

**Radiation Hardened Power-Up/Down  
Microprocessor Reset Circuit**



The Radiation Hardened IS-705RH is a monolithic device that monitors the power supply voltage used by satellite control units and provides a

reset output pulse during power-up and power-down. The reset threshold is 4.65V (Typ) and the reset pulse width is set at 200ms (Typ). A watchdog circuit is incorporated for easy interfacing with microprocessors and controllers. If the watchdog input has not been toggled within a preset 1.6s (Typ) time period, an output signal is generated, which can be used as an interrupt. The power function input (PFI) may be used to monitor other voltage levels. The circuit has a 1.25V (Typ) threshold and provides a PFO output when low voltage is detected. An active-low manual reset input in also provided for direct control of the reset function.

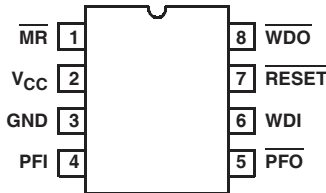
Constructed with the Intersil UHF2X-CMOS process, these devices have been specifically designed to provide highly reliable performance in harsh radiation environments. This process has been tested for single event latch-up and has demonstrated an immunity to 90MeV/mg/cm<sup>2</sup>.

**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 5962-00538. A “hot-link” is provided on our homepage for downloading.**

**Pinout**

**IS9-705RH  
FLATPACK  
TOP VIEW**



**Features**

- Electrically Screened to SMD # 5962-00538
- QML Qualified per MIL-PRF-38535 Requirements
- Radiation Hardness
  - Total Dose . . . . . 100 krad(Si) (Max)
  - Single Event Latch-up . . . . . >90MeV/mg/cm<sup>2</sup>
- Precision 4.65V Voltage Monitor
- Wide Operating Supply Range . . . . . 1.2V to 5.5V
- Low Supply Current . . . . . 420µA (Typ)
- 200ms (Typ)  $\overline{\text{RESET}}$  Pulse Width

**Applications**

- Flight Computers
- Controllers
- Critical Microprocessor Power Monitoring
- Reliable Replacement of Discrete Solutions

**Ordering Information**

| ORDERING NUMBER | INTERNAL MKT. NUMBER | TEMP. RANGE (°C) |
|-----------------|----------------------|------------------|
| 5962R0053801QXC | IS9-705RH-8          | -55 to 125       |
| 5962R0053801VXC | IS9-705RH-Q          | -55 to 125       |
| 5962R0053801V9A | IS0-705RH-Q          | -55 to 125       |
| IS9-705RH/Proto | IS9-705RH/Proto      | -55 to 125       |

**Die Characteristics**

**DIE DIMENSIONS:**

1500µm x 1830µm (59 mils x 72 mils)  
 Thickness: 483µm ±25.4µm (19 mils ±1 mil)

**INTERFACE MATERIALS**

**Glassivation**

Type: Nitride (Si<sub>3</sub>N<sub>4</sub>) over Silox (SiO<sub>2</sub>)  
 Nitride Thickness: 4.0kÅ ±1.0kÅ  
 Silox Thickness: 12.0kÅ ±4.0kÅ

**Top Metallization**

Top Metal 3: TiAlCu  
 Thickness: 0.8µm ±0.02µm  
 Metal 1 and 2: TiAlCu  
 Thickness: 0.4µm ±0.01µm

**Metallization Mask Layout**

**Substrate:**

UHF2X-CMOS

**Backside Finish:**

Silicon

**ASSEMBLY RELATED INFORMATION**

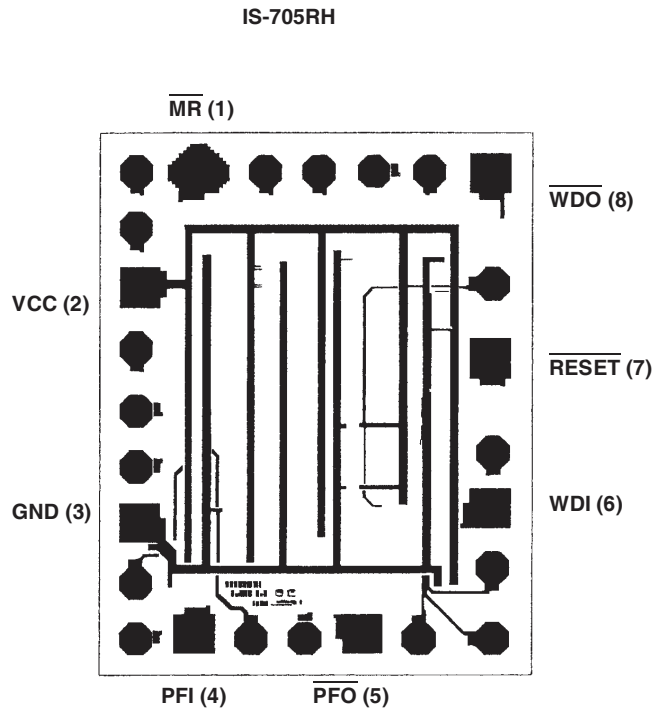
**Substrate Potential:**

Backside internally connected to GND  
 (May be left floating or connected to GND.)

**ADDITIONAL INFORMATION**

**Worst Case Current Density:**

<2.0 x 10<sup>5</sup> A/cm<sup>2</sup>



**NOTES:**

- 1. Octagonal trim pads should be left unconnected.

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 Intersil Corporation's quality certifications can be viewed at [www.intersil.com/design/quality](http://www.intersil.com/design/quality)

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