

GENERAL DESCRIPTION

The 74GTL2005 is a quad GTL/GTL+ to LVTTTL/TTL bidirectional translating transceiver, which is used in 3.3V system interface environment. The 74GTL2005 LVTTTL interface can accept voltage up to 5.5V and access directly to TTL or 5V CMOS outputs.

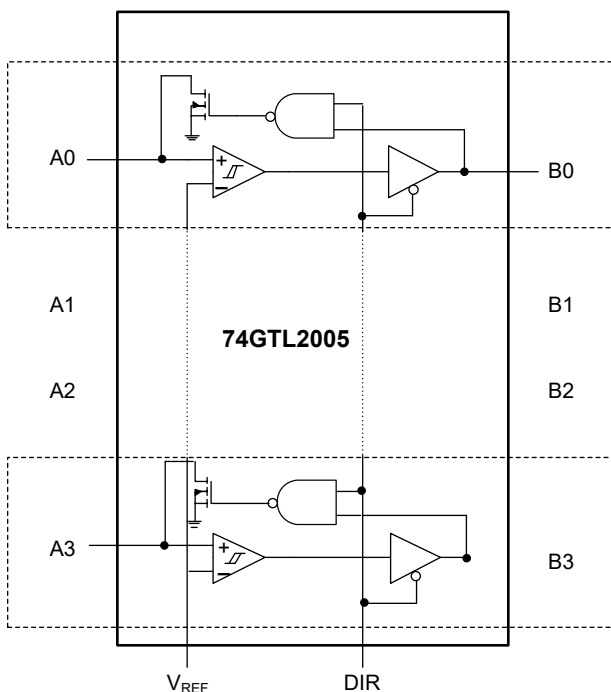
For 74GTL2005, the linearity reference voltage drops below 0.8V. The direction control input (DIR) makes the device operate as a GTL-to-TTL sampling receiver or as a TTL-to-GTL interface.

The 74GTL2005 is available in a Green TSSOP-14 package. It is specified over the -40°C to +125°C operating temperature range.

FEATURES

- **Wide Operating Voltage Range: 3.0V to 3.6V**
- **LVTTTL Input and Output Interface Capability to 5V System Environment**
- **Operate as a Quad GTL/GTL+ Sampling Receiver or as an LVTTTL/TTL to GTL/GTL+ Driver**
- **Support Live Insertion or Extraction**
- **Quad Bidirectional Bus Interface**
- **Latch-up Performance (>500mA) per JESD78**
- **-40°C to +125°C Operating Temperature Range**
- **Available in a Green TSSOP-14 Package**

LOGIC DIAGRAM



FUNCTION TABLE

CONTROL INPUT	INPUT/OUTPUT	
	B (TTL)	A (GTL)
DIR = H	Inputs	B _n = A _n
DIR = L	A _n = B _n	Inputs

H = High Voltage Level

L = Low Voltage Level

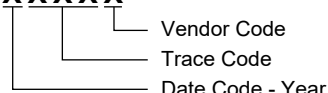
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
74GTL2005	TSSOP-14	-40°C to +125°C	74GTL2005XTS14G/TR	SMM XTS14 XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace 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.

ABSOLUTE MAXIMUM RATINGS ⁽¹⁾

DC Supply Voltage, V_{CC}	-0.5V to 4.6V
DC Input Voltage, V_I ⁽²⁾	
A Ports	-0.5V to 4.6V
B Ports	-0.5V to 6V
DC Output Voltage, V_O ⁽²⁾	
Off-State or High-State	
A Ports	-0.5V to 4.6V
B Ports	-0.5V to 6V
Low-Level Output Current, I_{OL}	
A Ports	40mA
B Ports	80mA
High-Level Output Current, I_{OH}	-40mA
Junction Temperature	+150°C
Storage Temperature Range ⁽³⁾	-65°C to +150°C
Lead Temperature (Soldering, 10s)	+260°C
ESD Susceptibility	
HBM	7000V
CDM	1000V

RECOMMENDED OPERATING CONDITIONS ⁽⁴⁾

Operating Temperature Range	-40°C to +125°C
Supply Voltage, V_{CC}	3V to 3.6V, 3.3V (TYP)
Termination Voltage, V_{TT}	
GTL-	0.85V to 0.95V, 0.9V (TYP)
GTL	1.14V to 1.26V, 1.2V (TYP)
GTL+	1.35V to 1.65V, 1.5V (TYP)
Reference Voltage, V_{REF}	
Overall ⁽⁵⁾	0.5V to 1.8V, 2/3 V_{TT} (TYP)
GTL-	0.5V to 0.63V, 0.6V (TYP)
GTL	0.76V to 0.84V, 0.8V (TYP)
GTL+	0.87V to 1.1V, 1V (TYP)
Input Voltage, V_I	
A Ports	0V to 3.6V, V_{TT} (TYP)
Except A Ports	0V to 5.5V, 3.3V (TYP)

OVERSTRESS CAUTION

1. 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.
2. The input and output negative voltage ratings may be exceeded if the input and output clamp current ratings are observed.
3. The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.
4. Unused inputs must be held High or Low to prevent them from floating.
5. V_{REF} is normally 2/3 V_{TT} , which can be set to any value within this range depending on the application and noise margin requirements and does not need to follow GTL-/GTL/GTL+ specification.

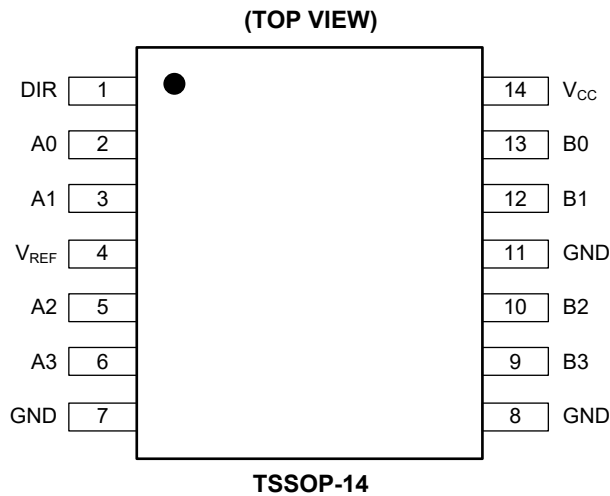
ESD SENSITIVITY CAUTION

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

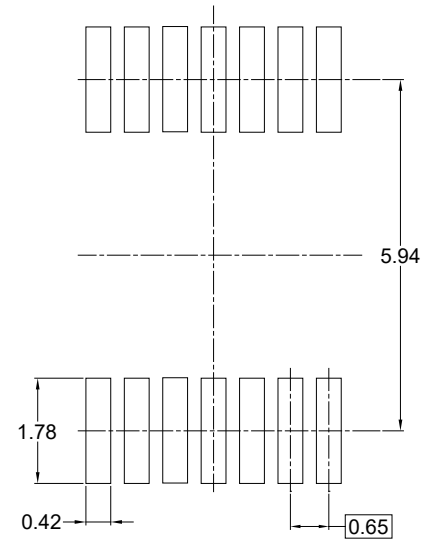
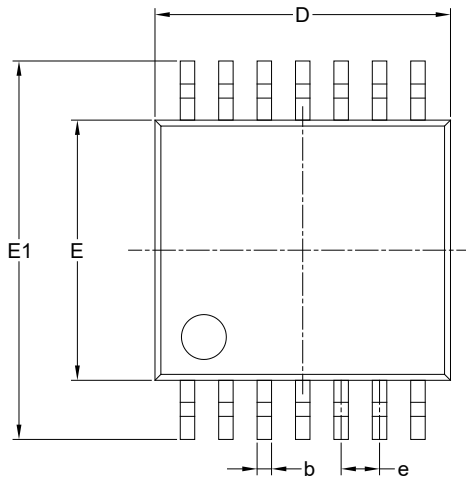


PIN DESCRIPTION

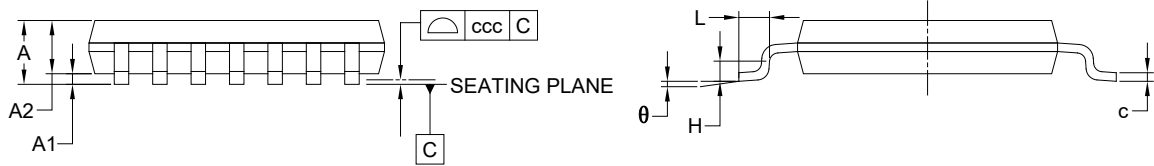
PIN	NAME	FUNCTION
1	DIR	Direction Control Input.
2, 3, 5, 6	A0, A1, A2, A3	Data Inputs/Outputs (A Side, GTL).
4	V _{REF}	GTL Reference Voltage.
7, 8, 11	GND	Ground.
13, 12, 10, 9	B0, B1, B2, B3	Data Inputs/Outputs (B Side, TTL).
14	V _{CC}	Supply Voltage.

PACKAGE OUTLINE DIMENSIONS

TSSOP-14



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	-	-	1.200
A1	0.050	-	0.150
A2	0.800	-	1.050
b	0.190	-	0.300
c	0.090	-	0.200
D	4.860	-	5.100
E	4.300	-	4.500
E1	6.200	-	6.600
e	0.650 BSC		
L	0.450	-	0.750
H	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

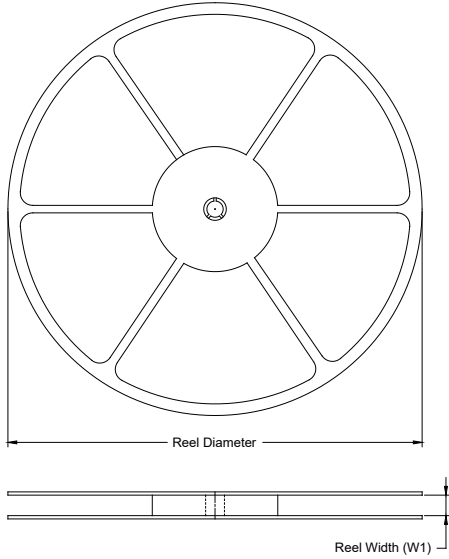
NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MO-153.

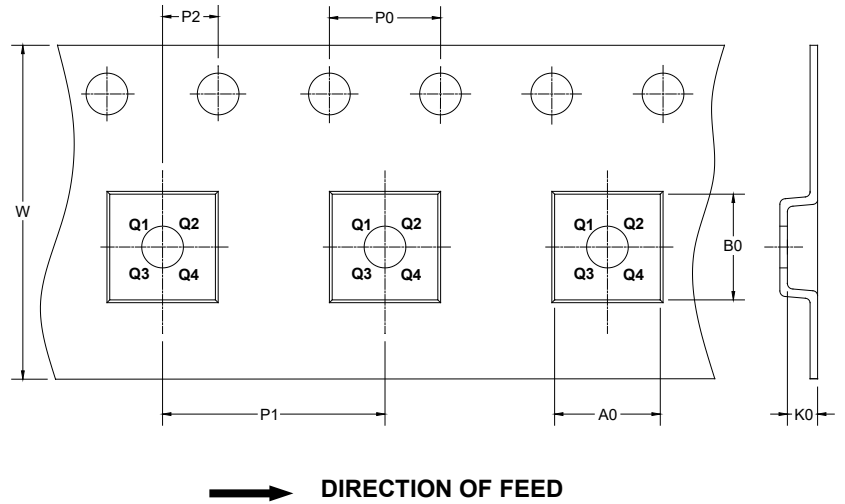
PACKAGE INFORMATION

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
TSSOP-14	13"	12.4	6.95	5.60	1.50	4.0	8.0	2.0	12.0	Q1

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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
13"	386	280	370	5

DD0002