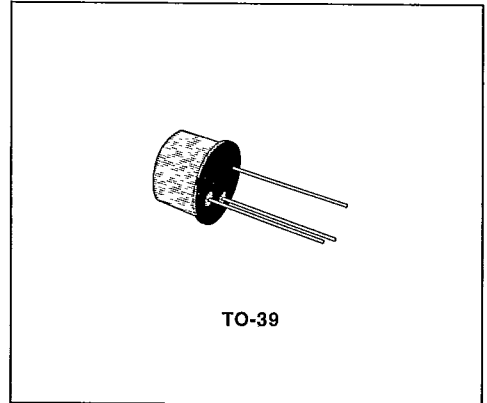


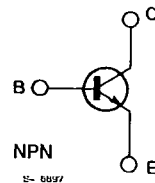
## VHF-UHF POWER AMPLIFIER

### DESCRIPTION

The 2N3866 and BFR97 are silicon planar epitaxial NPN transistor in Jedec TO-39 metal case. They are designed for VHF-UHF class A, B, or C amplifier circuits and oscillator applications.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CES}$	Collector-emitter Voltage ( $V_{BE} = 0$ )	55	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	30	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	3.5	V
$I_C$	Collector Current	0.5	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$	5	W
$T_{stg}, T_J$	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

T-33-05

**THERMAL DATA**

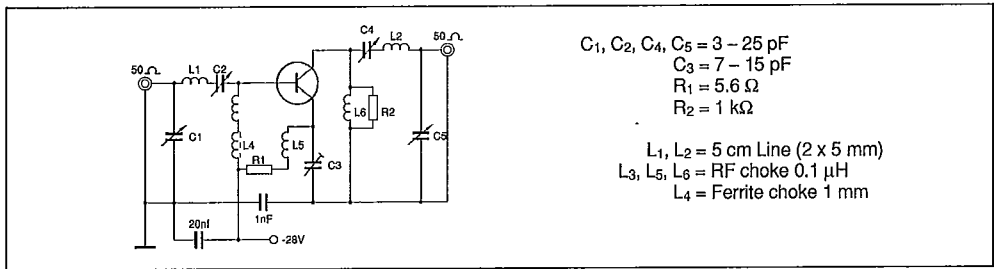
$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	35	°C/W
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**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ °C}$  unless otherwise specified)

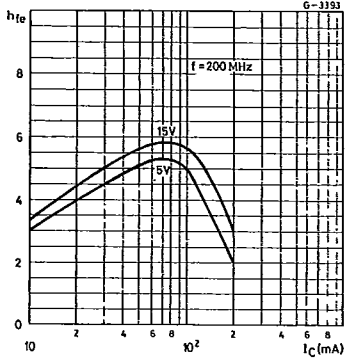
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = 28\text{ V}$			20	$\mu\text{A}$
$V_{(BR)CES}$	Collector-emitter Breakdown Voltage ( $V_{BE} = 0$ )	$I_C = 0.1\text{ mA}$	55			V
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 5\text{ mA}$	30			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100\ \mu\text{A}$	3.5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 100\text{ mA}$ $I_B = 20\text{ mA}$			1	V
$h_{FE}^*$	DC Current Gain	$I_C = 50\text{ mA}$ $V_{CE} = 5\text{ V}$ $I_C = 360\text{ mA}$ $V_{CE} = 5\text{ V}$	10 5		200	
$f_T$	Transition Frequency	$I_C = 50\text{ mA}$ $V_{CE} = 15\text{ V}$ $f = 200\text{ MHz}$	500			MHz
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $V_{CB} = -28\text{ V}$ $f = 1\text{ MHz}$			3	pF
$P_o^{**}$	Output Power	$V_{CC} = -28\text{ V}$ $P_i = 100\text{ mW}$ $f = 400\text{ MHz}$	1			W
$\eta^{**}$	Collector Efficiency	$V_{CC} = -28\text{ V}$ $P_o = 1\text{ W}$ $f = 400\text{ MHz}$	45			%

\* Pulsed : pulse duration = 300 ms, duty cycle = 1 %.  
 \*\* See test circuit.

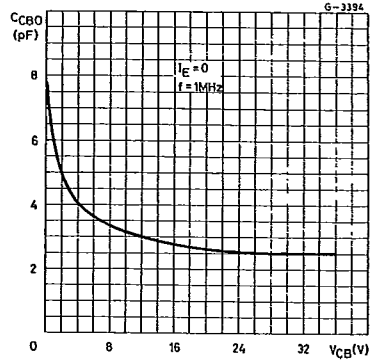
**Test Circuit for Power Output Measurement (f = 400 MHz).**



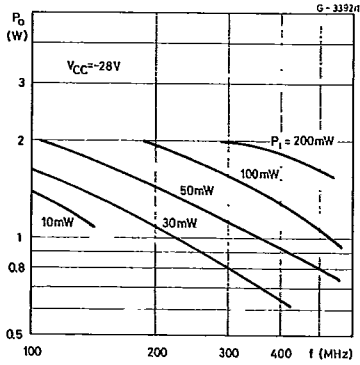
High Frequency Current Drain.



Collector-base Capacitance.



RF Output Power.



Power Rating Chart.

