



## UPC1237

LINEAR INTEGRATED CIRCUIT

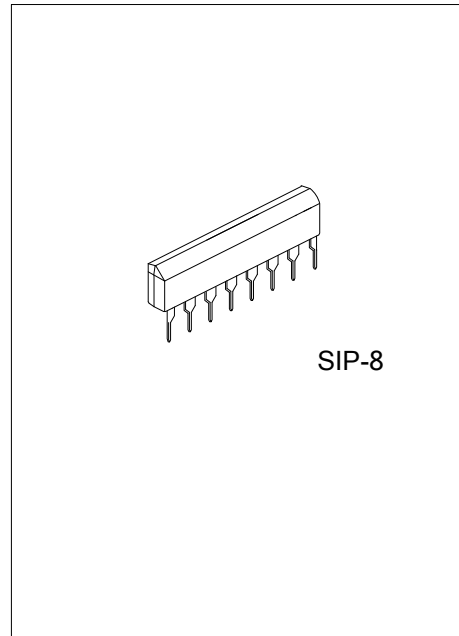
### PROTECTOR IC FOR STEREO POWER AMPLIFIER

#### DESCRIPTION

UTC **UPC1237** is a semiconductor integrated circuit designed for protecting stereo power amplifiers and loudspeakers.

#### FEATURES

- \* Wide supply voltage range of 25V~60V
- \* Contain a relay driver. (Max.  $I_b=80mA$ )
- \* Work as either latching function or automatic resetting function by using pin 3. (In both overload detection and output offset detection, either function can be selected.)
- \* Single power supply
- \* Built-in output offset detection function. Both positive and negative output offset can be detected through pin2
- \* AC voltage can be detected
- \* Time delay function. The time delay from amplifier power ON to relay ON can be freely set by selecting external components
- \* The moment that amplifier-power is turned off, it can make relay broken OFF and then loudspeaker disconnected for amplifier to prevent a shock off noise

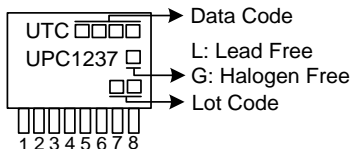


#### ORDERING INFORMATION

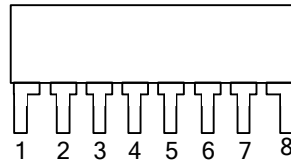
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UPC1237L-G08-T	UPC1237G-G08-T	SIP-8	Tube

<p>UPC1237G-G08-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube (2) G08: SIP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



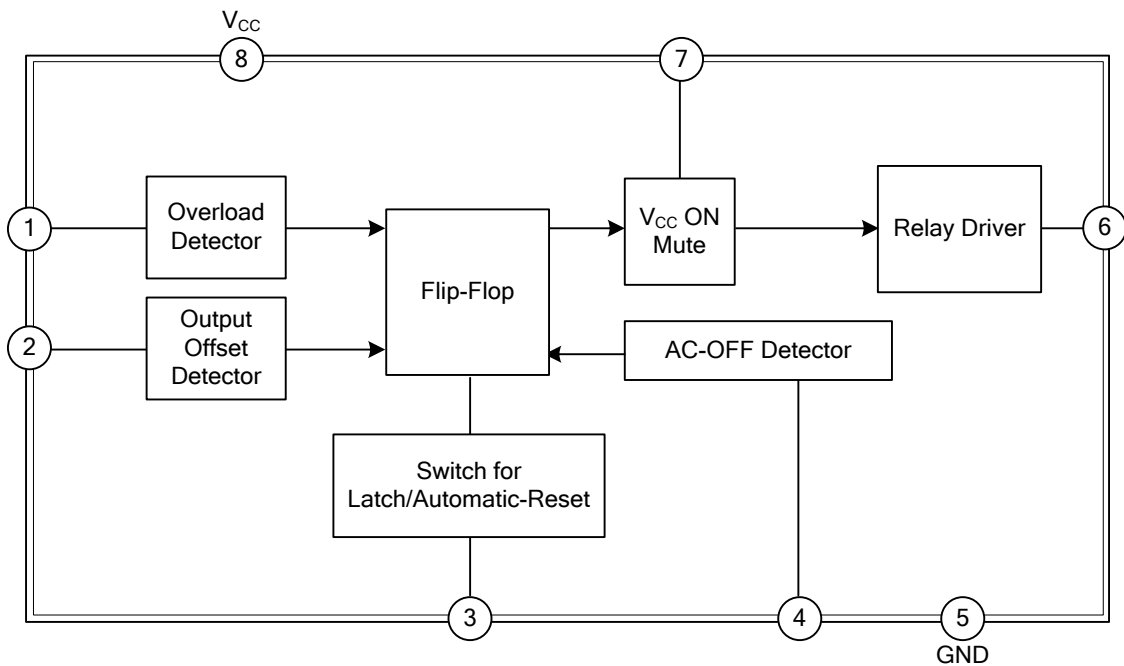
### ■ PIN CONFIGURATION



### ■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	PIN1	Input pin of overload detector
2	PIN2	Input pin of output offset detector
3	PIN3	Input pin of switch for latch/automatic-reset
4	PIN4	Input pin of AC-OFF detector
5	PIN5	GND
6	PIN6	Output pin of relay driver
7	PIN7	Input pin of V <sub>CC</sub> ON mute, setting delay time
8	PIN8	V <sub>CC</sub>

### ■ BLOCK DIAGRAM



■ **ABSOLUTE MAXIMUM RATING** ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Power Supply Voltage	$V_{CC}$	60	V
Pin 4 Maximum Voltage	$V_{4(\text{MAX})}$	10	V
Pin 7 Maximum Voltage	$V_{7(\text{MAX})}$	8	V
Pin 8 Maximum Voltage	$V_{8(\text{MAX})}$	8	V
Pin 1 Maximum Current	$I_{1(\text{MAX})}$	3	mA
Pin 2 Maximum Current	$I_{2(\text{MAX})}$	$\pm 3$	mA
Pin 6 Maximum Current	$I_{6(\text{MAX})}$	80	mA
Power Dissipation ( $T_A=75^{\circ}\text{C}$ )	$P_D$	320	mW
Operational Temperature	$T_{\text{OPR}}$	-20 ~ +75	$^{\circ}\text{C}$
Storage Temperature	$T_{\text{STG}}$	-40 ~ +125	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

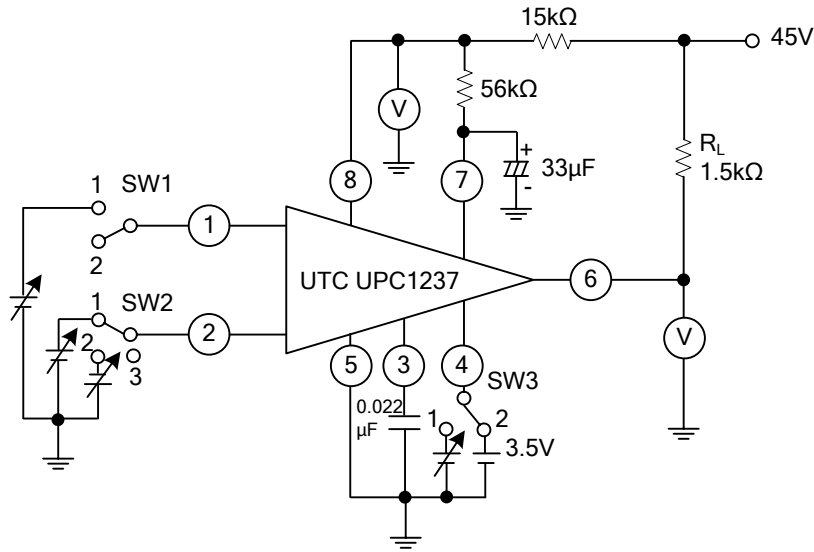
■ **RECOMMENDED OPERATING CONDITION**

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	25 ~ 60	V

■ **ELECTRICAL CHARACTERISTICS** ( $V_{CC}=45\text{V}$ ,  $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Pin 1 Threshold Voltage	$V_{\text{TH } 1}$	Level to invert at Pin 6	0.58	0.67	0.76	V
Pin 2 Positive Threshold Voltage	$V_{\text{TH } +2}$	Level to invert at Pin 6	0.54	0.62	0.70	V
Pin 2 Negative Threshold Voltage	$V_{\text{TH } -2}$	Level to invert at Pin 6	-0.12	-0.17	-0.23	V
Pin 4 Threshold Voltage	$V_{\text{TH } 4}$	Level to invert at Pin 6	0.60	0.74	0.90	V
Pin 8 Reference Voltage	$V_8$	$R_L=1.5\text{k}\Omega$	3.0	3.4	3.8	V

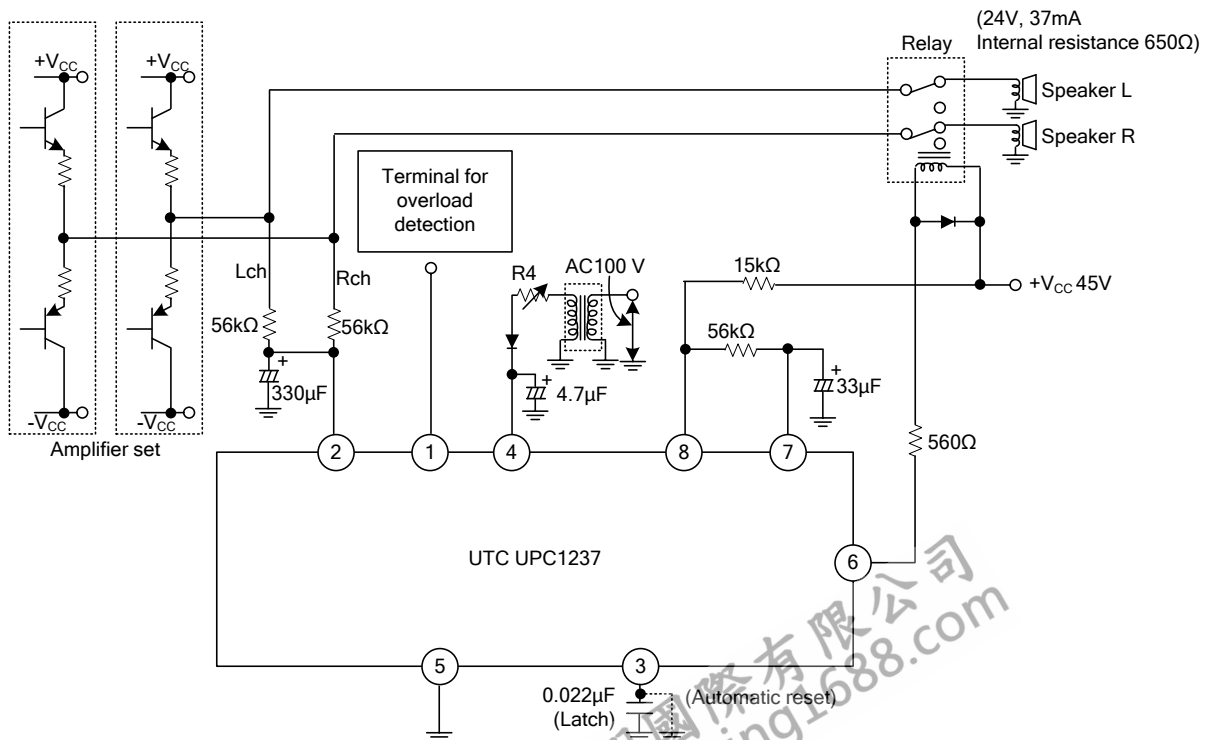
### TEST CIRCUIT



Switch positions

Item	SW 1	SW 2	SW3
$V_{TH} 1$	1	3	2
$V_{TH} +2$	2	1	2
$V_{TH} -2$	2	2	2
$V_{TH} 4$	2	3	1
V8	2	3	2

### TYPICAL APPLICATION CIRCUIT



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