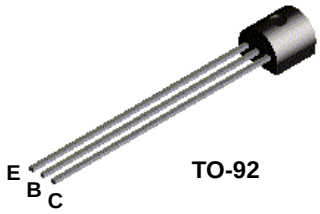
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

TIS98



TO-92

NPN General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 10. See PN100 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	80	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		TIS98	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	60		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 40 V, I_E = 0 V_{CB} = 80 V, I_E = 0		10 10	nA µA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 6.0 V, I_C = 0		20	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 5.0 V, I_C = 1.0 mA	100	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 0.1 mA I_C = 100 mA, I_B = 5.0 mA		1.0 0.5	V V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 1.0 mA, V_{CE} = 5.0 V	0.5	0.7	V
SMALL SIGNAL CHARACTERISTICS					
C_{cb}	Collector-Base Capacitance	V_{CB} = 5.0 V, f = 1.0 MHz	1.0	4.0	pF
C_{eb}	Emitter-Base Capacitance	V_{EB} = 0.5 V, f = 1.0 MHz		16	pF
h_{fe}	Small-Signal Current Gain	I_C = 1.0 mA, V_{CE} = 5.0 V, f = 1.0 kHz I_C = 10 mA, V_{CE} = 5.0 V, f = 100 MHz	100 2.0	400	
y_{fe}	Forward Trans-conductance	I_C = 1.0 mA, V_{CE} = 5.0 V, f = 100 MHz	30		mmhos

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%