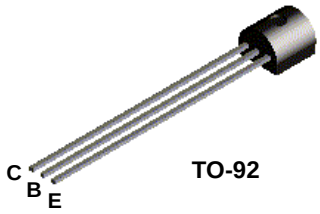
FAIRCHILD SEMICONDUCTOR™

Discrete POWER & Signal Technologies

MPS6531



TO-92

NPN General Purpose Amplifier

This device is designed for use as a medium power amplifier and switch requiring collector currents to 500 mA. Sourced from Process 19. See PN2222A for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	1.0	A
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
		MPS6531	
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

NPN 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 = 10 mA, I_B = 0	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 40 V, I_E = 0 V_{CB} = 40 V, I_E = 0, T_A = 60 °C		50 2.0	nA µA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 1.0 V, I_C = 10 mA V_{CE} = 1.0 V, I_C = 100 mA V_{CE} = 10 V, I_C = 500 mA	60 90 50	 270 	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 100 mA, I_B = 10 mA		0.3	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 100 mA, I_B = 10 mA		1.0	V
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	Output Capacitance	V_{CB} = 10 V, f = 100 kHz		5.0	pF

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