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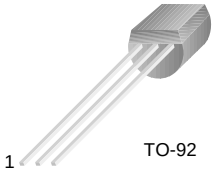
SEMICONDUCTOR®

MPSH24/MMBTH24

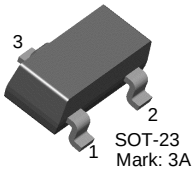
NPN General Purpose Amplifier

- This device is designed for common-emitter low noise amplifier and mixer applications with collector currents in the 100mA to 20mA range to 300MHz, and low frequency drift common-base VHF oscillator applications with high output levels for driving FET mixers.
- Sourced from process 47.
- See MPSH11 for characteristics.



TO-92

1. Base 2. Emitter 3. Collector



SOT-23
Mark: 3A

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	30	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector current - Continuous	50	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 Sustaining Voltage *	I_C = 1.0mA, I_B = 0	30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100μA, I_E = 0	40			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10μA, I_C = 0	4.0			VV
I_{CBO}	Collector Cutoff Current	V_{CB} = 15V, I_E = 0			50	nA
On Characteristics						
h_{FE}	DC Current Gain	I_C = 8.0mA, V_{CE} = 10V	30			
Small Signal Characteristics						
f_T	Current Gain Bandwidth Product	I_C = 8.0mA, V_{CE} = 10V, f = 100MHz	400			MHz
C_{cb}	Collector-Base Capacitance	V_{CB} = 10V, I_E = 0, f = 1.0MHz			0.36	pF

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

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.		Units
		MPSH24	*MMBTH24	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	225 1.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	556	°C/W

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

Package Dimensions

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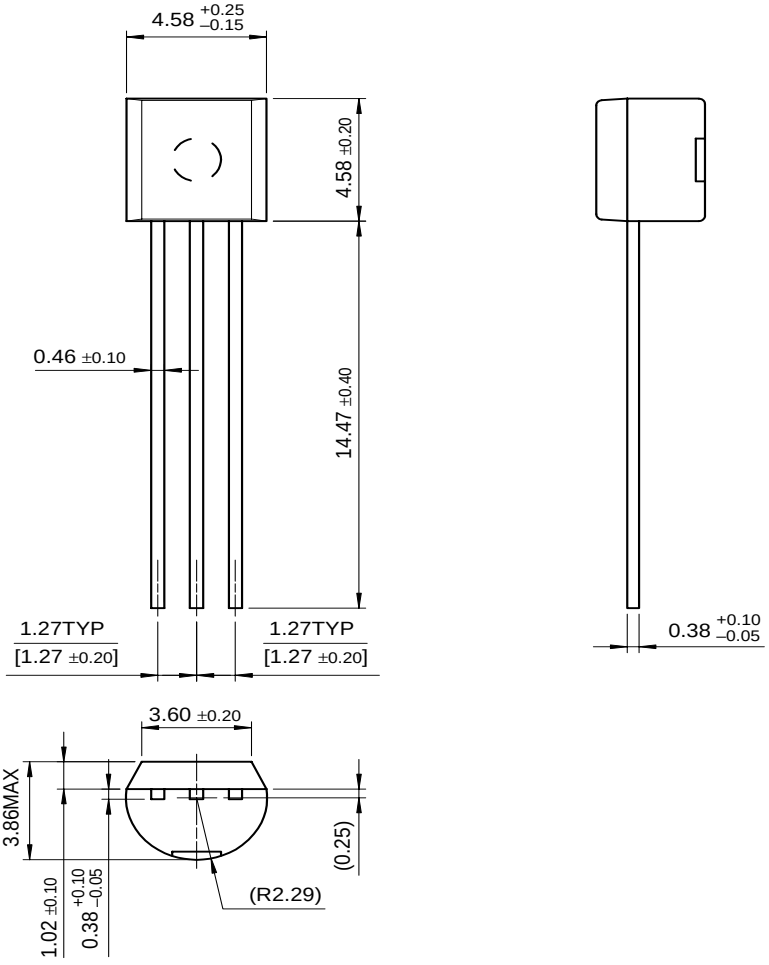
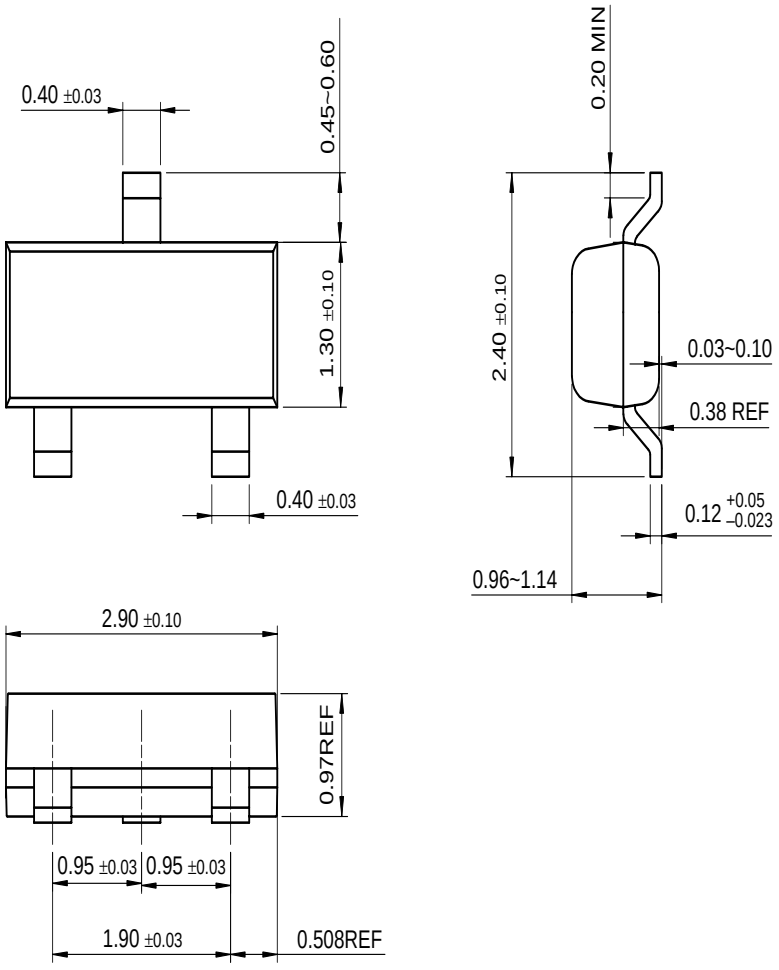


Dimensions in Millimeters

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™
EnSigna™	I^2C™	OCX™	RapidConfigure™	UHC™
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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Datasheet Identification	Product Status	Definition
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