



SGM4717CQ

4.5Ω, 300MHz Bandwidth, Dual, SPDT Analog Switch for Automotive Applications

GENERAL DESCRIPTION

The SGM4717CQ is a bidirectional, dual, SPDT (single-pole/double-throw), TTL/CMOS compatible analog switch. It operates from a 1.8V to 5.5V single power supply.

The SGM4717CQ features low on-resistance, high bandwidth and fast switching times. The high performances make it very suitable for multiple applications, such as portable equipment, audio and video signal routing, etc. In addition, the SGM4717CQ can be used as a dual 2-to-1 multiplexer because it has two normally open and two normally close switches. Low power consumption is also one of the important features.

The device is AEC-Q100 qualified (Automotive Electronics Council (AEC) standard Q100 Grade 1) and it is suitable for automotive applications.

The SGM4717CQ is available in a Green MSOP-10 package. It operates over an ambient temperature range of -40°C to +125°C.

FEATURES

- **AEC-Q100 Qualified for Automotive Applications**
Device Temperature Grade 1
 $T_A = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$
- **Supply Voltage Range: 1.8V to 5.5V**
- **High Bandwidth: 300MHz (TYP) at $V_+ = 5\text{V}$**
- **Low On-Resistance: 4.5Ω (TYP) at $V_+ = 5\text{V}$**
- **Fast Switching Times at $V_+ = 5\text{V}$:**
 $t_{\text{ON}} = 31\text{ns}$ (TYP)
 $t_{\text{OFF}} = 27\text{ns}$ (TYP)
- **High Off-Isolation: -56dB at 10MHz**
- **Low Crosstalk: -90dB at 10MHz**
- **TTL/CMOS Compatible**
- **Break-Before-Make Switching**
- **Rail-to-Rail Input and Output Operation**
- **-40°C to +125°C Operating Temperature Range**
- **Available in a Green MSOP-10 Package**

APPLICATIONS

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

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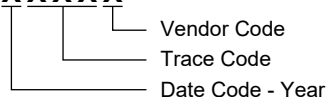
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE TOP MARKING	PACKING OPTION
SGM4717CQ	MSOP-10	-40°C to +125°C	SGM4717CQMS10G/TR	359MS10 XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace 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

V ₊ to GND	-0.3V to 6V
Analog Voltage Range ⁽¹⁾	-0.3V to (V ₊ + 0.3V)
Digital Voltage Range	-0.3V to 6V
Continuous Current (NO, NC, or COM)	±50mA
Peak Current (NO, NC, or COM)	±80mA
Package Thermal Resistance	
MSOP-10, θ _{JA}	153.7°C/W
MSOP-10, θ _{JB}	99.4°C/W
MSOP-10, θ _{JC}	67.3°C/W
Junction Temperature	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s)	+260°C
ESD Susceptibility ^{(2) (3)}	
HBM	±4000V
CDM	±1000V

NOTES:

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.
2. For human body model (HBM), all pins comply with AEC-Q100-002 specification.
3. For charged device model (CDM), all pins comply with AEC-Q100-011 specification.

RECOMMENDED OPERATING CONDITIONS

Operating Temperature Range	-40°C to +125°C
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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.

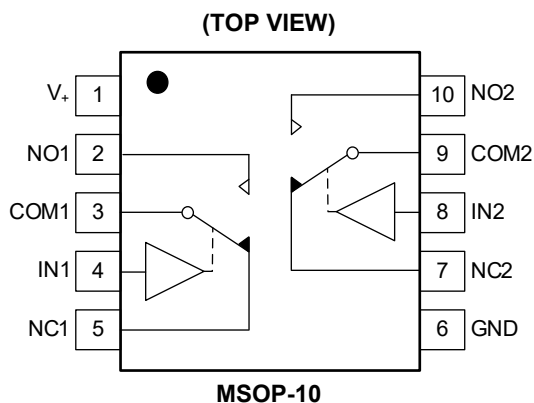
DISCLAIMER

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

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PIN CONFIGURATION



PIN DESCRIPTION

PIN	NAME	FUNCTION
1	V ₊	Positive Power Supply.
6	GND	Ground.
4, 8	IN1, IN2	Digital Control Input Pins to Connect the COM Pins to the NO or NC Pins.
3, 9	COM1, COM2	Common Pins.
2, 10	NO1, NO2	Normally Open Pins.
5, 7	NC1, NC2	Normally Closed Pins.

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

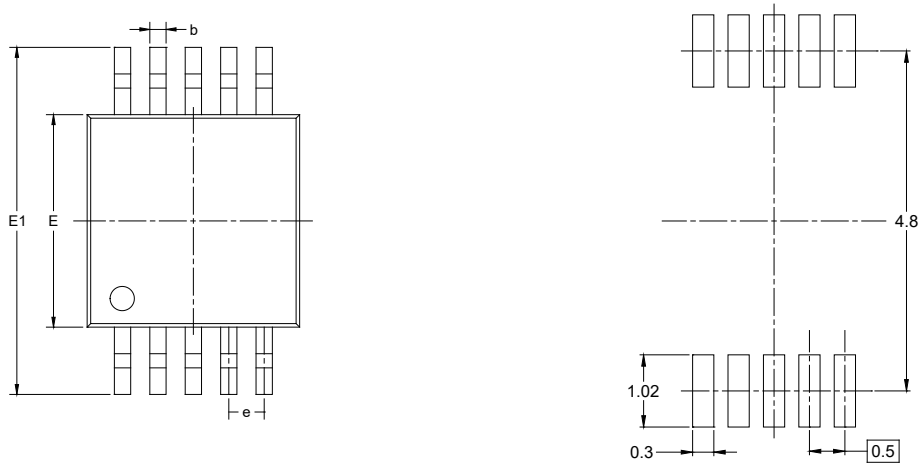
FUNCTION TABLE

LOGIC	NO	NC
0	OFF	ON
1	ON	OFF

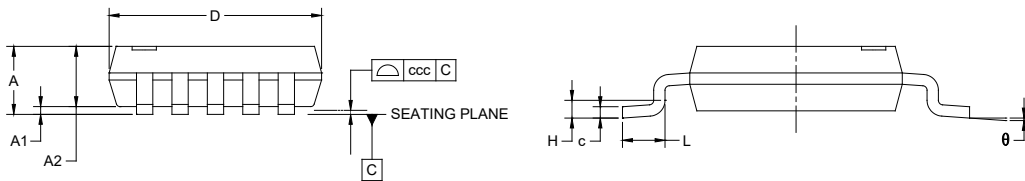
NOTE: Switches shown for logic "0" input.

PACKAGE OUTLINE DIMENSIONS

MSOP-10



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	1.100
A1	0.000	-	0.150
A2	0.750	-	0.950
b	0.170	-	0.330
c	0.080	-	0.230
D	2.900	-	3.100
E	2.900	-	3.100
E1	4.750	-	5.050
e	0.500 BSC		
H	0.250 TYP		
L	0.400	-	0.800
θ	0°	-	8°
ccc	0.100		

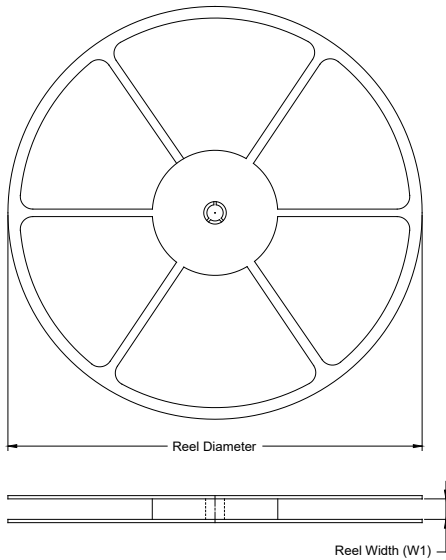
NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MO-187.

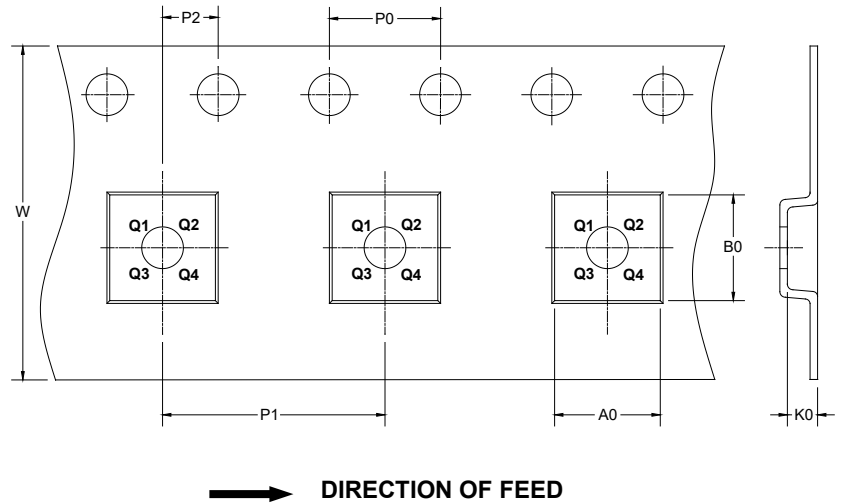
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

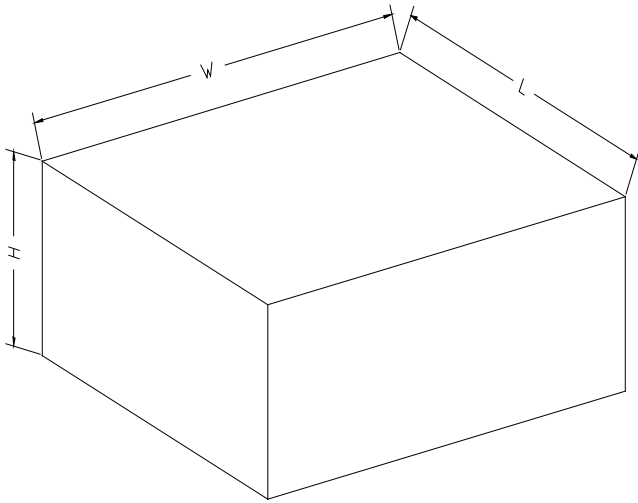
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
MSOP-10	13"	12.4	5.20	3.30	1.50	4.0	8.0	2.0	12.0	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
13"	386	280	370	5

DD0002