

NPN SILICON HIGH FREQUENCY TRANSISTOR

DESCRIPTION:

The **2N5109** is a High Frequency Transistor for General Purpose Amplifier Applications.

MAXIMUM RATINGS

I_C	400 mA
V_{CE}	20 V
P_{DISS}	1.0 W @ $T_A = 25^\circ C$ 2.5 W @ $T_C = 75^\circ C$

PACKAGE STYLE TO-39

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
ϕa	0.190	0.210	4.83	5.33
A	0.240	0.260	6.10	6.60
ϕb	0.016	0.021	0.406	0.533
ϕb_2	0.016	0.019	0.406	0.483
ϕD	0.350	0.370	8.89	9.40
ϕD_1	0.315	0.335	8.00	8.51
h	0.009	0.125	0.229	3.18
j	0.028	0.034	0.711	0.864
k	0.029	0.040	0.737	1.02
l	0.500		12.70	
l_1		0.050		1.27
l_2	0.250		6.35	
P	0.100		2.54	
Q				
a	45° NOMINAL			
β	90° NOMINAL			

1 = Emitter 2 = Base
3 = Collector

CHARACTERISTICS $T_A = 25^\circ C$

SYMBOL	TEST CONDITIONS		MINIMUM	TYPICAL	MAXIMUM	UNITS
BV_{CEO}	$I_C = 5.0 \text{ mA}$		20			V
BV_{CER}	$I_C = 5.0 \text{ mA}$	$R_{BE} = 10\Omega$	40			V
BV_{CBO}	$I_C = 100 \mu A$		40			V
I_{CEX}	$V_{CE} = 35 \text{ V}$ $V_{CE} = 15 \text{ V}$	$V_{BE} = -1.50 \text{ V}$ $V_{BE} = -1.50 \text{ V}$ $T_C = 150^\circ C$			5.0	mA
I_{CEO}	$V_{CE} = 15 \text{ V}$				20	μA
I_{EBO}	$V_{EB} = 3.0 \text{ V}$				100	μA
h_{FE}	$V_{CE} = 15 \text{ V}$ $V_{CE} = 5.0 \text{ V}$	$I_C = 50 \text{ mA}$ $I_C = 360 \text{ mA}$	40 5.0		220	---
$V_{CE(SAT)}$	$I_C = 100 \text{ mA}$	$I_B = 10 \text{ mA}$			0.5	V
f_t	$V_{CE} = 15 \text{ V}$	$I_C = 50 \text{ mA}$ $f = 200 \text{ MHz}$	1200			MHz
C_{OB}	$V_{CB} = 15 \text{ V}$ $f = 1.0 \text{ MHz}$				3.5	pF
N_F	$V_{CE} = 15 \text{ V}$ $I_C = 10 \text{ mA}$ $R_G = 50 \Omega$ $f = 200 \text{ MHz}$			3.0		dB
G_{ve}	$V_{CC} = 15 \text{ V}$ $I_C = 50 \text{ mA}$ $f = 50 \text{ to } 216 \text{ MHz}$		1.1			dB
P_{in}	$V_{CC} = 15 \text{ V}$ $I_C = 50 \text{ mA}$ $R_S = 50 \Omega$ $f = 200 \text{ MHz}$				0.1	W