

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_{PEAK} (0.5 A_{PEAK} 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.

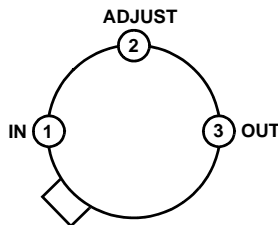
Constructed with the Intersil dielectrically isolated Rad Hard Silicon Gate (RSG) process, the HS-117RH is immune to single event latch-up and has been specifically designed to provide highly reliable performance in harsh radiation environments.

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.

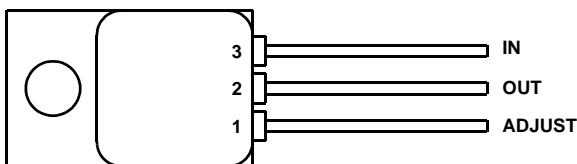
Detailed electrical specifications for the HS-117RH are contained in SMD 5962-99547. A "hot-link" is provided on our website for downloading.

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

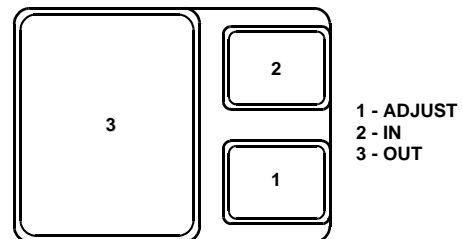
Applications

- 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 μm x 2794 μm (103 mils x 110 mils)
483 μm \pm 25.4 μm (19 mils \pm 1 mil)

INTERFACE MATERIALS

Glassivation

Type: Silox (SiO₂)
Thickness: 8.0k \AA \pm 1.0k \AA

Top Metallization

Type: AlSiCu
Thickness: 16.0k \AA \pm 2k \AA

Substrate

Radiation Hardened Silicon Gate,
Dielectric Isolation

Backside Finish

Gold

ASSEMBLY RELATED INFORMATION

Substrate Potential

Unbiased (DI)

ADDITIONAL INFORMATION

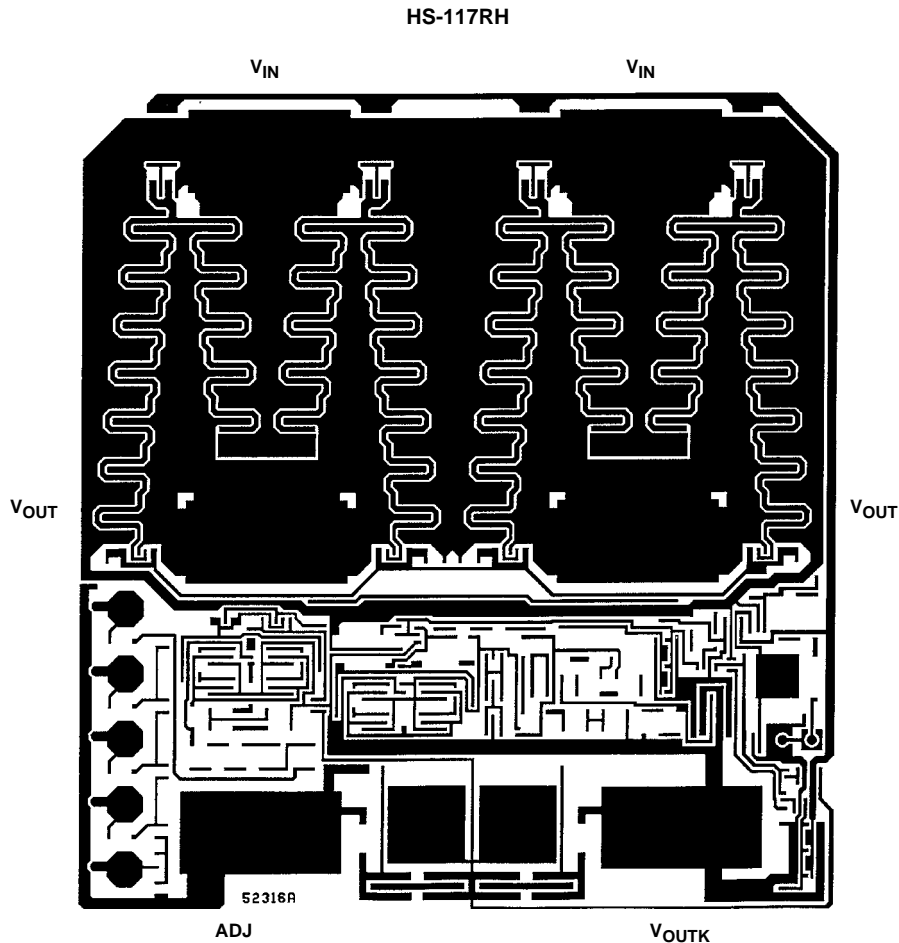
Worst Case Current Density

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

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

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HS-117RH

[Printer Friendly Version](#)

Rad-Hard Adjustable Positive Voltage Regulator

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|--|-----------------------------|------------------------------|---------------------------------|--------------------------------------|---------------------------------|
| Datasheets | Description | Key Features | Parametric Data | Application Diagrams | Related Devices |
| Related Docs & Simulations | | | | | |

Ordering Information

| Part No. | Design-In Status | Temp. | Package | MSL | SMD | Price US \$ | |
|--------------|------------------|-------|---------------------------------------|-----|-----------------|-------------|--|
| HS0-117RH-Q | Active | Mil | Die (Military Visual) | N/A | - | Contact Us | |
| HS2-117RH-8 | Active | Ind | 3 Ld Can | N/A | 5962F9954701QUC | Contact Us | |
| HS2-117RH-Q | Active | Mil | 3 Ld Can | N/A | 5962F9954701VUC | Contact Us | |
| HS9S-117RH-8 | Active | Mil | 3 Ld Can | N/A | 5962F9954701QXC | Contact Us | |
| HS9S-117RH-Q | Active | Mil | 3 Ld Can | N/A | 5962F9954701VXC | Contact Us | |
| HSYE-117RH-8 | Active | Mil | 3 Ld LCC | N/A | 5962F9954701QYC | Contact Us | |
| HSYE-117RH-Q | Active | Mil | 3 Ld LCC | N/A | 5962F9954701VYC | Contact Us | |

The price listed is the manufacturer's suggested retail price for quantities between 100 and 999 units. However, prices in today's market are fluid and may change without notice.

MSL = Moisture Sensitivity Level - per IPC/JEDEC J-STD-020

SMD = Standard Microcircuit Drawing

Description

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- Radiation Environment
 - 300 krad (Si) (Max)
 - Latch-up Immune
- Superior Temperature Stability

- [Overcurrent and Overtemperature Protection](#)

Related Documentation



Datasheet(s):

- [Radiation Hardened Adjustable Positive Voltage Regulator](#)



Military SMD(s):

- [Radiation Hardened Adjustable Positive Voltage Regulator](#)



Technical Homepage:

- [Military/Space ICs](#)

Other:

- [Single Event Effects Testing of the HS-117RH Adjustable Voltage Regulator](#)



Parametric Data

RH Level

300



Application Block Diagrams

- [Satellite Power Management](#)

Applications

- Adjustable Linear Voltage Regulators
- Adjustable Linear Current Regulators



Related Devices



[Parametric Table](#)

[ISL72991RH](#)

Rad-Hard Negative Low Dropout Adjustable Voltage Regulator