

## HS-6664RH

Radiation Hardened 8kx8 CMOS PROM

FN3197  
Rev 4.00  
August 2000

The Intersil HS-6664RH is a radiation hardened 64k CMOS PROM, organized in an 8k word by 8-bit format. The chip is manufactured using a radiation hardened CMOS process, and utilizes synchronous circuit design techniques to achieve high speed performance with very low power dissipation.

On-chip address latches are provided, allowing easy interfacing with microprocessors that use a multiplexed address/data bus structure. The output enable control ( $\bar{G}$ ) simplifies system interfacing by allowing output data bus control in addition to the chip enable control ( $\bar{E}$ ). All bits are manufactured storing a logical "0" and can be selectively programmed for a logical "1" at any bit location.

Applications for the HS-6664RH CMOS PROM include low power microprocessor based instrumentation and communications systems, remote data acquisition and processing systems, and processor control storage.

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

**Detailed Electrical Specifications for these devices are contained in SMD 5962-95626. A "hot-link" is provided on our homepage for downloading.**

[www.intersil.com/spacedefense/space.htm](http://www.intersil.com/spacedefense/space.htm)

### Features

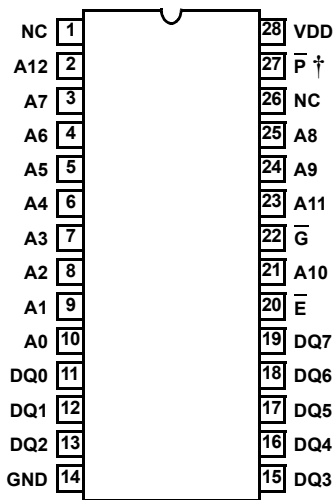
- Electrically Screened to SMD # 5962-95626
- QML Qualified per MIL-PRF-38535 Requirements
- 1.2 Micron Radiation Hardened Bulk CMOS
- Total Dose . . . . . 300 krad(Si) (Max)
- Transient Output Upset . . . . .  $>5 \times 10^8$  rad(Si)/s
- LET  $>100$  MEV-cm<sup>2</sup>/mg
- Fast Access Time . . . . . 35ns (Typ)
- Single 5V Power Supply
- Single Pulse 10V Field Programmable
- Synchronous Operation
- On-Chip Address Latches
- Three-State Outputs
- NiCr Fuses
- Low Standby Current . . . . .  $<500\mu\text{A}$  (Pre-Rad)
- Low Operating Current . . . . .  $<15\text{mA/MHz}$
- Military Temperature Range . . . . .  $-55^\circ\text{C}$  to  $125^\circ\text{C}$

### Ordering Information

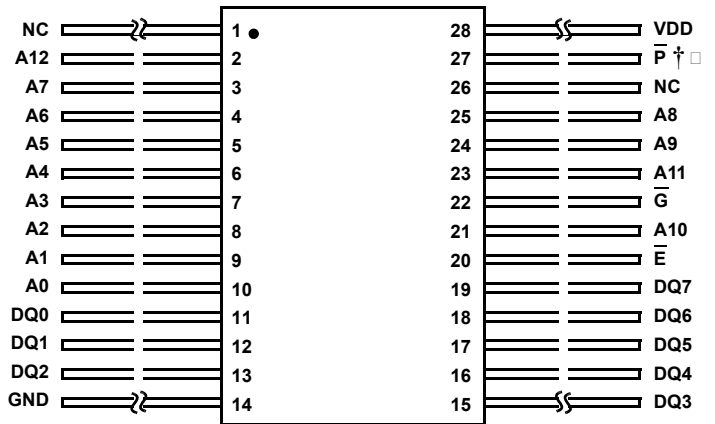
ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)
5962F9562601QXC	HS1-6664RH-8	-55 to 125
5962F9562601QYC	HS9-6664RH-8	-55 to 125
5962F9562601VXC	HS1-6664RH-Q	-55 to 125
5962F9562601VYC	HS9-6664RH-Q	-55 to 125
HS1-6664RH/PROTO	HS1-6664RH/PROTO	-55 to 125
HS9-6664RH/PROTO	HS9-6664RH/PROTO	-55 to 125

**Pinouts**

**28 LEAD CERAMIC (SBDIP)**  
**CASE OUTLINE D28.6 MIL-STD-1835, CDIP2-T28**  
 TOP VIEW

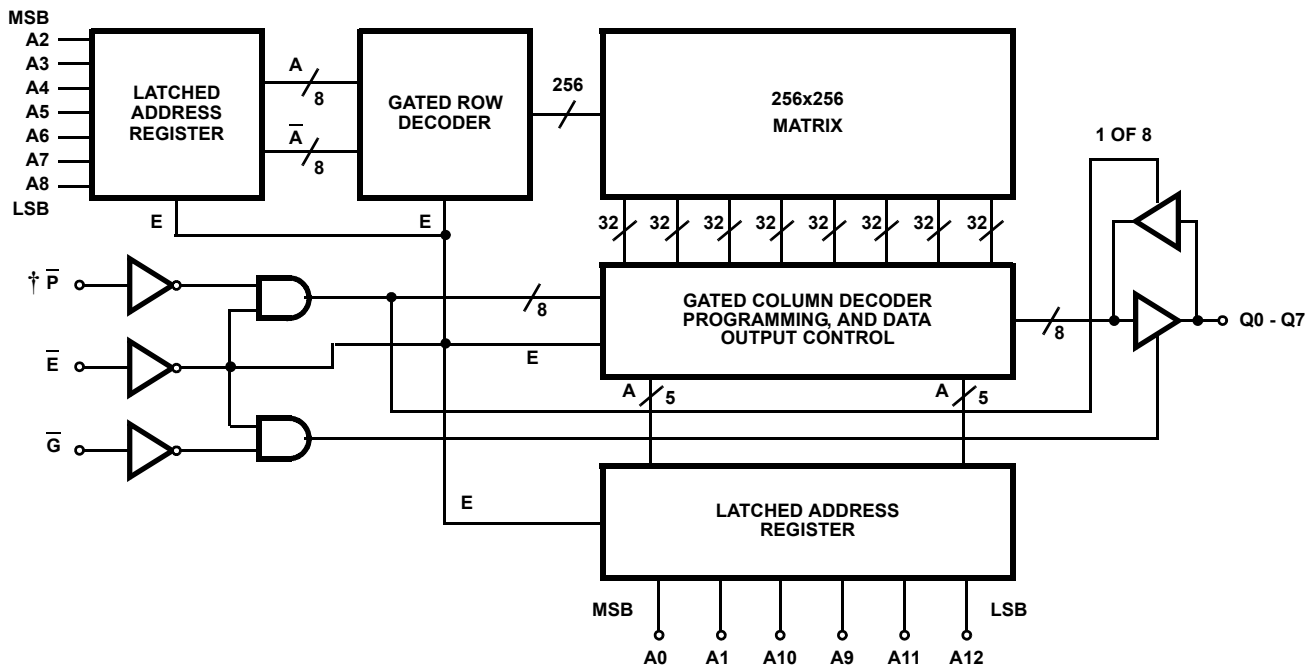


**28 LEAD FLATPACK**  
**CASE OUTLINE K28.A MIL-STD-1835, CDFP3-F28**  
 TOP VIEW



† P must be hardwired at all times to VDD, except during programming.

**Functional Diagram**



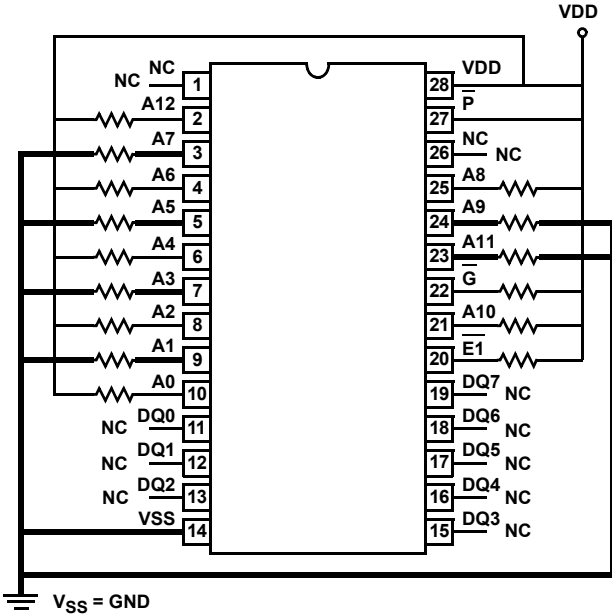
NOTE: † P must be hardwired at all times to VDD, except during programming.

**TRUTH TABLE**

E	G	MODE
0	0	Enabled
0	1	Output Disabled
1	X	Disabled

### Burn-In Circuits

HS1-6664RH 28 LEAD (8kx8 PROM DIP)  
 HS9-6664RH 28 LEAD (8kx8 PROM FLATPACK)

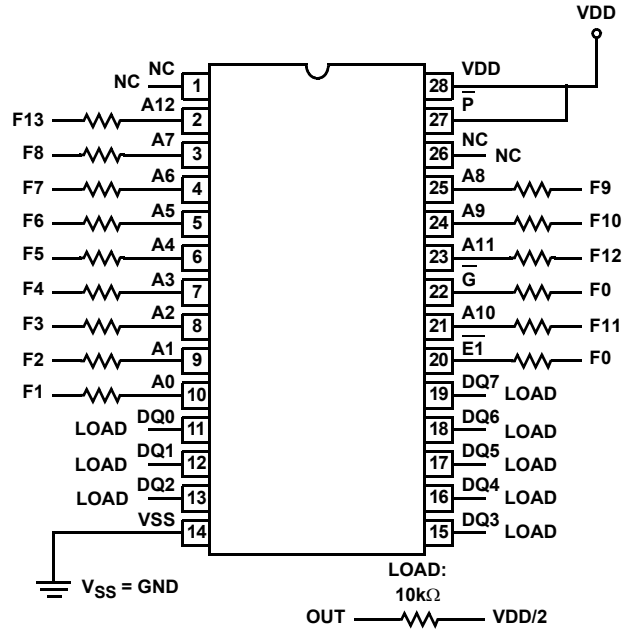


STATIC CONFIGURATION

NOTES:

1. Power Supply: VDD = 5.5V (Min)
2. Resistors = 10kΩ ± 10%

HS1-6664RH 28 LEAD (8kx8 PROM DIP)  
 HS9-6664RH 28 LEAD (8kx8 PROM FLATPACK)



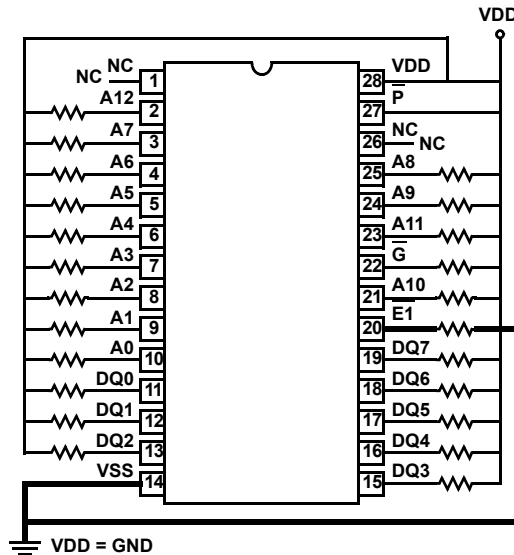
DYNAMIC CONFIGURATION

NOTES:

3. Power Supply: VDD = 5.5V (Min)
4. VIH = VDD to VDD-1.0V
5. VIL = 0.0V to 0.8V
6. Resistors = 10kΩ ± 10%
7. F0 = 100kHz ± 10%, 50% Duty Cycle
8. F1 = F0/2; F2 = F1/2; F3 = F2/2; F4 = F3/2; F5 = F4/2; ...  
 F13 = F12/2

### Irradiation Circuit

HS1-6664RH 28 LEAD (8kx8 PROM DIP)



NOTES:

9. Power Supply: VDD = 5.5V ± ±0.5V
10. All Resistors = 47kΩ ± 10%

**Die Characteristics**

**DIE DIMENSIONS:**

271milsx307milsx19mils ±1mils

**INTERFACE MATERIALS:**

**Glassivation:**

Type: SiO<sub>2</sub>  
 Thickness: 8kÅ ± 1kÅ

**Top Metallization:**

M1: 6kÅ ± 1kÅ Si/Al/Cu  
 2kÅ ± 500Å TiW  
 M2: 10kÅ ± 2kÅ Si/Al/Cu

**ASSEMBLY RELATED INFORMATION:**

**Substrate Potential:**

V<sub>DD</sub>

**ADDITIONAL INFORMATION:**

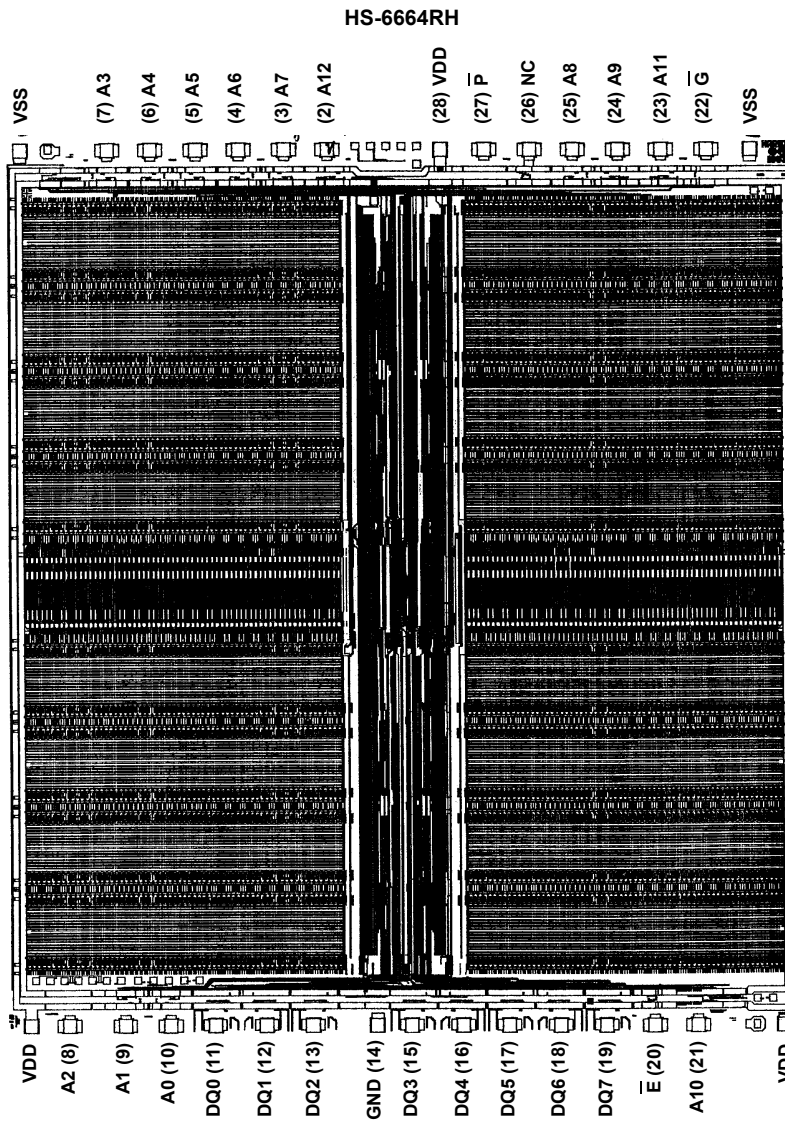
**Worst Case Current Density:**

2x10<sup>5</sup> A/cm<sup>2</sup>

**Transistor Count:**

110, 874

**Metallization Mask Layout**



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