SGM48756
3.5Ω, Low Voltage SPDT Analog Switch in Ultra-Thin Package

GENERAL DESCRIPTION

The SGM48756 is a bidirectional, SPDT (single-pole/double-throw), CMOS analog switch. It operates from a 1.8V to 5.5V single power supply.

The SGM48756 features low on-resistance, low voltage and high bandwidth. The high performances make it very suitable for multiple applications, such as portable equipment, audio and video signal routing, etc. Low power consumption is also one of the important reasons that make it a good choice for applications.

The SGM48756 is available in Green SC70-6, XTDFN-1×1-6L and UTDFN-1.45×1-6AL packages. It operates -40℃ to +125℃ operating temperature range.

FEATURES

- **Single Supply Voltage Range: 1.8V to 5.5V**
- **Low On-Resistance: 3.5Ω (TYP) at 5V**
- **Fast Switching Times:**
  - **t_{ON}: 26ns (TYP)**
  - **t_{OFF}: 20ns (TYP)**
- **Low On-Resistance Flatness**
- **-3dB Bandwidth: 250MHz (TYP)**
- **High Off-Isolation: -50dB (TYP) at 10MHz**
- **TTL/CMOS Compatible**
- **Rail-to-Rail Input and Output Operation**
- **Break-Before-Make Switching**
- **-40℃ to +125℃ Operating Temperature Range**
- **Available in Green SC70-6, XTDFN-1×1-6L and UTDFN-1.45×1-6AL Packages**

APPLICATIONS

Cellular Phones
Portable Equipment
Computer Peripherals
Sample-and-Hold Circuits
Personal Digital Assistants
Battery-Powered Systems
Audio and Video Signal Routing

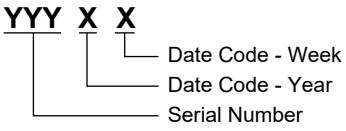
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM48756	SC70-6	-40℃ to +125℃	SGM48756XC6G/TR	01QXX	Tape and Reel, 3000
	XTDFN-1×1-6L	-40℃ to +125℃	SGM48756XXDM6G/TR	1X	Tape and Reel, 10000
	UTDFN-1.45×1-6AL	-40℃ to +125℃	SGM48756XUDL6G/TR	00X	Tape and Reel, 5000

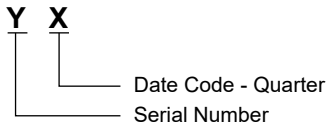
MARKING INFORMATION

NOTE: XX = Date Code. X = Date Code.

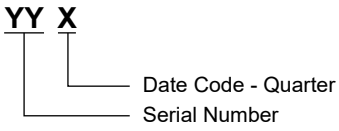
SC70-6



XTDFN-1×1-6L



UTDFN-1.45×1-6AL



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+, IN to GND ..... -0.3V to 6V
Analog Voltage Range (1) ..... -0.3V to (V_+ + 0.3V)
Continuous Current, NO, NC, or COM ..... ±50mA
Peak Current, NO, NC, or COM ..... ±80mA
Package Thermal Resistance
SC70-6, θ_{JA} ..... 182.2℃/W
SC70-6, θ_{JB} ..... 58.1℃/W
SC70-6, θ_{JC} ..... 122.7℃/W
XTDFN-1×1-6L, θ_{JA} ..... 291.8℃/W
XTDFN-1×1-6L, θ_{JB} ..... 152.6℃/W
XTDFN-1×1-6L, θ_{JC} ..... 168.7℃/W
UTDFN-1.45×1-6AL, θ_{JA} ..... 257.2℃/W
UTDFN-1.45×1-6AL, θ_{JB} ..... 139.7℃/W
UTDFN-1.45×1-6AL, θ_{JC} ..... 195.4℃/W
Junction Temperature ..... +150℃
Storage Temperature Range ..... -65℃ to +150℃
Lead Temperature (Soldering, 10s) ..... +260℃
ESD Susceptibility
XTDFN-1×1-6L Package
HBM ..... ±8000V
CDM ..... ±1000V
SC70-6 and UTDFN-1.45×1-6AL Packages
HBM ..... ±4000V
CDM ..... ±1000V

NOTE:
1. Internal diodes will clamp voltages on NC, NO, or COM that exceed V_+. Limit the current through the forward diode to the maximum ratings.

RECOMMENDED OPERATING CONDITIONS

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

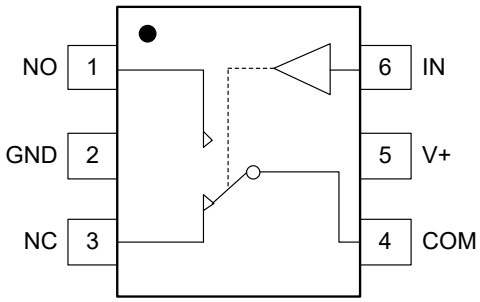
This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance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

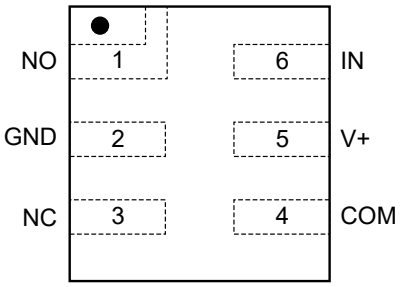
PIN CONFIGURATIONS

(TOP VIEW)



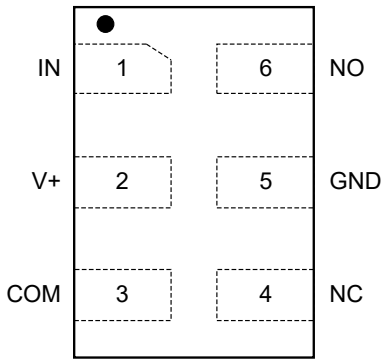
SC70-6

(TOP VIEW)



XTDFN-1×1-6L

(TOP VIEW)



UTDFN-1.45×1-6AL

PIN DESCRIPTION

PIN		NAME	FUNCTION
SC70-6 XTDFN-1×1-6L	UTDFN-1.45×1-6AL		
1	6	NO	Normally Open Pin.
2	5	GND	Ground.
3	4	NC	Normally Closed Pin.
4	3	COM	Common Pin.
5	2	V+	Positive Power Supply Pin.
6	1	IN	Digital Control Pin to Connect the COM Pin to the NO or NC Pins.

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

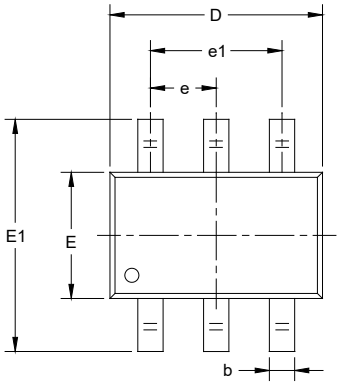
FUNCTION TABLE

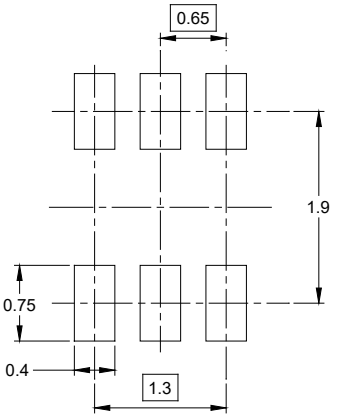
IN	NO	NC
0	OFF	COM = NC
1	COM = NO	OFF

NOTE: Switches shown for logic "0" input.

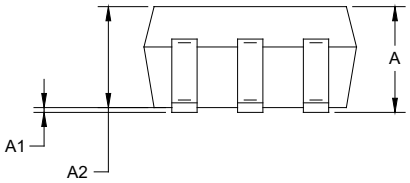
PACKAGE OUTLINE DIMENSIONS

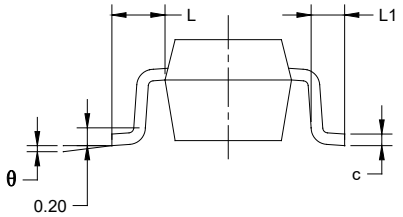
SC70-6





RECOMMENDED LAND PATTERN (Unit: mm)



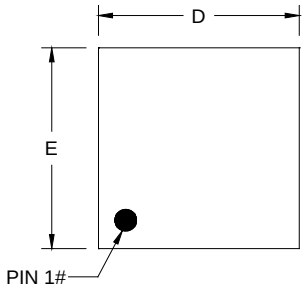


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.220	0.003	0.009
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.65 TYP		0.026 TYP	
e1	1.300 BSC		0.051 BSC	
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

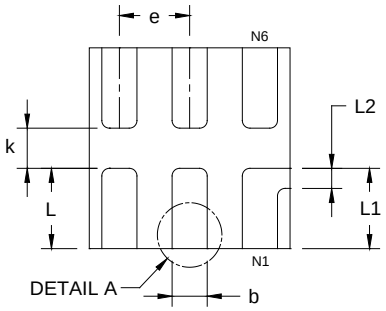
NOTES:
1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

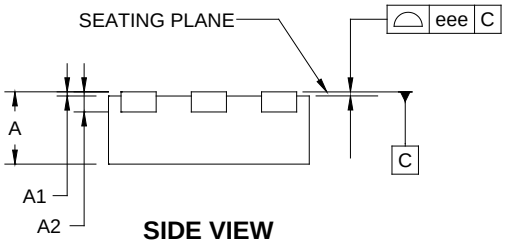
XTDFN-1×1-6L



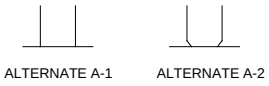
TOP VIEW



BOTTOM VIEW

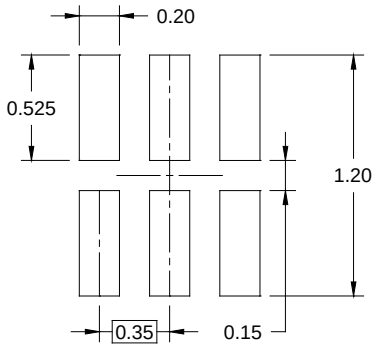


SIDE VIEW



DETAIL A

ALTERNATE TERMINAL CONSTRUCTION



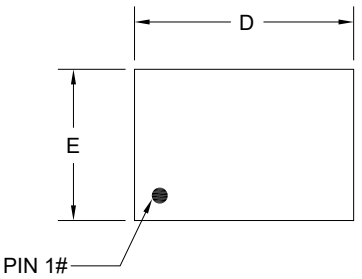
RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.320	-	0.400
A1	0.000	-	0.050
A2	0.100 REF		
b	0.120	-	0.230
D	0.950	-	1.050
E	0.950	-	1.050
e	0.350 BSC		
k	0.150 MIN		
L	0.350	-	0.450
L1	0.350	-	0.450
L2	0.100 REF		
eee	0.050		

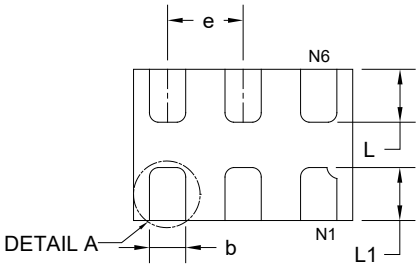
NOTE: This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

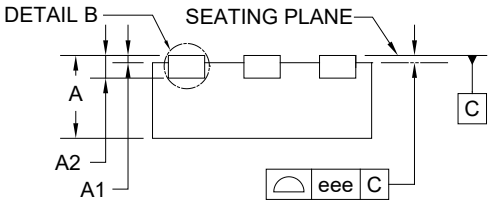
UTDFN-1.45×1-6AL



TOP VIEW



BOTTOM VIEW



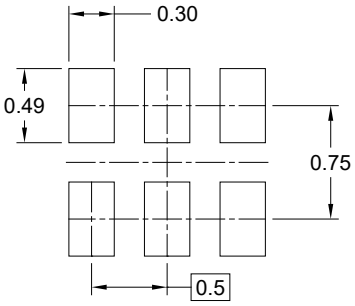
SIDE VIEW



DETAIL A
ALTERNATE TERMINAL CONSTRUCTION



DETAIL B
ALTERNATE CONSTRUCTION



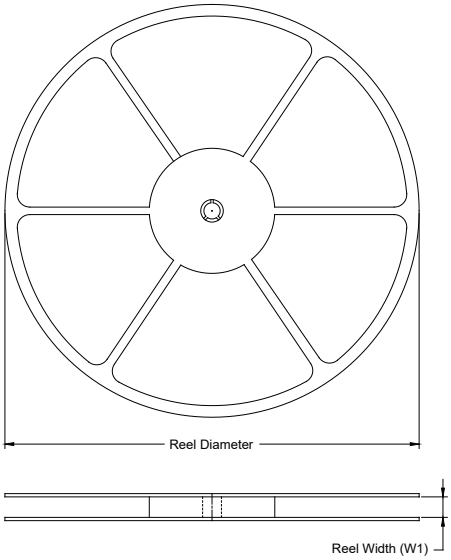
RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.450	-	0.600
A1	-0.004	-	0.050
A2	0.150 REF		
b	0.150	-	0.300
D	1.374	-	1.526
E	0.924	-	1.076
e	0.500 BSC		
L	0.250	-	0.450
L1	0.250	-	0.500
L2	0.000	-	0.100
eee	0.050		

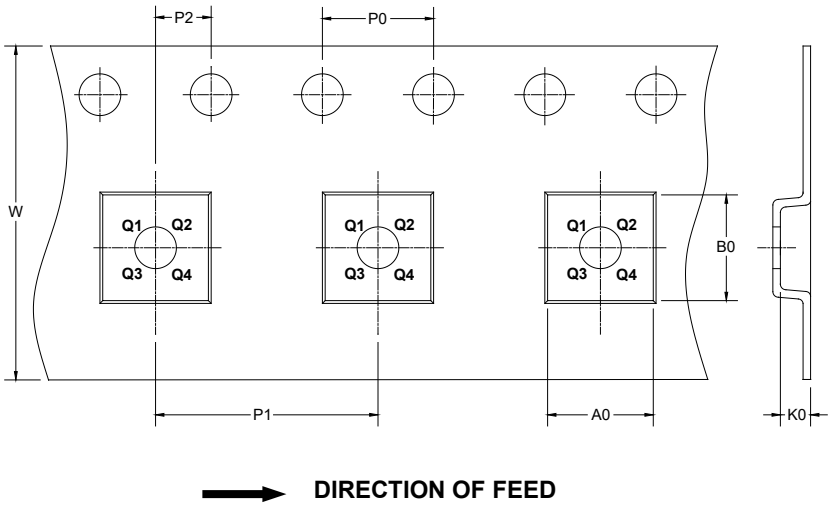
NOTE: This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



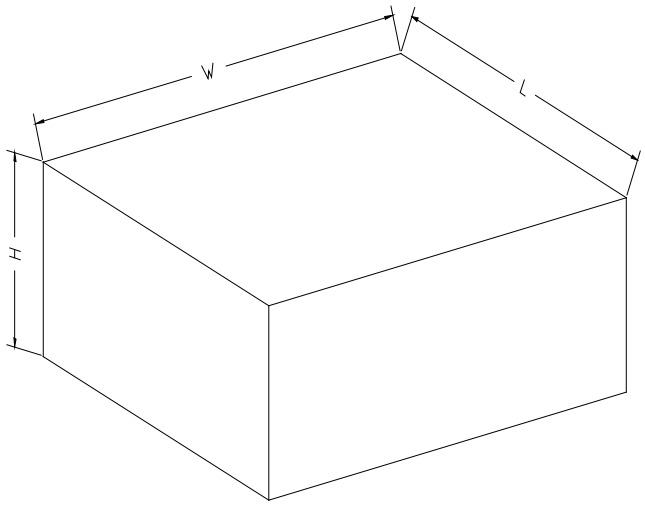
NOTE: The picture is only for reference. Please make the object as the standard.

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
SC70-6	7"	9.5	2.40	2.50	1.20	4.0	4.0	2.0	8.0	Q3
XTDFN-1×1-6L	7"	9.5	1.16	1.16	0.50	4.0	2.0	2.0	8.0	Q2
UTDFN-1.45×1-6AL	7"	9.5	1.15	1.60	0.75	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

DD0002