

2N2904

- Low Power
- Hermetic TO-39 Metal package.
- Ideally suited for High Speed Switching and General Purpose Applications
- Screening Options Available

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

V _{CB0}	Collector – Base Voltage	-60V
V _{CEO}	Collector – Emitter Voltage	-40V
V _{EBO}	Emitter – Base Voltage	-5V
I _C	Continuous Collector Current	-600mA
P _D	Total Power Dissipation at T _A = 25°C	600mW
	Derate Above 25°C	3.43mW/°C
P _D	Total Power Dissipation at T _C = 25°C	3W
	Derate Above 25°C	17.2mW/°C
T _J	Junction Temperature Range	-65 to +200°C
T _{stg}	Storage Temperature Range	-65 to +200°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
V _{(BR)CEO} ⁽¹⁾	Collector-Emitter Breakdown Voltage	I _C = -10mA I _B = 0	-40			V
V _{(BR)CBO}	Collector-Base Breakdown Voltage	I _C = -10μA I _E = 0	-60			
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E = -10μA I _C = 0	-5			
I _{CEX}	Collector Cut-Off Current	V _{CE} = -30V V _{BE} = -0.5V			-50	nA
I _{CBO}	Collector Cut-Off Current	V _{CB} = -50V I _E = 0 T _A = 150°C			-0.02 -20	μA
V _{CE(sat)} ⁽¹⁾	Collector-Emitter Saturation Voltage	I _C = -150mA I _B = -15mA I _C = -500mA I _B = -50mA			-0.4 -1.6	V
V _{BE(sat)} ⁽¹⁾	Base-Emitter Saturation Voltage	I _C = -150mA I _B = -15mA I _C = -500mA I _B = -50mA			-1.3 -2.6	
h _{FE} ⁽¹⁾	Forward-current transfer ratio	I _C = -0.1mA V _{CE} = -10V I _C = -1.0mA V _{CE} = -10V I _C = -10mA V _{CE} = -10V I _C = -150mA V _{CE} = -10V I _C = -500mA V _{CE} = -10V	20 25 35 40 20			120

DYNAMIC CHARACTERISTICS

f _T	Transition Frequency	I _C = -50mA V _{CE} = -20V f = 100MHz	170			MHz
C _{obo}	Output Capacitance	V _{CB} = -10V I _E = 0 f = 1.0MHz			8	pF
C _{ibo}	Input Capacitance	V _{EB} = -2V I _C = 0 f = 1.0MHz			30	
t _{on}	Turn-On Time	I _C = -150mA V _{CC} = -30V I _{B1} = -15mA			45	ns
t _{off}	Turn-Off Time	I _C = -150mA V _{CC} = -30V I _{B1} = -I _{B2} = -15mA			300	