



SGM2037S

Fast Load Transient Response, 600mA, Low Noise, CMOS LDO with Bias Rail

GENERAL DESCRIPTION

The SGM2037S is a low noise, low dropout voltage linear regulator which is designed using CMOS technology. It provides 600mA output current capability. The operating input voltage range is from 0.9V to 5.5V and bias supply voltage range is from 2.5V to 5.5V. The fixed output voltage is 0.9V.

Other features include logic-controlled shutdown mode, short-circuit current limit and thermal shutdown protection. The SGM2037S has automatic discharge function to quickly discharge V_{OUT} in the disabled status.

The SGM2037S is suitable for applications which need low noise, fast transient response and low I_Q consumption, such as battery-powered equipment and smartphones, etc.

The SGM2037S is available in a Green UTDFN-1.2×1.2-6L package. It operates over an ambient temperature range of -40°C to +125°C.

FEATURES

- 600mA Nominal Output Current
- Input Voltage Range: 0.9V to 5.5V
- Bias Voltage Range: 2.5V to 5.5V
- 0.9V Fixed Output Voltage
- Low Dropout Voltage: 140mV (TYP) at 600mA
- Very Low Bias Input Current: 98μA (TYP)
- Very Low Bias Input Current in Shutdown: 0.01μA (TYP)
- Low Noise: 20μV_{RMS} (TYP)
- Over-Current and Over-Temperature Protections
- Fast Load Transient Response
- Logic Level Enable Input for ON/OFF Control
- -40°C to +125°C Operating Temperature Range
- Available in a Green UTDFN-1.2×1.2-6L Package

APPLICATIONS

Portable Equipment
Smartphone
Industrial and Medical Equipment

TYPICAL APPLICATION

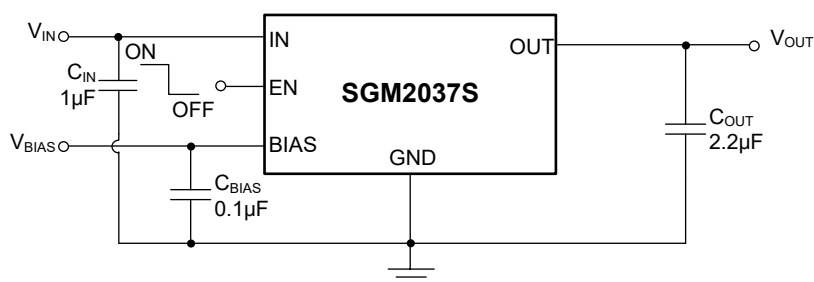


Figure 1. Typical Application Circuit

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM2037S-0.9	UTDFN-1.2×1.2-6L	-40°C to +125°C	SGM2037S-0.9XUDX6G/TR	4B XX	Tape and Reel, 5000

MARKING INFORMATION

NOTE: XX = Date Code.

YY — Serial Number
XX
 — Date Code - Month
 — Date Code - Year

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 to GND -0.3V to ($V_{IN} + 0.3V$)
 Power Dissipation, P_D @ $T_A = +25^\circ C$
 UTDFN-1.2×1.2-6L 612mW
 Package Thermal Resistance
 UTDFN-1.2×1.2-6L, θ_{JA} 204°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

Operating Input Voltage Range 0.9V to 5.5V
 Operating Bias Voltage Range 2.5V to 5.5V
 BIAS Effective Capacitance, C_{BIAS} 0.1μF (MIN)
 Input Effective Capacitance, C_{IN} 0.5μF (MIN)
 Output Effective Capacitance, C_{OUT} 1μF to 10μF
 Operating 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.

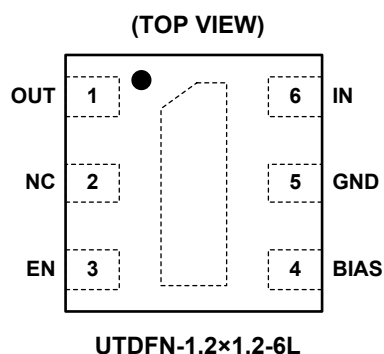
ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. It 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

We reserve the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION

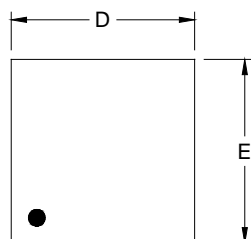


PIN DESCRIPTION

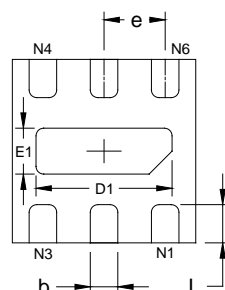
PIN	NAME	FUNCTION
1	OUT	Regulated Output Voltage Pin. It is recommended to use output capacitor with effective capacitance in the range of 1 μ F to 10 μ F.
2	NC	No Connection.
3	EN	Enable Pin. Driving EN high to turn on the regulator. Driving EN low to turn off the regulator. The EN pin has an internal pull-down resistance which ensures that the device is turned off when the EN pin is floated.
4	BIAS	Bias Voltage Supply for Internal Control Circuits. This pin is monitored by internal under-voltage lockout circuit.
5	GND	Ground.
6	IN	Input Voltage Supply Pin.
Exposed Pad	–	Exposed Pad. Exposed pad is internally connected to GND. Connect it to a large ground plane to maximize thermal performance; not intended as an electrical connection point.

PACKAGE OUTLINE DIMENSIONS

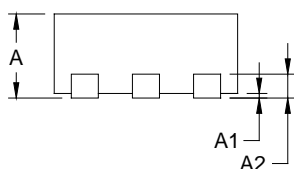
UTDFN-1.2x1.2-6L



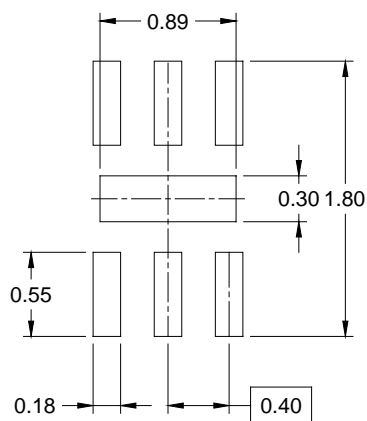
TOP VIEW



BOTTOM VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	0.500	0.550	0.600
A1			0.050
A2	0.152 REF		
e	0.400 BSC		
D	1.150	1.200	1.250
E	1.150	1.200	1.250
D1	0.840	0.890	0.940
E1	0.250	0.300	0.350
b	0.130	0.180	0.230
L	0.200	0.250	0.300

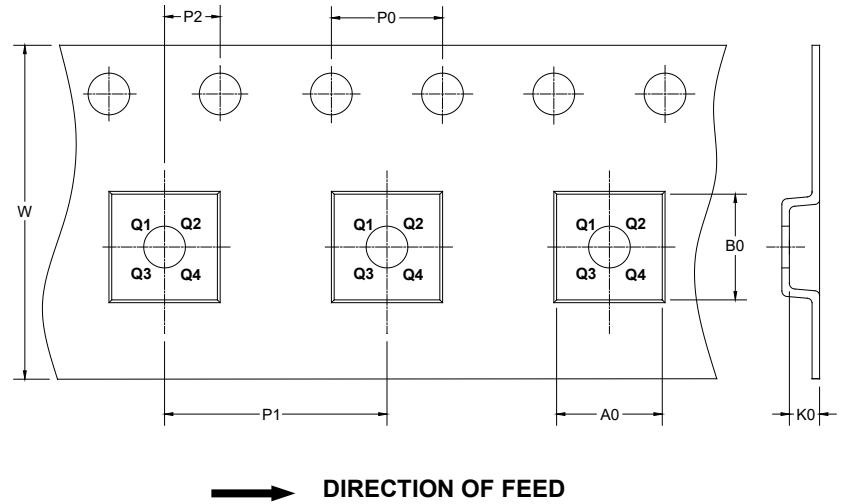
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

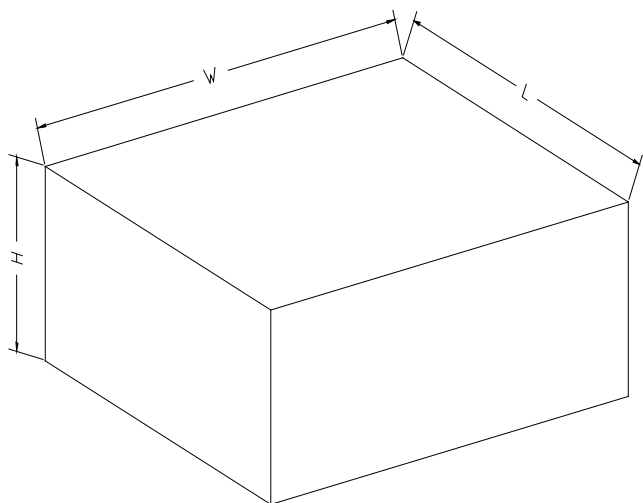
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
UTDFN-1.2×1.2-6L	7"	9.0	1.35	1.35	0.73	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

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