

## Radiation Hardened Adjustable Positive Voltage Regulator

The Radiation Hardened HS-117RH is an adjustable positive voltage linear regulator capable of operating up to 40VDC. The voltage is adjustable from 1.2V to 37V with two external resistors. The device is capable of sourcing from 50mA to 1.25A<sub>PEAK</sub> (Min). Protection is provided by the on-chip thermal shutdown and output current limiting circuitry.

The Intersil HS-117RH has advantages over other industry standard types, in that circuitry is incorporated to minimize the effects of radiation and temperature on device stability. Negligible low dose rate sensitivity is achieved through the use of vertical transistor geometries.

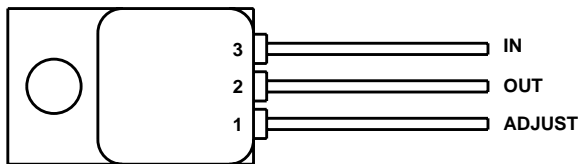
Constructed with the Intersil dielectrically isolated Rad Hard Silicon Gate (RSG) process, the HS-117RH is immune to Single Event Latch-up and has been specifically designed to provide highly reliable performance in harsh radiation environments.

**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.**

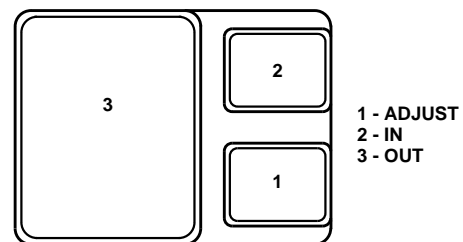
**Detailed Electrical Specifications for the HS-117RH are contained in SMD 5962-99547. A "hot-link" is provided on our homepage for downloading.**  
[www.intersil.com/spacedefense/space.asp](http://www.intersil.com/spacedefense/space.asp)

### Pinout

**HS9S-117RH (TO-257AA FLANGE MOUNT)**  
TOP VIEW



**HSYE-117RH (SMD.5 CLCC)**  
BOTTOM VIEW



### Features

- Electrically Screened to DSSC SMD # 5962-99547
- QML Qualified per MIL-PRF-38535 Requirements
- Radiation Environment
  - 300 krad (Si) (Max)
  - Latch-up Immune
  - Negligible Low Dose Rate Effects Sensitivity
- Superior Temperature Stability
- Overtemperature and Overcurrent/Voltage Protection

### Applications

- Switch Mode DC - DC Power Conversion
- Housekeeping Supplies for Motors
- Power Supplies for Robotic Control

### Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)
5962F9954701VXC	HS9S-117RH-Q	-55 to 125
5962F9954701QXC	HS9S-117RH-8	-55 to 125
5962F9954701VYC	HSYE-117RH-Q	-55 to 125
5962F9954701QYC	HSYE-117RH-8	-55 to 125
HS9S-117RH/Proto	HS9S-117RH/Proto	-55 to 125
HSYE-117RH/Proto	HSYE-117RH/Proto	-55 to 125

NOTE: No current JEDEC outline for the SMD.5 package. Refer to SMD for package dimensions. The TO-257 is a totally isolated metal package.

**Die Characteristics**

**DIE DIMENSIONS**

2616 $\mu$ m x 2794 $\mu$ m (103 mils x 110 mils)  
 483 $\mu$ m  $\pm$ 25.4 $\mu$ m (19 mils  $\pm$ 1 mil)

**INTERFACE MATERIALS**

**Glassivation**

Type: Silox (SiO<sub>2</sub>)  
 Thickness: 8.0k $\text{Å}$   $\pm$ 1.0k $\text{Å}$

**Top Metallization**

Type: AlSiCu  
 Thickness: 16.0k $\text{Å}$   $\pm$ 2k $\text{Å}$

**Substrate**

Radiation Hardened Silicon Gate,  
 Dielectric Isolation

**Backside Finish**

Gold

**ASSEMBLY RELATED INFORMATION**

**Substrate Potential**

Unbiased (DI)

**ADDITIONAL INFORMATION**

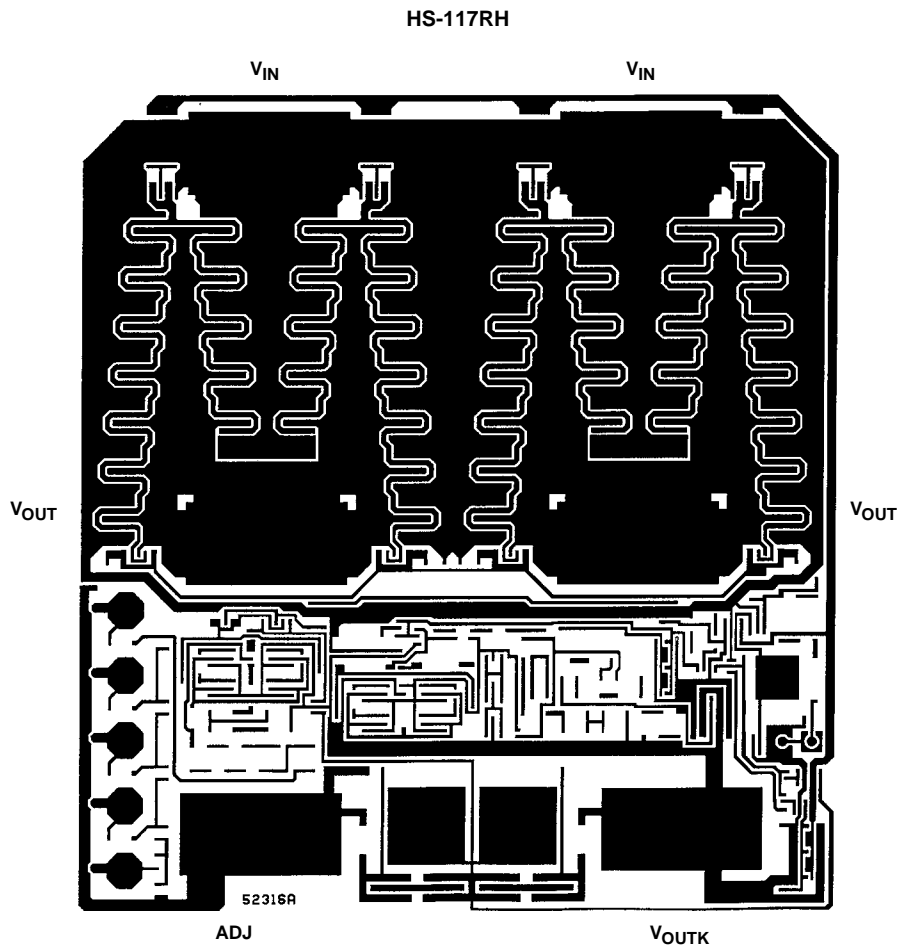
**Worst Case Current Density**

$<2.0 \times 10^5$  A/cm<sup>2</sup>

**Transistor Count**

95

**Metallization Mask Layout**



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

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