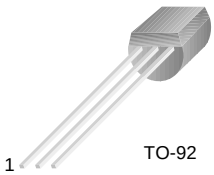
FAIRCHILD
SEMICONDUCTOR®

MPSA05/MMBTA05

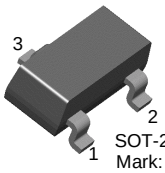
NPN General Purpose Amplifier

- This device is designed for general purpose amplifier applications at collector currents to 300mA.
- Sourced from process 10.



TO-92

1. Emitter 2. Base 3. Collector



SOT-23
Mark: 1H

1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector current - Continuous	500	mA
T_J, T_{stg}	Junction and Storage Temperature	-55 ~ +150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	I_C = 1mA, I_B = 0	60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_C = 100μA, I_C = 0	4			V
I_{CEO}	Collector Cutoff Current	V_{CE} = 60V, I_B = 0			0.1	μA
I_{CBO}	Emitter Cutoff Current	V_{CB} = 60V, I_E = 0			0.1	μA
On Characteristics						
h_{FE}	DC Current Gain	I_C = 10mA, V_{CE} = 1.0V I_C = 100mA, V_{CE} = 1.0V	100 100			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 100mA, I_B = 10mA			0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 100mA, V_{CE} = 1.0V			1.2	V
Small Signal Characteristics						
f_T	Current Gain Bandwidth Product	I_C = 10mA, V_{CE} = 2V, f = 100MHz	100			MHz

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

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.		Units
		MPSA05	*MMBTA05	
P_D	Total Device Dissipation Derate above 25°C	625 5	350 2.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	357	°C/W

* Device mounted on FR-4 PCB 1.6" × 0.06"

Package Dimensions

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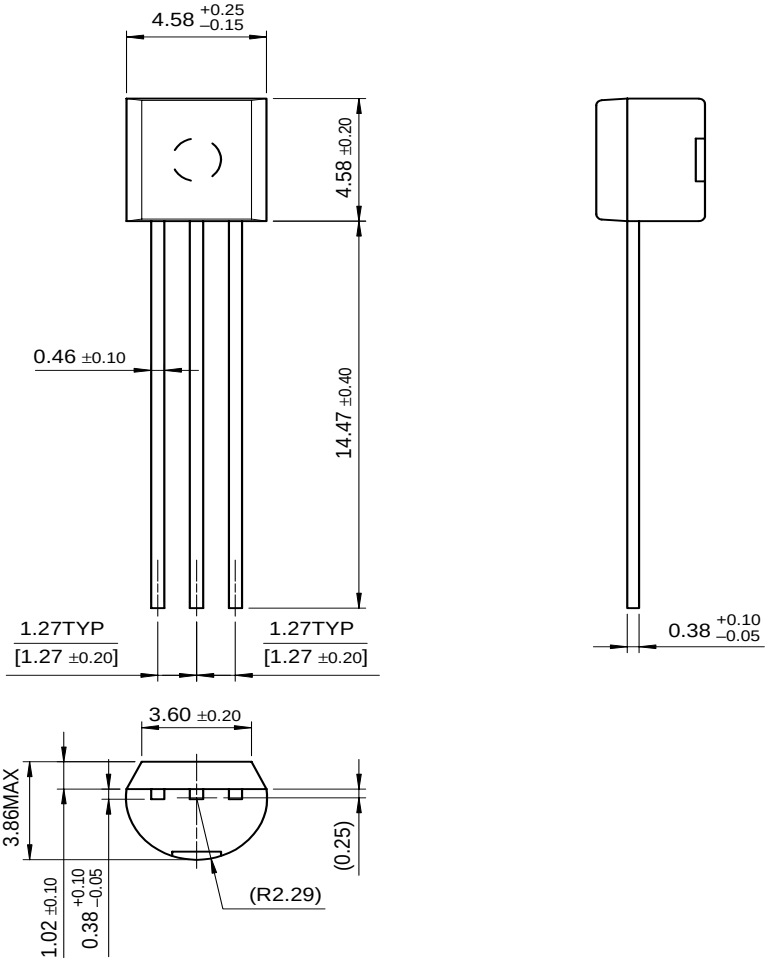
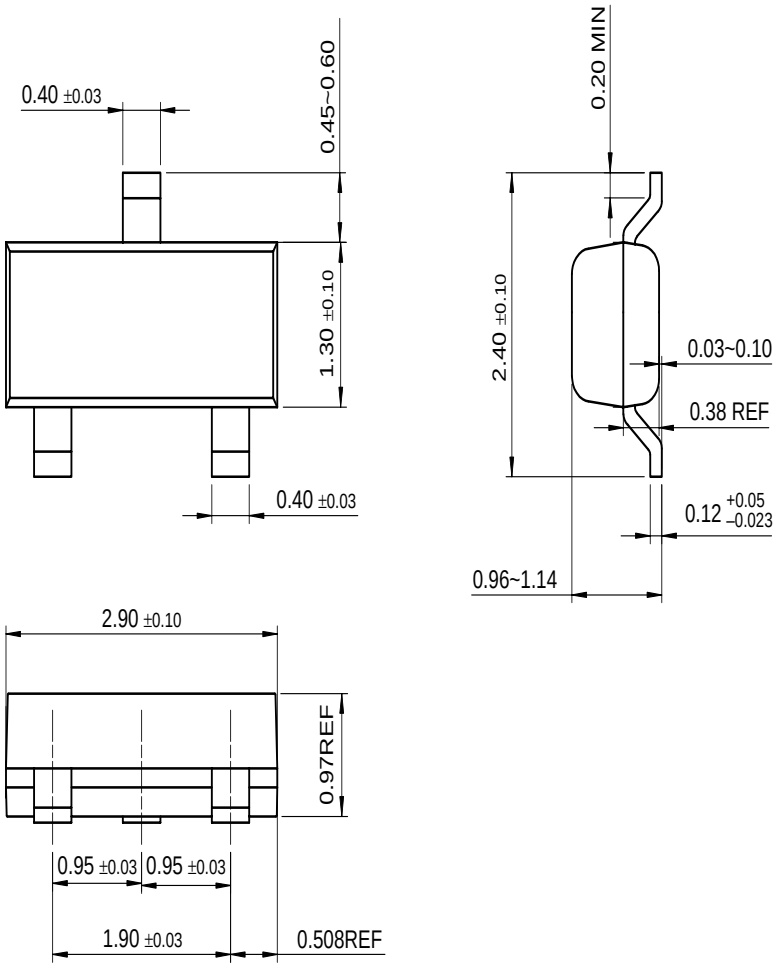


Dimensions in Millimeters

Package Dimensions (Continued)

SOT-23



Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E^2CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
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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.

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