



SGM2061A

800mA, Ultra-Low Noise and High PSRR Linear Regulator in Ultra-Thin Package

GENERAL DESCRIPTION

The SGM2061A is a low noise, high PSRR and low dropout voltage linear regulator. It is capable of supplying 800mA output current with typical dropout voltage of only 140mV. The operating input voltage range is from 1.9V to 5.5V. The fixed output voltages are 1.8V, 1.9V, 2.5V, 2.55V, 2.8V, 3.0V, 3.3V and 5.0V.

Other features include logic-controlled shutdown mode, short-circuit current limit and thermal shutdown protection. The SGM2061A has automatic discharge function to quickly discharge V_{OUT} in the disabled status.

The SGM2061A is suitable for applications which need low noise and fast transient response power supply, such as power supply of camera module in smart phone, etc.

The SGM2061A is available in an ultra-thin Green WLCSP-0.64×0.64-4B-A package. It operates over an operating temperature range of -40°C to +125°C.

FEATURES

- Operating Input Voltage Range: 1.9V to 5.5V
- Enable Pin Accept Voltages Higher than the Supply Voltage and up to 5.5V
- Fixed Output from 1.8V to 5.0V
- 800mA Output Current
- Output Voltage Accuracy: $\pm 1\%$ at +25°C
- Quiescent Current: 15 μ A (TYP)
- Low Dropout Voltage:
140mV (TYP) at 800mA, $V_{OUT} = 2.8V$
- Ultra-Low Noise: 10 μ V_{RMS}
- High PSRR: 92dB at 1kHz
- Standby Current: 0.03 μ A (TYP)
- Current Limiting and Thermal Protection
- Excellent Load and Line Transient Responses
- With Output Automatic Discharge
- Stable with Small Case Size Ceramic Capacitors
- -40°C to +125°C Operating Temperature Range
- Available in an Ultra-Thin Green
WLCSP-0.64×0.64-4B-A Package

APPLICATIONS

Portable Electronic Devices
Smoke Detectors
IP Cameras
Wireless LAN Devices
Battery-Powered Equipment
Smartphones and Tablets
Digital Cameras and Audio Devices

TYPICAL APPLICATION

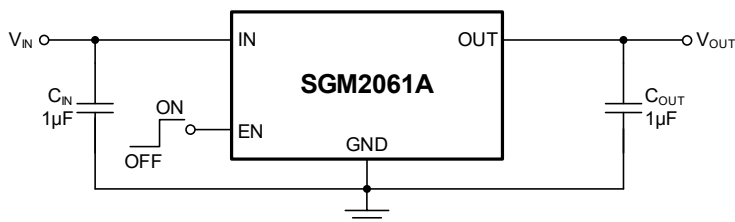


Figure 1. Typical Application Circuit

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM2061A-1.8	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-1.8XG/TR	0Y	Tape and Reel, 5000
SGM2061A-1.9	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-1.9XG/TR	0Z	Tape and Reel, 5000
SGM2061A-2.5	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-2.5XG/TR	10	Tape and Reel, 5000
SGM2061A-2.55	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-2.55XG/TR	0X	Tape and Reel, 5000
SGM2061A-2.8	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-2.8XG/TR	11	Tape and Reel, 5000
SGM2061A-3.0	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-3.0XG/TR	12	Tape and Reel, 5000
SGM2061A-3.3	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-3.3XG/TR	13	Tape and Reel, 5000
SGM2061A-5.0	WLCSP-0.64×0.64-4B-A	-40°C to +125°C	SGM2061A-5.0XG/TR	14	Tape and Reel, 5000

MARKING INFORMATION

YY

Serial 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.

ABSOLUTE MAXIMUM RATINGS

IN to GND	-0.3V to 6V
OUT to GND	-0.3V to ($V_{IN} + 0.3V$)
EN to GND	-0.3V to 6V
Package Thermal Resistance	
WLCSP-0.64×0.64-4B-A, θ_{JA}	129.8°C/W
WLCSP-0.64×0.64-4B-A, θ_{JB}	36.4°C/W
WLCSP-0.64×0.64-4B-A, θ_{JC}	96.2°C/W
Junction Temperature	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s)	+260°C
ESD Susceptibility ⁽¹⁾⁽²⁾	
HBM	±8000V
CDM	±1000V

NOTES:

1. For human body model (HBM), all pins comply with ANSI/ESDA/JEDEC JS-001 specifications.
2. For charged device model (CDM), all pins comply with ANSI/ESDA/JEDEC JS-002 specifications.

RECOMMENDED OPERATING CONDITIONS

Input Voltage Range	1.9V to 5.5V
Enable Input Voltage Range	0V to 5.5V
Input Effective Capacitance, C_{IN}	0.1μF (MIN)
Output Effective Capacitance, C_{OUT}	0.5μF to 10μF

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

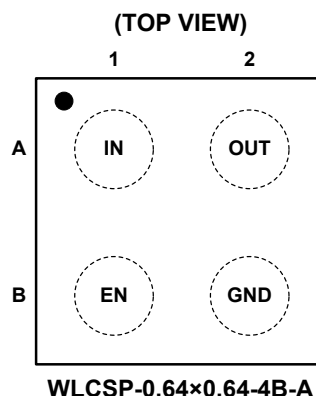
ESD SENSITIVITY CAUTION

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
A1	IN	Input Voltage Supply Pin. It is recommended to use a 1 μ F or larger ceramic capacitor from IN pin to ground to get good power supply decoupling. This ceramic capacitor should be placed as close as possible to IN pin.
A2	OUT	Regulated Output Pin. It is recommended to use a ceramic capacitor with effective capacitance in the range of 0.5 μ F to 10 μ F to ensure stability. This ceramic capacitor should be placed as close as possible to OUT pin.
B1	EN	Enable Pin. Drive EN high to turn on the regulator. Drive EN low to turn off the regulator. The EN pin has an internal 0.03 μ A pull-down current source which ensures that the device is turned off when the EN pin is floated. This pin must be connected to IN pin if enable functionality is not used.
B2	GND	Ground.

FUNCTIONAL BLOCK DIAGRAM

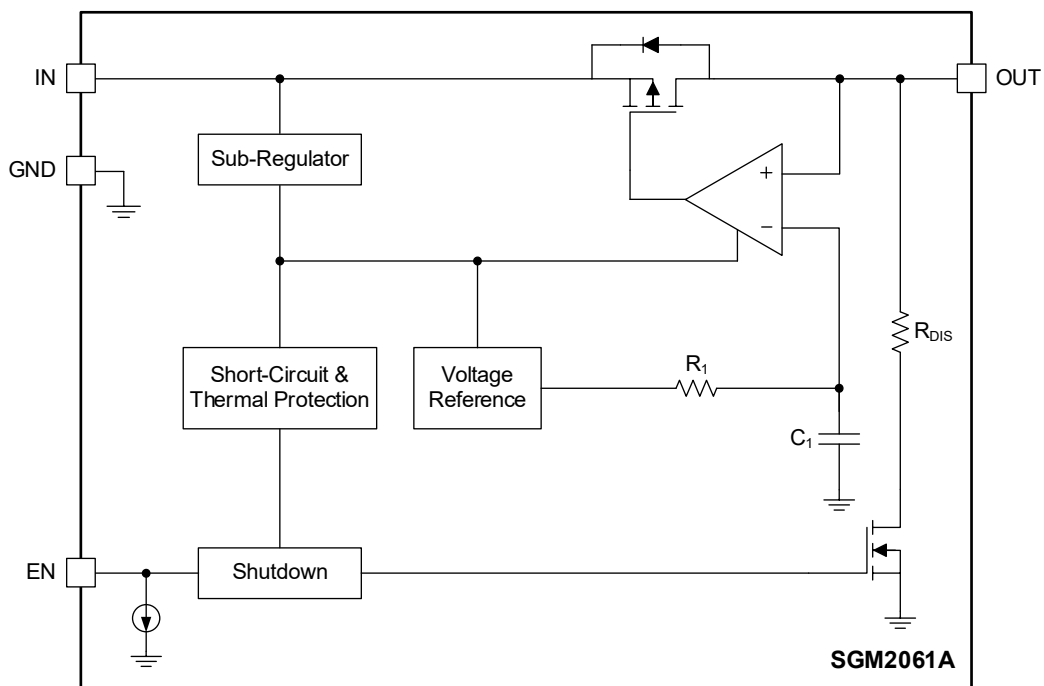
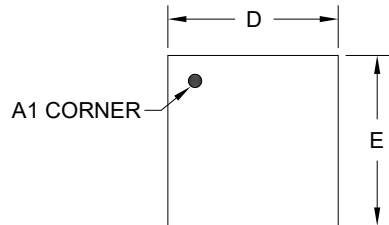


Figure 2. Block Diagram

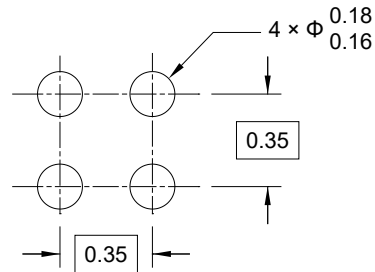
PACKAGE INFORMATION

PACKAGE OUTLINE DIMENSIONS

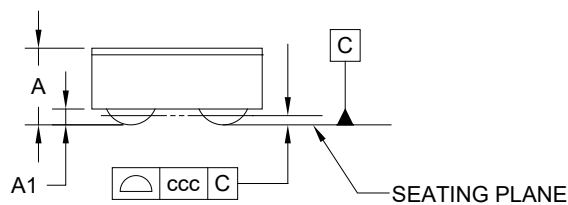
WLCSP-0.64×0.64-4B-A



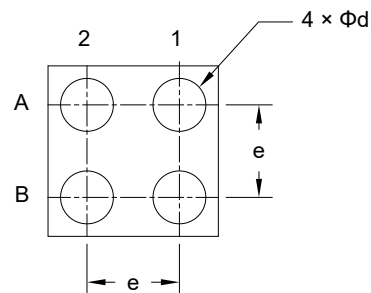
TOP VIEW



RECOMMENDED LAND PATTERN (Unit: mm)



SIDE VIEW



BOTTOM VIEW

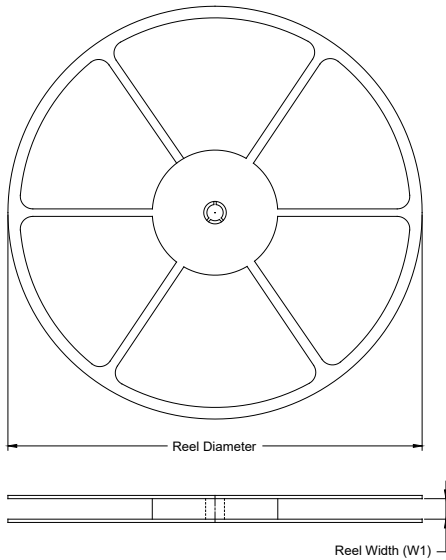
Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	0.318
A1	0.050	-	0.070
D	0.615	-	0.675
E	0.615	-	0.675
d	0.170	-	0.230
e	0.350 BSC		
ccc	0.050		

NOTE: This drawing is subject to change without notice.

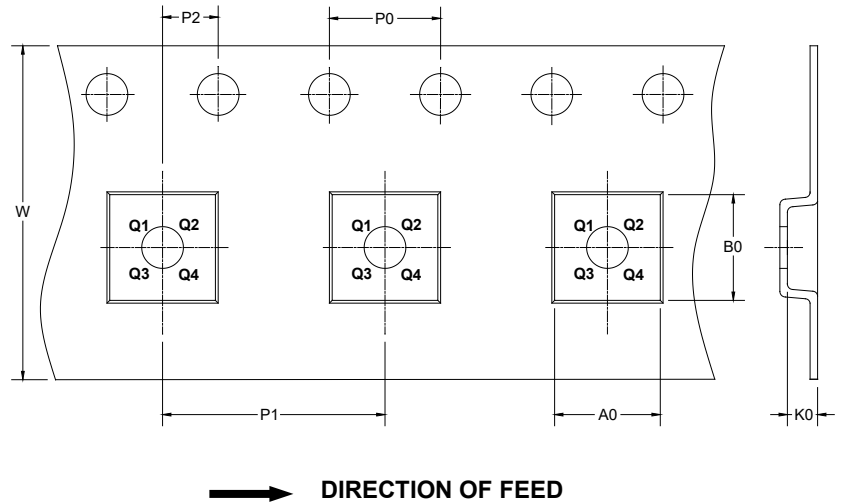
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

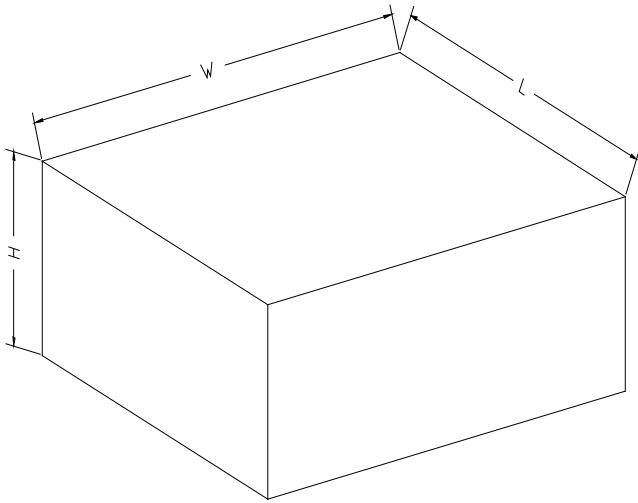
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
WLCSP-0.64×0.64-4B-A	7"	9.5	0.74	0.74	0.37	4.0	4.0	2.0	8.0	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
7" (Option)	368	227	224	8
7"	442	410	224	18

DD0002