

MPSL51



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
Ic	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.

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	Characteristic Max	
		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 CHA	RACTERISTICS						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	100		V		
V _{(BR)CBO}	Collector-Base Breakdown Voltage	$I_C = 100 \mu A, I_E = 0$	100		V		
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	4.0		V		
I _{CBO}	Collector Cutoff Current	$V_{CB} = 50 \text{ V}, I_{E} = 0$		1.0	μΑ		
I _{EBO}	Emitter Cutoff Current	$V_{EB} = 3.0 \text{ V}, I_{C} = 0$		100	nA		
h _{FE}	RACTERISTICS* DC Current Gain	$V_{CE} = 5.0 \text{ V}, I_{C} = 50 \text{ mA}$	40	250			
V _{CE(sat)}	Collector-Emitter Saturation Voltage	$V_{CE} = 5.0 \text{ V}, I_{C} = 50 \text{ mA}$ $I_{C} = 10 \text{ mA}, I_{B} = 1.0 \text{ mA}$	40	0.25	V		
		$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.3	V		
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		1.2 1.2	V		
SMALL S	IGNAL CHARACTERISTICS						
C _{ob}	Output Capacitance	V _{CB} = 10 V, f = 1.0 MHz		8.0	pF		
h _{fe}	Small-Signal Current Gain	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V},$ f = 1.0 kHz	20				
f _T	Current Gain - Bandwidth Product	$V_{CE} = 10 \text{ V}, I_{C} = 10 \text{ mA},$	60		MHz		

^{*}Pulse Test: Pulse Width $\leq 300~\mu s$, Duty Cycle $\leq 2.0\%$