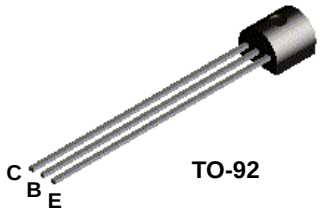
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

MPSL51



TO-92

PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring high voltages. Sourced from Process 74. See 2N5401 for characteristics.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	100	V
V_{CBO}	Collector-Base Voltage	100	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector Current - Continuous	200	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
		MPSL51	
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

PNP General Purpose Amplifier
(continued)

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 = 1.0 mA, I_B = 0	100		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	100		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	4.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 50 V, I_E = 0		1.0	µA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 3.0 V, I_C = 0		100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 5.0 V, I_C = 50 mA	40	250	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 1.0 mA I_C = 50 mA, I_B = 5.0 mA		0.25 0.3	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 10 mA, I_B = 1.0 mA I_C = 50 mA, I_B = 5.0 mA		1.2 1.2	V V
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	Output Capacitance	V_{CB} = 10 V, f = 1.0 MHz		8.0	pF
h_{fe}	Small-Signal Current Gain	I_C = 1.0 mA, V_{CE} = 10 V, f = 1.0 kHz	20		
f_T	Current Gain - Bandwidth Product	V_{CE} = 10 V, I_C = 10 mA,	60		MHz

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