

## Radiation Hardened Octal Buffer/Line Driver, Three-State

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.

The Intersil HCS244T is a Radiation Hardened Non-Inverting Octal Buffer/Line Driver, Three-State, with two active-low output enables.

## 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 HCS244T are contained in SMD 5962-95731.** A "hot-link" is provided from our website for downloading.

[www.intersil.com/spacedefense/newsafclasst.asp](http://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](http://www.intersil.com/quality/manuals.asp)

## Ordering Information

ORDERING INFORMATION	PART NUMBER	TEMP. RANGE (°C)
5962R9573101TRC	HCS244DTR	-55 to 125
5962R9573101TXC	HCS244KTR	-55 to 125

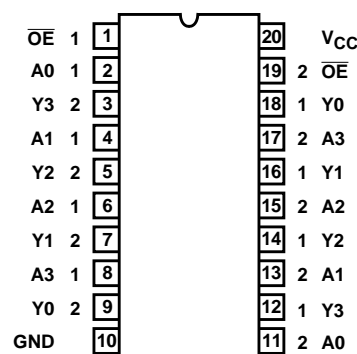
NOTE: **Minimum order quantity for -T is 150 units through distribution, or 450 units direct.**

## Features

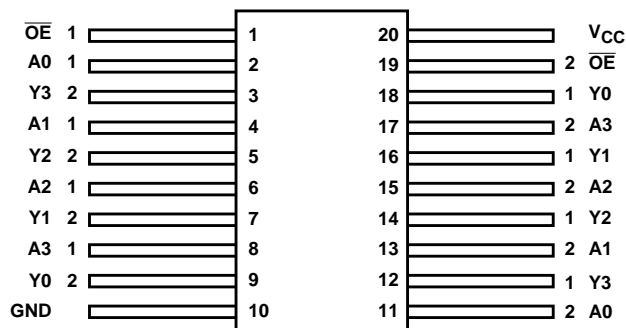
- QML Class T, Per MIL-PRF-38535
- Radiation Performance
  - Gamma Dose ( $\gamma$ )  $1 \times 10^5$  RAD(Si)
  - Latch-Up Free Under Any Conditions
  - SEP Effective LET No Upsets:  $>100$  MEV-cm<sup>2</sup>/mg
  - Single Event Upset (SEU) Immunity  $< 2 \times 10^{-9}$  Errors/Bit-Day (Typ)
- 3 Micron Radiation Hardened CMOS SOS
- Fanout (Over Temperature Range)
- Bus Driver Outputs - 15 LSTTL Loads
- Significant Power Reduction Compared to LSTTL ICs
- DC Operating Voltage Range: 4.5V to 5.5V
- Input Logic Levels
  - $V_{IL} = 0.3 V_{CC}$  Max
  - $V_{IH} = 0.7 V_{CC}$  Min
- Input Current Levels  $I_i \leq 5\mu A$  at  $V_{OL}$ ,  $V_{OH}$

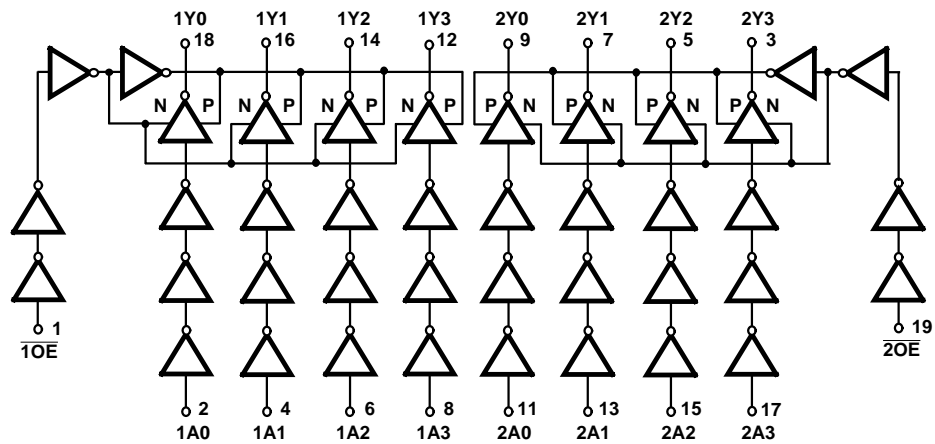
## Pinouts

**HCS244DTR (SBDIP), CDIP2-T20**  
TOP VIEW



**HCS244KTR (FLATPACK), CDFP4-F20**  
TOP VIEW



**Functional Diagram****TRUTH TABLE**

INPUTS		OUTPUT
$\overline{10E}, \overline{20E}$	A	Y
L	L	L
L	H	H
H	X	Z

H = High Voltage Level

L = Low Voltage Level

X = Immaterial

Z = High Impedance

## Die Characteristics

### DIE DIMENSIONS:

(2747 $\mu$ m x 2693 $\mu$ m x 533 $\mu$ m  $\pm$ 51.0 $\mu$ m)  
108 x 106 x 21mils  $\pm$ 2mil

### METALLIZATION:

Type: Al Si  
Thickness: 11.0k $\text{\AA}$   $\pm$ 1k $\text{\AA}$

### SUBSTRATE POTENTIAL:

Unbiased Silicon on Sapphire

### BACKSIDE FINISH:

Sapphire

### PASSIVATION:

Type: Silox (SiO<sub>2</sub>)  
Thickness: 13.0k $\text{\AA}$   $\pm$ 2.6k $\text{\AA}$

### WORST CASE CURRENT DENSITY:

< 2.0e5 A/cm<sup>2</sup>

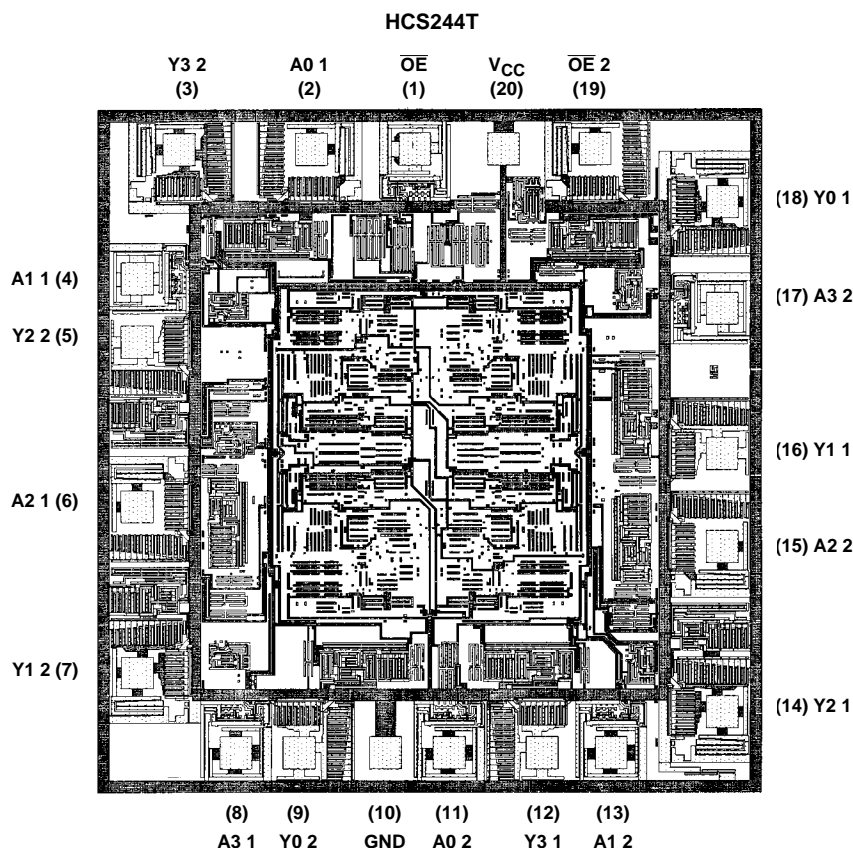
### TRANSISTOR COUNT:

224

### PROCESS:

CMOS SOS

## Metallization Mask Layout



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

*Intersil semiconductor products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.*

For information regarding Intersil Corporation and its products, see web site <http://www.intersil.com>

## Sales Office Headquarters

### NORTH AMERICA

Intersil Corporation  
P. O. Box 883, Mail Stop 53-204  
Melbourne, FL 32902  
TEL: (407) 724-7000  
FAX: (407) 724-7240

### EUROPE

Intersil SA  
Mercure Center  
100, Rue de la Fusee  
1130 Brussels, Belgium  
TEL: (32) 2.724.2111  
FAX: (32) 2.724.22.05

### ASIA

Intersil (Taiwan) Ltd.  
7F-6, No. 101 Fu Hsing North Road  
Taipei, Taiwan  
Republic of China  
TEL: (886) 2 2716 9310  
FAX: (886) 2 2715 3029