

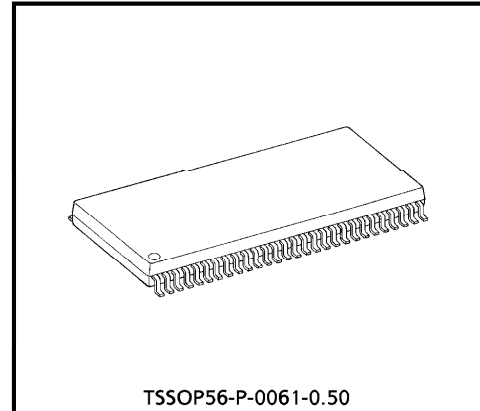
TC74VCX16500FT**LOW-VOLTAGE 18-BIT UNIVERSAL BUS TRANSCEIVER
WITH 3.6V TOLERANT INPUTS AND OUTPUTS**

The TC74VCX16500FT is a high performance CMOS 18-bit UNIVERSAL BUS TRANSCEIVER. Designed for use in 1.8, 2.5 or 3.3 Volt systems, it achieves high speed operation while maintaining the CMOS low power dissipation. It is also designed with over voltage tolerant inputs and outputs up to 3.6V.

Data flow in each direction is controlled by output-enable (\overline{OEAB} and \overline{OEBA}), latch-enable (LEAB and LEBA), and clock (\overline{CKAB} and \overline{CKBA}) inputs. For A-to-B data flow, the device operates in the transparent mode when LEAB is high. When LEAB is low, the A data is latched if \overline{CKAB} is held at a high or low logic level. If LEAB is low, the A bus data is stored in the latch / flip-flop on the high-to-low transition of \overline{CKAB} .

Data flow for B to A is similar to that of A to B but uses \overline{OEBA} , LEBA, and CKBA. When the \overline{OE} input is high, the outputs are in a high impedance state. This device is designed to be used with 3-state memory address drivers, etc.

All inputs are equipped with protection circuits against static discharge.



Weight : 0.25g (Typ.)

FEATURES

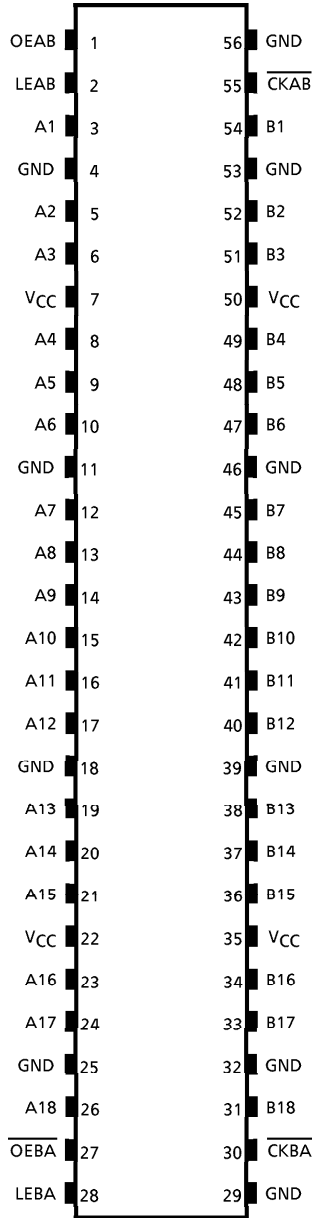
- Low Voltage Operation : $V_{CC} = 1.8 \sim 3.6V$
- High Speed Operation : $t_{pd} = \text{TBD (max.) at } V_{CC} = 3.0 \sim 3.6V$
: $t_{pd} = \text{TBD (max.) at } V_{CC} = 2.3 \sim 2.7V$
: $t_{pd} = \text{TBD (max.) at } V_{CC} = 1.8V$
- 3.6V Tolerant inputs and outputs.
- Output Current : $I_{OH} / I_{OL} = \pm 24mA$ (min.) at $V_{CC} = 3.0V$
: $I_{OH} / I_{OL} = \pm 18mA$ (min.) at $V_{CC} = 2.3V$
: $I_{OH} / I_{OL} = \pm 6mA$ (min.) at $V_{CC} = 1.8V$
- Latch-up Performance : $\pm 300mA$
- ESD Performance : Human Body Model $> \pm 2000V$
: Machine Model $> \pm 200V$
- Package : TSSOP
(Thin Shrink Small Outline Package)
- Bidirectional interface between 2.5V and 3.3V signals.
- Power Down Protection is provided on all inputs and outputs.

- Note 1) Do not apply a signal to any bus terminal when it is in the output mode. Damage may result.
- 2) All floating (high impedance) bus terminal must have their input level fixed by means of pull up or pull down resistors.

961001EBA2

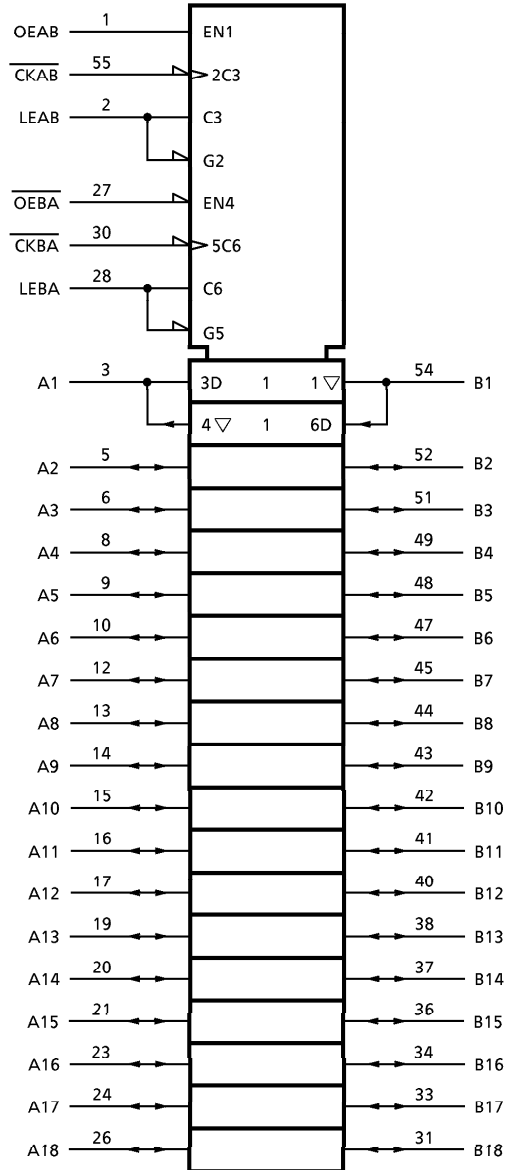
● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

PIN ASSIGNMENT



(TOP VIEW)

SYMBOL



PRELIMINARY

961001EBA2'

- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

TRUTH TABLE *

INPUTS				OUTPUTS
OEAB	LEAB	\overline{CKAB}	A	B
L	X	X	X	Z
H	H	X	L	L
H	H	X	H	H
H	L	\downarrow	L	L
H	L	\downarrow	H	H
H	L	H	X	B0**
H	L	L	X	B0***

* A-to-B data flow is shown: B-to-A flow is similar but uses \overline{OEBA} , LEBA, and \overline{CKBA} .

** Output level before the indicated steady-state input conditions were established.

*** Output level before the indicated steady-state input conditions were established, provided that \overline{CKAB} was low before LEAB went low.

PRELIMINARY

SYSTEM DIAGRAM

