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[Fairchild Semiconductor](#)
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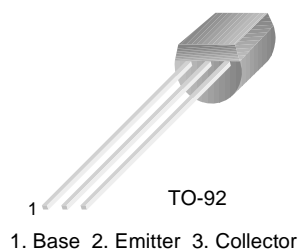
sales@integrated-circuit.com



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
Off Characteristics					
$V_{(BR)CEO}$	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
$V_{(BR)EBO}$	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
On Characteristics					
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
Small Signal Characteristics					
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

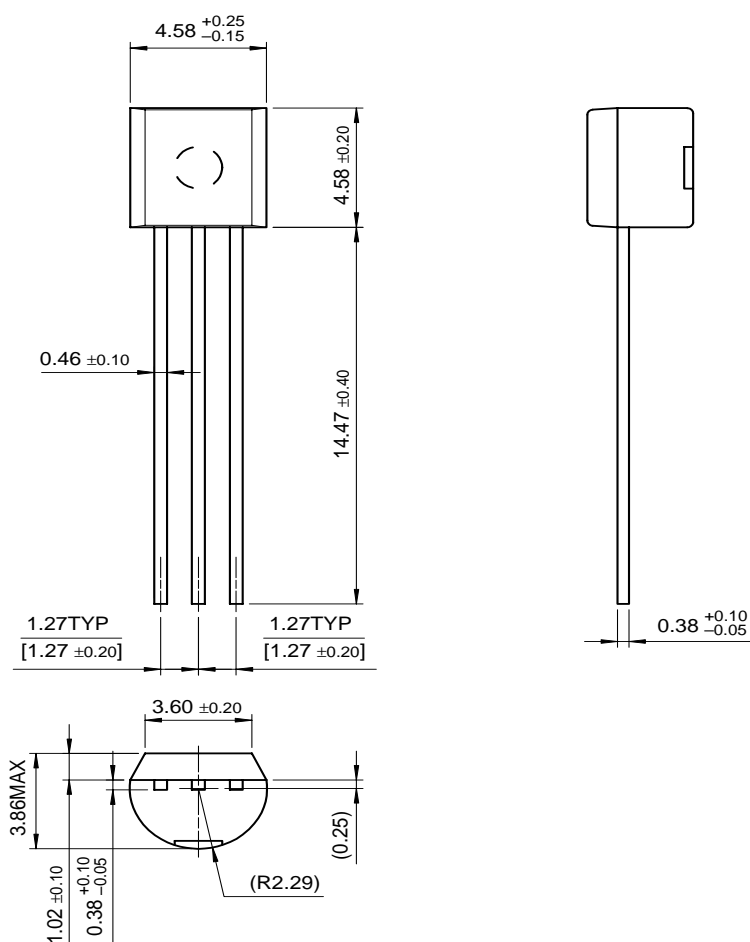
* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

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

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

Package Dimensions

TO-92



Dimensions in Millimeters

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