

November 1996

**NOT RECOMMENDED FOR NEW DESIGNS**  
A complete data sheet is available via web,  
Harris' home page: <http://www.semiharris.com>,  
or via Harris AnswerFAX, see Design 19

## 100MHz, Two Quadrant, Current Output, Analog Multiplier

### Features

- Low Multiplication Error ..... 1.6%
- Input Bias Currents ..... 1.2 $\mu$ A
- Signal Input Feedthrough at 5MHz ..... -50dB
- Wide Signal Bandwidth ..... 100MHz
- Wide Control Bandwidth ..... 22MHz

### Applications

- Military Avionics
- Missile Guidance Systems
- Medical Imaging Displays
- Video Mixers
- Sonar AGC Processors
- Radar Signal Conditioning
- Voltage Controlled Amplifier
- Vector Generator

### Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE	PKG. NO.
HA1-2547-5	0 to 75	16 Ld CERDIP	F16.3
HA1-2547-9	-40 to 85	16 Ld CERDIP	F16.3

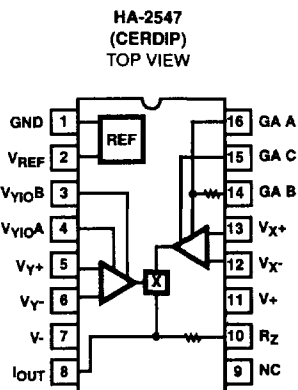
### Description

The HA-2547 is a monolithic, high speed, two quadrant, analog multiplier constructed in Harris' Dielectrically Isolated High Frequency Process. The high frequency performance of the HA-2547 rivals the best analog multipliers currently available including hybrids.

The single-ended current output of the HA-2547 has a 100MHz signal bandwidth ( $R_L = 50\Omega$ ) and a 22MHz control bandwidth. High bandwidth and low distortion make this part an ideal component in video systems. The suitability for precision video applications is demonstrated further by low multiplication error (1.6%), low feedthrough (-50dB), and differential inputs with low bias currents (1.2 $\mu$ A). The HA-2547 is also well suited for mixer circuits as well as AGC applications for sonar, radar, and medical imaging equipment.

The current output of the HA-2547 allows it to achieve higher bandwidths than voltage output multipliers. An internal feedback resistor is provided to give an accurate current-to-voltage conversion and is trimmed to give a full scale output voltage of  $\pm 5V$ . The HA-2547 is not limited to multiplication applications only; frequency doubling and power detection are also possible.

### Pinout



### Schematic

