## FAIRCHILD
SEMICONDUCTOR®

MMBTH34

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.
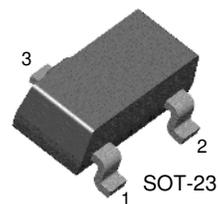
SOT-23
Mark: 3K
1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	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	°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} = 30V, I_E = 0			50	nA
On Characteristics						
h_{FE}	DC Current Gain	I_C = 20mA, V_{CE} = 2V	15			
Small Signal Characteristics						
f_T	Current Gain Bandwidth Product	I_C = 15mA, V_{CE} = 10V, f = 100MHz	500			MHz

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

Thermal Characteristics T_A=25°C unless otherwise noted

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

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

Package Dimensions

SOT-23

0.0750±0.0050 [1.91±0.13]

0.0510±0.0040 [1.30±0.10]

3

$0.0910^{+0.0070}_{-0.0080}$ [$2.31^{+0.18}_{-0.20}$]

1

2

$\begin{bmatrix} 0.0240 \\ 0.0180 \end{bmatrix}$ [$\begin{bmatrix} 0.61 \\ 0.46 \end{bmatrix}$]

0.0160±0.0025 [0.41±0.06]TYP.

0.0375±0.0025 [0.95±0.06]

PKG
C

0.0300 [0.76]

0.0900 [2.29]

0.0300 [0.76]

0.0375 [0.95]
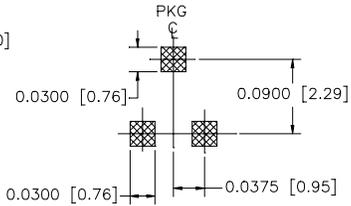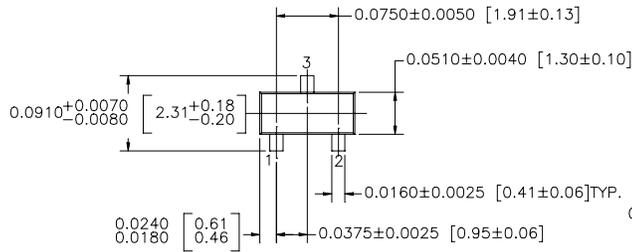
LAND PATTERN RECOMMENDATION

$\begin{bmatrix} 0.0430 \\ 0.0350 \end{bmatrix}$ [$\begin{bmatrix} 1.09 \\ 0.89 \end{bmatrix}$]

0.1150±0.0050 [2.92±0.13]

0.0365 [0.93]

0.0050±0.0020 [0.13±0.05]TYP.

$\begin{bmatrix} 0.0040 \\ 0.0005 \end{bmatrix}$ [$\begin{bmatrix} 0.10 \\ 0.01 \end{bmatrix}$]TYP.

$0.0200^{+0.0040}_{-0.0020}$ [$0.51^{+0.10}_{-0.05}$]TYP.

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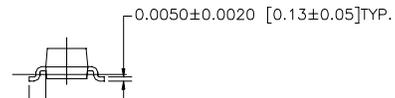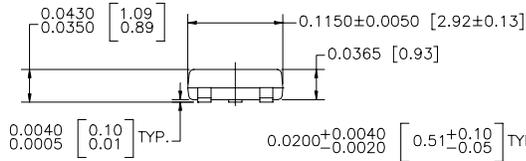
SOT 23, 3 LEADS LOW PROFILE

NOTE : UNLESS OTHERWISE SPECIFIED
1. STANDARD LEAD FINISH 150 MICROINCHES / 3.81 MICROMETERS
    MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42

2. REFERENCE JEDEC REGISTRATION TO−236, VARIATION AB, ISSUE G, DATED JUL 1993

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®
E²CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I²C™	OCX™	RapidConfigure™	UHC™
Across the board. Around the world.™		OCXPro™	RapidConnect™	UltraFET®
The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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