



SGM4547

High Speed Piezo-Sounder and Ultra-Sound Transducer Driver

GENERAL DESCRIPTION

The SGM4547 is matched dual-channel high speed piezo-sounder and ultra-sound transducer driver which is integrated boost DC/DC to achieve high driven voltage. The unique circuit design provides excellent performance for delivering 2A peak current to highly capacitive loads.

To reduce problems with time and clock skew, SGM4547 is a good choice, with matching delays and maintaining integrity of input to output pulse-widths. Matching rise/fall delay times improve the drive capability and speed. Non-overlapping drive technology is used to minimize the dynamic switching loss.

In order to get higher volume sound from piezo-sounder and ultra-sound transducer, boost DC/DC is integrated to provide high driven voltage. The tiny package makes the device very suitable for space limited applications.

The SGM4547 is available in a Green TDFN-3×3-14L package. It operates over an ambient temperature range of -40°C to +85°C.

FEATURES

- **Integrated Boost DC/DC to Achieve 26V (MAX) Driven Voltage**
- **2A Peak Driven Current to Drive Capacitive Loads**
- **Wide Operating Voltage Range**
- **High Speed Driver**
- **Very Short Rise Time and Fall Time**
- **Improved Response Times**
- **Matched Rise Time and Fall Time**
- **Independent Enable Control for Each Channel**
- **Reduced Clock Skew between Dual Channels**
- **Output is at Low under UVLO Protection, Enable Pin Floating or Disable Status**
- **High Noise Immunity**
- **Improved Clocking Rate**
- **Low Supply Current and Output Impedance**
- **-40°C to +85°C Operating Temperature Range**
- **Available in a Green TDFN-3×3-14L Package**

APPLICATIONS

Ultra-Sound Transducer Driver
Piezo-Sounder Driver

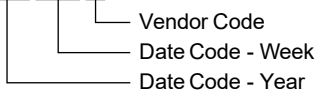
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM4547	TDFN-3x3-14L	-40°C to +85°C	SGM4547YTDK14G/TR	SGM 4547DK XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date 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

- VIN to GND (Boost DC/DC)..... -0.3V to 22V
- Voltage on SW (Driver)..... -0.3V to 40V
- Voltage on FB and COMP -0.3V to 3V
- VCC to GND -0.3V to 28V
- ENA, ENB, CTRL to GND..... -0.3V to 6V
- INA, INB to GND.....-0.3V to V_{CC} + 0.3V
- Combined Peak Output Current..... 4A
- Package Thermal Resistance
 - TDFN-3x3-14L, θ_{JA} 200°C/W
- Junction Temperature.....150°C
- Storage Temperature Range -65°C to +150°C
- Lead Temperature (Soldering, 10s).....260°C
- ESD Susceptibility
 - HBM.....4000V
 - MM.....250V
 - CDM 1000V

RECOMMENDED OPERATING CONDITIONS

- Operating Temperature Range..... -40°C to +85°C
- Operating Junction Temperature Range..... -40°C to +125°C
- Input Voltage Range2.5V to 20V

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.

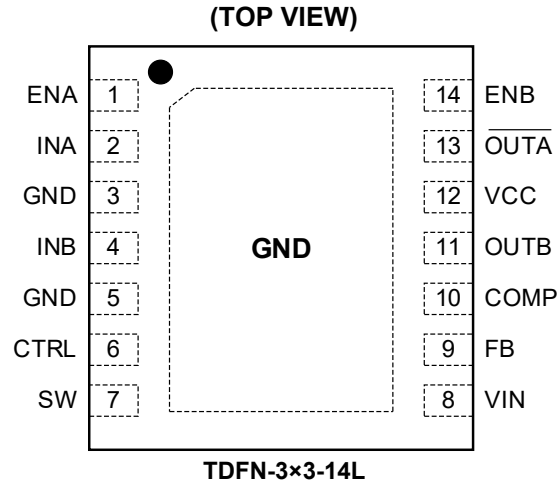
ESD SENSITIVITY CAUTION

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.

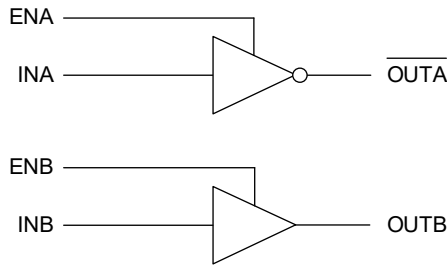
DISCLAIMER

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

PIN CONFIGURATION



LOGIC SYMBOL



FUNCTION TABLE

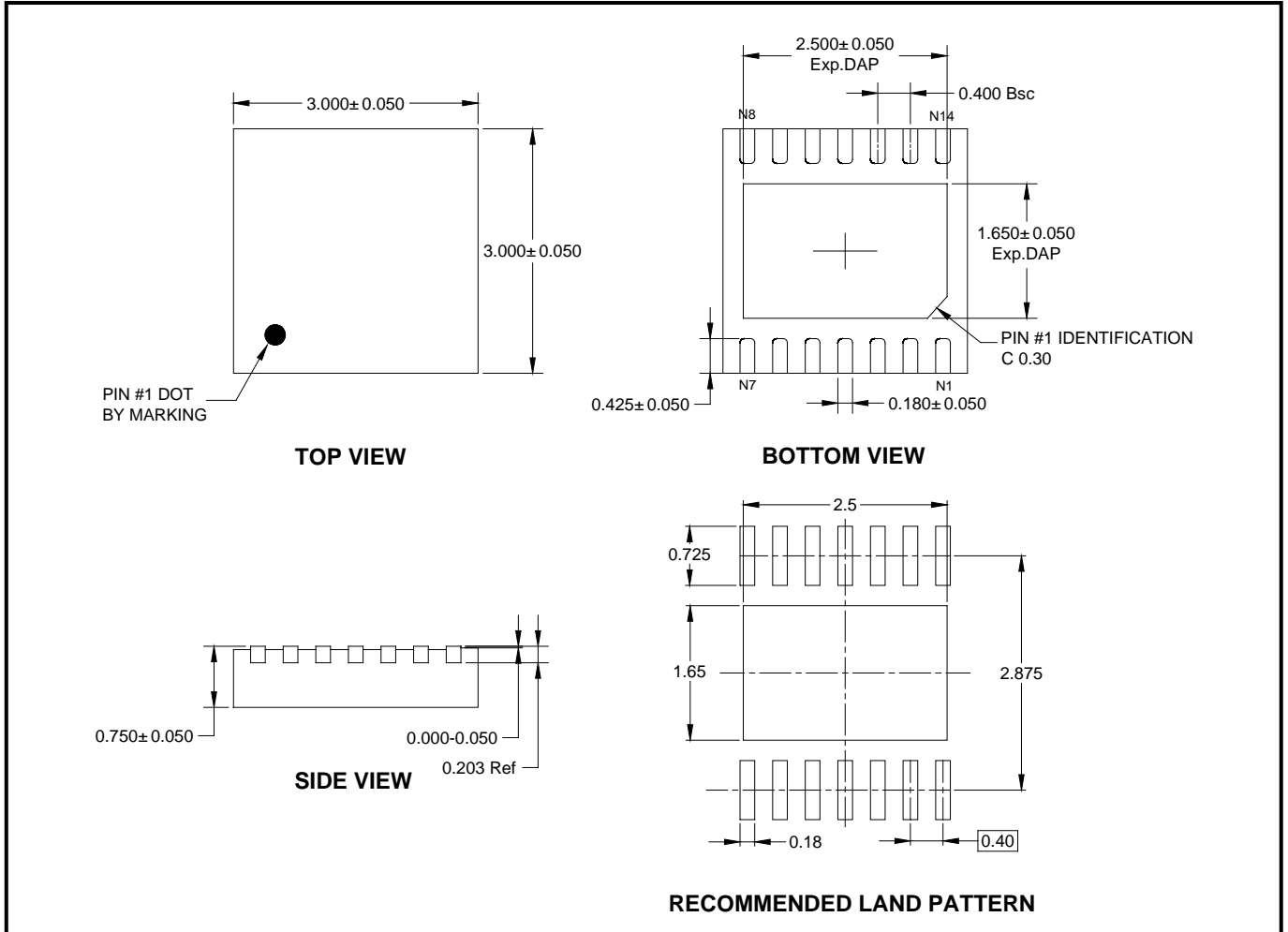
ENA	ENB	INA	INB	$\overline{\text{OUTA}}$	OUTB
H	H	L	L	H	L
H	H	L	H	H	H
H	H	H	L	L	L
H	H	H	H	L	H
H	H	Floating	Floating	L	L
L	L	—	—	L	L
Floating	Floating	—	—	L	L

PIN DESCRIPTION

PIN	NAME	FUNCTION
1	ENA	Enable Input for Channel A. A high signal on this pin will enable the channel A output. Logic low or floating will disable channel A output, regardless of the INA logic is high or low.
2	INA	Input for Channel A. Inverting channel input. If INA is unbiased or floating, \overline{OUTA} will remain low.
3, 5	GND	Ground.
4	INB	Input for Channel B. Non-inverting channel input. If INB is unbiased or floating, OUTB will remain low.
6	CTRL	Enable Control Pin of the Boost Regulator. Pulling this pin logic high enables the regulator and pulling it logic low disables the regulator.
7	SW	Switching Node of the Boost Regulator. Drain connection of low-side power MOSFET.
8	VIN	The Input Supply Pin for the Boost Regulator.
9	FB	Feedback Pin of Boost Regulator's Output Voltage. An external resistor divider programs the output voltage.
10	COMP	Control Loop Compensation Pin.
11	OUTB	Output of Channel B.
12	VCC	Supply Input of Driver.
13	\overline{OUTA}	Output of Channel A.
14	ENB	Enable Input for Channel B. A high signal on this pin will enable the channel B output. Logic low or floating will disable channel B output, regardless of the INB logic is high or low.
Exposed Pad	GND	Ground.

PACKAGE OUTLINE DIMENSIONS

TDFN-3x3-14L



NOTES:

1. All linear dimensions are in millimeters.
2. 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
TDFN-3×3-14L	13"	12.4	3.35	3.35	1.13	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