



**ORIENT-CHIP**

■ **General Description**

OCH19605 current sensor IC is an economical and precise solution for AC or DC current sensing in industrial, commercial, and communication systems. The small package is ideal for space-constrained applications while also saving costs due to reduced board area. Typical applications include motor control, load detection and management, switched-mode power supplies, and overcurrent fault protection. The device consists of a precise, low-offset, linear Hall sensor circuit with a copper conduction path located near the surface of the die. Applied current flowing through this copper conduction path generates a magnetic field which is sensed by the integrated Hall IC and converted into a proportional voltage. The current is sensed differentially in order to reject common-mode fields, improving accuracy in magnetically noisy environments. The inherent device accuracy is optimized through the close proximity of the magnetic field to the Hall transducer. A precise, proportional voltage is provided by the low-offset, chopper-stabilized CMOS Hall IC, includes digital temperature compensation, resulting in extremely accurate performance over temperature. The output of the device has a positive slope when an increasing current flows through the primary copper conduction path (from pins 1 through 4, to pins 5 through 8), which is the path used for current sensing. The internal resistance of this conductive path is 0.85 mΩ typical, providing low power loss. The terminals of the conductive path are electrically isolated from the sensor leads (pins 9 through 16). This allows the OCH19605 current sensor IC to be used in high-side current sense applications without the use of high-side differential amplifiers or other costly isolation techniques.

The OCH19605 is provided in a low-profile surface-mount SOP-16L(W) package. The leadframe is plated with 100% matte tin, which is compatible with standard lead (Pb) free printed circuit board assembly processes. Internally, the device is Pb-free. The device is fully calibrated prior to shipment from the factory.

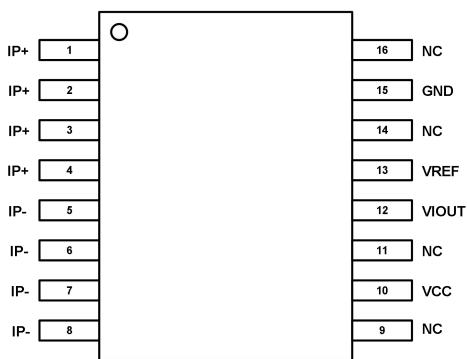
■ **Features**

- Differential Hall sensing rejects common-mode fields
- Patented integrated digital temperature compensation circuitry allows for near closed loop accuracy over temperature in an open loop sensor
- Dielectric Strength Voltage =5.5 kVRMS
- 0.5VCC or 0.2VCC reference voltage output
- 250k bandwidth, step response time 1.2 us
- 0.85 mΩ primary conductor resistance for low power loss and high inrush current withstand capability
- Low-profile SOP-16L(W) package suitable for space-constrained applications
- 4.5 to 5.5 V single supply operation
- Output voltage proportional to AC or DC current
- Factory-trimmed sensitivity, quiescent output voltage and VREF voltage for improved accuracy
- Chopper stabilization results in extremely stable quiescent output voltage
- Nearly zero magnetic hysteresis
- Ratiometric output from supply voltage

■ **Applications**

- AC and DC Chargers
- Electric Drives
- DCDC converters
- Solar
- Power Supplies
- Demand/Load control

■ **Pin Configuration**



SOP-16L(W)

Figure 1, Pin Assignments of OCH19605

Number	Name	Description
1-4	IP+	Terminals for current being sensed; fused internally
5-8	IP-	Terminals for current being sensed; fused internally
9	NC	No internal connection;
10	VCC	power supply terminal
11	NC	No internal connection;
12	VIOUT	Analog output signal
13	VREF	Reference Voltage
14	NC	No internal connection;
15	GND	Signal ground terminal
16	NC	No internal connection;



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■ **Typical Application Circuit**

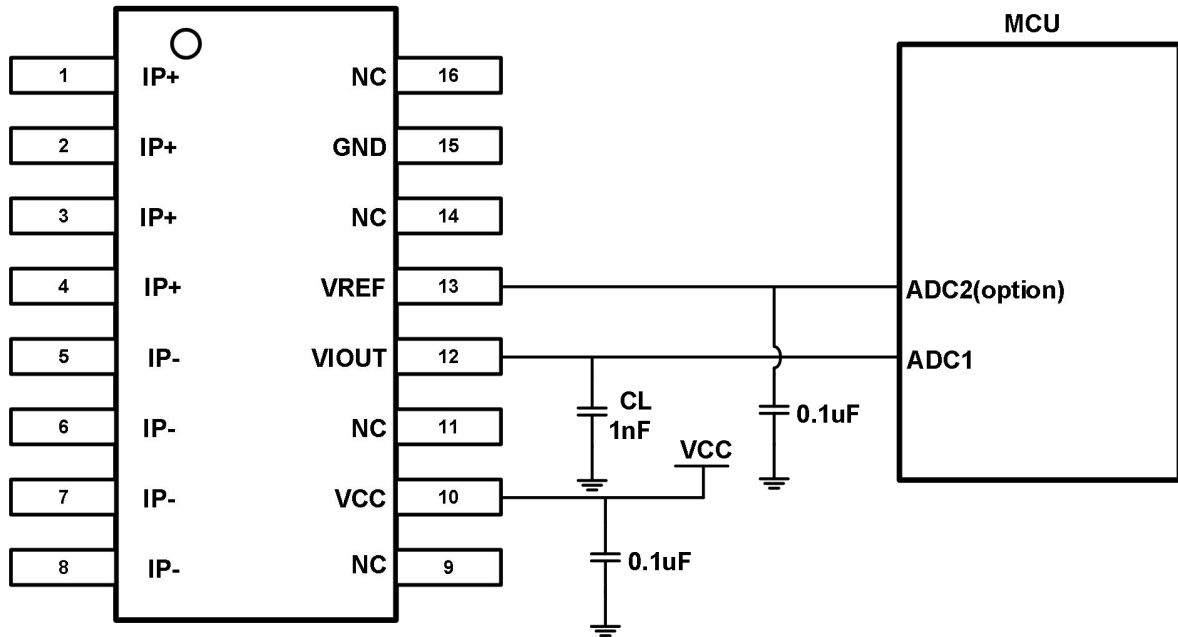


Figure 2, Typical Application of OCH19605

■ **Ordering Information**

Part Number	IPR— (A)	Sens(Typ)@VCC=5V (mv/A)	Temperature	Packing
OCH19605S16AE-10AB	±10A	200	-40~125°C	Tape and Reel, 1500 pieces per reel
OCH19605S16AE -20AB	±20A	100	-40~125°C	
OCH19605S16AE -30AB	±30A	66	-40~125°C	
OCH19605S16AE -30AU	30A	132	-40~125°C	
OCH19605S16AE -50AB	±50A	40	-40~125°C	
OCH19605S16AE -65AB	±65A	30.75	-40~125°C	