SGMGQ10310Q
Automotive 100V, WLCSP Package, GaN E-Mode Power Transistor

FEATURES

- **AEC-Q101 Qualified**
- **GaN-on-Silicon E-Mode HEMT Technology**
- **Very Low Gate Charge**
- **Zero Reverse Recovery Charge**
- **Die Size (2.13mm × 1.63mm)**
- **RoHS Compliant and Halogen Free**

APPLICATIONS

LiDAR Application
High Power Density DC/DC Converter
Class-D Audio
High Intensity Headlamp

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNITS
Drain-to-Source Voltage	V_{DS}	100	V
Gate-to-Source Voltage	V_{GS}	6	V
		-4	
Drain Current	I_D	18	A
Drain Current (Pulse) (1)	I_{DM}	75	A
Junction Temperature	T_J	-40 to +150	℃
Storage Temperature Range	T_{STG}	-55 to +150	℃
Lead Temperature (Soldering, 10s)		+260	℃

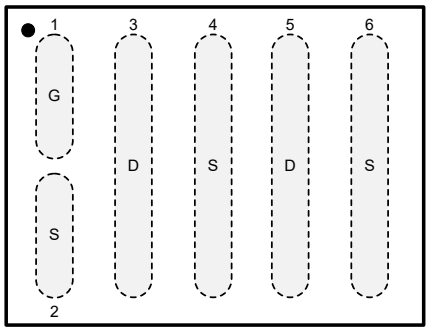
Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability.
NOTE: 1. t_{PULSE} = 300μs.

PRODUCT SUMMARY

R_{DSON} (TYP) V_{GS} = 5V	R_{DSON} (MAX) V_{GS} = 5V	I_D (MAX) T_A = +25℃
10mΩ	13.5mΩ	18A

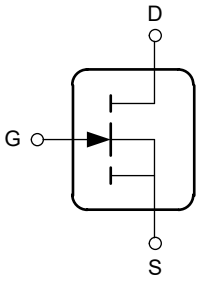
PIN CONFIGURATION

(TOP VIEW)



WLCSP-2.13×1.63-6L

EQUIVALENT CIRCUIT

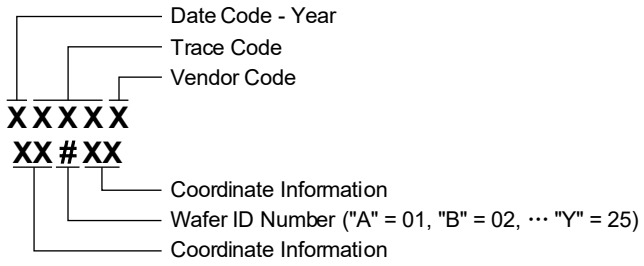


PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMGQ10310Q	WLCSP-2.13×1.63-6L	-40℃ to +150℃	SGMGQ10310QG/TR	2U9 XXXXX XX#XX	Tape and Reel, 2500

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code. XX#XX = Coordinate Information and Wafer ID Number.



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.

DISCLAIMER

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

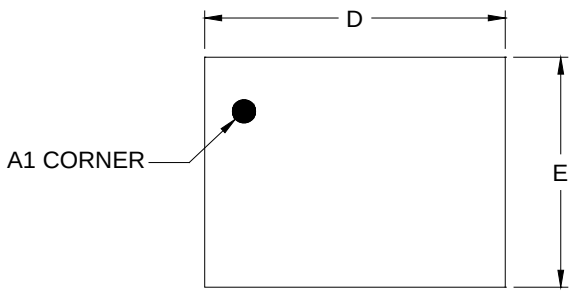
THERMAL RESISTANCE

PARAMETER	SYMBOL	TYP	UNITS
Junction-to-Ambient Thermal Resistance (1)	$R_{\theta JA}$	66.29	℃/W
Junction-to-Board Thermal Resistance	$R_{\theta JB}$	2.8	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	15.62	

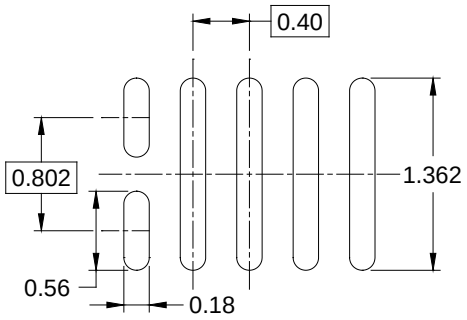
NOTE: 1. $R_{\theta JA}$ is determined with the device mounted on one square inch of copper pad, single layer 2oz copper on FR4 board.

PACKAGE OUTLINE DIMENSIONS

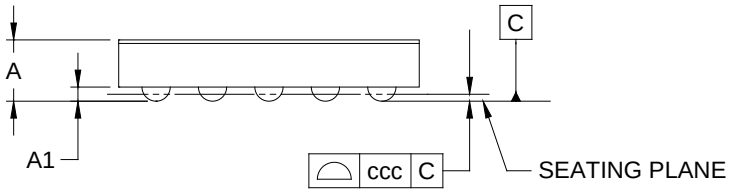
WLCSP-2.13×1.63-6L



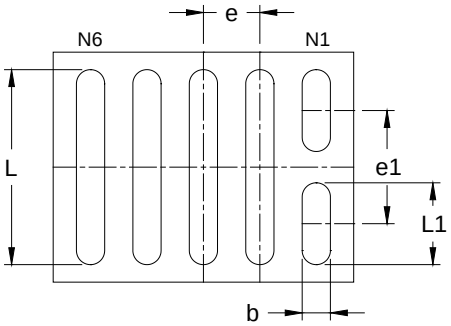
TOP VIEW



RECOMMENDED LAND PATTERN (Unit: mm)



SIDE VIEW



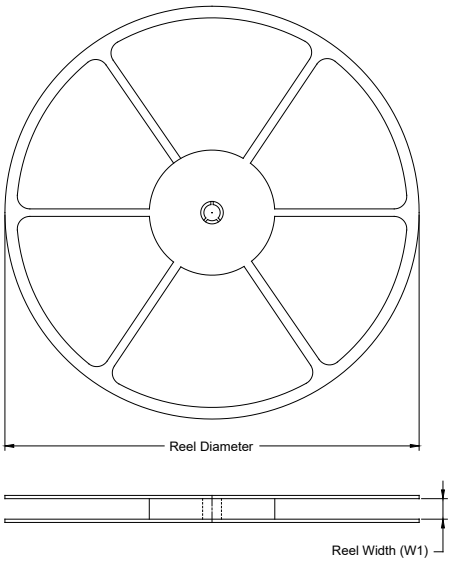
BOTTOM VIEW

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	0.434
A1	0.080	-	0.120
b	0.180	-	0.220
D	2.100	-	2.160
E	1.600	-	1.660
e	0.400 BSC		
e1	0.802 BSC		
L	1.362	-	1.402
L1	0.560	-	0.600
ccc	0.050		

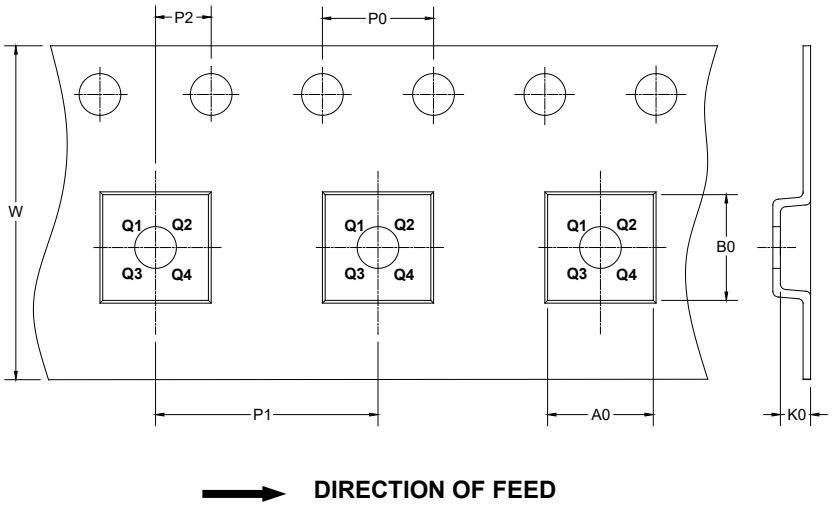
NOTE: This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



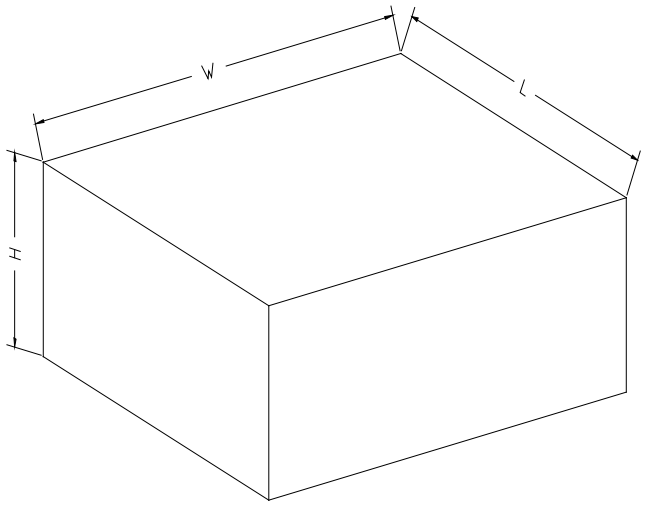
NOTE: The picture is only for reference. Please make the object as the standard.

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
WLCSP-2.13×1.63-6L	7"	9.2	1.75	2.24	0.54	4.0	4.0	2.0	8.0	Q2

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