



SGM7228

Low Cost, High Speed USB 2.0 (480Mbps) DPDT Analog Switch

GENERAL DESCRIPTION

The SGM7228 is a DPDT (double-pole/double-throw) analog switch. It operates from a 1.8V to 4.3V single power supply. Each switch of the SGM7228 is bidirectional, which can ensure that the high speed signals have little or no attenuation at the outputs.

The SGM7228 features high speed, low bit-to-bit skew and wide bandwidth. The high performances make it very suitable for multiple applications, such as cellular phones and computer peripherals, etc.

The SGM7228 has a power-off protection. It can prevent accidental signal leakage and ensure system reliability under power-down and over-voltage conditions. In addition, the device is capable of withstanding a V_{BUS} short to D+ or D- when the device is either powered on or powered off because of the special circuitry on the D+/D- pins.

The SGM7228 is available in a Green TQFN-1.8×1.4-10L package. It operates over an ambient temperature range of -40°C to +85°C.

FEATURES

- **Supply Voltage Range:** 1.8V to 4.3V
- **On-Resistance:** 6Ω (TYP) at 3V
- **High Off-Isolation:** -35dB ($R_L = 50\Omega$, $f = 250\text{MHz}$)
- **Low Crosstalk:** -40dB ($R_L = 50\Omega$, $f = 250\text{MHz}$)
- **Low Bit-to-Bit Skew:** 50ps (TYP)
- **-3dB Bandwidth:** 550MHz
- **Fast Switching Times:**
 - t_{ON} : 10ns (TYP)
 - t_{OFF} : 22ns (TYP)
- **Break-Before-Make Switching**
- **Rail-to-Rail Input and Output Operation**
- **Power-Off and Power-On Protections**
- **Low Cost**
- **-40°C to +85°C Operating Temperature Range**
- **Available in a Green TQFN-1.8×1.4-10L Package**

APPLICATIONS

Cellular Phones
Digital Cameras
Portable Equipment
Computer Peripherals
Battery-Powered Systems
Routes Signals for USB 2.0 Full-Speed

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM7228	TQFN-1.8×1.4-10L	-40°C to +85°C	SGM7228YWQ10G/TR	7228	Tape and Reel, 3000

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

V₊ to GND0V to 4.6V
 Analog, Digital Voltage Range -0.3V to (V₊) + 0.3V
 Continuous Current HSDn or Dn ±100mA
 Peak Current HSDn or Dn ±150mA
 Junction Temperature+150°C
 Storage Temperature Range -65°C to +150°C
 Lead Temperature (Soldering, 10s)+260°C
 ESD Susceptibility
 HBM..... 4000V
 MM..... 400V

RECOMMENDED OPERATING CONDITIONS

Operating Temperature Range -40°C to +85°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.

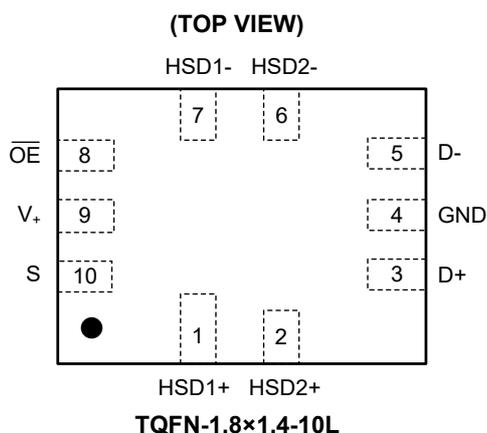
ESD SENSITIVITY CAUTION

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	FUNCTION
1, 2	HSD1+, HSD2+	Data Ports.
3, 5	D+, D-	
7, 6	HSD1-, HSD2-	
4	GND	Ground.
8	\overline{OE}	Enable Control Pin.
9	V+	Positive Power Supply.
10	S	Select Input Pin.

FUNCTION TABLE

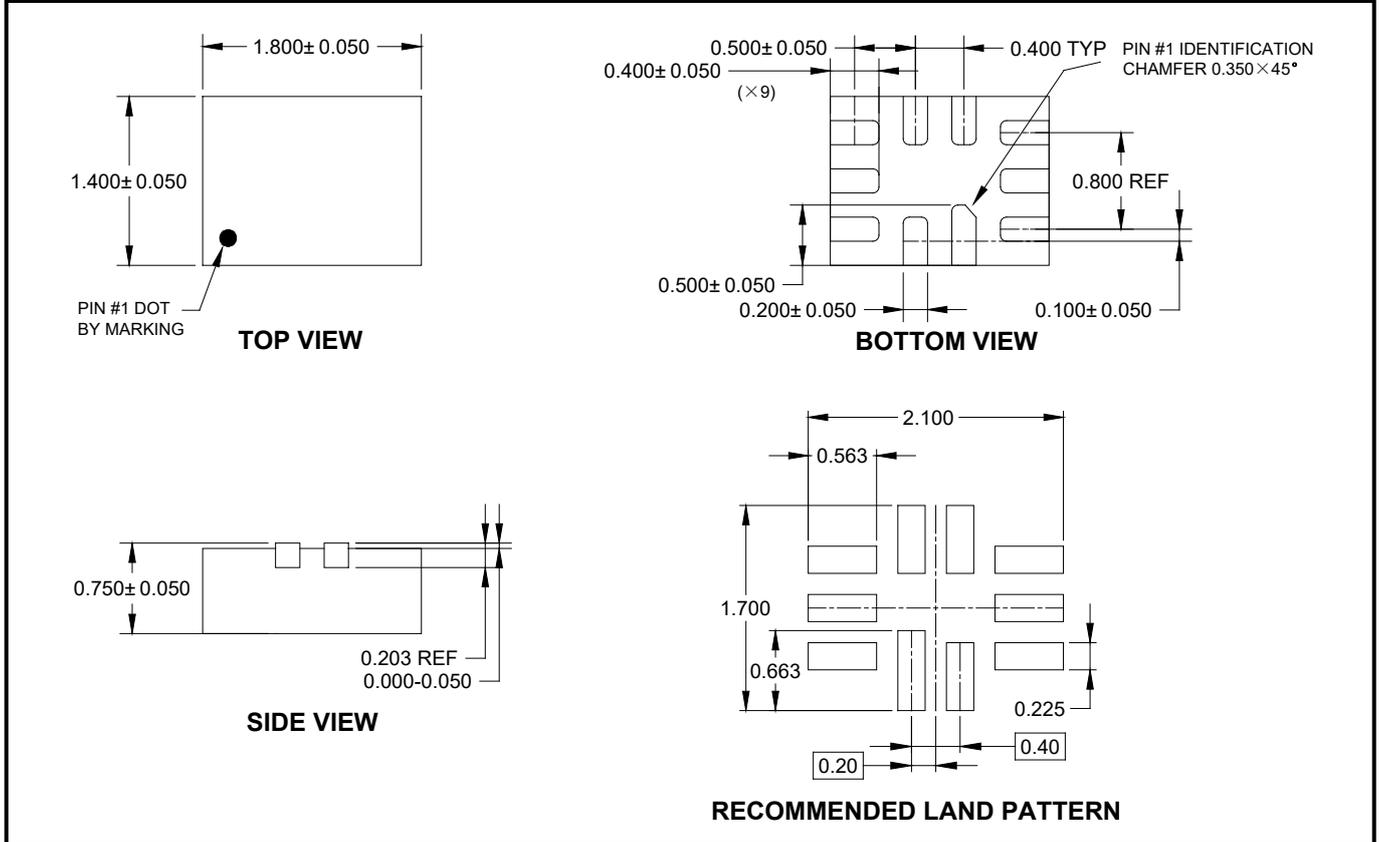
\overline{OE}	S	HSD1+ HSD1-	HSD2+ HSD2-
0	0	ON	OFF
0	1	OFF	ON
1	x	OFF	OFF

NOTE: Switches shown for logic "0" input.

PACKAGE INFORMATION

PACKAGE OUTLINE DIMENSIONS

TQFN-1.8×1.4-10L



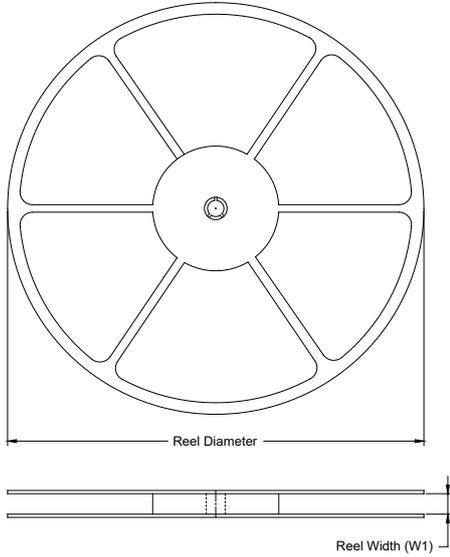
NOTES:

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

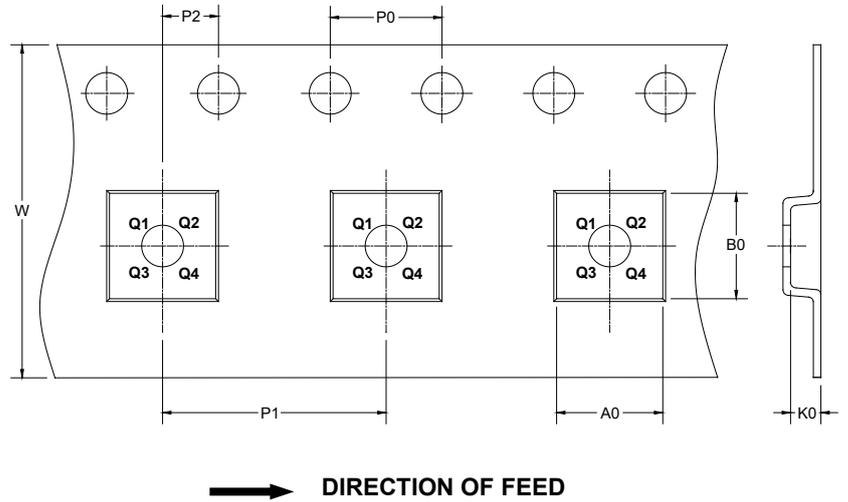
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

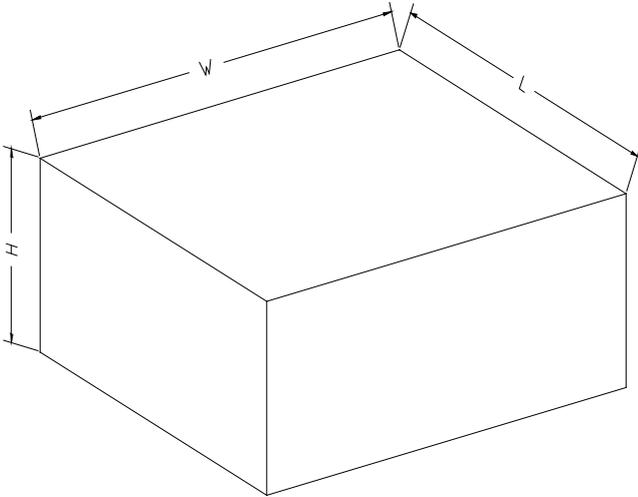
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TQFN-1.8×1.4-10L	7"	9.0	1.75	2.10	1.00	4.0	4.0	2.0	8.0	Q1

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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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