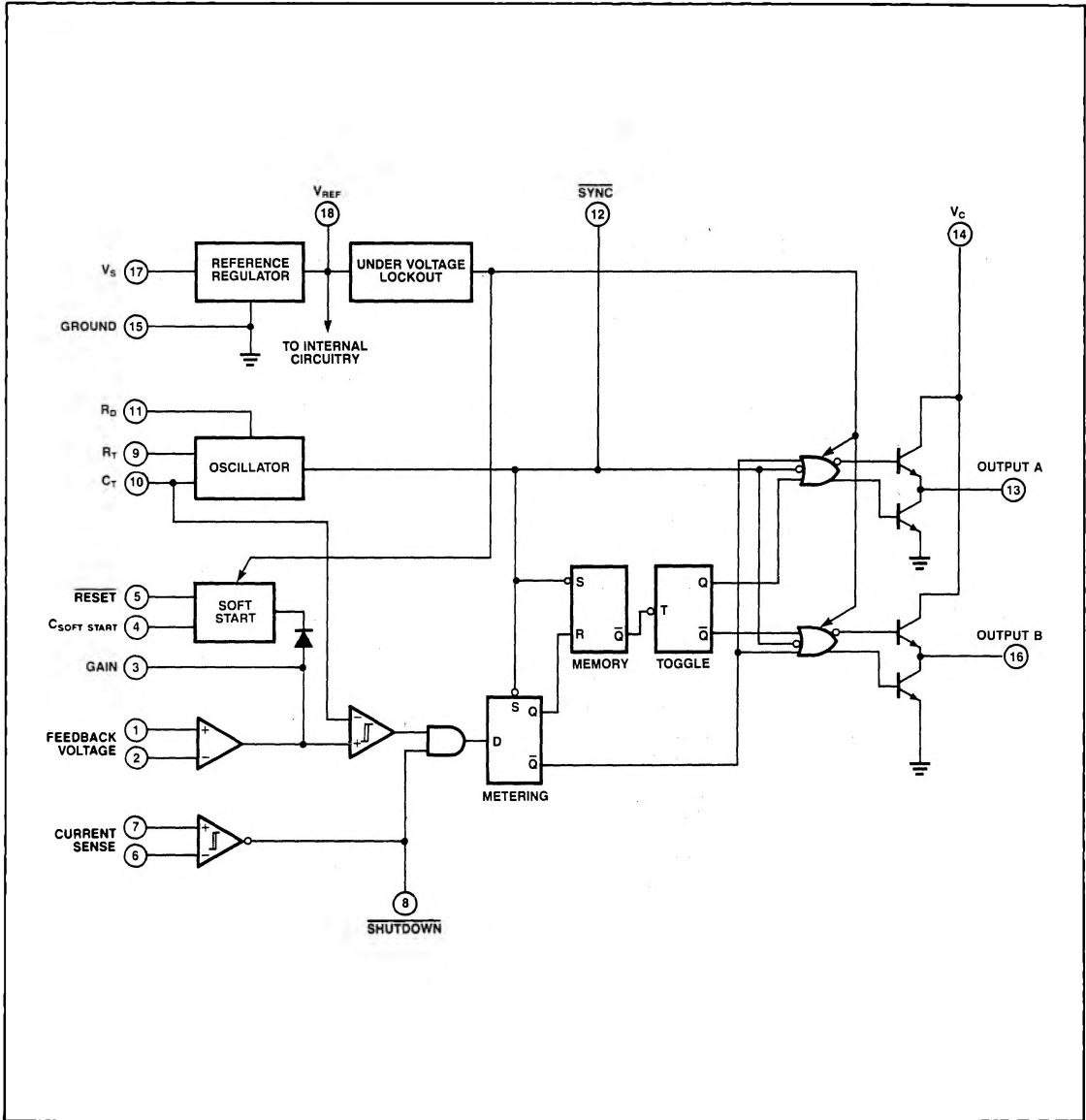




**Preliminary**

**BLOCK DIAGRAM**



**Preliminary**

**ELECTRICAL CHARACTERISTICS** over operating temperature range,  $V_S$  15 V (unless otherwise noted).

CHARACTERISTIC	TEST PINS	TEST CONDITIONS	LIMITS						UNITS
			SG1526A & SG2526A			SG3526A			
			Min.	Typ.	Max.	Min.	Typ.	Max.	
REFERENCE SECTION ( $I_L = 0$ mA)									
Reference Voltage	18	$T_A = +25^\circ\text{C}$	4.95	5.00	5.05	4.90	5.00	5.10	V
		Over Recommended Conditions	4.90	5.00	5.10	4.85	5.00	5.15	V
Ref. Volt. Regulation	18	$V_S = 8$ to 35 V	—	10	20	—	10	30	mV
		$I_L = 0$ to 20 mA	—	10	30	—	10	50	mV
		Over Oper. Temp. Range	—	15	50	—	15	50	mV
Short Circuit Current	18	$V_{REF} = 0$ V	25	50	100	25	50	100	mA
Standby Current	17	$V_S = 35$ V, $R_T = 4.22$ k $\Omega$ , $V_S = 0.4$ V	—	18	—	—	18	—	mA
OSCILLATOR SECTION ( $f = 40$ kHz, $R_T = 4.22$ k $\Omega$ , $C_T = 0.01$ $\mu\text{F}$ , $R_O = 0$ $\Omega$ )									
Oscillator Frequency	9, 10	$R_T = 150$ $\Omega$ , $C_T = 20$ $\mu\text{F}$	—	—	1.0	—	—	1.0	Hz
		$R_T = 2$ k $\Omega$ , $C_T = 0.001$ $\mu\text{F}$	400	—	—	400	—	—	kHz
Initial Osc. Accuracy	9, 10	$T_A = +25^\circ\text{C}$	—	3.0	—	—	3.0	—	%
Osc. Stability	9, 10	$V_S = 8$ to 35 V	—	0.5	—	—	0.5	—	%
		Over oper. Temp. Range	—	1.0	—	—	1.0	—	%
		Other Recommended Conditions	—	2.0	—	—	2.0	—	%
Sawtooth Peak Voltage	12	$V_S = 35$ V	—	3.0	3.5	—	3.0	3.5	V
Sawtooth Valley Volt.	12	$V_S = 8.0$ V	0.5	1.0	—	0.5	1.0	—	V
Sync. Pulse Width	12	$C_L = 15$ pF	—	500	—	—	500	—	ns
ERROR AMPLIFIER ( $V_{CM} = 0$ to 5.2 V)									
Input Offset Voltage	1, 2	$R_S = 2$ k $\Omega$	—	2.0	5.0	—	2.0	5.0	mV
Input Bias Current	1, 2		—	-350	-1000	—	-350	-2000	nA
Input Offset Current	1, 2		—	35	100	—	35	200	nA
Error Amp Gain	1-3	Open Loop, $R_L = 10$ M $\Omega$	64	72	—	60	72	—	dB
Small Signal BW	1-3	$C_L = 30$ pF	0.7	1.0	—	0.7	1.0	—	MHz
Output Voltage Swing	3	Positive Limit, $R_L = 50$ k $\Omega$	3.6	4.2	—	3.6	4.2	—	V
		Negative Limit, $R_T = 50$ k $\Omega$	—	0.2	0.4	—	0.2	0.4	V
Common Mode Range	1, 2	$V_S = 8.0$ V	0	—	5.2	0	—	5.2	V
Common Mode Rejection	1, 2	$R_S = 10$ k $\Omega$	70	94	—	70	94	—	dB
Error Amp. $V_S$ Rej.	3	$f = 120$ Hz, $\Delta V_S = 1$ Vrms	66	80	—	66	80	—	dB
HOUSEKEEPING FUNCTIONS									
Logic Voltage Levels	5, 8, 12	Logic HIGH, $I_{SOURCE} = -40$ $\mu\text{A}$	2.4	4.0	—	2.4	4.0	—	V
		Logic LOW, $I_{SINK} = 3.6$ mA	—	0.2	0.4	—	0.2	0.4	V
Input Current	5, 8, 12	$V_{IN} = 2.4$ V	—	-125	-200	—	-125	-200	$\mu\text{A}$
		$V_{IN} = 0.4$ V	—	-225	-360	—	-225	-360	$\mu\text{A}$
Shutdown Delay	8-13, 16	100mV step, 5mV overdrive, $R_S = 50$ $\Omega$	—	300	—	—	300	—	ns
CURRENT LIMITING									
Common Mode Range	6, 7	$V_S = 18$ V	0	—	15	0	—	15	V
Sense Voltage	6, 7	$V_{CM} = 0$ to 15 V	—	100	—	—	100	—	mV
Input Current	6, 7	$V_{CM} = 0$ to 15 V	—	-3.0	—	—	-3.0	—	$\mu\text{A}$
Voltage Gain	7-8	$I_S = 360$ $\mu\text{A}$	—	68	—	—	68	—	dB

**Preliminary**

**ELECTRICAL CHARACTERISTICS** over operating temperature range,  $V_S$  15 V (unless otherwise noted). (Cont'd)

CHARACTERISTIC	TEST PINS	TEST CONDITIONS	LIMITS						UNITS
			SG1526A & SG2526A			SG3526A			
			Min.	Type.	Max.	Min.	Typ.	Max.	
<b>SOFT START SECTION</b>									
Error Clamp Voltage	—	$V_S = 0.4$ V	—	100	400	—	100	400	mV
$C_S$ Charging Current	4	$V_S = 2.4$ V	—	100	—	—	100	—	$\mu$ A
<b>OUTPUT DRIVERS (<math>V_C = 15</math> V)</b>									
Output Voltage	12, 16	$I_{OUT} = -20$ mA	12.5	13.5	—	12.5	13.5	—	V
		$I_{OUT} = -100$ mA	—	13	—	—	13	—	V
		$I_{OUT} = 20$ mA	—	0.2	0.3	—	0.2	0.3	V
		$I_{OUT} = 100$ mA	—	1.2	—	—	1.2	—	V
Leakage Current	12, 16	$V_C = 40$ V	—	0.1	100	—	0.1	100	$\mu$ A
Rise Time	12, 16	$C_L = 1000$ pF	—	300	—	—	300	—	ns
Fall Time	12, 16	$C_L = 1000$ pF	—	200	—	—	200	—	ns

**NOTES:**

Negative current is defined as coming out of (sourcing) the specified device pin.

\*Commercial, extended, and full temperature range devices are defined on page 2.

**RECOMMENDED OPERATING CONDITIONS**

Logic Supply Voltage, $V_S$ .....	8 V to 35 V
Collector Voltage, $V_C$ .....	4.5 V to 35 V
Output Load Current, $I_O$ .....	0 to $\pm$ 100 mA
Reference Load Current, $I_L$ .....	0 to 20 mA
Oscillator Frequency, $f$ .....	1 Hz to 400 kHz
Oscillator Timing Resistance, $R_T$ .....	2 k $\Omega$ to 150 k $\Omega$
Oscillator Timing Capacitance, $C_T$ .....	0.001 $\mu$ F to 20 $\mu$ F
Programmed Deadtime .....	3% to 50%