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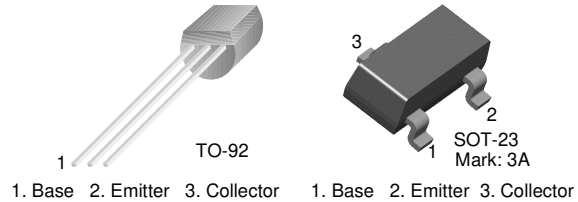
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## MPSH24/MMBTH24

### 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.



### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ 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	$^\circ\text{C}$

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage *	$I_C = 1.0\text{mA}, I_B = 0$	30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	40			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}, I_C = 0$	4.0			VV
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 15\text{V}, I_E = 0$			50	nA
<b>On Characteristics</b>						
$h_{FE}$	DC Current Gain	$I_C = 8.0\text{mA}, V_{CE} = 10\text{V}$	30			
<b>Small Signal Characteristics</b>						
$f_T$	Current Gain Bandwidth Product	$I_C = 8.0\text{mA}, V_{CE} = 10\text{V}, f = 100\text{MHz}$	400			MHz
$C_{cb}$	Collector-Base Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$			0.36	pF

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

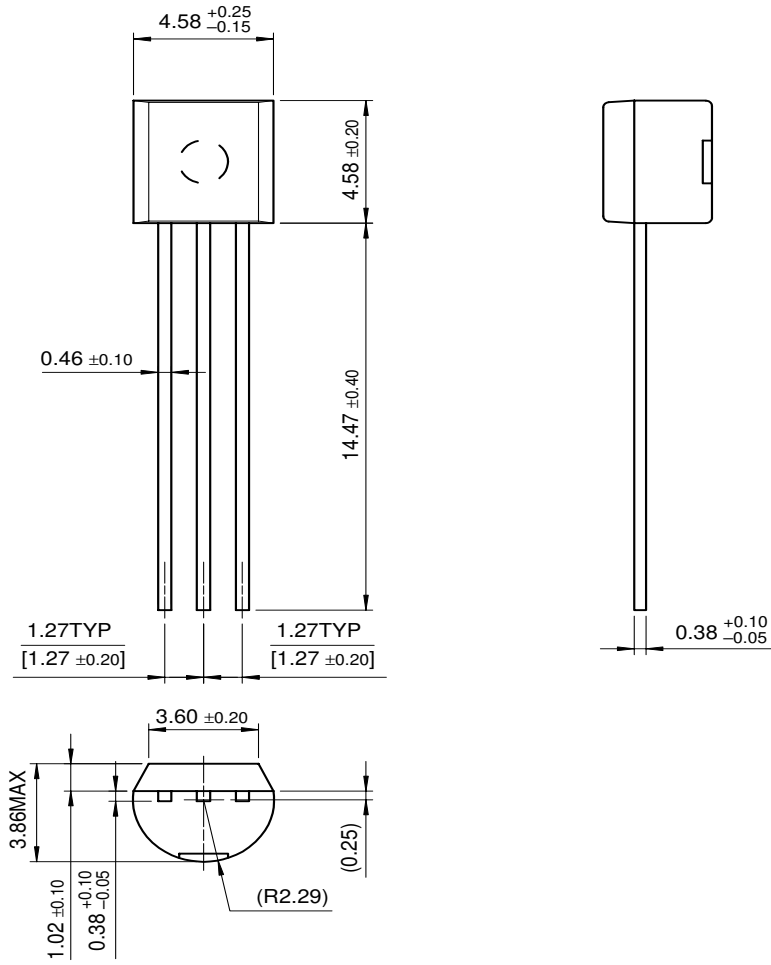
### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

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

\* Device mounted on FR-4 PCB  $1.6" \times 1.6" \times 0.06"$

# Package Dimensions

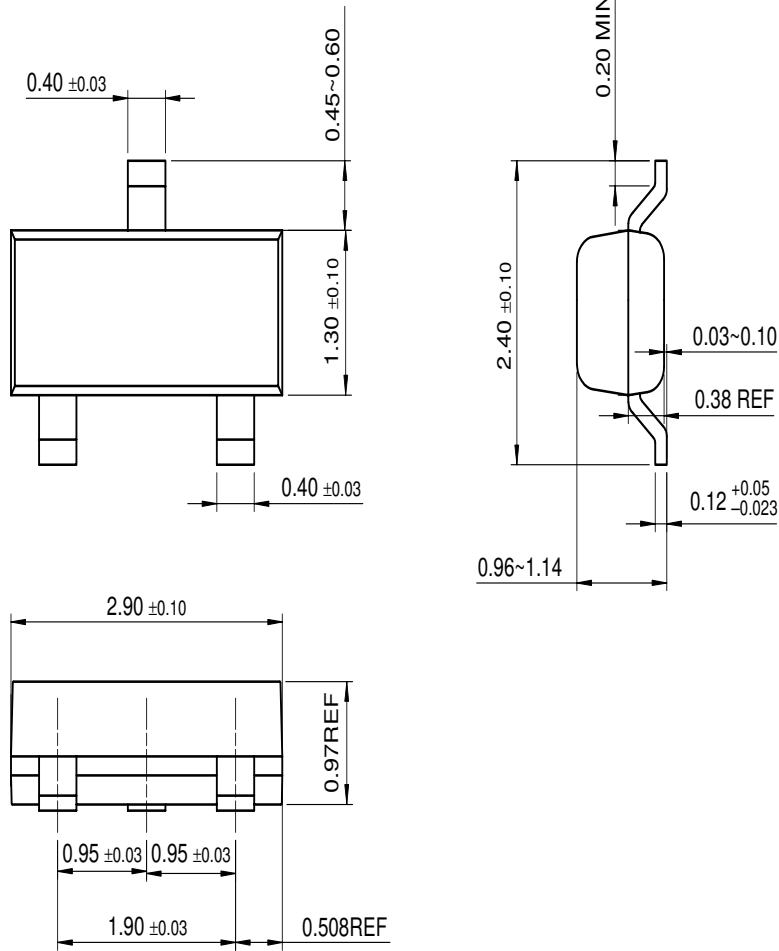
## TO-92



Dimensions in Millimeters

Package Dimensions (Continued)

SOT-23



Dimensions in Millimeters



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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.
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