FAIRCHILD SEMICONDUCTOR®

February 2009

MPSA20

NPN General Purpose Amplifier

Features

- BVceo .....40V(Min)
- hFE ..... 40~400 @ Vce=10V, Ic=5mA
- Pb free
- Sourced from process 10

1. Emitter 2. Base 3. Collector

Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current	100	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 ~ 150	°C

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

Thermal Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Max	Unit
P_C	Collector Power Dissipation, by $R_{\theta JA}$	625	mW
$R_{\theta Jc}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

* 2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. These ratings are based on a maximum junction temperature of 150 degrees C.
4. Device mounted on FR-4 PCB 36mm * 1.5mm: Mounting pad for the collector lead min.6cm.

Electrical Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 1mA, I_B = 0	40		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100μA, I_C = 0	4		V
I_{CBO}	Collector Cut-off Current	V_{CB}= 30V		100	nA
h_{FE}	DC Current Gain	V_{CE} = 10V, I_C = 5mA	40	400	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C = 10mA, I_B = 1mA		0.25	V
V_{BE} (on)	Base-Emitter On Voltage	V_{CE} = -10V, I_C = -10mA	-0.5	-1.2	V
C_{cb}	Output Capacitance	V_{CB} = 10V, f = 100kHz		4.0	pF
f_T	Current Gain Bandwithd Product	V_{CE}= 10V, I_C = 5mA, f = 100MHz	125		Mhz

* DC Item are tested by Pulse Test : Pulse Width≤300us, Duty Cycle≤2%

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