

NPN SILICON HIGH FREQUENCY TRANSISTOR

DESCRIPTION:

The **2N5943** is a High Frequency Transistor for General Purpose Amplifier Applications.

MAXIMUM RATINGS

I_C	400 mA
V_{CE}	30 V
P_{DISS}	1.0 W @ $T_A = 25^\circ\text{C}$ 3.5 W @ $T_C = 25^\circ\text{C}$
T_J	-65°C to $+200^\circ\text{C}$
T_{STG}	-65°C to $+200^\circ\text{C}$
θ_{JC}	125 $^\circ\text{C/W}$

PACKAGE STYLE TO-39

DIMENSIONS	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
l	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 $T_C = 25^\circ\text{C}$

SYMBOL	TEST CONDITIONS			MINIMUM	TYPICAL	MAXIMUM	UNITS
BV_{CEO}	$I_C = 5.0$ mA			30			V
BV_{CBO}	$I_C = 100$ μA			40			V
BV_{EBO}	$I_E = 100$ μA			3.5			V
I_{CEO}	$V_{CE} = 20$ V					50	μA
I_{CBO}	$V_{CB} = 15$ V					10	μA
h_{FE}	$V_{CE} = 15$ V	$I_C = 50$ mA		25		300	---
$V_{CE(SAT)}$	$I_C = 100$ mA		$I_B = 10$ mA			0.2	V
$V_{BE(SAT)}$	$I_C = 100$ mA		$I_B = 10$ mA			1.0	V
f_t	$V_{CE} = 15$ V	$I_C = 25$ mA	$f = 200$ MHz	1000		2400	MHz
		$I_C = 50$ mA	$f = 200$ MHz	120			
		$I_C = 100$ mA	$f = 200$ MHz	1000			
C_{cb}	$V_{CB} = 30$ V		$f = 100$ KHz	1.0		3.5	pF
C_{eb}	$V_{CB} = 0.5$ V		$f = 100$ KHz			15	pF
h_{fe}	$V_{CE} = 15$ V	$I_C = 50$ mA	$f = 1.0$ KHz	25		350	---
$r_{b'c}$	$V_{CE} = 15$ V	$I_C = 50$ mA	$f = 31.8$ MHz	2.0		20	pS
N_F	$V_{CE} = 15$ V	$I_C = 50$ mA	$f = 200$ MHz			8.0	dB
G_{pe}	$V_{CC} = 15$ V	$I_C = 50$ mA	$f = 200$ MHz	7.0			dB
I_M	$V_{CC} = 15$ V	$I_C = 50$ mA	$V_{out} = +50$ dbmV			-50	dB
X_M	$V_{CC} = 15$ V	$I_C = 50$ mA	$V_{out} = +50$ dbmV			-45	dB