

Data Sheet

July 1999 File Number 4616.1

Radiation Hardened Octal Buffer/Line Driver, Three-State

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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

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 INFORMATION	PART NUMBER	TEMP. RANGE (^o 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 (γ) 1 x 10⁵ RAD(Si)
 - Latch-Up Free Under Any Conditions
 - SEP Effective LET No Upsets: >100 MEV-cm²/mg
 - Single Event Upset (SEU) Immunity < 2 x 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
 - $V_{IH} = 0.7 V_{CC} Min$

GND

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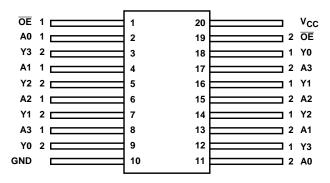
• Input Current Levels Ii \leq 5µA at V_{OL}, V_{OH}

Pinouts

HCS244DTR (SBDIP), CDIP2-T20 TOP VIEW							
OE A0 Y3 A1 Y2 A2 Y1 A3 Y0	1 2 1 2 1 2 1	23456		·	18 17 16 15 14	1 2 1 2 1	V _{CC} OE Y0 A3 Y1 A2 Y2 A1 Y3

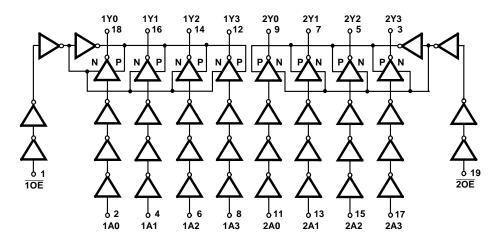
HCS244KTR (FLATPACK), CDFP4-F20 TOP VIEW

11 2 A0



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Functional Diagram



INPUTS		OUTPUT		
10E, 20E	A	Y		
L	L	L		
L	н	н		
н	Х	Z		

TRI	JTH	ТΑ	BL	E
				_

H = High Voltage Level

L = Low Voltage Level

X = Immaterial

Z = High Impedance

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Die Characteristics

DIE DIMENSIONS:

(2747μm x 2693μm x 533μm ±51.0μm) 108 x 106 x 21mils ±2mil

METALLIZATION:

Type: Al Si Thickness: 11.0kÅ ±1kÅ

SUBSTRATE POTENTIAL:

Unbiased Silicon on Sapphire

BACKSIDE FINISH:

Sapphire

Metallization Mask Layout

PASSIVATION:

Type: Silox (S_iO₂) Thickness: 13.0kÅ ±2.6kÅ

WORST CASE CURRENT DENSITY:

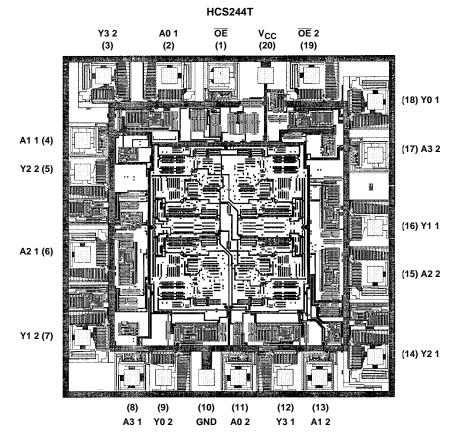
< 2.0e5 A/cm²

TRANSISTOR COUNT:

224

PROCESS:

CMOS SOS



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