

July 1999

OBSOLETE PRODUCT
NO RECOMMENDED REPLACEMENT
 Call Central Applications 1-800-442-7747
 or email: centapp@harris.com

Features

- Full Scale Accuracy 0.5%
- Temperature Compensated Operation 0°C to 70°C
- Scale Factor, Adjustable 1V/Decade
- Dynamic Voltage Range 60dB
- Dual JFET Input Op Amps

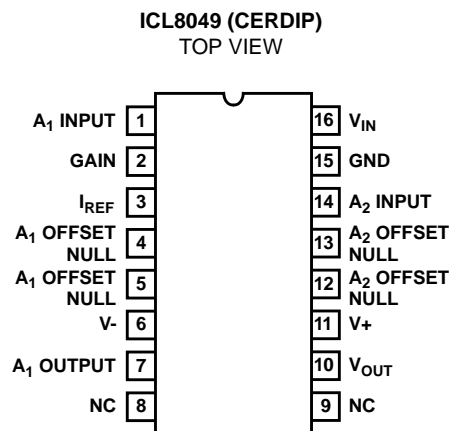
Description

The ICL8049 is a monolithic antilogarithmic amplifier that is fully temperature compensated and is nominally designed to provide 1 decade of output voltage for each 1V change of input voltage. For increased flexibility, the scale factor, reference current and offset voltage are externally adjustable.

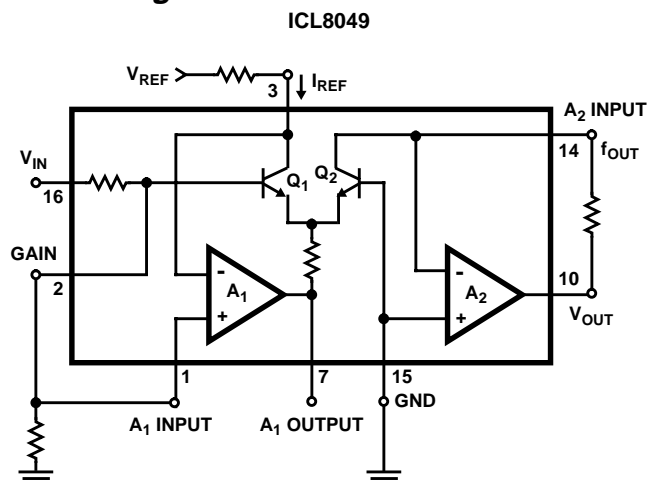
Part Number Information

PART NUMBER	ERROR (25°C)	TEMPERATURE RANGE (°C)	PACKAGE
ICL8049BCJE	10mV	0 to 70	16 Ld Cerdip
ICL8049CCJE	25mV	0 to 70	16 Ld Cerdip

Pinout



Functional Diagram



ICL8049

Absolute Maximum Ratings

Supply Voltage $\pm 18V$
 V_{IN} (Input Current) $\pm 15V$
 I_{REF} (Reference Current) $2mA$
Voltage Between Offset Null and $V+$ $\pm 0.5V$
Output Short Circuit Duration Indefinite
Power Dissipation $750mW$
Lead Temperature (Soldering 10 Sec.) $300^{\circ}C$

Operating Conditions

Operating Temperature Range $0^{\circ}C$ to $70^{\circ}C$
Storage Temperature Range $-65^{\circ}C$ to $150^{\circ}C$

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

Electrical Specifications $V_S = \pm 15V$, $T_A = 25^{\circ}C$, $I_{REF} = 1mA$, Scale Factor Adjusted for 1 Decade (Out) per Volt (In), Unless Otherwise Specified

PARAMETERS	TEST CONDITIONS	ICL4049BC			ICL8049CC			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Dynamic Range (V_{OUT})	$V_{OUT} = 10mV$ to $10V$	60	-	-	60	-	-	dB
Error, Absolute Value	$0V \leq V_{IN} \leq 2V$	-	3	15	-	5	25	mV
	$T_A = 0^{\circ}C$ to $70^{\circ}C$, $0V \leq V_{IN} \leq 3V$	-	20	75	-	30	150	mV
Temperature Coefficient, Referred to V_{IN}	$V_{IN} = 3V$	-	0.38	-	-	0.55	-	$mV/^{\circ}C$
Power Supply Rejection Ratio	Referred to Input, for $V_{IN} = 0V$	-	2.0	-	-	2.0	-	$\mu V/V$
Offset Voltage (A_1 and A_2)	Before Nulling	-	15	25	-	15	50	mV
Wideband Noise	Referred to Input, for $V_{IN} = 0V$	-	26	-	-	26	-	μV_{RMS}
Output Voltage Swing	$R_L = 10k\Omega$	± 12	± 14	-	± 12	± 14	-	V
	$R_L = 2k\Omega$	± 10	± 13	-	± 10	± 13	-	V
Power Consumption		-	150	200	-	150	200	mW
Supply Current		-	5	6.7	-	5	6.7	mA

