

Features

- Contains an under voltage locking circuit
- Low starting current (typical value is 0.12ma)
- Stable internal reference voltage source
- Large circuit push-pull output
- Operating frequency up to 450KHz
- Automatic negative feedback compensation circuit
- Double pulse suppression
- Strong load response



SOIC-8



DIP-8

Absolute Maximum Ratings

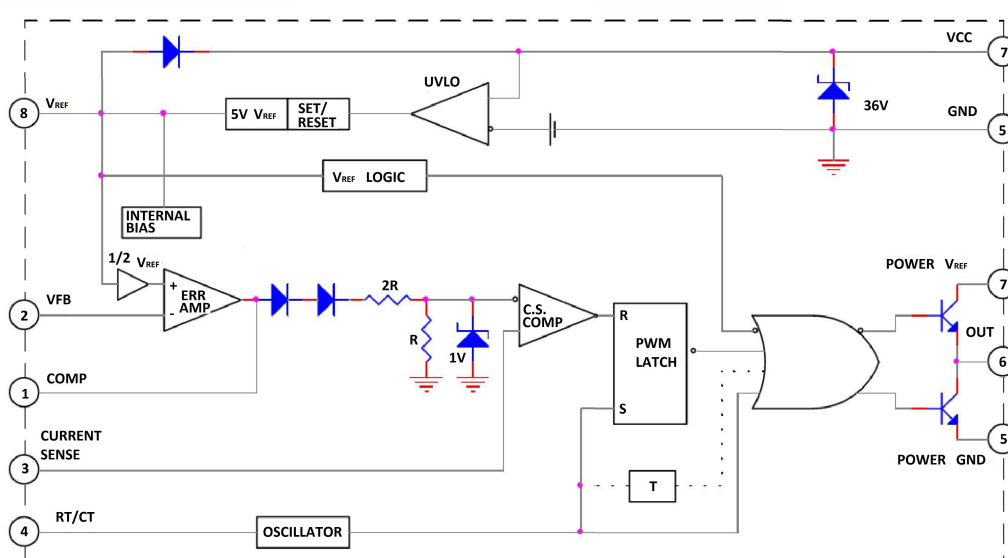
Supply Voltage (Low Impedance Source).....	30V
Supply Voltage ($I_o < 30\text{mA}$).....	Self Limiting
Output Current.....	$\pm 1\text{A}$
Output Energy (Capacitive Load).....	$5\mu\text{J}$
Analog Inputs (Pins 2, 3).....	-0.3V to $+6.3\text{V}$
Error Amp Output Sink Current.....	10mA
Power Dissipation at $T_A \leq 25^\circ\text{C}$ (DIL-8).....	1W
Power Dissipation at $T_A \leq 25^\circ\text{C}$ (SOIC-8).....	725mW
Storage Temperature Range.....	-65°C to $+150^\circ\text{C}$
Lead Temperature (Soldering, 10 Seconds).....	300°C

Note 1: All voltages are with respect to Pin 5.

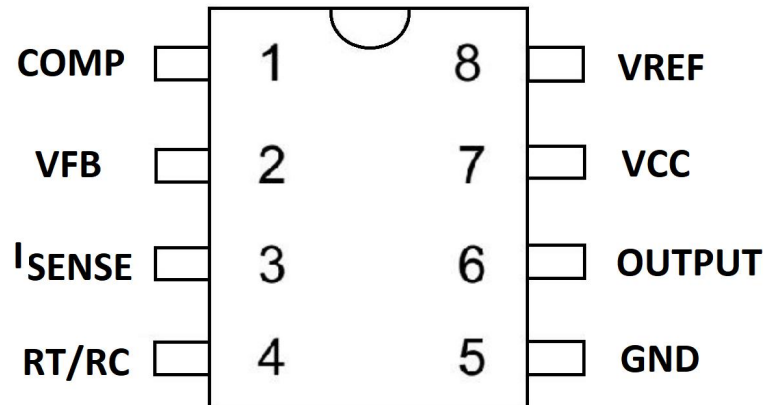
All currents are positive into the specified terminal.

Consult Packaging Section of Databook for thermal limitations and considerations of packages.

The main frame



Outlet function



Pin	Symbol	function	Pin	Symbol	function
1	COMP	Compare the end	5	GND	ground
2	VFB	negative feedback	6	OUTPUT	OUTPUT
3	ISENSE	Current sensitivity	7	VCC	power supply
4	RT/RC	Shock end	8	VREF	reference voltage

Maximum rating ($V_{\text{SUPPLY}}=\pm 15\text{V}, T_{\text{A}}=25^{\circ}\text{C}$)

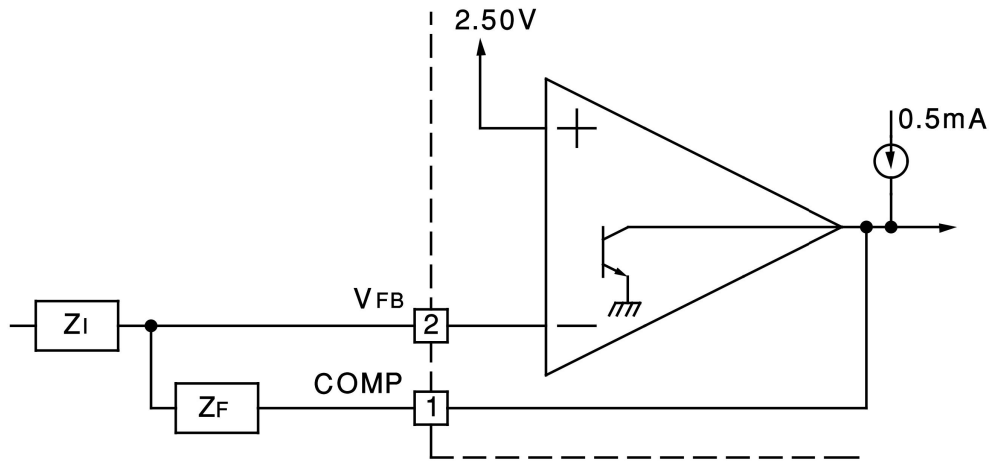
PARAMETER	SYMBOL	TYPICAL VALUES	UNITS
power supply voltage	VCC	30	V
output current	I_o	± 1	A
Error amplifier current	$I_{\text{sink}}(\text{EA})$	10	mA
Error amplifier input Voltage	V_{in}	-0.3~+6.3	V
Power consumption	PD(DIP)	1	W
Operating ambient temperature	T_{amb}	0~70	$^{\circ}\text{C}$
Storage temperature(UC2844)	T_{stg}	-40~85	$^{\circ}\text{C}$
Storage temperature(UC3844)	T_{stg}	0~70	$^{\circ}\text{C}$

Electrical Specifications($V_{\text{SUPPLY}}=\pm 15\text{V}$, $T_A=25^\circ\text{C}$) Unless otherwise stated, these specifications apply for $-40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$ for the UC2844; $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$ for the 3844; $V_{\text{CC}} = 15\text{V}$ (Note 5); $R_T = 10\text{k}$; $C_T = 3.3\text{nF}$, $T_A=T_J$.

PARAMETER	SYMBOL	test conditions	UC3844			UC2844			UNIT S
			MIN	TYP	MAX	MIN	TYP	MAX	
Reference power supply section									
Reference voltage	VREF	$T_J=25^\circ\text{C}$, $I_{\text{REF}}=1\text{mA}$	4.90	5.00	5.10	4.95	5.00	5.05	V
Linear adjustment rate	ΔV_{REF}	$12\text{V} \leq V_{\text{CC}} \leq 25\text{V}$		6	20		6	20	mV
Load adjustment rate	ΔV_{REF}	$1\text{mA} \leq I_{\text{REF}} \leq 20\text{mA}$		6	25		6	25	mV
Short circuit output current	ISC	$T_{\text{amb}}=25^\circ\text{C}$	-30	-100	-180	-30	-100	-180	mA
Volatile part									
Oscillation frequency	Fosc	$T_J=25^\circ\text{C}$	47	52	57	47	52	57	KHz
Frequency voltage characteristic	$\Delta f/\Delta V_{\text{CC}}$	$2\text{V} \leq V_{\text{CC}} \leq 25\text{V}$		0.05	1		0.05	1	%
Turbulence	V(OSC)	4 feet peak		1.7			1.6		Vpp
Error amplifier part (EA)									
Input bias current	IBIAS			-0.3	-2		-0.3	-1	μA
input voltage	Vin(EA)	$V_1=2.5\text{V}$	2.42	2.50	2.58	2.45	2.50	2.55	V
Open loop voltage gain	GVO	$2\text{V} \leq V_O \leq 4\text{V}$	60	90		60	90		dB
Current suppression ratio	PSRR	$12\text{V} \leq V_{\text{CC}} \leq 25\text{V}$	60	70		60	70		dB
Output irrigation current	ISINK	$V_2=2.7\text{V}$, $V_1=1.1\text{V}$	2	6		2	6		mA
Output suction current	ISOURCE	$V_2=2.3\text{V}$, $V_1=5\text{V}$	-0.5	-0.8		-0.5	-0.8		mA
Output high level	VOH	$V_2=2.3\text{V}$, $R_L=15\text{k}\Omega$ to GND	5	6		5	6		V
Output low level	VOL	$V_2=2.7\text{V}$, $R_L=15\text{k}\Omega$ to Pin8		0.7	1.1		0.7	1.1	V

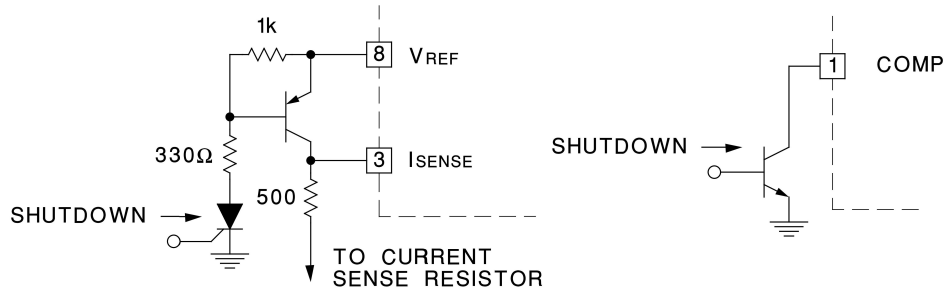
Current sensitivity part									
gain	GV		2.85	3	3.15	2.85	3	3.15	V/V
Maximum input signal	VI(MAX)	V1=5V	0.9	1	1.1	0.9	1	1.1	V
Power rejection ratio	PSRR	12V≤VCC≤25V		70			70		dB
Input bias current	IBIAS			-2	-10		-2	-10	μA
Output part									
Output low level	VOL	ISINK=20mA		0.1	0.4		0.1	0.4	V
		ISINK=200mA		1.5	2.2		1.5	2.2	V
Output high level	VOH	ISOURCE=20mA	13	13.5		13	13.5		V
		ISOURCE=200mA	12	13.0		12	13.0		V
Rise time	tr	CL=1nF		50	150		50	150	ns
Fall time	tf	CL=1nF		50	150		50	150	ns
UVL circuit									
Start the threshold	VTH(ST)		14.5	16.0	17.5	15	16	17	V
Minimum operating voltage	VOPR(MIN)		8.5	10.0	11.5	7.8	8.4	9.0	V
PWM Part of the									
Maximum duty cycle	D(MAX)		47	48	50	46	48	50	%
Minimum duty cycle	D(Min)				0			0	%
Current									
Starting current	IST			0.12	0.3		0.12	0.3	mA
Action supply current	ICC(OPR)	V3=V2=0V		11	17		11	17	mA
Zener Voltage	Vz	ICC=25mA	30	34		30	34		V

ERROR AMP CONFIGURATION

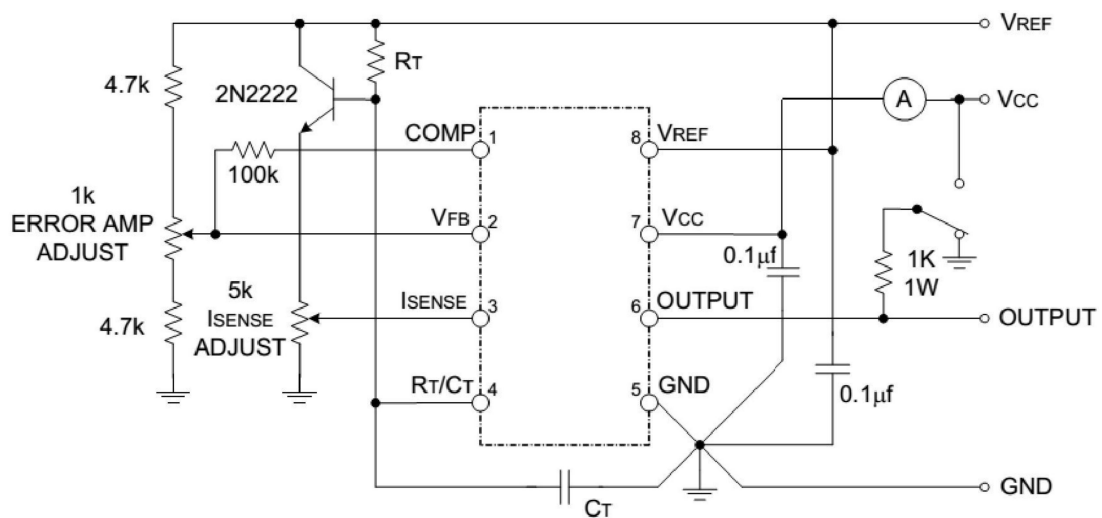


Error Amp can Source or Sink up to 0.5mA

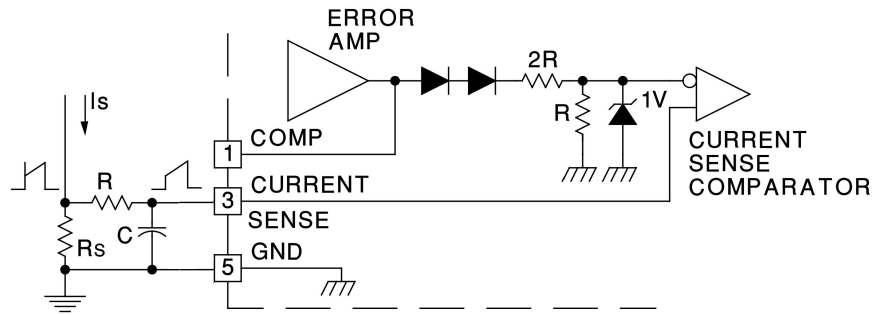
SHUT DOWN TECHNIQUES



Basic test circuit



CURRENT SENSE CIRCUIT

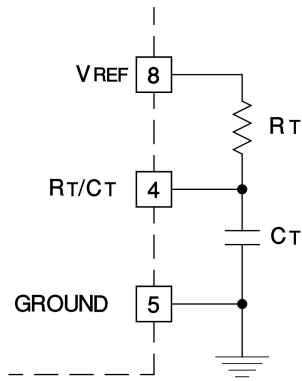


Peak Current (Is) is Determined By The Formula

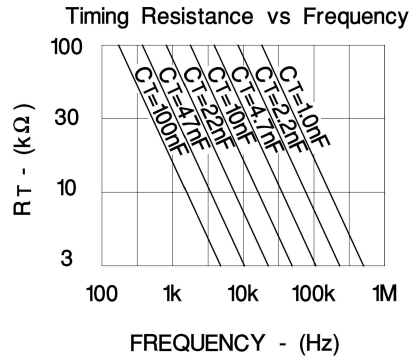
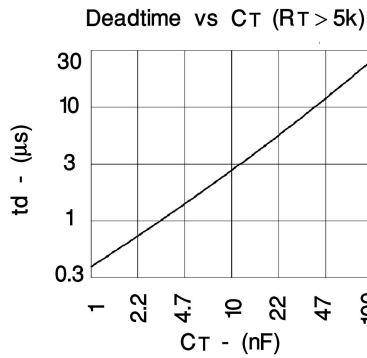
$$I_{SMAX} \approx \frac{1.0V}{R_s}$$

A small RC filter may be required to suppress switch transients.

OSCILLATOR SECTION

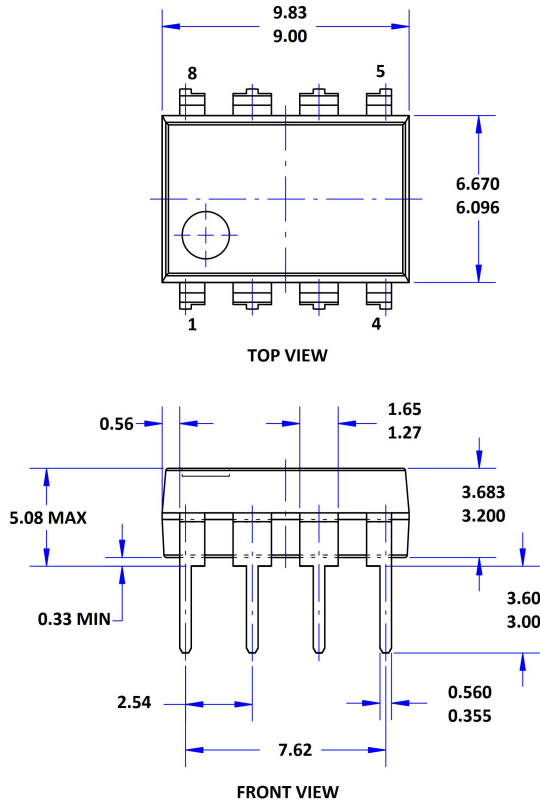


For $R_T > 5k$ $f \approx \frac{1.72}{R_T C_T}$

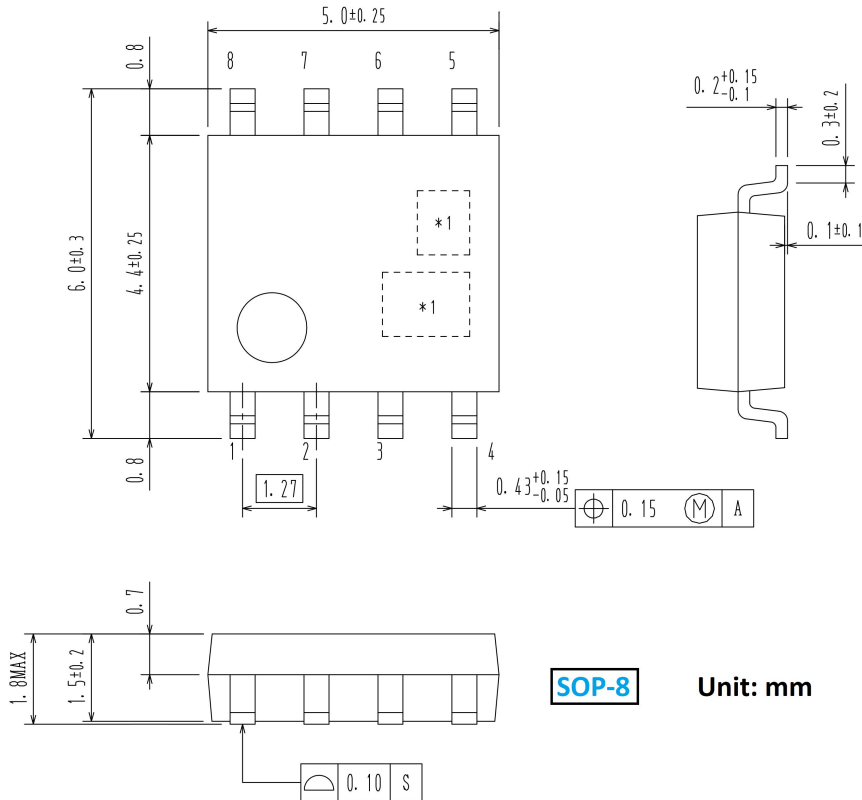


Type	Package
UC2844	SO-8
UC2844AN	DIP-8
UC3844	SO-8
UC3488AN	DIP-8

Package Mechanical DATA



DIP-8 Unit: mm



SOP-8 Unit: mm