Ordering number: EN 1583B

SANYO

No.1583B

LB1494

Monolithic Digital IC

Level Meter for FLT Display

Use

. DC level meters such as signal meters

Features and Functions

. Wide supply voltage range (4.0 to 16V)
. FLT direct drive capability
. On-chip pull-down resistors (Pull-down current can be varied by external resistor Rpd.)
. On-chip voltage reference
. Especially suited for DC signal meter use because of on-chip comparators with hysteresis

Absolute Maximum Ratings at Ta=25°C

				unit
Maximum Supply Voltage	V_{CC}max	GND=0V	18	V
Maximum Supply Voltage	V_{EE}	$V_{EE} \leqq$ GND	V_{CC}-35	V
Output Supply Voltage	V_{OUT}		V_{EE} to V_{CC}	V
Input Supply Voltage	V_{IN}		GND to V_{CC}	V
Output Current	I_{OUT}		10	mA
Pull-down Current	Ipd		1.0	mA
Allowable Power Dissipation	Pdmax		960	mW
Operating Temperature	Topg		-25 to +60	°C
Storage Temperature	Tstg		-55 to +125	°C

Allowable Operating Condition at Ta=25°C

				unit
Supply Voltage	V_{CC}	GND=0V	4.0 to 16	V
	V_{EE}	$V_{EE} \leqq$ GND	V_{CC}-5 to V_{CC}-35	V

Electrical Characteristics at Ta=25°C, V_{CC}=6.0V, GND=0V, V_{EE}=-24V, Rpd=91kohms

			min	typ	max	unit
Current Dissipation	I_{CC}	V_{IN}=0V			6.0	mA
Sensitivity	V_{IN}	V_{C5}-ON level	560	610	660	mV

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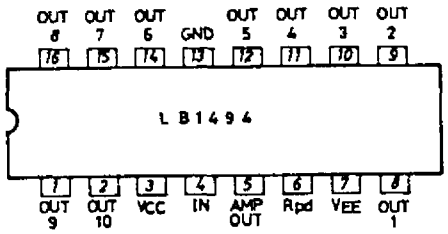
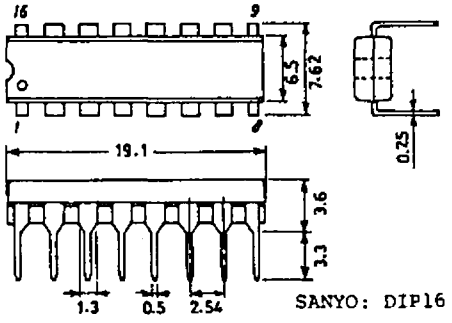
Pin Assignment



Package Dimensions 3064
(unit: mm)



Specifications and information herein are subject to change without notice.

SANYO Electric Co.,Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg.,1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

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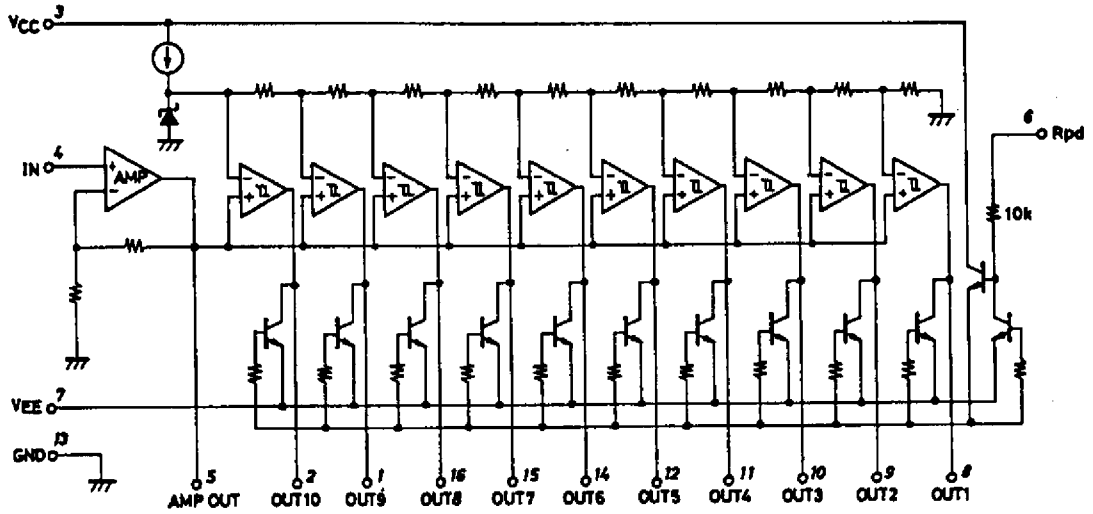
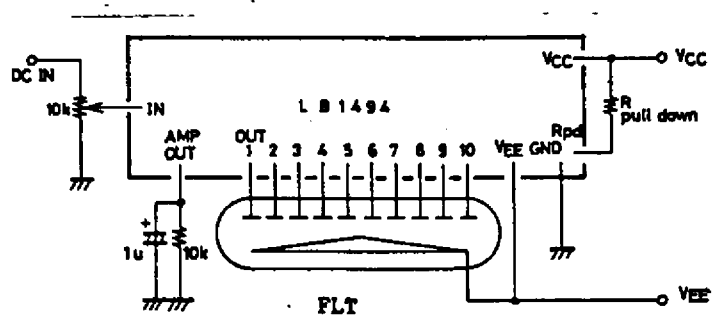
			min	typ	max	unit
Comparator Level 1*	V_{C1}		0.17	0.2VC5	0.23	mV
Comparator Level 2	V_{C2}		0.35	0.4VC5	0.45	mV
Comparator Level 3	V_{C3}		0.52	0.6VC5	0.68	mV
Comparator Level 4	V_{C4}		0.70	0.8VC5	0.90	mV
Comparator Level 5	V_{C5}	Adjust point		VIN		mV
Comparator Level 6	V_{C6}		1.1	1.2VC5	1.3	mV
Comparator Level 7	V_{C7}		1.3	1.4VC5	1.5	mV
Comparator Level 8	V_{C8}		1.5	1.6VC5	1.7	mV
Comparator Level 9	V_{C9}		1.7	1.8VC5	1.9	mV
Comparator Level 10	V_{C10}		1.9	2.0VC5	2.1	mV
Output Saturation Voltage	$V_{O(sat)}$	I_{OUT}=-10mA	V_{CC}-1.2			V
Input Bias Current	I_{INO}		-1.0			uA
Comparator Hysteresis	$V_{CC(hys)}$		18	26	34	mV
Pull-down Current	Ipd	V_{OUT}=V_{CC}		0.3		mA

*: The comparator level represents the compare point when the input is changed from low level to high level.

Equivalent Circuit



Sample Application Circuit: Signal Meter



Pin Description

Pin Name	Pin No.	Function
V_{CC}	3	Power supply pin. The voltage on all other pins must not exceed this V_{CC} value. The voltage across V_{CC} and GND is 4.0 to 16V.
I_N	4	Input pin for level displaying signal. Since this pin has a high input impedance, a pull-down resistor of several kohms must be connected across this pin and GND.
V_{EE}	7	Connected to FLT cathode. The voltage on all other pins must exceed this V_{EE} value. The voltage across V_{CC} and V_{EE} is 5.0 to 35V.
GND	13	GND for signal line. A level displaying signal is applied between GND and I_N. If $5.0V \leqq V_{CC}$ to $V_{EE} \leqq 16V$, this pin and V_{EE} can be at the same potential.
Amp OUT	5	An input signal is amplified approximately 1.7 times and is delivered at this pin. Since this output is of emitter follower type, a load resistor of 10kohms must be connected across this pin and GND. The response time can be controlled by the time constant which is provided by a capacitor of several uF to several tens of uF connected in parallel.
OUT 1 to OUT 10	1,2 8to12 14to16	Connected to FLT grid or anode. FLT is lighted in approximately 120mV-step in the order of increasing level as OUT1, OUT2, -----, OUT10.
Rpd	6	Pin used to determine pull-down current Ipd. Pull-down current Ipd is determined by a resistor connected across this pin and V_{CC} and voltage across V_{CC} amd V_{EE}. Assuming the value of a resistor connected across V_{CC} and Rpd is R(kohm) and the voltage across V_{CC} amd V_{EE} is V(V), Ipd(mA) is calculated by the following formula. $Ipd=(V-1.4)/(R+10) \leqq 1$ ----- (Refer to Fig.) It should be noted, however, that the early effect of each transistor increases the actual Ipd several %.