

### GENERAL DESCRIPTION

The SGM4566 is a 6-bit, non-inverting, bidirectional voltage-level translator which features two independent configurable power-supply lines. The A and B ports track the  $V_{CCA}$  supply and  $V_{CCB}$  supply respectively. The supply voltage range is 1.2V to 5.5V for A ports and 1.65V to 5.5V for B ports. The device provides a bidirectional translation function between the different voltage nodes (including 1.2V, 1.5V, 1.8V, 2.5V, 3.3V and 5V).

The SGM4566 has an output enable (OE) function, which controls the outputs states. When OE goes low, all outputs enter into the high-impedance state. The OE should be connected to GND via a pull-down resistor, and the minimum resistor value is depended on the current source capability of the driver.

The SGM4566 features the OE input circuit which is referenced to  $V_{CCA}$ .

The SGM4566 is available in Green TSSOP-16 and TQFN-2.6×1.8-16L packages. It operates over an ambient temperature range of -40°C to +85°C.

### FEATURES

- **Power Supply Voltage Range ( $V_{CCA} \leq V_{CCB}$ )**
  - ♦ **A Ports: 1.2V to 5.5V**
  - ♦ **B Ports: 1.65V to 5.5V**
- **Support  $V_{CCA}$  or  $V_{CCB}$  Isolation**
  - ♦ **When  $V_{CCA}$  or  $V_{CCB}$  is Low, Device Enters Power-Down Mode**
- **OE Input Circuit Referenced to  $V_{CCA}$**
- **Support Partial-Power-Down Function**
- **Support Push-Pull Output**
- **Low Power Consumption**
- **-40°C to +85°C Operating Temperature Range**
- **Available in Green TSSOP-16 and TQFN-2.6×1.8-16L Packages**

### APPLICATIONS

- Universal Asynchronous Receiver/Transmitter
- General Purpose I/O (GPIO)
- Smart Phones
- Portable Equipment

### TYPICAL APPLICATION

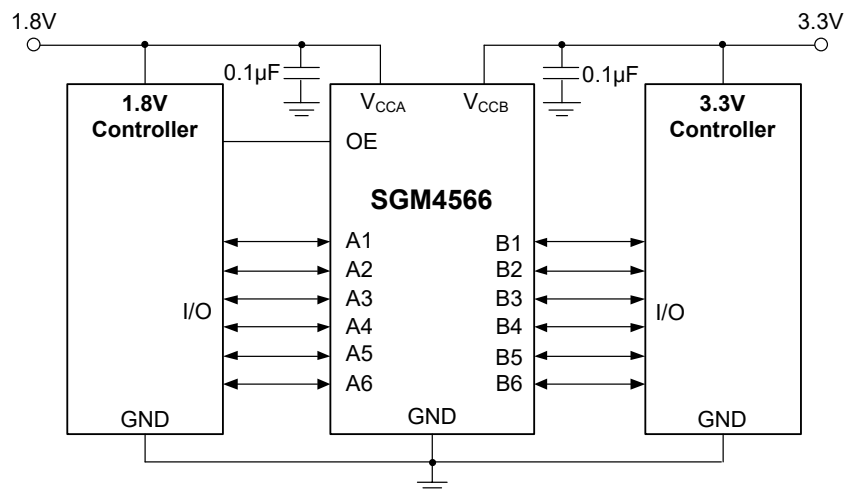


Figure 1. Typical Application Circuit

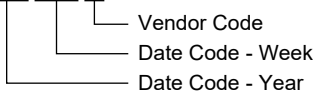
**PACKAGE/ORDERING INFORMATION**

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM4566	TSSOP-16	-40°C to +85°C	SGM4566YTS16G/TR	SGM4566 YTS16 XXXXX	Tape and Reel, 4000
	TQFN-2.6x1.8-16L	-40°C to +85°C	SGM4566YTQA16G/TR	4566 XXXXX	Tape and Reel, 3000

**MARKING INFORMATION**

NOTE: XXXXX = Date Code and Vendor Code.

**XXXXX**



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.

**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.

**DISCLAIMER**

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

**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.

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage Range	
$V_{CCA}$ .....	-0.3V to 6V
$V_{CCB}$ .....	-0.3V to 6V
Input Voltage Range, $V_I$	
A Ports .....	-0.3V to 6V
B Ports .....	-0.3V to 6V
Output Voltage Range for the High-Impedance or Power-Off State, $V_O$	
A Ports .....	-0.3V to 6V
B Ports .....	-0.3V to 6V
Output Voltage Range for the High or Low State, $V_O$ <sup>(1)</sup>	
A Ports .....	0.3V to $V_{CCA} + 0.3V$
B Ports .....	0.3V to $V_{CCB} + 0.3V$
Input Clamp Current, $I_{IK}$ ( $V_I < 0$ ).....	50mA
Output Clamp Current, $I_{OK}$ ( $V_O < 0$ ).....	-25mA
Continuous Current through $V_{CCA}$ , $V_{CCB}$ , or GND..	$\pm 100mA$
Junction Temperature.....	+150°C
Storage Temperature Range .....	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	4000V
MM.....	300V

**NOTE:**

1.  $V_{CCA}$  and  $V_{CCB}$  values are shown in the recommended operating conditions table.

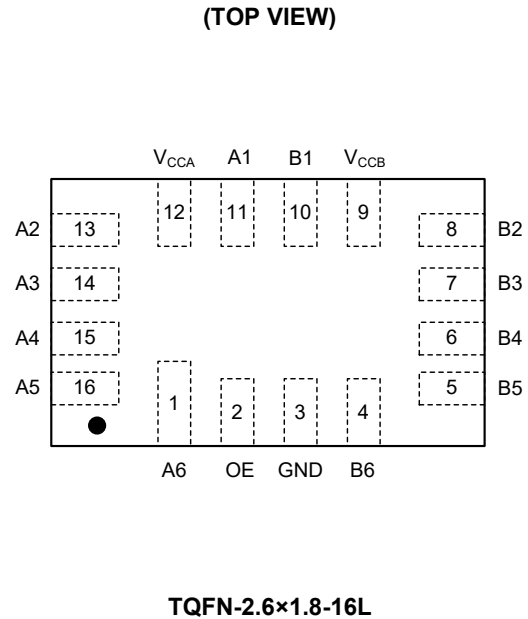
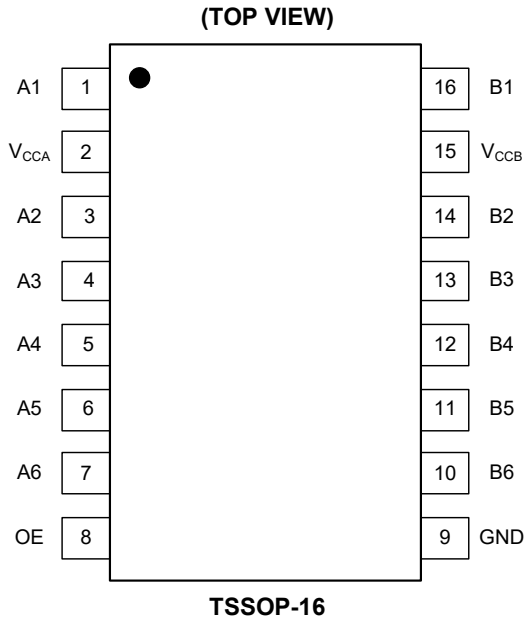
**RECOMMENDED OPERATING CONDITIONS**  
(2) (3)

Supply Voltage Range	
$V_{CCA}$ .....	1.2V to 5.5V
$V_{CCB}$ .....	1.65V to 5.5V
High-Level Input Voltage, $V_{IH}$	
Data Inputs .....	$V_{CCI} \times 0.85$ <sup>(4)</sup> to $V_{CCI}$
OE Input .....	$V_{CCA} \times 0.85$ to 5.5V
Low-Level Input Voltage, $V_{IL}$	
Data Inputs .....	0V to $V_{CCI} \times 0.2$ <sup>(4)</sup>
OE Input .....	0V to $V_{CCA} \times 0.2$
Output Voltage Range for the High-Impedance or Power-Off State, $V_O$	
A Ports.....	0V to 5.5V
B Ports.....	0V to 5.5V
Input Transition Rise or Fall Rate, $\Delta t/\Delta V$	
A Port Inputs.....	40ns/V (MAX)
B Port Inputs.....	40ns/V (MAX)
Operating Temperature Range.....	-40°C to +85°C

**NOTES:**

2. Ensure that the A side and B side of the unused data I/O pairs remain the same state, that is., both at  $V_{CCI}$  or both at GND.
3. Ensure that  $V_{CCA} \leq V_{CCB}$  and  $V_{CCA}$  must not exceed 5.5V.
4.  $V_{CCI}$  is the supply voltage associated with the input ports.

PIN CONFIGURATIONS

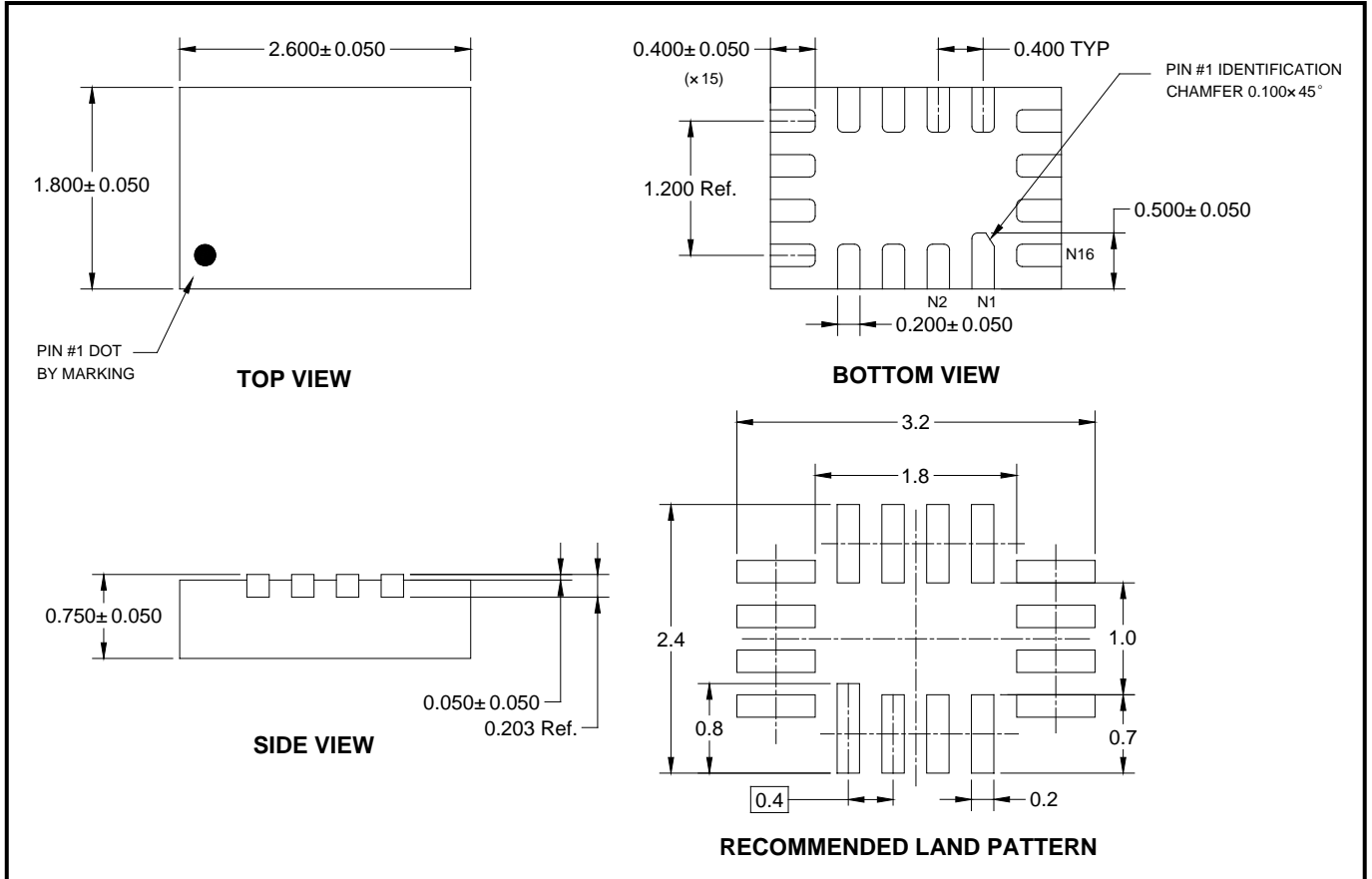


PIN DESCRIPTION

PIN		NAME	FUNCTION
TSSOP-16	TQFN-2.6x1.8-16L		
1	11	A1	Input/Output 1. It tracks the $V_{CCA}$ supply.
2	12	$V_{CCA}$	Supply Voltage on A Ports. It can be operated from 1.2V to 5.5V, and $V_{CCA}$ is always $\leq V_{CCB}$ .
3	13	A2	Input/Output 2. It tracks the $V_{CCA}$ supply.
4	14	A3	Input/Output 3. It tracks the $V_{CCA}$ supply.
5	15	A4	Input/Output 4. It tracks the $V_{CCA}$ supply.
6	16	A5	Input/Output 5. It tracks the $V_{CCA}$ supply.
7	1	A6	Input/Output 6. It tracks the $V_{CCA}$ supply.
8	2	OE	Output Enable Control Pin. Active high. When OE goes low, all outputs enter into the high-impedance state. It tracks the $V_{CCA}$ supply.
9	3	GND	Ground.
10	4	B6	Input/Output 6. It tracks the $V_{CCB}$ supply.
11	5	B5	Input/Output 5. It tracks the $V_{CCB}$ supply.
12	6	B4	Input/Output 4. It tracks the $V_{CCB}$ supply.
13	7	B3	Input/Output 3. It tracks the $V_{CCB}$ supply.
14	8	B2	Input/Output 2. It tracks the $V_{CCB}$ supply.
15	9	$V_{CCB}$	Supply Voltage on B Ports. It can be operated from 1.65V to 5.5V.
16	10	B1	Input/Output 1. It tracks the $V_{CCB}$ supply.

PACKAGE OUTLINE DIMENSIONS

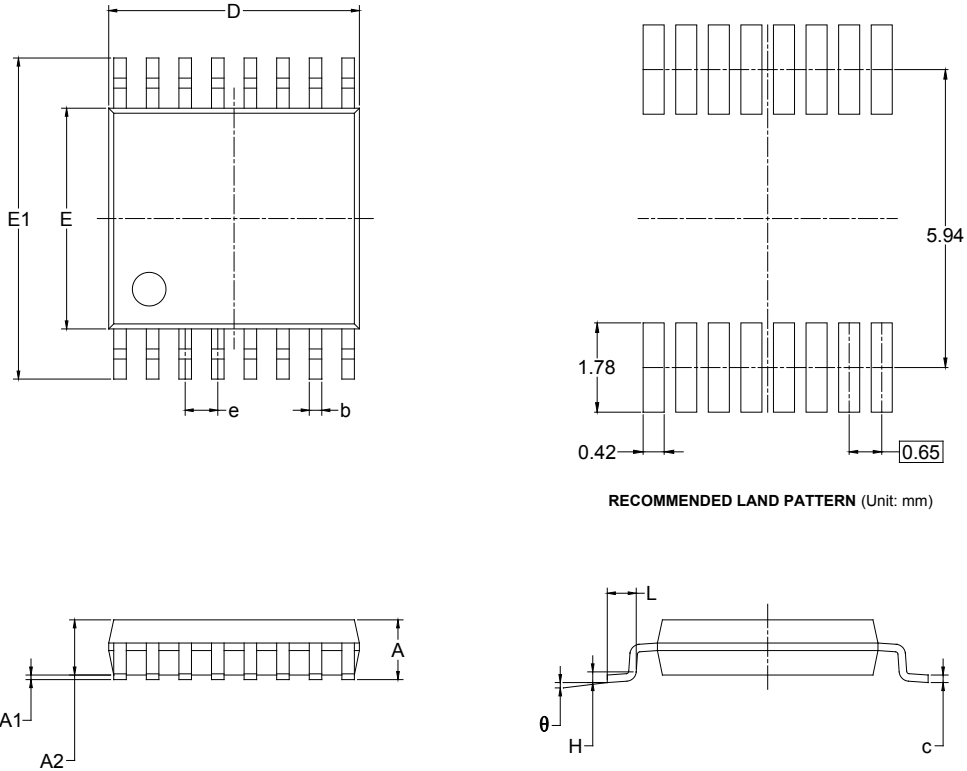
TQFN-2.6x1.8-16L



NOTE: All linear dimensions are in millimeters.

PACKAGE OUTLINE DIMENSIONS

TSSOP-16

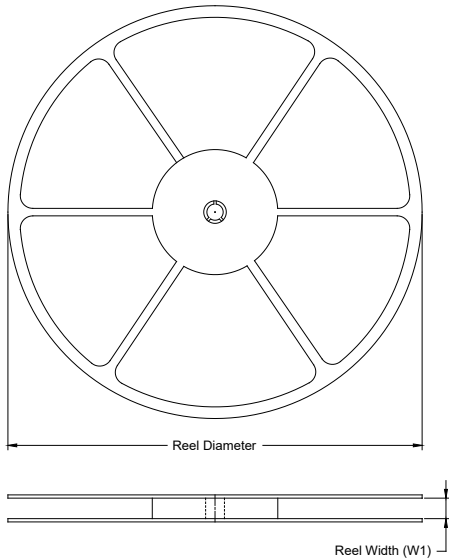


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.200		0.047
A1	0.050	0.150	0.002	0.006
A2	0.800	1.050	0.031	0.041
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
D	4.860	5.100	0.191	0.201
E	4.300	4.500	0.169	0.177
E1	6.200	6.600	0.244	0.260
e	0.650 BSC		0.026 BSC	
L	0.500	0.700	0.02	0.028
H	0.25 TYP		0.01 TYP	
$\theta$	1°	7°	1°	7°

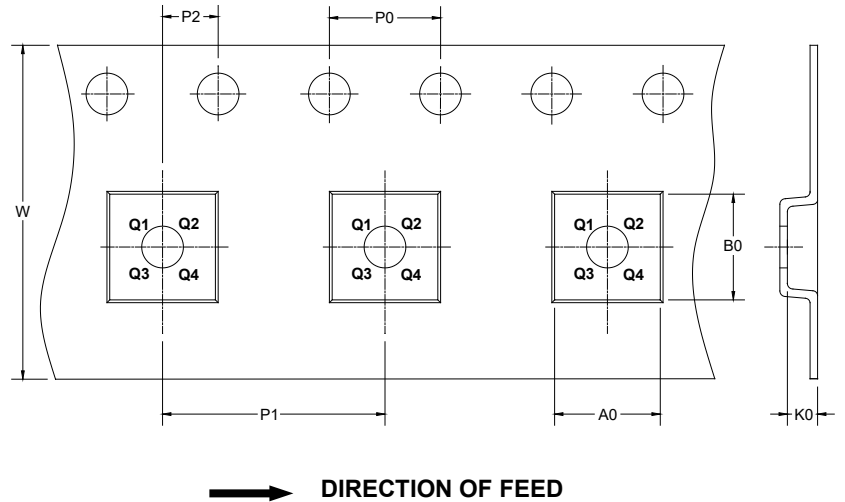
# PACKAGE INFORMATION

## 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
TQFN-2.6×1.8-16L	7"	9.0	2.01	2.81	0.93	4.0	4.0	2.0	8.0	Q1
TSSOP-16	13"	12.4	6.90	5.60	1.20	4.0	8.0	2.0	12.0	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
13"	386	280	370	5

DD0002



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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