SA556F,N • SE556N,F • NE556F,N • SE556C,F,N

FEATURES

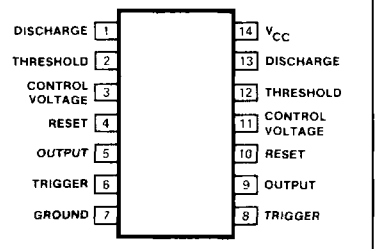
- Timing from microseconds to hours
- Replaces two 555 timers
- Operates in both astable and monostable modes
- High output current
- Adjustable duty cycle
- TTL compatible
- Temperature stability of 0.005% per °C
- SE566 MIL STD 883A, B, C available, N38510 (JAN planned, 38510 processing available).

APPLICATIONS

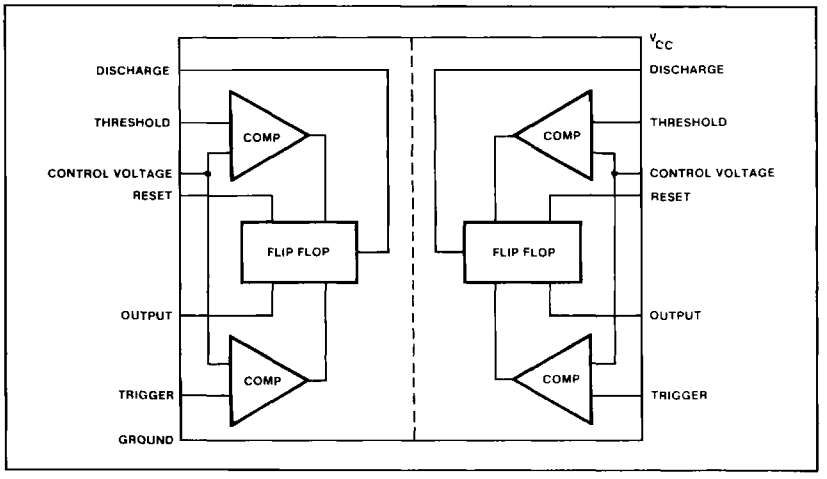
- Precision timing
- Sequential timing
- Pulse shaping
- Pulse generator
- Missing pulse detector
- Tone burst generator
- Pulse width modulation
- Time delay generator
- Frequency division
- Industrial controls
- Pulse position modulation
- Appliance timing
- Traffic light control
- Touch tone encoder

PIN CONFIGURATION

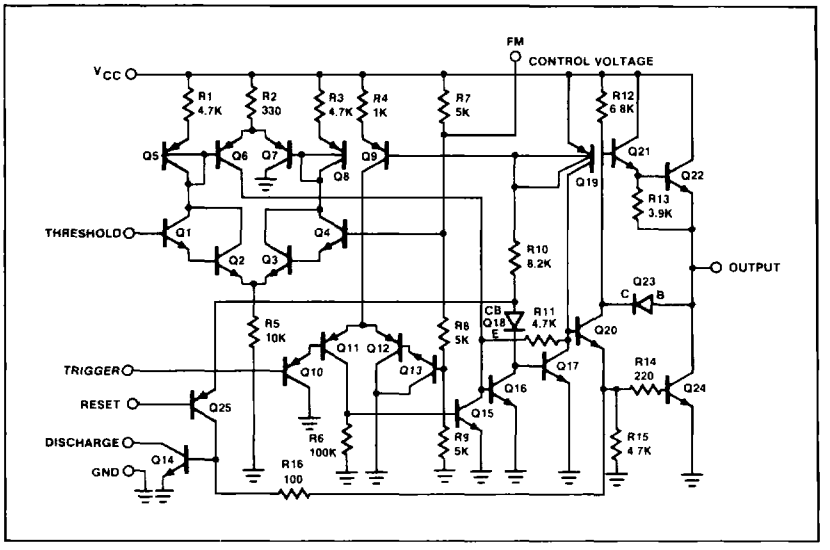
F,N PACKAGE



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 (Soldering, 60 sec)	+300	°C

ELECTRICAL CHARACTERISTICS

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

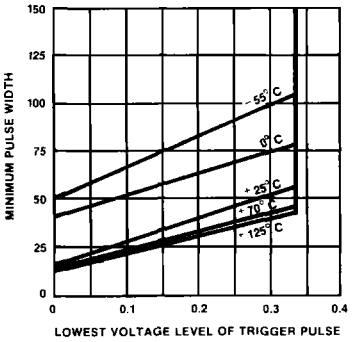
PARAMETER	TEST CONDITIONS	SE556			NE556/SE556C/SA556			UNITS
		Min	Typ	Max	Min	Typ	Max	
Supply voltage		4.5		18	4.5		16	V
Supply current (low state)[1]	$V_{CC} = 5V$ $R_L = \infty$		6	10		6	12	mA
	$V_{CC} = 15V$ $R_L = \infty$		20	24		20	30	mA
Timing error (monostable)	$R_A = 2k\Omega$ to $100k\Omega$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

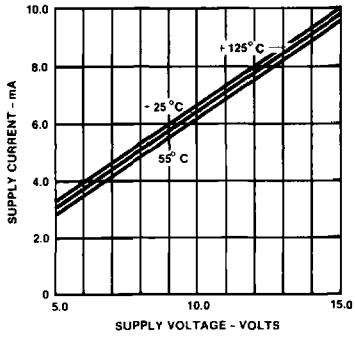
1. Supply current when output is high is typically 1.0mA less.
2. Tested at V_{CC} = 5V and V_{CC} = 15V.
3. This will determine the maximum value of $R_A + R_B$. For 15V operation, the maximum total R = 10 meg-ohms, and for 5V operation, the max. total R = 3.4 meg-ohms
4. Matching charactristics refer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

TYPICAL PERFORMANCE CHARACTERISTICS

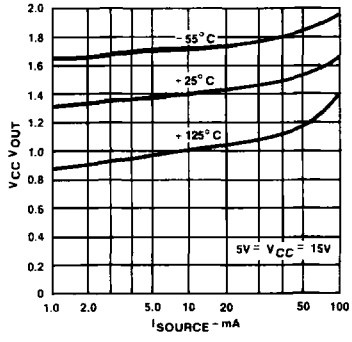
MINIMUM PULSE WIDTH REQUIRED FOR TRIGGERING



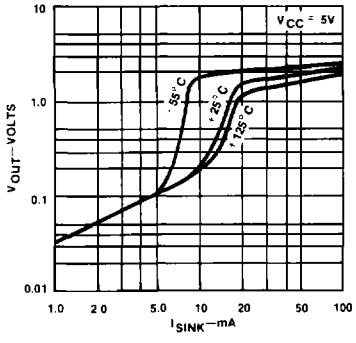
SUPPLY CURRENT vs SUPPLY VOLTAGE



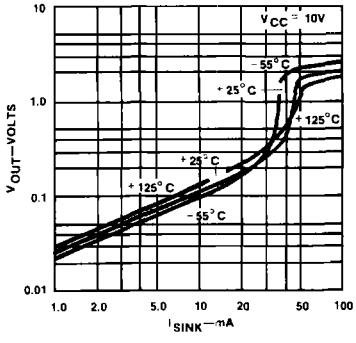
HIGH OUTPUT VOLTAGE DROP vs OUTPUT SOURCE CURRENT



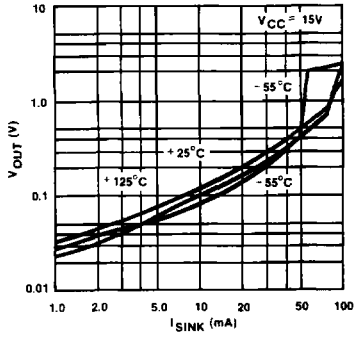
LOW OUTPUT VOLTAGE vs OUTPUT SINK CURRENT



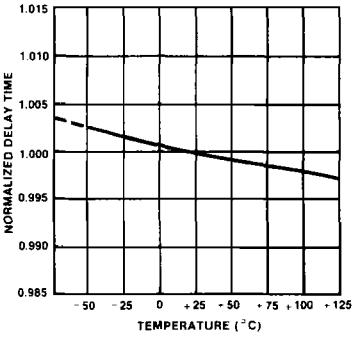
LOW OUTPUT VOLTAGE vs OUTPUT SINK CURRENT



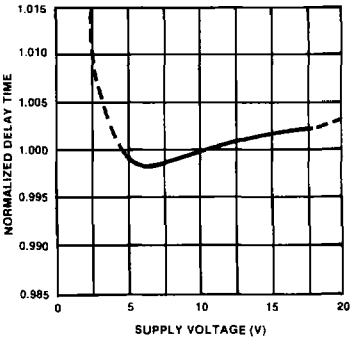
LOW OUTPUT VOLTAGE vs OUTPUT SINK CURRENT



DELAY TIME vs TEMPERATURE



DELAY TIME vs SUPPLY VOLTAGE



PROPAGATION DELAY vs VOLTAGE LEVEL OF TRIGGER PULSE