

**Radiation Hardened Adjustable Positive Voltage Regulator**

The Radiation Hardened HS-117RH is an adjustable positive voltage linear regulator capable of operating with input voltages up to 40VDC. The output voltage is adjustable from 1.2V to 37V with two external resistors. The device is capable of sourcing from 5mA to 1.25A<sub>PEAK</sub> (0.5 A<sub>PEAK</sub> for the TO-39 package). 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.

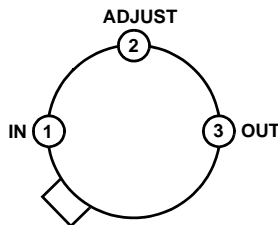
Constructed with the Intersil dielectrically isolated Rad Hard Silicon Gate (RSG) process, the HS-117RH is immune to single event latch-up and has been specifically designed to provide highly reliable performance in harsh radiation environments.

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.

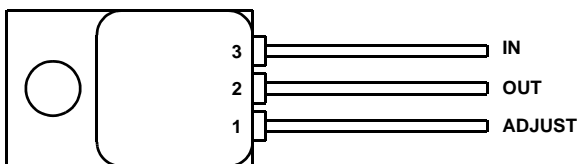
Detailed electrical specifications for the HS-117RH are contained in SMD 5962-99547. A "hot-link" is provided on our website for downloading.

**Pinouts**

**HS2-117RH (TO-39 CAN)  
BOTTOM VIEW**



**HS9S-117RH (TO-257AA FLANGE MOUNT)  
TOP 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
- Superior Temperature Stability
- Overcurrent and Overtemperature Protection

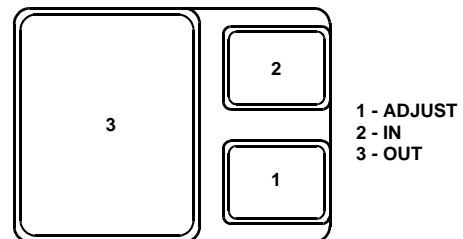
**Applications**

- Adjustable Linear Voltage Regulators
- Adjustable Linear Current Regulators

**Ordering Information**

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (°C)
5962F9954701VUC	HS2-117RH-Q	-55 to 125
5962F9954701QUC	HS2-117RH-8	-55 to 125
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
HS2-117RH/Proto	HS2-117RH/Proto	-55 to 125
HS9S-117RH/Proto	HS9S-117RH/Proto	-55 to 125
HSYE-117RH/Proto	HSYE-117RH/Proto	-55 to 125

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



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.

# HS-117RH

## Die Characteristics

### DIE DIMENSIONS

2616 $\mu\text{m}$  x 2794 $\mu\text{m}$  (103 mils x 110 mils)  
483 $\mu\text{m}$   $\pm$  25.4 $\mu\text{m}$  (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

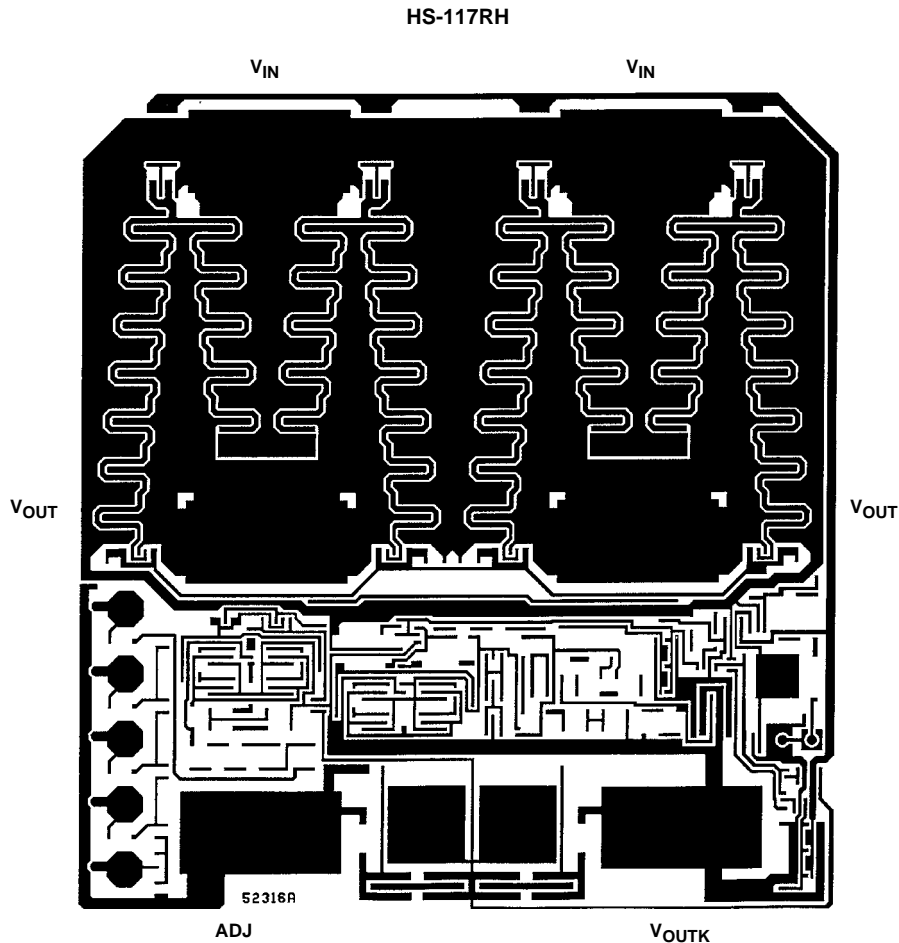
#### Worst Case Current Density

$< 2.0 \times 10^5 \text{ A/cm}^2$

#### Transistor Count

95

## Metallization Mask Layout



All Intersil U.S. products are manufactured, assembled and tested utilizing ISO9000 quality systems.

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

*Intersil products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design, software 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 [www.intersil.com](http://www.intersil.com)