

NPN Epitaxial Silicon Transistors

Features

- Application for Amplifier Circuit, Switching Circuit, Inverter
- RoHS Compliant



Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	Value	Unit	Conditions
V_{CEO}	Collector-Base Voltage	25	V	Open Emitter
V_{CBO}	Collector-Emitter Voltage	30	V	Open Base
V_{EBO}	Emitter-Base Voltage	4.5	V	Open Collector
I_C	Collector Current - Continuous	50	mA	
P_D	Collector Power Dissipation	625	mW	
		5.0	mW/ $^{\circ}C$	Derating above 25 $^{\circ}C$
T_J, T_{STG}	Operating Junction and Storage	-55 to 150	$^{\circ}C$	

Thermal Characteristics

Symbol	Description	Value	Unit
$R_{th(j-a)}$	Thermal Resistance from Junction to Amber	357	$^{\circ}C/W$
$R_{th(j-c)}$	Thermal Resistance from Junction to Case	125	$^{\circ}C/W$

NPN Small Signal General Purpose Transistors

2N5089

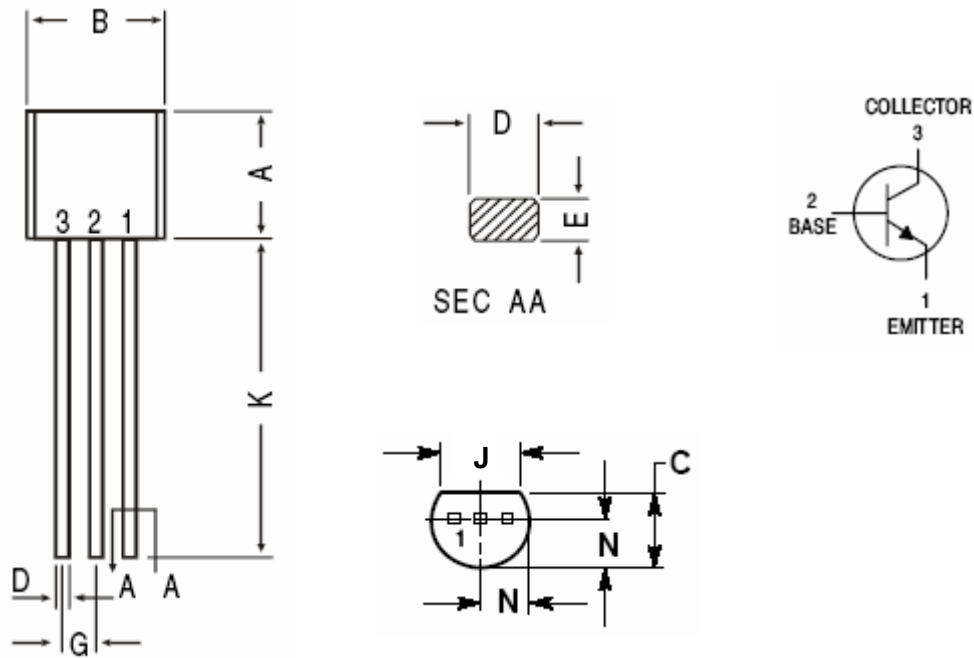
Electrical Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Symbol	Description	MIN	MAX	Unit	Conditions
V (BR)CEO	Collector-Base Breakdown Voltage	25	--	V	Open Emitter
V (BR) CBO	Collector-Emitter Breakdown Voltage	30	--	V	Open Base
IcBO	Collector Cut-Off Current	--	50	nA	IE = 0; VCB =20V
IEBO	Emitter Cut-Off Current	--	100	nA	IC = 0; VEB = 4.5 V
hFE	DC Current Gain	400	1200		IC = 100 μA ; VCE = 5 V
		450	--		IC = 1 mA; VCE = 5 V
		400	--		IC = 10 mA; VCE = 5 V
VCE(sat)	Collector-Emitter Saturation Voltage	--	0.5	V	IC = 10 mA; IB =1mA
VBE(on)	Base-Emitter On Voltage		0.8	V	IC = 10 mA; VCE =5V
fT	transition frequency	50	--	MHz	IC = 500 μA ; VCE = 5 V; f = 20 MHz
Cc	Collector-Base Capacitance	--	4.0	pF	IE= 0; VCB =5V; f=100KHz
Ce	Emmitter-Base Capacitance	--	10	pF	IC= 0; VCB =5V; f=100KHz
hfe	Small-Signal Current Gain	450	1800		IC = 1.0 mA, VCE = 5 V, f = 1.0 kHz
NF	Noise Figure	--	2.0	dB	IC = 100 μA , VCE = 5.0 V, RS=10 k Ω , f=10 Hz to 15.7 Hz

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Package Dimensions



DIM	INCHS		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.170	0.210	4.32	5.33
B	0.175	0.205	4.45	5.20
C	0.125	0.165	3.18	4.19
D	0.017	0.023	0.41	0.55
E	0.014	0.020	0.35	0.5
G	0.045	0.055	1.14	1.4
J	0.135	--	3.43	--
K	0.500	--	12.70	--
N	0.080	0.105	2.04	2.66

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