New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

2N3866(A)

NPN SILICON LOW POWER TRANSISTORS

MAXIMUM RATINGS

Parameters	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	V
Collector-Base Voltage	V_{CB}	55	V
Emitter-Base Voltage	V_{EB}	3.5	V
Collector Current - Continuous	I_C	0.400	A
Total Power Dissipation @ T_A = 25°C Derate Above 25°C	P_D	5.0 28.6	W mW/°C
Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +200	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

Parameters		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage I_C = 5.0mA, R_{BE} = 10Ω		BV_{CER}	55	-	-	V
Collector-Emitter Sustaining Voltage I_C = 5.0mA, I_B = 0		BV_{CEO}	30	-	-	V
Collector-Base Breakdown Voltage I_E = 0, I_C = 0.1mA		BV_{CBO}	55	-	-	V
Emitter-Base Breakdown Voltage I_E = 0.1mA, I_C = 0		BV_{EBO}	3.5	-	-	V
Collector Cutoff Current V_{CE} = 28V, I_B = 0		I_{CEO}	-	-	20	µA
Collector Cutoff Current V_{CE} = 55V, V_{BE} = 1.5V		I_{CEX}	-	-	100	µA
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				-
I_C = 360mA, V_{CE} = 5V	2N3866 2N3866A		5.0	-	-	
I_C = 0.05A, V_{CE} = 5V	2N3866		10	-	200	
I_C = 50mA, V_{CE} = 5V	2N3866A		25	-	200	
Collector-Emitter Saturation Voltage I_C = 100mA, I_B = 20mA		$V_{CE(sat)}$	-	-	1.0	V
DYNAMIC CHARACTERISTICS						
Current Gain – Bandwidth Product I_C = 50mA, V_{CE} = 15V, f = 200MHz	2N3866 2N3866A	f_T	500 800	800 -	- -	MHz
Output Capacitance V_{CB} = 30V, I_E = 0, f = 1.0MHz		C_{ob}	-	2.0	3.0	pF

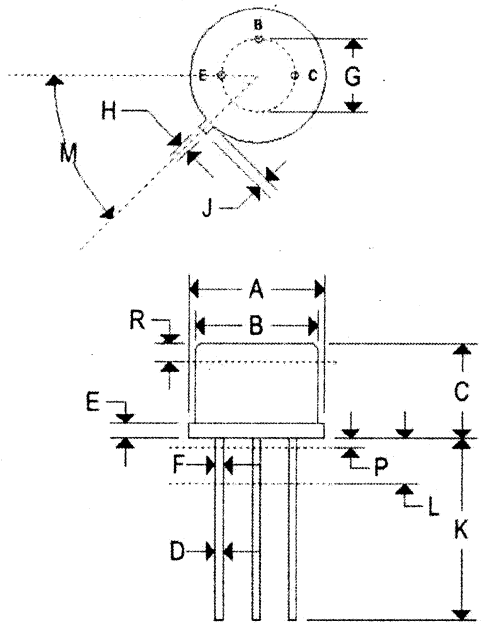
Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

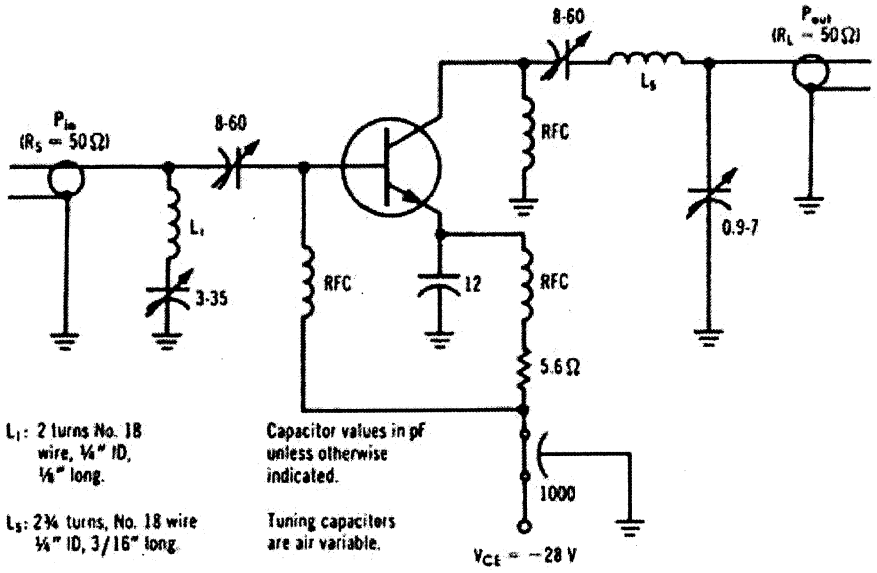
Parameters		Symbol	Min		Max	Unit
FUNCTIONAL TEST						
Power Gain	Test circuit – Figure 1 Pin = 0.1W, V_{CE} = 28V, f = 400MHz, T_C = 25°C	G_{PE}	10	-	-	dB
Power Output		P_{OUT}	1.0	-	-	W
Collector Efficiency		η	45	-	-	%

MECHANICAL CHARACTERISTICS

Case	TO-39
Marking	Alpha-numeric
Polarity	See below



	TO-39			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.350	0.370	8.890	9.400
B	0.315	0.335	8.000	8.510
C	0.240	0.260	6.10	6.60
D	0.016	0.021	0.406	0.533
E	0.009	0.125	0.2269	3.180
F	0.016	0.019	0.406	0.533
G	0.190	0.210	4.830	5.33
H	0.028	0.034	0.711	0.864
J	0.029	0.040	0.737	1.020
K	0.500	-	12.700	-
L	0.250	-	6.350	-
M	45° NOM		45° NOM	
P	-	0.050	-	1.270
Q	90° NOM		90° NOM	
R	0.100	-	2.540	-



400 MHz RF AMPLIFIER CIRCUIT FOR POWER-OUTPUT TEST