

CMOS Hex Voltage Level Shifter for TTL-to-CMOS or CMOS-to-CMOS Operation

Intersil's Satellite Applications Flow™ (SAF) devices are fully tested and guaranteed to 100kRAD total dose. These QML Class T devices are processed to a standard flow intended to meet the cost and shorter lead-time needs of large volume satellite manufacturers, while maintaining a high level of reliability.

CD4504BT Hex Voltage Level Shifter consists of six circuits which shift input signals from the V_{CC} logic level to the V_{DD} logic level. To shift TTL signals to CMOS logic levels, the SELECT input is at the V_{CC} HIGH logic state. When the SELECT input is at a LOW logic state, each circuit translates signals from one CMOS level to another.

Specifications

Specifications for Rad Hard QML devices are controlled by the Defense Supply Center in Columbus (DSCC). The SMD numbers listed below must be used when ordering.

Detailed Electrical Specifications for the CD4504BT are contained in SMD 5962-96665. A "hot-link" is provided from our website for downloading.

www.intersil.com/spacedefense/newsafclasst.asp

Intersil's Quality Management Plan (QM Plan), listing all Class T screening operations, is also available on our website.

www.intersil.com/quality/manuals.asp

Ordering Information

ORDERING NUMBER	PART NUMBER	TEMP. RANGE (°C)
5962R9666501TEC	CD4504BDTR	-55 to 125
5962R9666501TXC	CD4504BKTR	-55 to 125

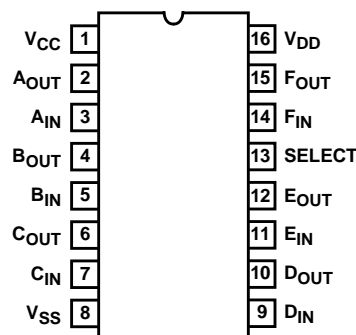
NOTE: **Minimum order quantity for -T is 150 units through distribution, or 450 units direct.**

Features

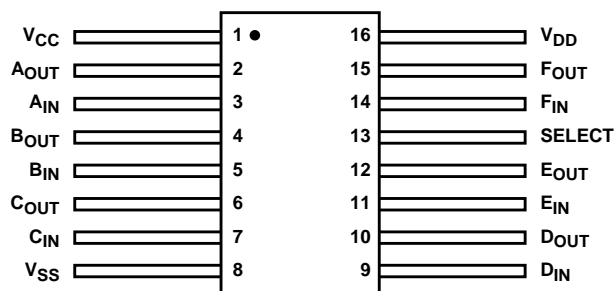
- QML Class T, Per MIL-PRF-38535
- Radiation Performance
 - Gamma Dose (γ) 1×10^5 RAD(Si)
 - SEP Effective LET > 75 MEV/gm/cm²
- Independence of Power Supply Sequence Considerations
 - V_{CC} Can Exceed V_{DD}
 - Input Signals can Exceed Both V_{CC} and V_{DD}
- Up and Down Level Shifting Capability
- Shiftable Input Threshold for Either CMOS or TTL Compatibility
- 100% Tested for Quiescent Current at 20V
- 5V, 10V and 15V Parametric Ratings
- Standardized Symmetrical Output Characteristics

Pinouts

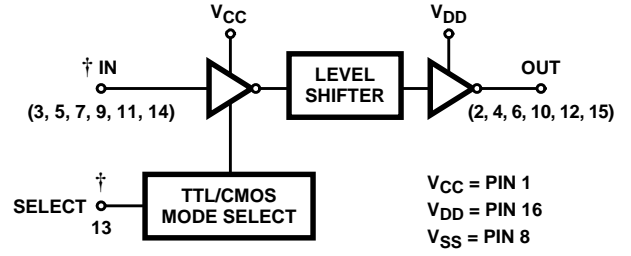
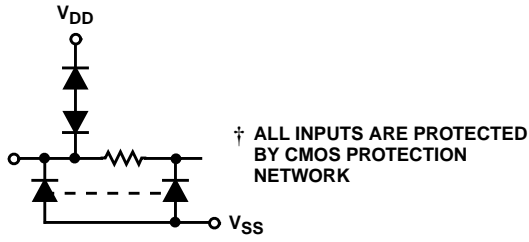
CD4504BT (SBDIP), CDIP2-T16
TOP VIEW



CD4504BT (FLATPACK), CDFP4-16
TOP VIEW



Functional Diagram



Die Characteristics

DIE DIMENSIONS:

(2540 μ m x 1753 μ m x 533 μ m \pm 25.4 μ m)
100 x 69 x 21mils \pm 1mil

METALLIZATION:

Type: Al
Thickness: 12.5k \AA \pm 1.5k \AA

SUBSTRATE POTENTIAL:

Leave Floating or Tie to V_{DD}
Bond Pad #16 (V_{DD}) First

BACKSIDE FINISH:

Silicon

PASSIVATION:

Type: Phosphorus Doped Silox (S_iO_2)
Thickness: 13.0k \AA \pm 2.6k \AA

WORST CASE CURRENT DENSITY:

$< 2.0e5 A/cm^2$

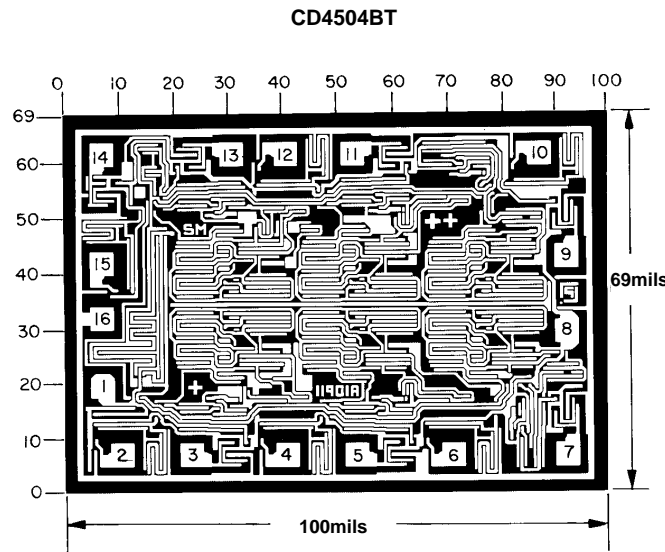
TRANSISTOR COUNT:

72

PROCESS:

Bulk CMOS

Metallization Mask Layout



All Intersil semiconductor products are manufactured, assembled and tested under **ISO9000** quality systems certification.

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