FEATURES

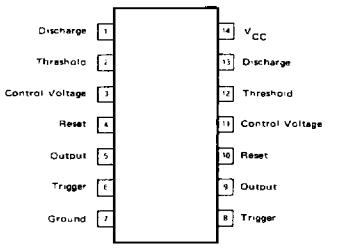
- TIMING FROM MICROSECONDS TO HOURS
- REPLACES TWO 555 TIMERS
- OPERATES IN BOTH ASTABLE, MONOSTABLE, TIME DELAY MODES
- HIGH OUTPUT CURRENT
- ADJUSTABLE DUTY CYCLE
- TTL COMPATIBLE
- TEMPERATURE STABILITY OF 0.005% PER °C

APPLICATIONS

PRECISION TIMING
SEQUENTIAL TIMING
PULSE SHAPING
PULSE GENERATOR
MISSING PULSE DETECTOR
TONE BURST GENERATOR
PULSE WIDTH MODULATION
TIME DELAY GENERATOR
FREQUENCY DIVISION
INDUSTRIAL CONTROLS
PULSE POSITION MODULATION
APPLIANCE TIMING
TRAFFIC LIGHT CONTROL
TOUCH TONE ENCODER

PIN CONFIGURATION

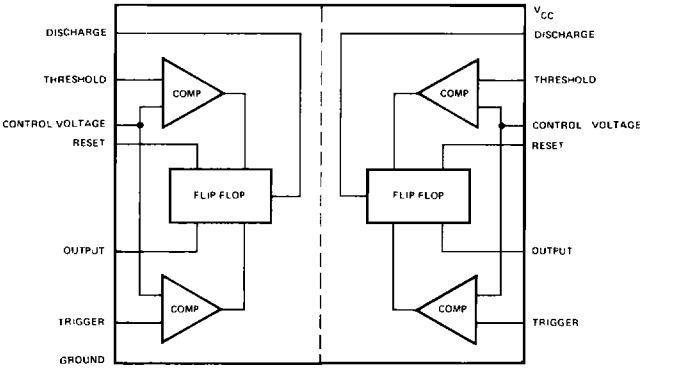
A PACKAGE



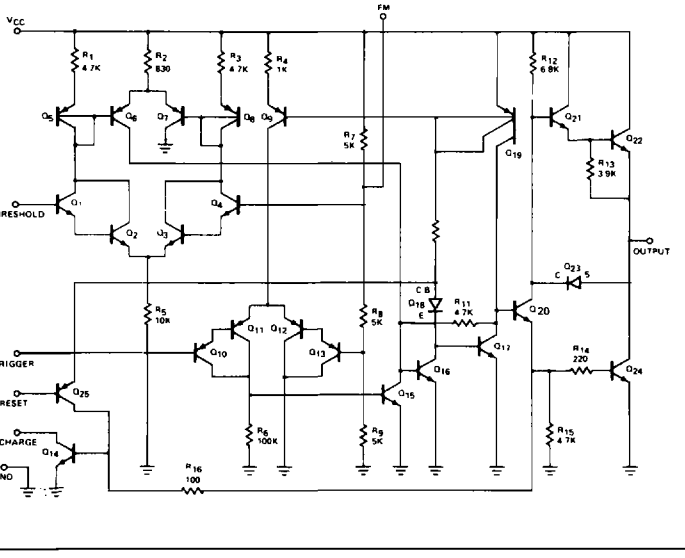
ABSOLUTE MAXIMUM RATIONS

Supply Voltage	
SE556	+18V
NE556	+16V
Power Dissipation	600mW
Operating Temperature Range	
NE556	0°C to +70°C
SE556	−55°C to +125°C
SE556C	−55°C to +125°C
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 60 sec)	+300°C

BLOCK DIAGRAM



EQUIVALENT CIRCUIT (SHOWN FOR ONE CIRCUIT ONLY)



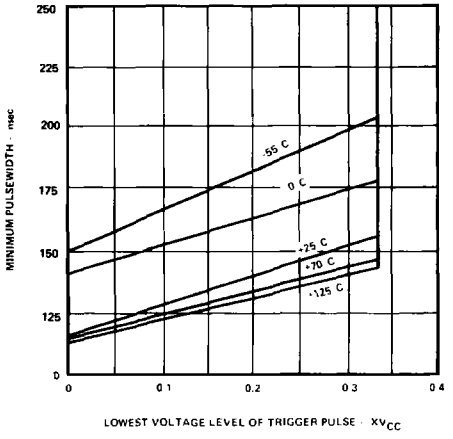
ELECTRICAL CHARACTERISTICS T_A = 25°C, V_{CC} = +5V to +15 unless otherwise specified

PARAMETER	TEST CONDITIONS	SE556			NE556			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Supply Voltage		4.5		18	4.5		16	V
Supply Current	V_{CC}=5V $R_L=\infty$		6	10		6	12	mA
	V_{CC}= 15V $R_L=\infty$		20	24		20	30	mA
	Low State, Note 1							
Timing Error (Monostable)	RA=2KΩ to 100KΩ							
Initial Accuracy	C=0.1μF Note 2		0.5	1.5		0.75		%
Drift with Temperature			30	100		50		ppm/°C
Drift with Supply Voltage			0.05	0.2		0.1		%/Volt
Timing Error (Astable)	R_A, R_B=2KΩ to 100KΩ							
Initial Accuracy	C= 0.1μF Note 2		1.5			2.25		%
Drift with Temperature			90			150		ppm/°C
Drift with Supply Voltage			0.15			0.3		%/Volt
Threshold Voltage			2/3			2/3		X V_{CC}
Threshold Current	Note 3		30	250		30	250	nA
Trigger Voltage	V_{CC}= 15V	4.8	5	5.2		5		V
	V_{CC}= 5V	1.45	1.67	1.9		1.67		V
Trigger Current			2.0			2.0		μA
Reset Voltage (Note 5)		0.4	0.7	1.0	0.4	0.7	1.0	V
Reset Current			0.1			0.1		mA
Control Voltage Level	V_{CC} = 15V	9.6	10	10.4	9.0	10	11	V
	V_{CC} = 5V	2.9	3.33	3.8	2.6	3.33	4	V
Output Voltage (low)	V_{CC} = 15V							
	I_{SINK} = 10mA		0.1	0.15		0.1	.25	V
	I_{SINK} = 50mA		0.4	0.5		0.4	.75	V
	I_{SINK} = 100mA		2.0	2.25		2.0	2.75	V
	I_{SINK} = 200mA		2.5			2.5		
	V_{CC} = 5V							
	I_{SINK} = 8mA		0.1	0.25				V
	I_{SINK} = 5mA					.25	.35	
Output Voltage (high)								
	I_{SOURCE} = 200mA V_{CC} = 15V		12.5			12.5		
	I_{SOURCE} = 100mA							
	V_{CC} = 15V	13.0	13.3		12.75	13.3		V
	V_{CC} = 5V	3.0	3.3		2.75	3.3		V
Rise Time of Output			100			100		nsec
Fall Time of Output			100			100		nsec
Discharge Leakage Current			20	100		20	100	nA
Matching Characteristics (Note 4)								
Initial Timing Accuracy			0.05	0.1		0.1	0.2	%
Timing Drift with Temperature			±10			±10		ppm/°C
Drift with Supply Voltage			0.1	0.2		0.2	0.5	%/Volt

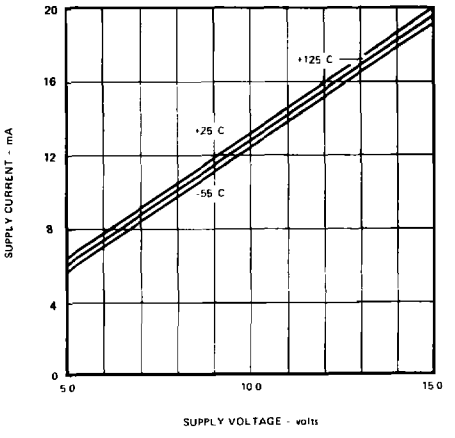
NOTES:
1. Supply current when output is high is typically 1.0ma less.
2. Tested at VCC = 5V and VCC = 15V.
3. This will determine the maximum value of RA + RB for 15V operation, the maximum total R = 20 meg-ohms, and for 5V operation, the max. total R = 6.8 meg-ohm.
4. Matching characteristics refer to the difference between performance characteristics of each timer section.
5. Specified with trigger input high.

TYPICAL CHARACTERISTICS

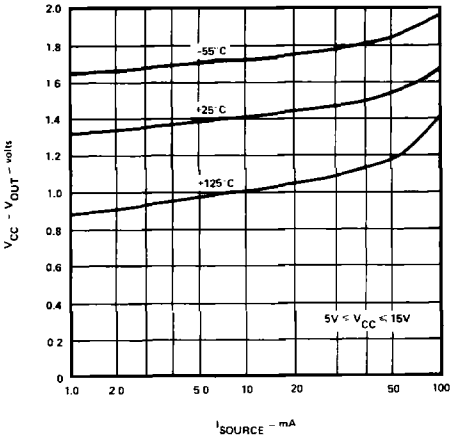
MINIMUM PULSE WIDTH REQUIRED FOR TRIGGERING



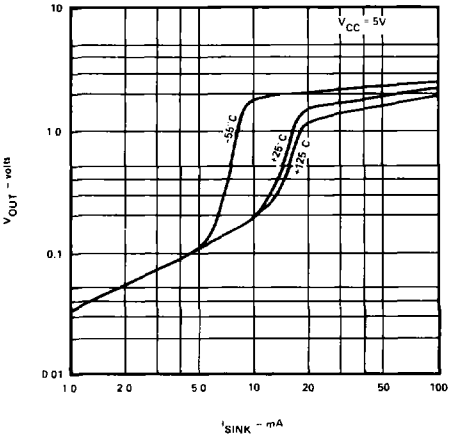
SUPPLY CURRENT vs SUPPLY VOLTAGE



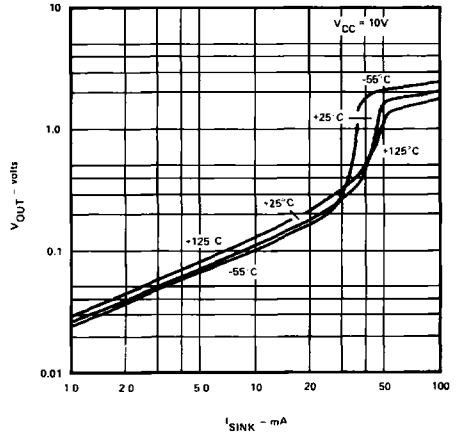
HIGH OUTPUT VOLTAGE DROP vs OUTPUT SOURCE CURRENT



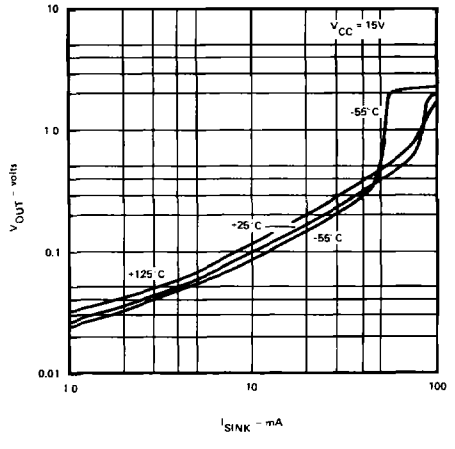
LOW OUTPUT VOLTAGE vs OUTPUT SINK CURRENT



LOW OUTPUT VOLTAGE vs OUTPUT SINK CURRENT

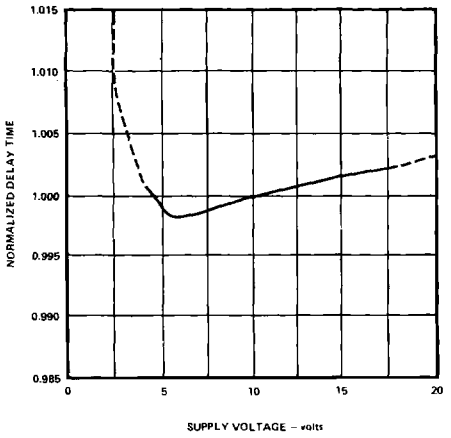


LOW OUTPUT VOLTAGE vs OUTPUT SINK CURRENT

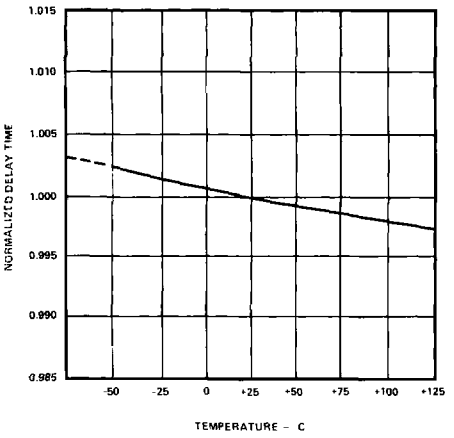


TYPICAL CHARACTERISTICS (CONT'D)

DELAY TIME vs SUPPLY VOLTAGE



DELAY TIME vs TEMPERATURE



PROPAGATION DELAY vs VOLTAGE LEVEL OF TRIGGER PULSE