Single Event Radiation Hardened High Speed, Current Mode PWM

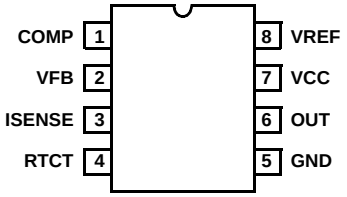
The IS-1845ASRH is designed to be used in switching power supplies operating in current-mode. The rising edge of the on-chip oscillator turns on the output. Turn-off is controlled by the current sense comparator and occurs when the sensed current reaches a peak controlled by the error amplifier.

Constructed with Intersil's Rad Hard Silicon Gate (RSG) dielectrically isolated BiCMOS process, these devices are immune to single event latch-up and have been specifically designed to provide a high level of immunity to single event transients. All specified parameters are guaranteed and tested for 300krad(Si) total dose performance.

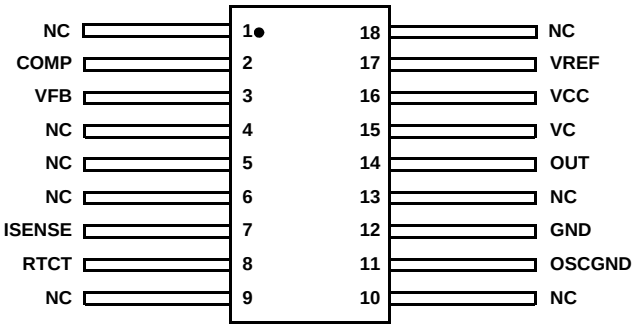
Detailed Electrical Specifications for these devices are contained in SMD 5962-01509. A "hot-link" is provided on our website for downloading the SMD.

Pinouts

IS7-1845ASRH (CDIP2-T8 SBDIP)
TOP VIEW



IS9-1845ASRH (FLATPACK)
TOP VIEW



NOTES:

1. Grounding the Comp pin does not inhibit the output. The output may be inhibited by applying >1.2V to the ISENSE pin.
2. This part should be operated with CT=3.3nF and RT=10k timing components only.

Features

- Electrically Screened to DSCC SMD # 5962-01509
- QML Qualified per MIL-PRF-38535 Requirements
- Radiation Environment
  - Total Dose . . . . . 300 krad(SI) (Max)
  - SEL Immune. . . . . Dielectrically Isolated
  - SEU Immune . . . . . 35MeV/mg/cm^2
  - SEU Cross-Section at 89MeV/mg/cm^2. . . . 5 x 10^{-6}cm^2
- Low Start-up Current . . . . . 100µA (Typ)
- Fast Propagation Delay . . . . . 80ns (Typ)
- Supply Voltage Range . . . . . 12V to 20V
- High Output Drive. . . . . 1A (Peak, Typ)
- Under Voltage Lockout. .8.8V Start (Typ), 8.2V Stop (Typ)

Applications

- Current-Mode Switching Power Supplies
- Control of High Current FET Drivers
- Motor Speed and Direction Control

Ordering Information

ORDERING NUMBER	INTERNAL MKT. NUMBER	TEMP. RANGE (^{o}C)
5962F0150901VPC	IS7-1845ASRH-Q	-50 to 125
5962F0150901QPC	IS7-1845ASRH-8	-50 to 125
5962F0150901VXC	IS9-1845ASRH-Q	-50 to 125
5962F0150901QXC	IS9-1845ASRH-8	-50 to 125
IS7-1845ASRH/Proto	IS1-1845ASRH/Proto	-50 to 125
IS9-1845ASRH/Proto	IS9-1845ASRH/Proto	-50 to 125

Die Characteristics

DIE DIMENSIONS

3090μm x 4080μm (121.6 mils x 159.0 mils)
Thickness: 483μm ± 25.4μm (19 mils ± 1 mil)

INTERFACE MATERIALS

Glassivation

Type: Phosphorus Silicon Glass (PSG)
Thickness: 8.0kA ± 1.0kA

Top Metallization

Type: AlSiCu
Thickness: 16.0kA ± 2kA

Substrate

Radiation Hardened Silicon Gate, Dielectric Isolation

Backside Finish

Silicon

ASSEMBLY RELATED INFORMATION

Substrate Potential

Unbiased (DI)

ADDITIONAL INFORMATION

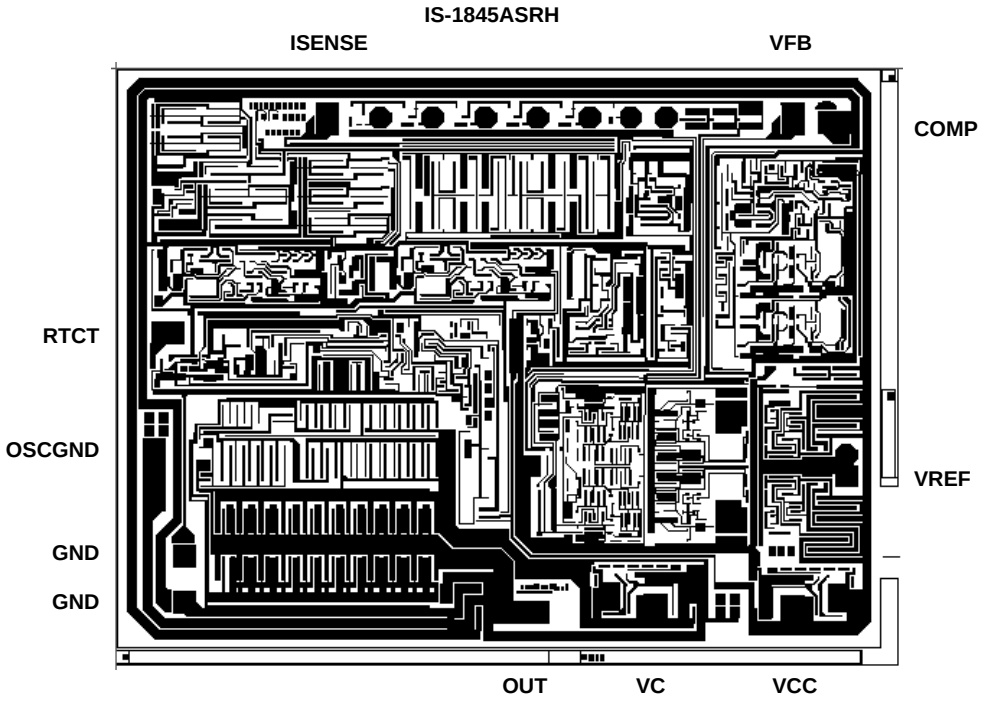
Worst Case Current Density

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

Transistor Count

582

Metallization Mask Layout



NOTES:

3. Both the GND pads must be bonded to ground.
4. The OUT double-sized bond pad must be double bonded for current sharing purposes.
5. The OSCGND double-sized bond pad must be double bonded to ground for current sharing purposes.