (Active Low).
C2	GND	G	Ground Pin.
C3	nEN2	I	Enable Control Input Pin of Analog Switch 2 (Active Low).

NOTE: I = input, O = output, I/O = input/output, P = power, G = ground.

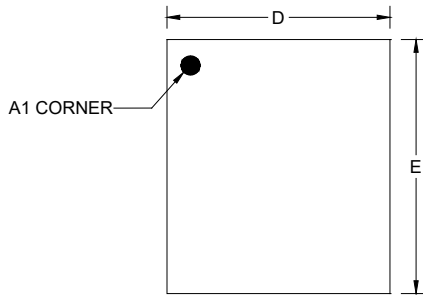
FUNCTION TABLE

POWER SUPPLY	CONTROL INPUTS		SWITCH 1	SWITCH 2
VCC	nEN1	nEN2		
L	X	X	On	On
H	H	H	Off	Off
H	L	H	On	Off
H	H	L	Off	On

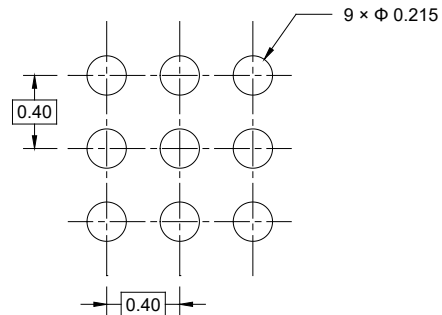
NOTE: X = Don't care.

PACKAGE OUTLINE DIMENSIONS

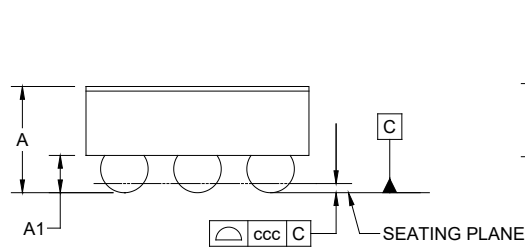
WLCSP-1.22×1.39-9B



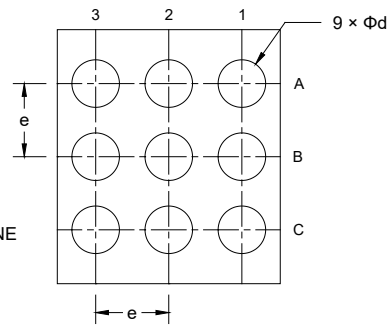
TOP VIEW



RECOMMENDED LAND PATTERN (Unit: mm)



SIDE VIEW



BOTTOM VIEW

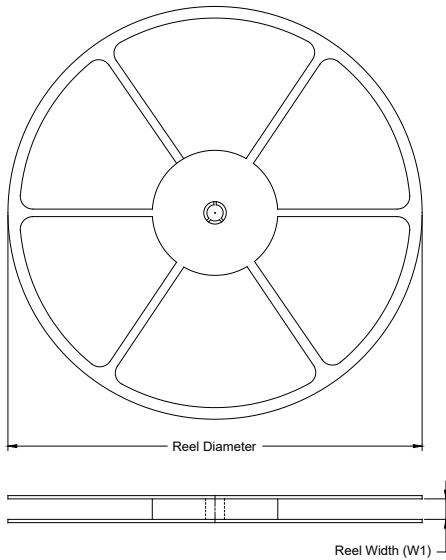
Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	0.626
A1	0.184	-	0.224
D	1.190	-	1.250
E	1.360	-	1.420
d	0.230	-	0.290
e	0.400 BSC		
ccc	0.050		

NOTE: This drawing is subject to change without notice.

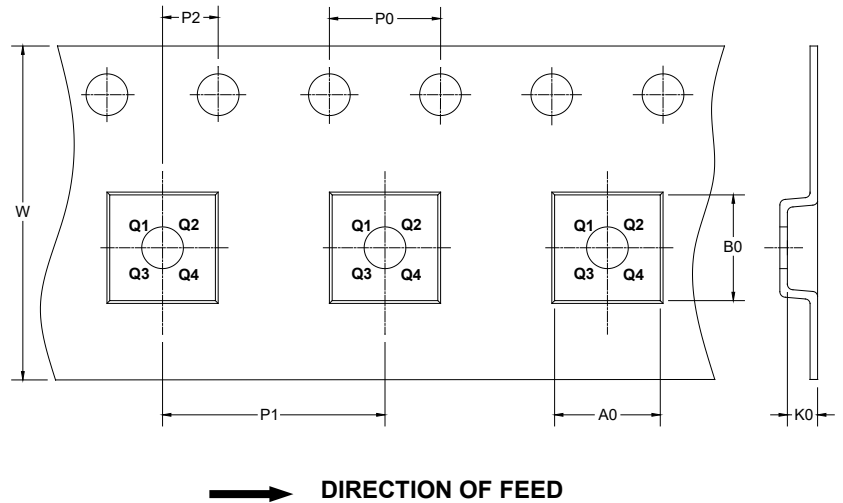
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

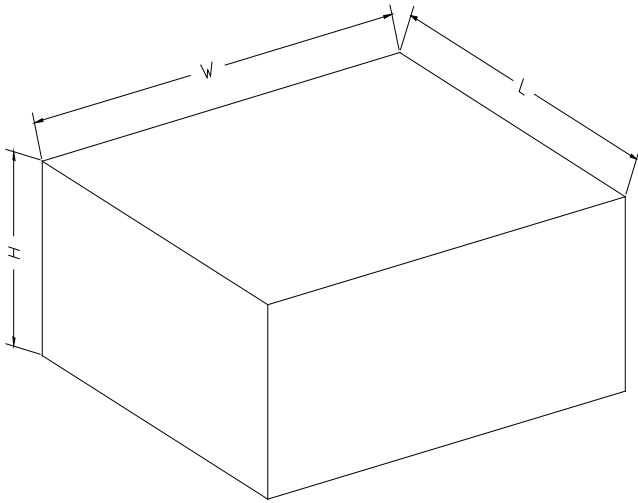
KEY PARAMETER LIST OF TAPE AND REEL

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-1.22×1.39-9B	7"	9.5	1.34	1.52	0.74	4.0	4.0	2.0	8.0	Q1

DD00001

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

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