

## NPN 2N3866

### SILICON PLANAR EPITAXIAL TRANSISTORS

The 2N3866 are NPN transistors mounted in TO-39 metal package with the collector connected to the case .  
They are intended for VHF-UHF class A, B or C amplifier circuits and oscillator applications.  
Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{CES}$	Collector-Emitter Voltage ( $V_{BE} = 0$ )	55	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Collector Current	0.5	A
$P_D$	Total Power Dissipation @ $T_{case} = 25^\circ$	5	Watts
$T_J$	Junction Temperature	200	$^\circ\text{C}$
$T_{Stg}$	Storage Temperature range	-65 to +200	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-c}$	Thermal Resistance, Junction-case	35	$^\circ\text{C}/\text{W}$

#### ELECTRICAL CHARACTERISTICS

$T_C = 25^\circ\text{C}$  unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = 28\text{ V}, I_B = 0$	-	-	20	$\mu\text{A}$
$V_{CEO} (*)$	Collector Emitter Sustaining Voltage	$I_C = 5\text{ mA}, I_B = 0$	30	-	-	V
$V_{CES}$	Collector Base Breakdown Voltage	$I_C = 100\ \mu\text{A}, V_{BE} = 0$	55	-	-	V
$V_{EBO}$	Emitter Base Breakdown Voltage	$I_E = 100\ \mu\text{A}, I_C = 0$	3.5	-	-	V
$h_{FE} (*)$	DC Current Gain	$I_C = 50\text{ mA}, V_{CE} = 5\text{ V}$	10	-	200	-
		$I_C = 360\text{ mA}, V_{CE} = 5\text{ V}$	5	-	-	
$V_{CE(SAT)} (*)$	Collector-Emitter saturation Voltage	$I_C = 100\text{ mA}, I_B = 20\text{ mA}$	-	-	1	V

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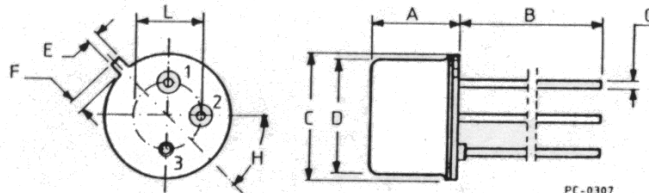
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$f_T$	Transition Frequency	$I_C=50 \text{ mA}$ , $V_{CE}=15 \text{ V}$ $f=200\text{MHz}$	500	-	-	MHz
$C_{CB0}$	Collector-Base Capacitance	$I_E=0$ , $V_{CB}=-28 \text{ V}$ $f=1\text{MHz}$	-	-	3	pF
$P_o^{(**)}$	Output Power	$V_{CC}=-28\text{V}$ $P_i=100 \text{ mW}$ $f=400 \text{ MHz}$	1	-	-	pF
$\eta^{(**)}$	Collector Efficiency	$V_{CC}=-28\text{V}$ , $P_o=1 \text{ W}$ $f=400 \text{ MHz}$	45	-	-	ps

(\*) Pulse conditions :  $t_p < 300 \mu\text{s}$ ,  $\delta = 1\%$ .

(\*\*) See test circuit.

### MECHANICAL DATA CASE TO-39

DIMENSIONS	
	mm
A	6,25
B	13,59
C	9,24
D	8,24
E	0,78
F	1,05
G	0,42
H	45°
L	4,1



Pin 1 :	Emitter
Pin 2 :	Base
Pin 3 :	Collector
Case :	Collector

Revised August 2012

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