

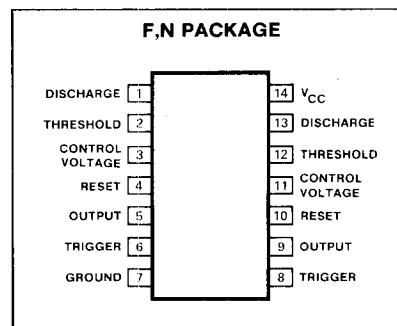
FEATURES

- Timing from microseconds to hours
- Replaces two 555 timers
- Operates in both astable and monostable modes
- High output current
- Adjustable duty cycle
- TTL compatible
- Temperature stability of 0.005% per °C
- SE566 MIL STD 883A, B, C available, N38510 (JAN planned, 38510 processing available).

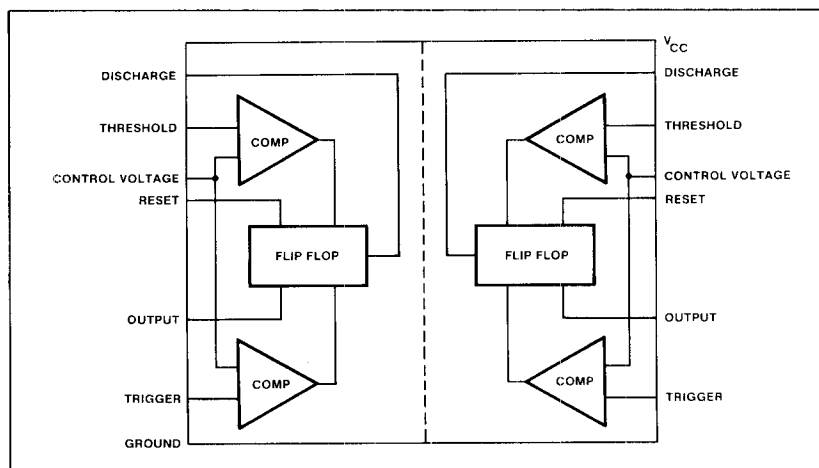
APPLICATIONS

- 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

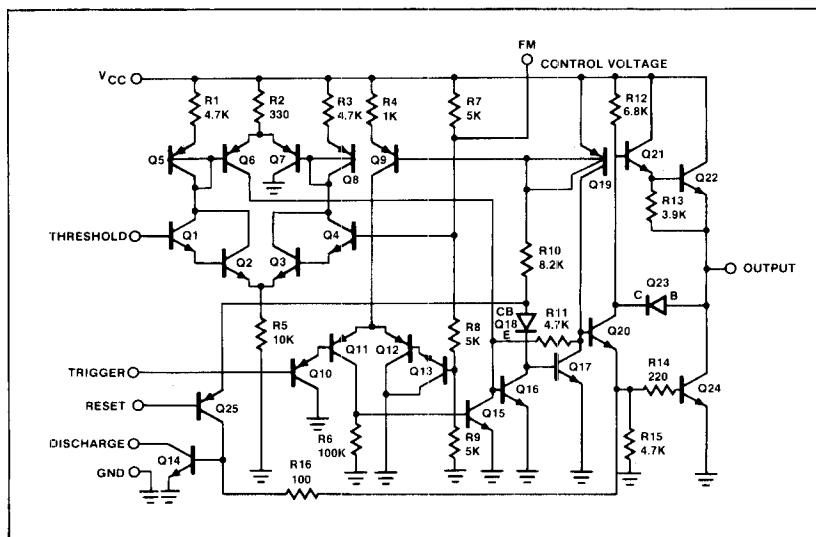
PIN CONFIGURATION



BLOCK DIAGRAM



EQUIVALENT SCHEMATIC (Shown for one circuit only)



ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Supply voltage		
SE556	+18	V
NE556, SE556C, SA556	+16	V
Power dissipation	600	mW
Operating temperature range		
NE556	0 to +70	°C
SA556	-40 to +85	°C
SE556, SE556C	-55 to +125	°C
Storage temperature range	-65 to +150	°C
Lead temperature	+300	°C
(Soldering, 60 sec)		

ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, $V_{CC} = +5\text{V}$ to $+15\text{V}$ unless otherwise specified.

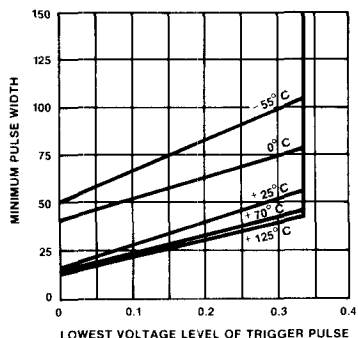
PARAMETER	TEST CONDITIONS	SE556			NE556/SE556C/SA556			UNITS
		Min	Typ	Max	Min	Typ	Max	
Supply voltage		4.5		18	4.5		16	V
Supply current (low state) ¹	$V_{CC} = 5\text{V}$ $R_L = \infty$		6	10		6	12	mA
	$V_{CC} = 15\text{V}$ $R_L = \infty$		20	24		20	30	mA
Timing error (monostable)	$R_A = 2\text{k}\Omega$ to $100\text{k}\Omega$							
Initial accuracy ²	$C = 0.1\mu\text{F}$		0.5	1.5		0.75	3.0	%
Drift with temperature			30	100		50		ppm/°C
Drift with supply voltage			0.05	0.2		0.1	0.5	%/V
Timing error (astable)	$R_A, R_B = 1\text{k}\Omega$ to $100\text{k}\Omega$							
Initial accuracy ²	$C = 0.1\mu\text{F}$		1.5			2.25		%
Drift with temperature	$V_{CC} = 15\text{V}$		90			150		ppm/°C
Drift with supply voltage			0.15			0.3		%/V
Control voltage level	$V_{CC} = 15\text{V}$	9.6	10.0	10.4	9.0	10.0	11.0	V
	$V_{CC} = 5\text{V}$	2.9	3.33	3.8	2.6	3.33	4.0	V
Threshold voltage	$V_{CC} = 15\text{V}$	9.4	10.0	10.6	8.8	10.0	11.2	V
	$V_{CC} = 5\text{V}$	2.7	3.33	4.0	2.4	3.33	4.2	V
Threshold current ³			30	250		30	250	nA
Trigger voltage	$V_{CC} = 15\text{V}$	4.8	5.0	5.2	4.5	5.0	5.6	V
	$V_{CC} = 5\text{V}$	1.45	1.67	1.9	1.1	1.67	2.2	V
Trigger current	$V_{TRIG} = 0\text{V}$		0.5	0.9		0.5	2.0	μA
Reset voltage ⁵		0.4	0.7	1.0	0.4	0.7	1.0	V
Reset current	$V_{RESET} = 0\text{V}$		0.1	0.4		0.1	0.6	mA
			0.4	1.0		0.4	1.5	mA
Output voltage (low)	$V_{CC} = 15\text{V}$							
	$I_{SINK} = 10\text{mA}$		0.1	0.15		0.1	0.25	V
	$I_{SINK} = 50\text{mA}$		0.4	0.5		0.4	0.75	V
	$I_{SINK} = 100\text{mA}$		2.0	2.25		2.0	3.2	V
	$I_{SINK} = 200\text{mA}$		2.5			2.5		V
	$V_{CC} = 5\text{V}$							
	$I_{SINK} = 8\text{mA}$		0.1	0.2		0.25	0.3	V
	$I_{SINK} = 5\text{mA}$		0.05	0.15		0.15	0.25	V
Output voltage (high)	$V_{CC} = 15\text{V}$							
	$I_{SOURCE} = 200\text{mA}$		12.5			12.5		V
	$I_{SOURCE} = 100\text{mA}$	13.0	13.3		12.75	13.3		V
	$V_{CC} = 5\text{V}$							
Rise time of output	$I_{SOURCE} = 100\text{mA}$	3.0	3.3		2.75	3.3		V
Rise time of output			100	200		100	300	ns
Fall time of output			100	200		100	300	ns
Discharge leakage current			20	100		20	100	nA
Matching characteristics ⁴								
	Initial accuracy ²		0.5	1.0		1.0	2.0	%
	Drift with temperature		10			10		ppm/°C
	Drift with supply voltage		0.1	0.2		0.2	0.5	%/V

NOTES

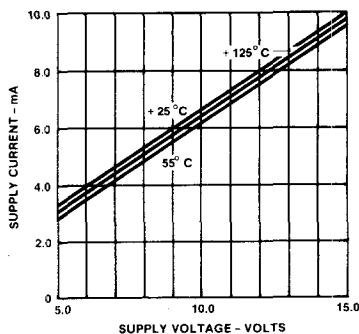
1. Supply current when output is high is typically 1.0mA less.
2. Tested at $V_{CC} = 5V$ and $V_{CC} = 15V$.
3. This will determine the maximum value of $R_A + R_B$. For 15V operation, the maximum total $R = 10$ meg-ohms, and for 5V operation, the max. total $R = 3.4$ meg-ohms.
4. Matching characteristics refer to the difference between performance characteristics for each timer section in the monostable mode.
5. Specified with trigger input high.

TYPICAL PERFORMANCE CHARACTERISTICS

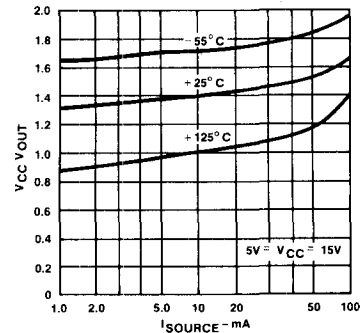
**MINIMUM PULSE WIDTH
REQUIRED FOR TRIGGERING**



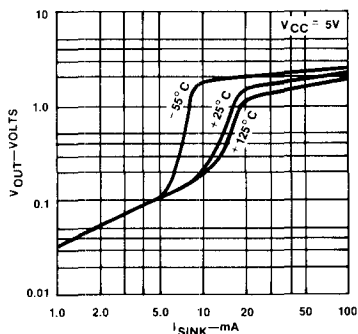
**SUPPLY CURRENT
vs SUPPLY VOLTAGE**



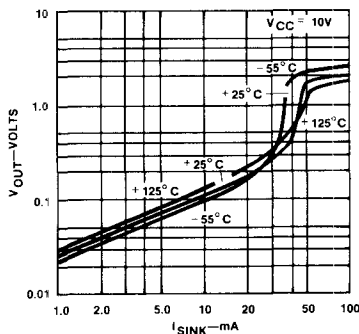
**HIGH OUTPUT VOLTAGE DROP
vs OUTPUT SOURCE CURRENT**



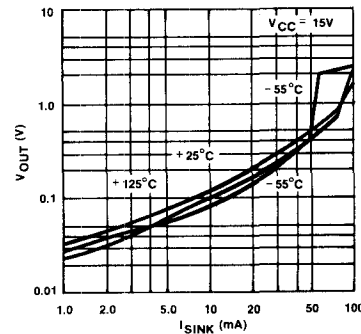
**LOW OUTPUT VOLTAGE
vs OUTPUT SINK CURRENT**



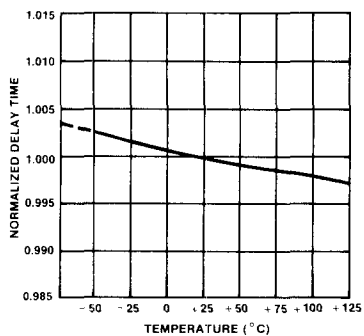
**LOW OUTPUT VOLTAGE
vs OUTPUT SINK CURRENT**



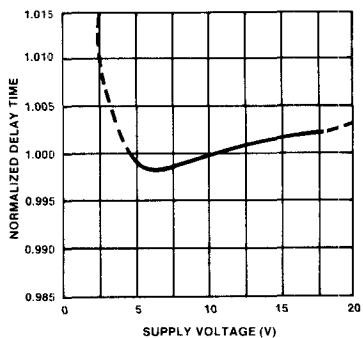
**LOW OUTPUT VOLTAGE
vs OUTPUT SINK CURRENT**



**DELAY TIME
vs TEMPERATURE**



**DELAY TIME vs
SUPPLY VOLTAGE**



**PROPAGATION DELAY
vs VOLTAGE LEVEL
OF TRIGGER PULSE**

