

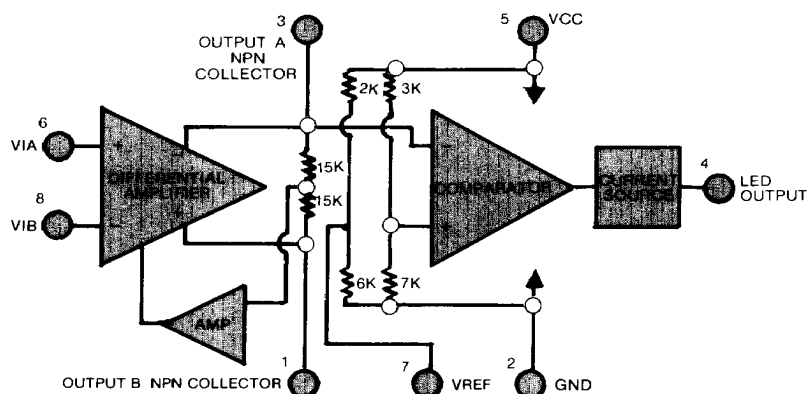
CS-137 DIFFERENTIAL AMPLIFIER

See Standard Package Configuration Sketch No. 3 (Dual-in-Line 8-Pin) on pages 4-5.

DESCRIPTION

The CS-137 is a monolithic integrated differential amplifier featuring differential inputs and outputs and containing a voltage reference of 0.75 of the supply voltage. The differential amplifier has a built in feedback amplifier designed to hold the output voltage at one half of V_{CC} . In addition, the IC also includes a comparator with an internal reference voltage of 0.7 V_{CC} and an output current source. The comparator is used to indicate the bias condition of the differential amplifier. The device is particularly suited for servo-controlled applications. The CS-137 is packaged in an 8-L plastic DIP.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Power Supply Voltage	V8-2	7.5V DC.
Input Voltage	V6-2 & V8-2	V_{CC} Max.
Output Voltage	V3-2 & V1-2	V_{CC} Max.
Output Current	I3 & I1	100 mA.
Storage Temperature	TS	-40°C to 150°C
Operating Temperature	TA	-20°C to 70°C

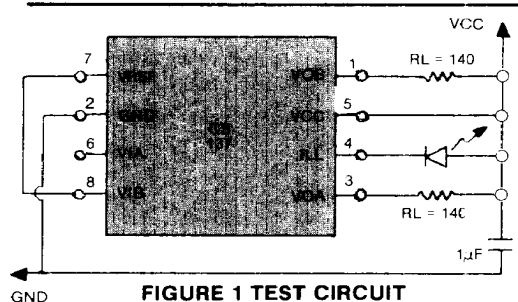


FIGURE 1 TEST CIRCUIT

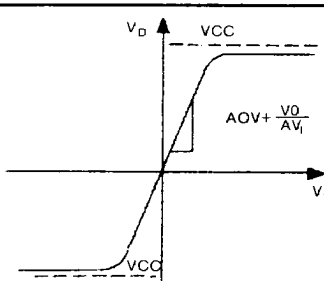


FIGURE 2 TRANSFER CHARACTERISTIC

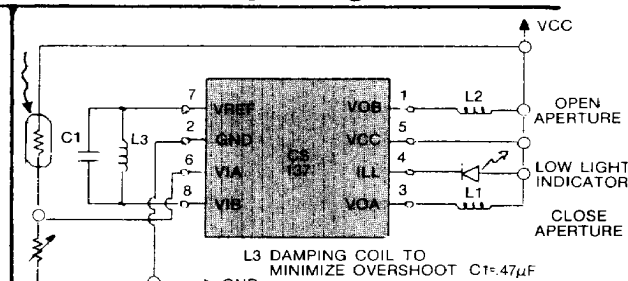


FIGURE 3
TYPICAL CAMERA APERTURE CONTROL

ELECTRICAL CHARACTERISTICS $V_{CC} = 5V$ unless otherwise specified $T_A = 25^\circ C$ Fig. 1.

PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CC} Power Supply Voltage Range		3.75	5.0	7.5	V
I_{CC} Supply Current	$V_{OA} = \text{open}, V_{OB} = \text{open}, V_{IA} = V_{IB} = V_{REF}$		3	10	mA
Differential Amplifier					
V_{REF} Reference Voltage		0.7 V_{CC}	0.75 V_{CC}	.8 V_{CC}	V
V_{OFF} Input Voltage Offset ($V_{IA} - V_{IB}$)	$V_{OA} = V_{OB}$		± 20	± 50	mV
Adv Differential Voltage Gain		45	60	75	V/V
V_{OA}, V_{OB} Output Voltage at Balance	$V_{OA} = V_{OB}$.45 V_{CC}	.5 V_{CC}	.55 V_{CC}	V
I_{IA}, I_{IB} Input Current			0.01	1	μA
$V_{OA(LOW)}$ Saturation Voltage	$I_{OA} = 50 \text{ mA}, V_{IA} = V_{CC}$		0.2	0.5	V
$V_{OB(LOW)}$ Saturation Voltage	$I_{OB} = 50 \text{ mA}, V_{IB} = GND$		0.2	0.5	V
$I_{OA(HIGH)}$ Output Leakage	$V_{IA} = V_{CC}$			0.5	mA
$I_{OB(HIGH)}$ Output Leakage	$V_{IB} = GND$			0.5	mA
Comparator					
V_T On Trip Point		.6 V_{CC}	.7 V_{CC}	.8 V_{CC}	V
$I_{4(ON)}$ On Output Current	$V_{IA} = GND$	2	5	8	mA
$I_{4(OFF)}$ Off Output Current	$V_{IA} = V_{CC}$			1	μA