

SEMICONDUCTOR®

MPSA20

NPN General Purpose Amplifier

Sourced from process 10



1. Emitter 2. Base 3. Collector

Absolute Maximum Ratings* $T_{A}\text{=}25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter		Value	Units
V _{CEO}	Collector-Emitter Voltage		40	V
V _{EBO}	Emitter-Base Voltage		4	V
С	Collector current	- Continuous	100	mA
Γ _J , T _{sta}	Operating and Storage Junction Temperature		-55 ~ +150	°C

NOTES:
1) These ratings are based on 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.

Electrical Characteristics TA=25°C unless otherwise noted

						-
Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Units
Off Character	eristics					
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	$I_{\rm C} = 1 {\rm mA}, I_{\rm B} = 0$	40			V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	$I_{\rm C} = 100 \mu {\rm A}, I_{\rm C} = 0$	4			V
I _{CBO}	Collector Cutoff Current	$V_{CB} = 30V, I_E = 0$			100	nA
On Characte	eristics			•		
h _{FE}	DC Current Gain	I _C = 5mA, V _{CE} = 10V	40		400	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 10mA, I _B = 1mA			0.25	V
Small Signa	I Characteristics			•		
f _T	Current Gain Bandwidth Product	$I_{C} = 5mA, V_{CE} = 10V,$ f = 100MHz	125			MHz
C _{ob}	Output Capacitance	$V_{CB} = 10V, I_E = 0,$ f=100KHZ			4.0	pF

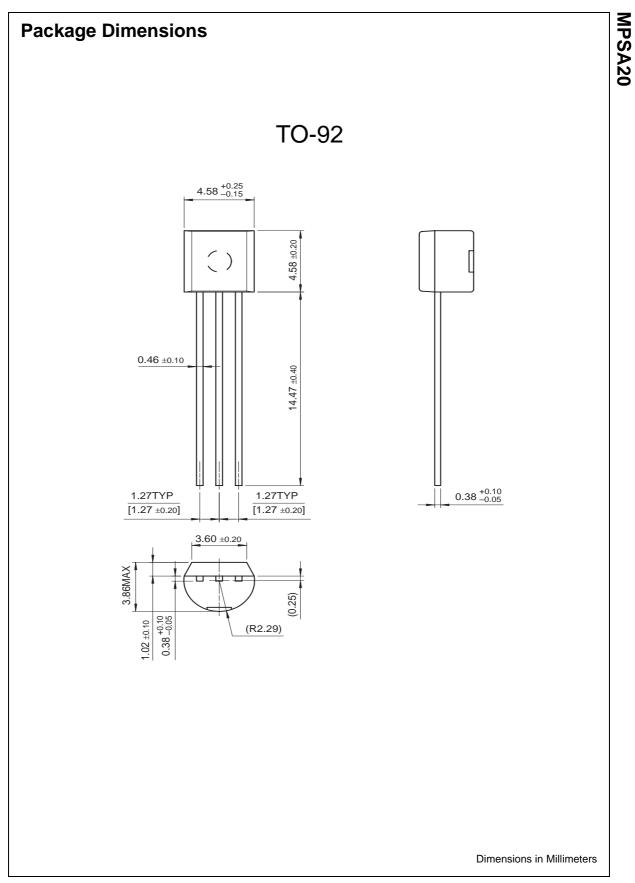
Thermal Characteristics $T_A=25$ °C unless otherwise noted

Symbol	Parameter	Value	Units
PD	Total Device Dissipation	625	mW
_	Derate above 25°C	5.0	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
R_{\thetaJA}	Thermal Resistance, Junction to Ambient	200	°C/W

* Device mounted on FR-4 PCB 36mm × 18mm × 1.5mm: mounting pad for the collector lead min. 6cm.

MPSA20

©2002 Fairchild Semiconductor Corporation



©2002 Fairchild Semiconductor Corporation

Rev. A, Oct 2005

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx [™] ActiveArray [™] Bottomless [™] Build it Now [™] CoolFET [™] <i>CROSSVOLT</i> [™] DOME [™] EcoSPARK [™] E ² CMOS [™] EnSigna [™] FACT [™]	FAST [®] FASTr [™] FPS [™] FRFET [™] GlobalOptoisolator [™] GTO [™] HiSeC [™] I ² C [™] <i>i</i> -Lo [™] ImpliedDisconnect [™] IntelliMAX [™]	ISOPLANAR [™] LittleFET [™] MICROCOUPLER [™] MicroPak [™] MICROWIRE [™] MSX [™] MSXPro [™] OCX [™] OCX [™] OCXPro [™] OPTOLOGIC [®]	PowerSaver TM PowerTrench [®] QFET [®] QS TM QT Optoelectronics TM Quiet Series TM RapidConfigure TM RapidConnect TM μ SerDes TM SILENT SWITCHER [®] SMART START TM	SuperSOT [™] -8 SyncFET [™] TinyLogic [®] TINYOPTO [™] TruTranslation [™] UHC [™] UhtraFET [®] UniFET [™] VCX [™] Wire [™]
FACT Quiet Serie		OPTOPLANAR™	SPM™	
Across the board. Around the world.™ The Power Franchise [®] Programmable Active Droop™		PACMAN™ POP™ Power247™ PowerEdge™	Stealth™ SuperFET™ SuperSOT™-3 SuperSOT™-6	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user. 2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.
		Rev. I16