GENERAL DESCRIPTION

The SGM4560 is used for power conversion and level translation of the signal in the application of CA cards. Also, it can be used for the applications of 3.3V or 5.0V CA cards, which is powered by its internal LDOs from 3.3V to 5.5V input signal. The value of the output voltage can be controlled with the voltage selection pins of the SGM4560 with the maximum load current of 200mA.

The level translator integrated on the SGM4560 can boost the input signal which is powered by 1.6V to 3.3V or 5.0V interface. The lifespan of the battery can be enhanced as the 100µA (TYP) operating current and 1µA (MAX) shutdown current.

The SGM4560 is available in a Green TSSOP-14 package. It operates over an ambient temperature range of -40℃ to +85℃.

FEATURES

- **CA Card Power Supply: 3.3V/5.0V at 200mA**
- **3.3V to 5.5V Input Voltage Range**
- **1.6V to 5.5V Controller Voltage Range**
- **Fast Rising Time for the Signals**
- **Built-In Fault Protection Circuitry**
- **Level Translators to 3.3V or 5.0V**
- **Low Supply Voltage and Shutdown Current**
- **-40℃ to +85℃ Operating Temperature Range**
- **Available in a Green TSSOP-14 Package**

APPLICATIONS

CA Card Interface
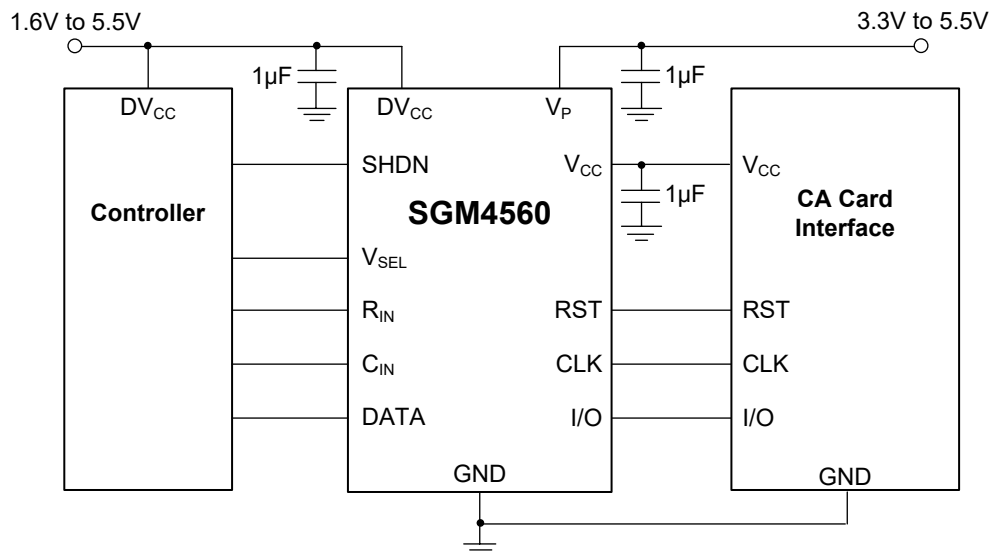
## TYPICAL APPLICATION

Figure 1. Typical Application Circuit

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM4560	TSSOP-14	-40℃ to +85℃	SGM4560YTS14G/TR	SGM4560 YTS14 XXXXX	Tape and Reel, 3000

MARKING INFORMATION

NOTE: XXXXX = Date Code and Vendor Code.

X X X X X
— Vendor Code
— Date Code - Week
— Date Code - Year
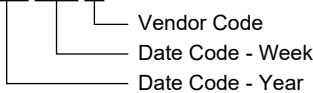
Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS

Voltage Range (with Respect to GND)

V_P, DV_{CC} .... -0.3V to 6V

V_{CC} .... -0.3V to V_P + 0.3V

SHDN, V_{SEL}, R_{IN}, C_{IN} .... -0.3V to 6V

CLK, RST, I/O ....-0.3V to V_{CC} + 0.3V

DATA ....-0.3V to DV_{CC}+0.3V

Package Thermal Resistance

TSSOP-14, θ_{JA} .... 154℃/W

Junction Temperature...+150℃

Storage Temperature Range ....-65℃ to +150℃

Lead Temperature (Soldering, 10s) ....+260℃

ESD Susceptibility

HBM...4000V

MM..400V

RECOMMENDED OPERATING CONDITIONS

Operating Temperature Range ....-40℃ to +85℃

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.
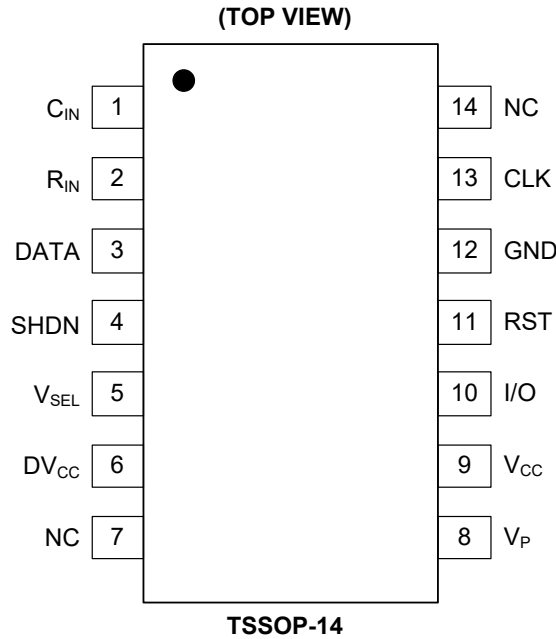
ESD SENSITIVITY CAUTION

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

(TOP VIEW)

C_{IN}	1	14	NC
R_{IN}	2	13	CLK
DATA	3	12	GND
SHDN	4	11	RST
V_{SEL}	5	10	I/O
DV_{CC}	6	9	V_{CC}
NC	7	8	V_P

TSSOP-14

## PIN DESCRIPTION

PIN	NAME	FUNCTION
1	C_{IN}	Controller Clock Input Pin.
2	R_{IN}	Controller Reset Input Pin.
3	DATA	Controller Bidirectional Data Input/Output Pin. A weak pull-up current source ensures that the DATA pin is held HIGH during shutdown, as long as DV_{CC} is powered.
4	SHDN	Controller Driven Shutdown Pin. This pin goes to high (DV_{CC}) in the normal operation, and the pin goes to low when in the shutdown mode.
5	V_{SEL}	Select Pin for V_{CC} Voltage. Select V_{CC} = 3.3V for the low level and V_{CC} = 5.0V for driving the pin to DV_{CC}.
6	DV_{CC}	Controller Supply Voltage, for the Input/Output Pins (C_{IN}, R_{IN}, DATA). Bypass with a 1µF ceramic capacitor to GND.
7, 14	NC	No Connection.
8	V_P	V_{CC} Supply Input Pin. It can be operated between 3.3V and 5.5V. It is recommended to use a 1µF or larger ceramic capacitor from V_P pin to GND to get good power supply decoupling. This ceramic capacitor should be placed as close as possible to V_P pin.
9	V_{CC}	CA Card V_{CC} Supply Voltage. It is recommended to use a 1µF ceramic capacitor to ensure stability. This ceramic capacitor should be placed as close as possible to V_{CC} pin. The pin is discharged to GND in the shutdown mode.
10	I/O	CA Card Bidirectional Data Input/Output Pin. The pin is pulled to GND in the shutdown mode.
11	RST	CA Card Reset Output Pin. The pin is pulled to GND in the shutdown mode.
12	GND	Ground.
13	CLK	CA Card Clock Output Pin. The pin is pulled to GND in the shutdown mode. Careful board layout of CLK pin is necessary for fast rising and falling edges.

3

PACKAGE OUTLINE DIMENSIONS
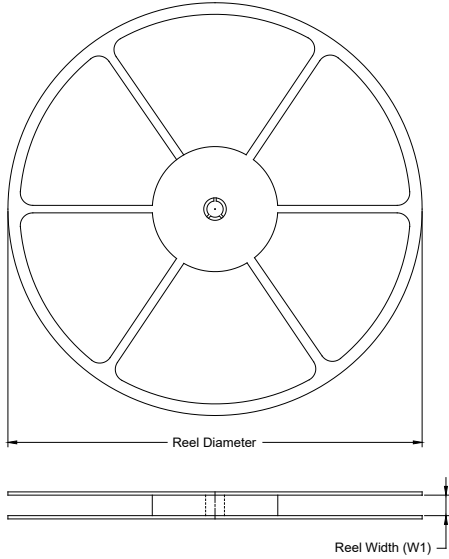
TSSOP-14
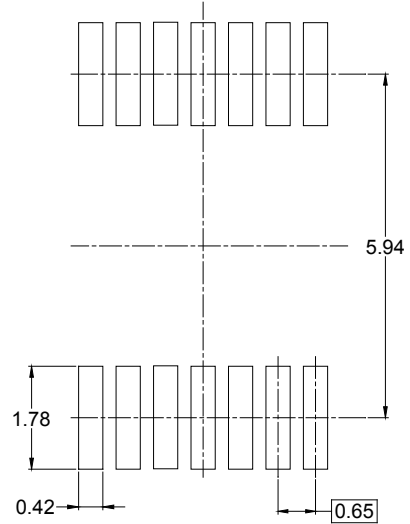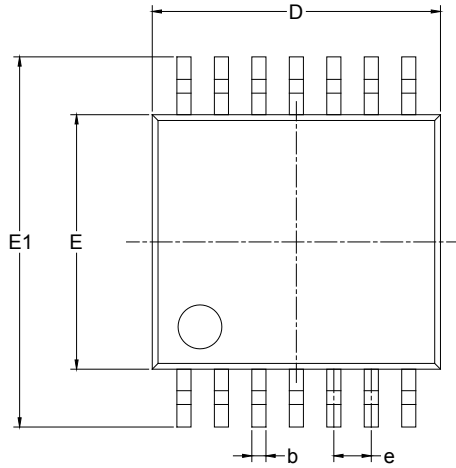
RECOMMENDED LAND PATTERN (Unit: mm)
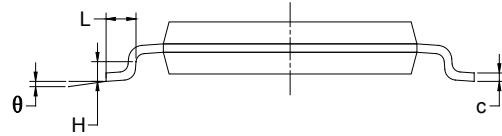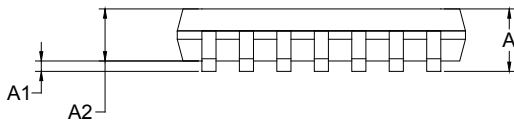
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.100		0.043
A1	0.050	0.150	0.002	0.006
A2	0.800	1.000	0.031	0.039
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
D	4.900	5.100	0.193	0.201
E	4.300	4.500	0.169	0.177
E1	6.250	6.550	0.246	0.258
e	0.650 BSC		0.026 BSC	
L	0.500	0.700	0.02	0.028
H	0.25 TYP		0.01 TYP	
θ	1°	7°	1°	7°

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TAPE AND REEL INFORMATION

REEL DIMENSIONS

Reel Diameter

Reel Width (W1)

TAPE DIMENSIONS

DIRECTION OF FEED

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
TSSOP-14	13″	12.4	6.95	5.60	1.20	4.0	8.0	2.0	12.0	Q1

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
13″	386	280	370	5

DD0002

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单击下面可查看定价，库存，交付和生命周期等信息

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