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.

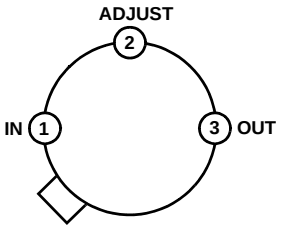
Constructed with the Intersil dielectrically isolated Rad Hard Silicon Gate (RSG) process, the HS-117RH is immune to single event latch-up and has been specifically designed to provide highly reliable performance in harsh radiation environments.

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.

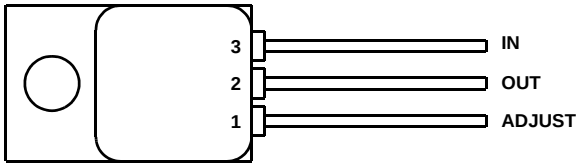
Detailed electrical specifications for the HS-117RH are contained in SMD 5962-99547. A “hot-link” is provided on our website for downloading.

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

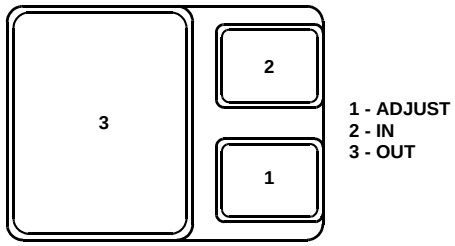
Applications

- Adjustable Linear Voltage Regulators
- Adjustable Linear Current Regulators

Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (^{O}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.

Die Characteristics

DIE DIMENSIONS

2616µm x 2794µm (103 mils x 110 mils)
483µm ±25.4µm (19 mils ±1 mil)

INTERFACE MATERIALS

Glassivation

Type: Silox (SiO_2)
Thickness: 8.0kÅ ±1.0kÅ

Top Metallization

Type: AlSiCu
Thickness: 16.0kÅ ±2kÅ

Substrate

Radiation Hardened Silicon Gate, Dielectric Isolation

Backside Finish

Gold

ASSEMBLY RELATED INFORMATION

Substrate Potential

Unbiased (DI)

ADDITIONAL INFORMATION

Worst Case Current Density

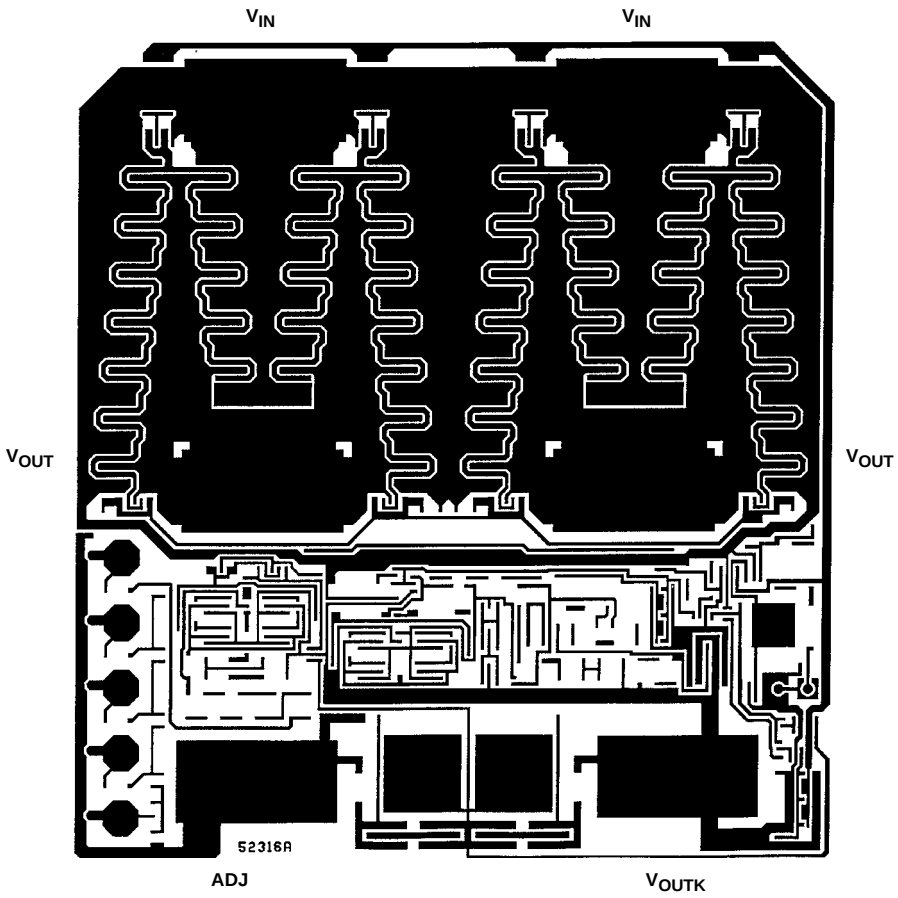
$<2.0 \times 10^5$ A/cm^2

Transistor Count

95

Metallization Mask Layout

HS-117RH



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