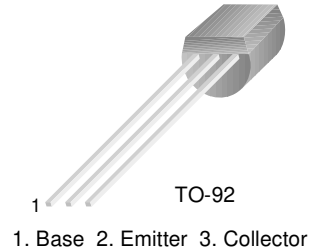


# MPSH34

## 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 $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	40	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 $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
<b>Off Characteristics</b>					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage *	$I_C = 1.0\text{mA}, I_B = 0$	40		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	$V_{CB} = 30\text{V}, I_E = 0$		50	nA
<b>On Characteristics</b>					
$h_{FE}$	DC Current Gain	$V_{CE} = 2.0\text{V}, I_C = 20\text{mA}$ $V_{CE} = 15\text{V}, I_C = 7.0\text{mA}$	15 40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 7.0\text{mA}, I_B = 2.0\text{mA}$		0.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 15\text{V}, I_C = 7.0\text{mA}$		0.95	V
<b>Small Signal Characteristics</b>					
$f_T$	Current Gain Bandwidth Product	$I_C = 15\text{mA}, V_{CE} = 15\text{V},$ $f = 100\text{MHz}$	500		MHz
$C_{cb}$	Collector-Base Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$		0.32	pF

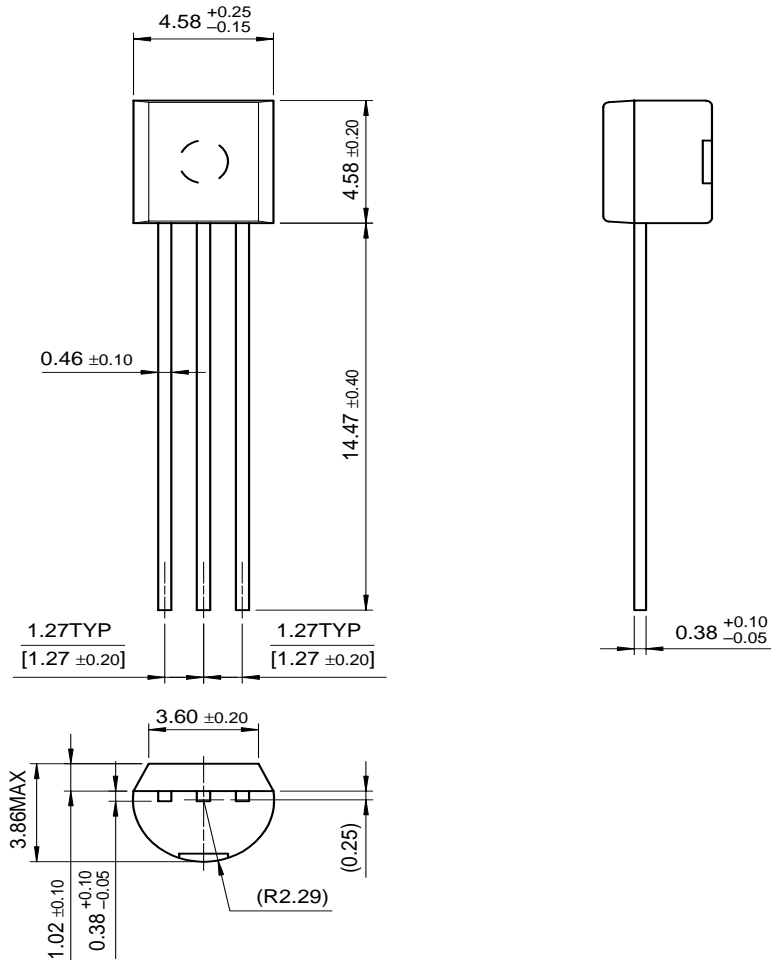
\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

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

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation Derate above $25^\circ\text{C}$	625 5.0	mW 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	$^\circ\text{C}/\text{W}$

# Package Dimensions

## TO-92



Dimensions in Millimeters

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