

GENERAL DESCRIPTION

The SGM3127 is a 4-channel white LED driver with integrated low dropout current sources. High performance makes it suited for replacing the simple ballast resistors that are used in general white LED solutions. The SGM3127 is ideal for portable backlighting and keypad LED applications.

The SGM3127 integrates an internal resistor to set the LED bias current. It supports up to 30mA current per string. Compared with ballast resistors, the driver has many advantages such as lower dropout voltage, much lower bias variation with supply voltage variation and better efficiency

The SGM3127 is available in a Green SOT-23-6 package. It operates over an ambient temperature range of -40°C to +85°C.

FEATURES

- **Supply Voltage Range: 2.5V to 5.5V**
- **Support up to 4 LEDs**
- **Low 50mV Dropout Voltage at a 30mA Load**
- **Less than ±5% LED Current Matching**
- **Simple LED Brightness Control**
- **Less than 1µA Shutdown Current**
- **Thermal Shutdown Protection**
- **Operating Temperature Range: -40°C to +85°C**
- **Available in a Green SOT-23-6 Package**

APPLICATIONS

Wireless Handsets
 MP3, MP4, and PDAs
 Mobile Phones, Digital Cameras, Camcorders
 Portable Devices
 LED/Display Backlight Drivers
 LEDs for Camera Flash
 Battery-Powered Equipment

TYPICAL APPLICATION

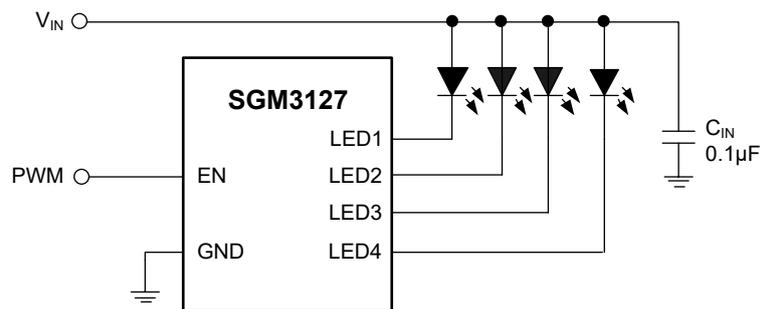


Figure 1. Application Circuit for Backlight

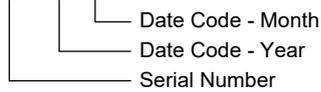
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM3127	SOT-23-6	-40°C to +85°C	SGM3127YN6G/TR	S01XX	Tape and Reel, 3000

MARKING INFORMATION

NOTE: XX = Date Code.

YYY X X



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 _{IN} to GND	-0.3V to 6V
The Other Pins to GND.....	-0.3V to 6V
Power Dissipation, P _D @ T _A = 25°C	
SOT-23-6.....	0.5W
Package Thermal Resistance	
SOT-23-6, θ _{JA}	250°C/W
Junction Temperature.....	+150°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	4000V
MM.....	400V

RECOMMENDED OPERATING CONDITIONS

Operating Temperature Range	-40°C to +85°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.

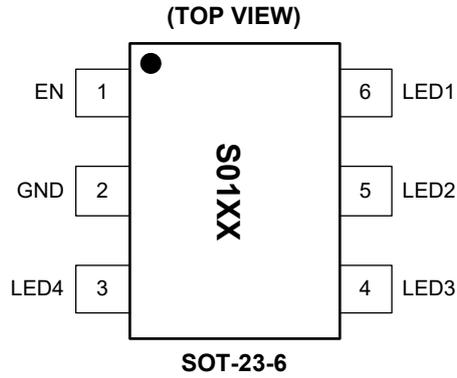
ESD SENSITIVITY CAUTION

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



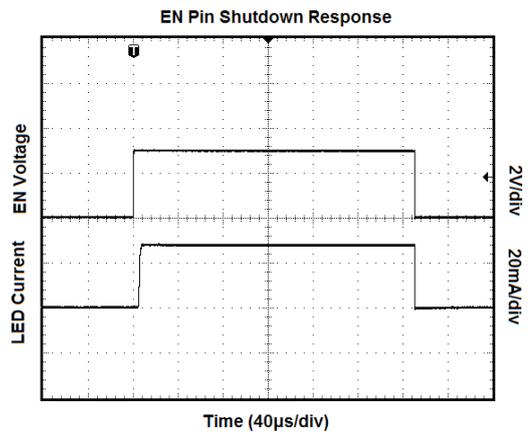
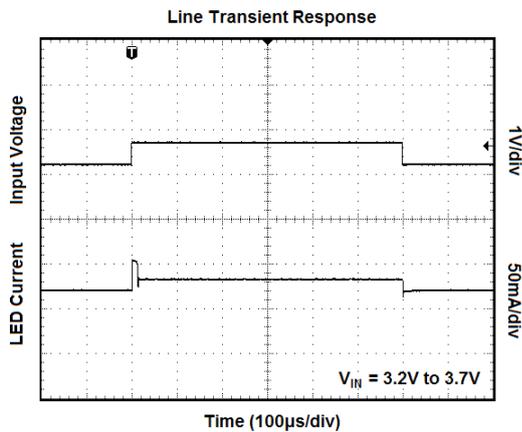
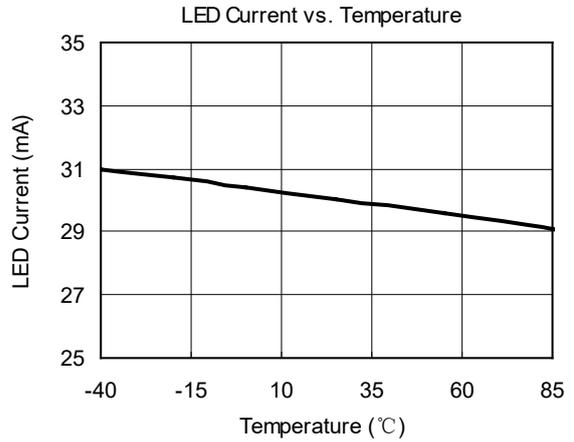
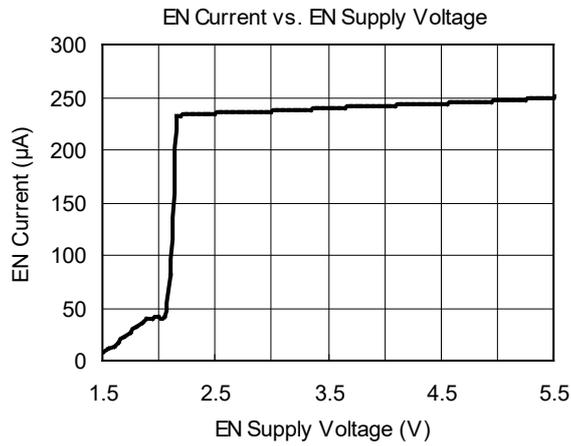
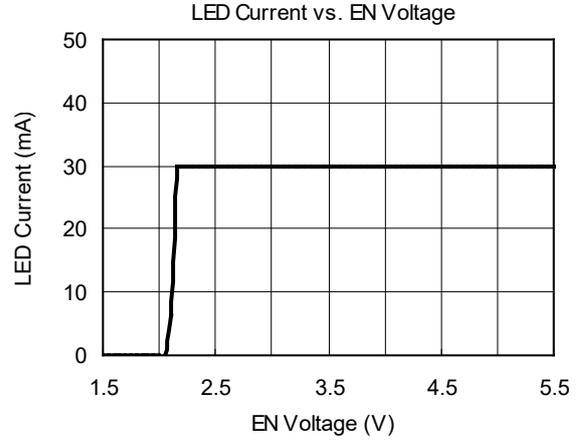
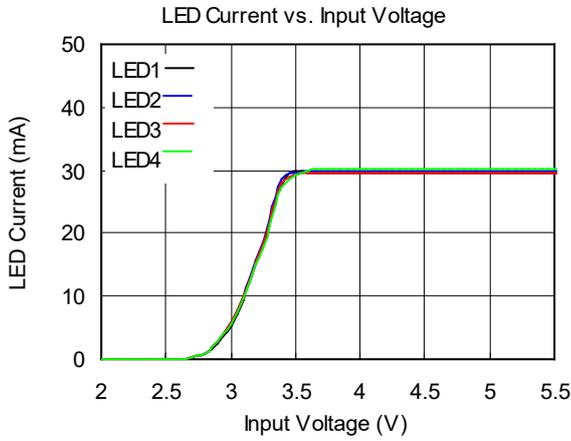
PIN DESCRIPTION

PIN	NAME	FUNCTION
1	EN	Active-High Enable Input and Power Input. When the EN pin is pulled high, this pin is used as a power input. When the EN pin is pulled low, all the LED output pins are in a high-impedance state.
2	GND	Ground Pin.
3	LED4	LED4 Output Pin. Connect to the cathode of the LED. The LED current is regulated at 30mA.
4	LED3	LED3 Output Pin. Connect to the cathode of the LED. The LED current is regulated at 30mA.
5	LED2	LED2 Output Pin. Connect to the cathode of the LED. The LED current is regulated at 30mA.
6	LED1	LED1 Output Pin. Connect to the cathode of the LED. The LED current is regulated at 30mA.

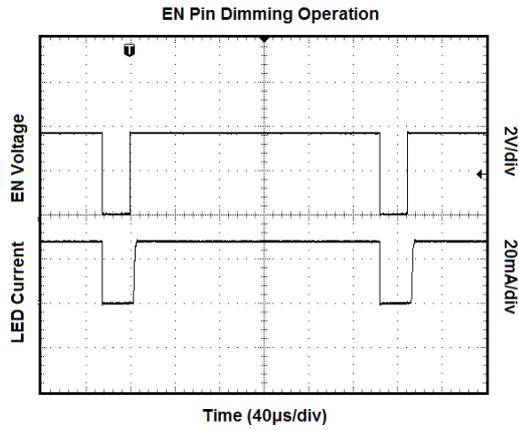
ELECTRICAL CHARACTERISTICS(V_{IN} = 3.7V, T_A = +25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Operation Voltage Range	V _{EN}		2.5		5.5	V
Under-Voltage Lockout	V _{UVLO}	Falling		2.1		V
UVLO Hysteresis				110		mV
LED Sink Current	I _{LED}		27	30	33	mA
Quiescent Power Supply Current	I _{EN}	I _{LED} = 0		240		μA
LED Dropout Voltage		I _{LED} = 30mA, V _{LED} @ I _{LEDn} = 90% × I _{LED}		50		mV
Shutdown Supply Current	I _{SHDN}	V _{EN} < 0.4V			1	μA
LED Current Deviation Matching	D _{LED}		-5		+5	%
OPT				150		°C
OPT Hysteresis				10		°C
Input High Voltage at EN	V _{IH}		2.5			V
Input Low Voltage at EN	V _{IL}				0.7	V

TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



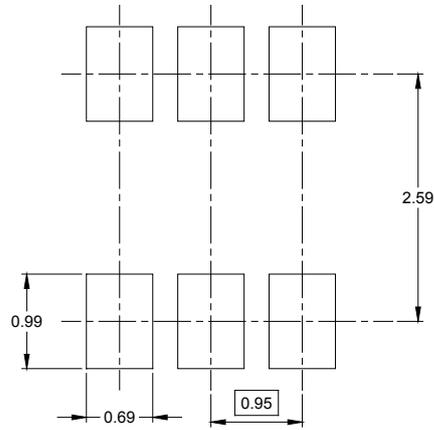
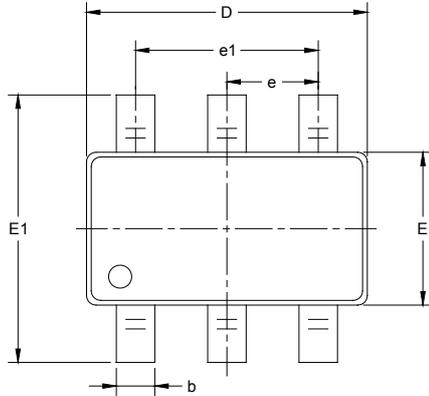
REVISION HISTORY

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

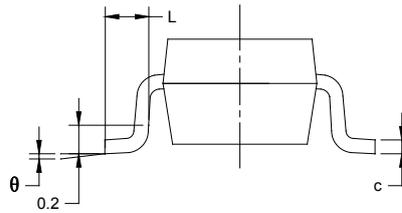
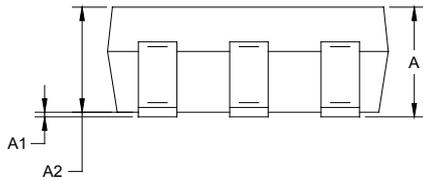
JANUARY 2015 – REV.A.2 to REV.A.3		Page
Changed Pin Configuration section.....	3	3
MAY 2011 – REV.A.1 to REV.A.2		Page
Changed package description	All	All
SEPTEMBER 2009 – REV.A to REV.A.1		Page
Changed Absolute Maximum Ratings section.....	2	2
Changed Application Information section.....	7	7
Deleted Figure 3.....	8	8
Changes from Original (JUNE 2009) to REV.A		Page
Changed from product preview to production data.....	All	All

PACKAGE OUTLINE DIMENSIONS

SOT-23-6



RECOMMENDED LAND PATTERN (Unit: mm)

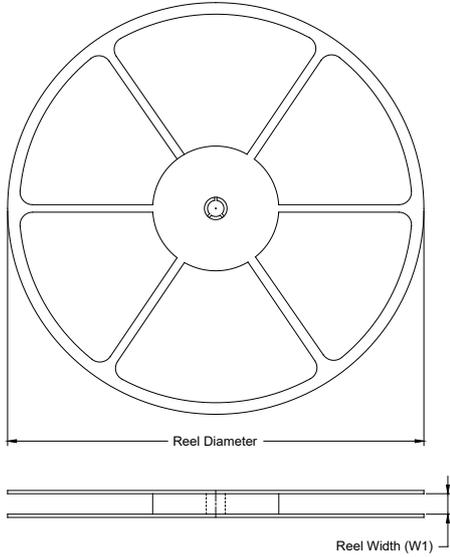


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

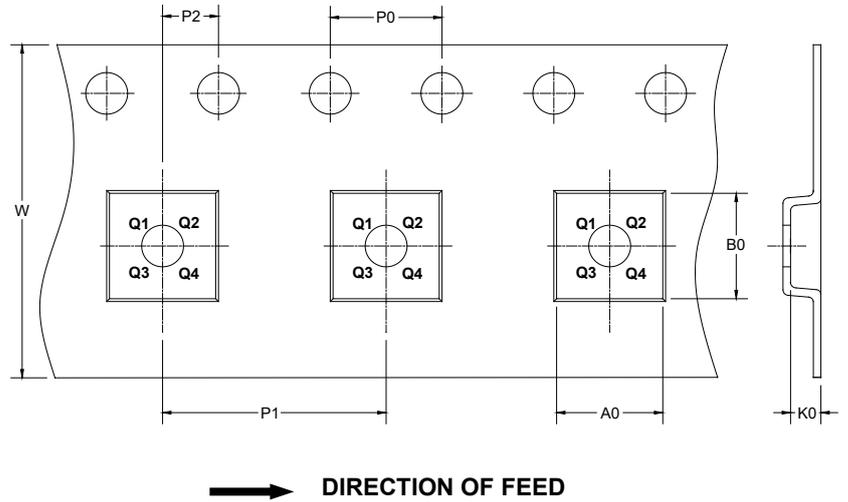
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

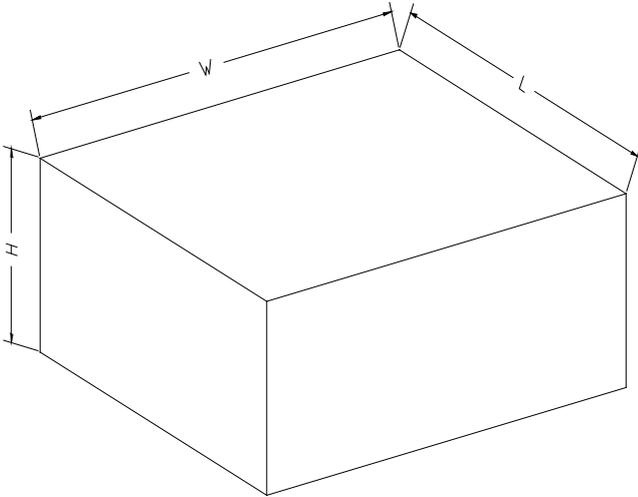
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SOT-23-6	7"	9.5	3.17	3.23	1.37	4.0	4.0	2.0	8.0	Q3

000001

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