

GENERAL DESCRIPTION

The SGM2072 is an ultra-high PSRR, fast transient response, low noise and low dropout voltage linear regulator which is designed using CMOS technology. It provides 1.2A output current capability. The operating input voltage range is from 0.5V to 5.5V and bias supply voltage range is from 2.5V to 5.5V. The adjustable output voltage range is from 0.5V to 3.3V.

Other features include logic-controlled shutdown mode, short-circuit current limit and thermal shutdown protection. The SGM2072 has automatic discharge function to quickly discharge V_{OUT} in the disabled status.

The SGM2072 is available in a Green WLCSP-0.8×1.2-6B-A package. It operates over an operating temperature range of -40°C to +125°C.

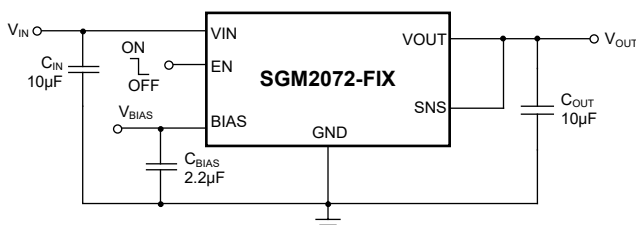
FEATURES

- **Input Supply Voltage Range: 0.5V to 5.5V**
- **Bias Supply Voltage Range: 2.5V to 5.5V**
- **Fixed Output of 1.05V**
- **Adjustable Output from 0.5V to 3.3V**
- **Output Voltage Accuracy: ±1.5% at +25°C**
- **Low Bias Input Current: 80µA (TYP)**
- **Low Dropout Voltage: 58mV (TYP) at 1.2A**
- **Low Noise: 34µV_{RMS} (TYP)**
- **High PSRR: 75dB (TYP) at 1kHz**
- **Very Low Bias Input Current in Shutdown: < 1µA**
- **Current Limiting and Thermal Protection**
- **With Output Automatic Discharge**
- **Stable with Small Case Size Ceramic Capacitors**
- **-40°C to +125°C Operating Temperature Range**
- **Available in a Green WLCSP-0.8×1.2-6B-A Package**

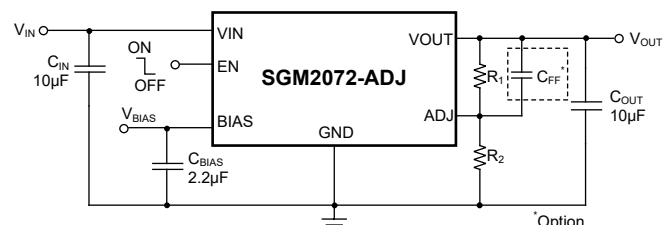
APPLICATIONS

- Portable Equipment
- Smartphone
- Industrial and medical Equipment

TYPICAL APPLICATION



Fixed Voltage Typical Application Circuit



Adjustable Voltage Typical Application Circuit

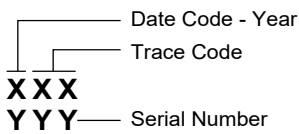
Figure 1. Typical Application Circuits

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM2072-1.05	WLCSP-0.8x1.2-6B-A	-40°C to +125°C	SGM2072-1.05XG/TR	XXX 021	Tape and Reel, 3000
SGM2072-ADJ	WLCSP-0.8x1.2-6B-A	-40°C to +125°C	SGM2072-ADJXG/TR	XXX GJQ	Tape and Reel, 3000

MARKING INFORMATION

NOTE: XXX = Date Code and Trace Code.



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, BIAS, EN to GND -0.3V to 6V
- OUT, SNS, ADJ to GND -0.3V to MIN(V_{IN} + 0.3V, 6V)
- Package Thermal Resistance
- WLCSP-0.8x1.2-6B-A, θ_{JA}..... 177°C/W
- WLCSP-0.8x1.2-6B-A, θ_{JB}..... 32°C/W
- WLCSP-0.8x1.2-6B-A, θ_{JC}..... 48°C/W
- Junction Temperature.....+150°C
- Storage Temperature Range-65°C to +150°C
- Lead Temperature (Soldering, 10s).....+260°C
- ESD Susceptibility
- HBM..... 8000V
- CDM 1000V

RECOMMENDED OPERATING CONDITIONS

- Input Supply Voltage Range, V_{IN}0.5V to 5.5V
- Bias Supply Voltage Range, V_{BIAS}2.5V to 5.5V
- Bias Effective Capacitance, C_{BIAS} 0.1µF (MIN)
- Input Effective Capacitance, C_{IN} 4.7µF (MIN)
- Output Effective Capacitance, C_{OUT}..... 4.7µF to 22µF
- 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.

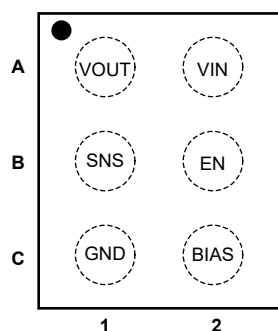
ESD SENSITIVITY CAUTION

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.

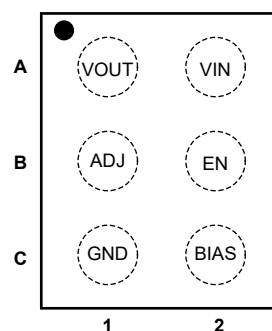
DISCLAIMER

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

PIN CONFIGURATION

SGM2072-Fixed Output
(TOP VIEW)

WLCSP-0.8×1.2-6B-A

SGM2072-ADJ
(TOP VIEW)

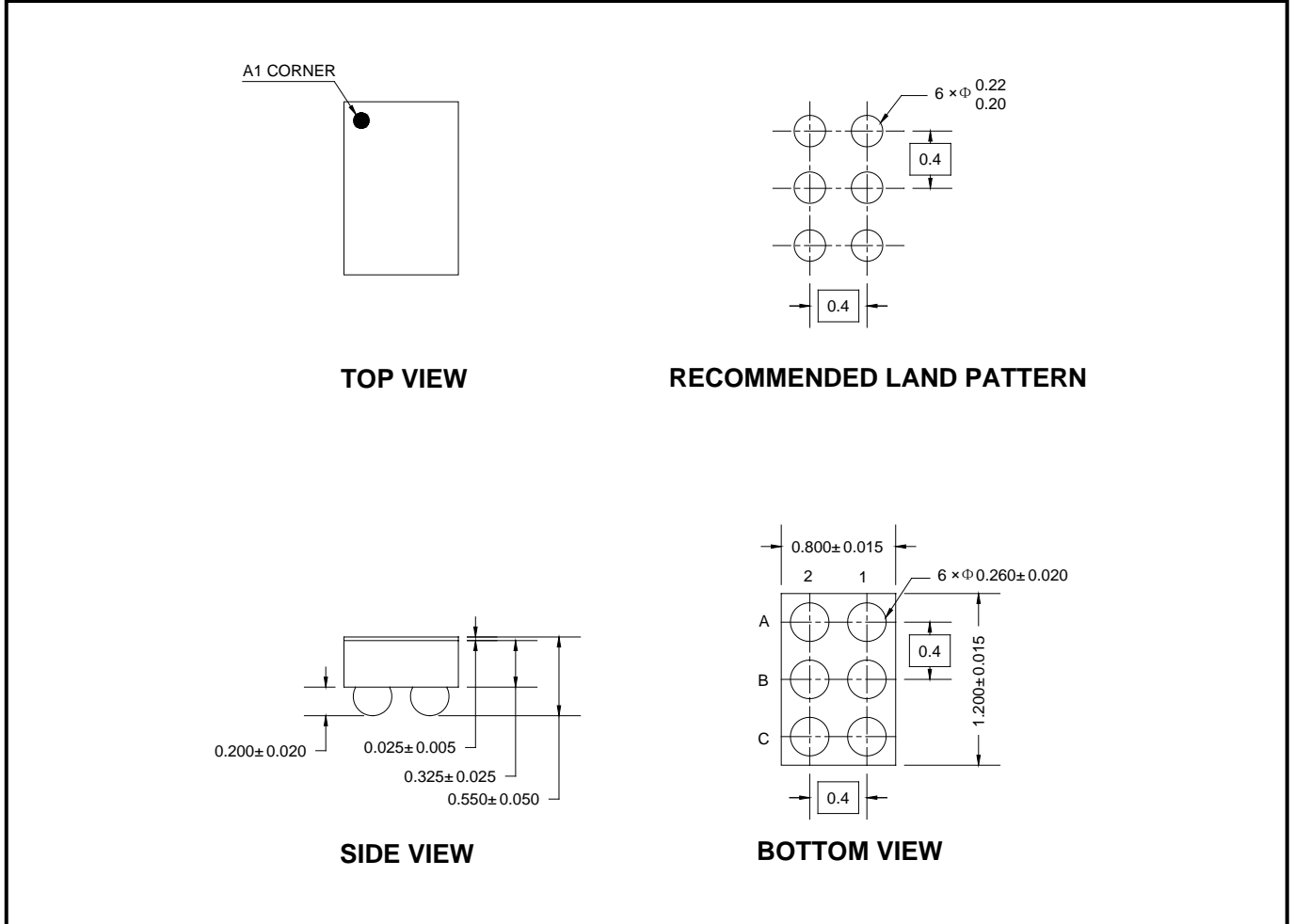
WLCSP-0.8×1.2-6B-A

PIN DESCRIPTION

PIN	NAME	FUNCTION
A1	VOUT	Regulator Output Pin. It is recommended to use an output capacitor with effective capacitance in the range of 4.7 μ F to 22 μ F.
A2	VIN	Input Voltage Supply Pin.
B1	SNS	Output Voltage Sense Input Pin (fixed voltage version only). Connect this pin to the load side of the output trace only in the fixed voltage version.
	ADJ	Feedback Input Pin (adjustable voltage version only). Connect this pin to the external resistor divider to adjust the output voltage. Place the resistors as close as possible to this pin.
B2	EN	Enable Pin. Drive EN high to turn on the regulator. Drive EN low to turn off the regulator.
C1	GND	Ground.
C2	BIAS	Bias Supply Voltage Pin for Internal Control Circuits. This pin is monitored by internal under-voltage lockout circuit.

PACKAGE OUTLINE DIMENSIONS

WLCSP-0.8x1.2-6B-A



NOTE: All linear dimensions are in millimeters.

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-0.8×1.2-6B-A	7"	9.0	0.90	1.32	0.68	4.0	4.0	2.0	8.0	Q1

DD0001

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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