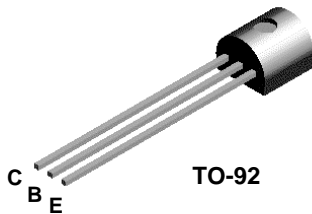
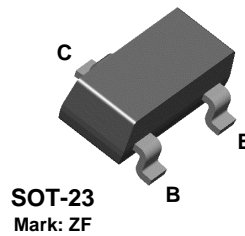


## 2N4126



## MMBT4126



### PNP General Purpose Amplifier

This device is designed for general purpose amplifier and switching applications at collector currents to 10  $\mu$ A as a switch and to 100 mA as an amplifier.

#### Absolute Maximum Ratings\* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{CBO}$	Collector-Base Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Collector Current - Continuous	200	mA
$T_J, T_{stg}$	Operating and Storage Junction Temperature Range	-55 to +150	°C

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- 3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

#### Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		2N4126	*MMBT4126	
$P_D$	Total Device Dissipation	625	350	mW
	Derate above 25°C	5.0	2.8	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	357	°C/W

\*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

## PNP General Purpose Amplifier

(continued)

2N4126 / MMBT4126

### Electrical Characteristics TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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#### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 1.0 \text{ mA}, I_B = 0$	25		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}, I_E = 0$	25		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}, I_C = 0$	4.0		V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 20 \text{ V}, I_E = 0$		50	nA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 3.0 \text{ V}, I_C = 0$		50	nA

#### ON CHARACTERISTICS\*

$h_{FE}$	DC Current Gain	$I_C = 2.0 \text{ mA}, V_{CE} = 1.0 \text{ V}$ $I_C = 50 \text{ mA}, V_{CE} = 1.0 \text{ V}$	120 60	360	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.95	V

#### SMALL SIGNAL CHARACTERISTICS

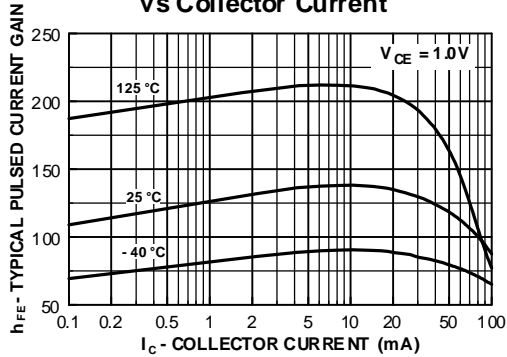
$f_T$	Current Gain - Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 20 \text{ V},$ $f = 100 \text{ MHz}$	250		MHz
$C_{ibo}$	Input Capacitance	$V_{EB} = 0.5 \text{ V}, I_C = 0,$ $f = 1.0 \text{ MHz}$		10	pF
$C_{cb}$	Collector-Base Capacitance	$V_{CB} = 5.0 \text{ V}, I_E = 0,$ $f = 100 \text{ kHz}$		4.5	pF
$h_{fe}$	Small-Signal Current Gain	$I_C = 2.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 1.0 \text{ kHz}$	120	480	
NF	Noise Figure	$I_C = 100 \text{ } \mu\text{A}, V_{CE} = 5.0 \text{ V},$ $R_S = 1.0 \text{ k}\Omega, f = 10 \text{ Hz to } 15.7 \text{ kHz}$		4.0	dB

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

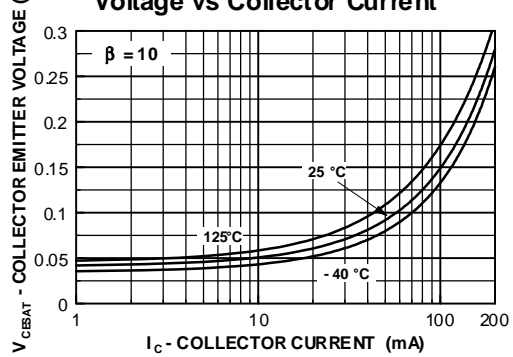
**NOTE:** All voltages (V) and currents (A) are negative polarity for PNP transistors.

Typical Characteristics

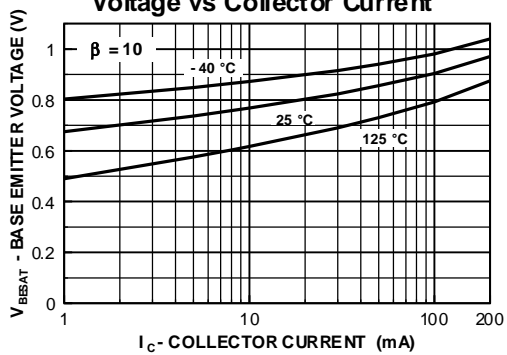
Typical Pulsed Current Gain vs Collector Current



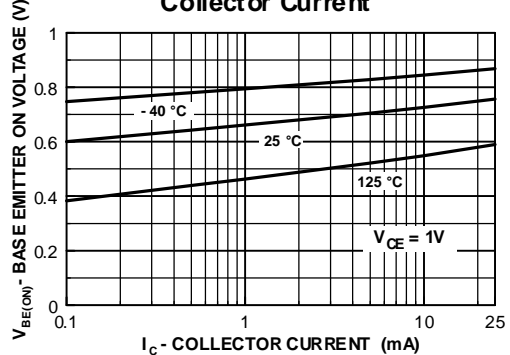
Collector-Emitter Saturation Voltage vs Collector Current



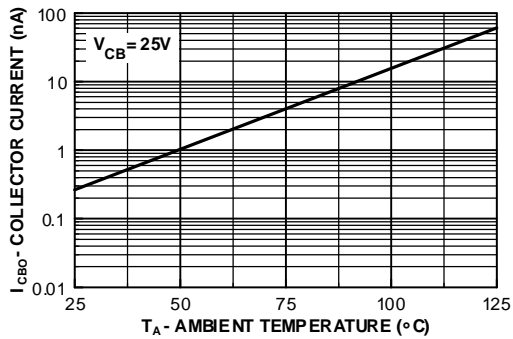
Base-Emitter Saturation Voltage vs Collector Current



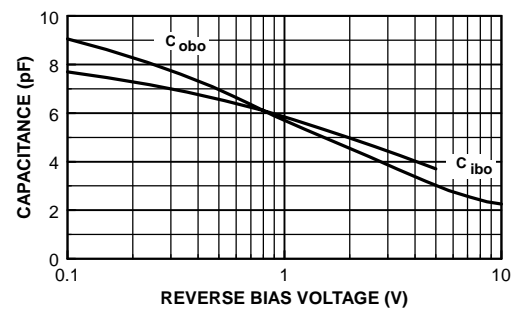
Base Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature



Common-Base Open Circuit Input and Output Capacitance vs Reverse Bias Voltage



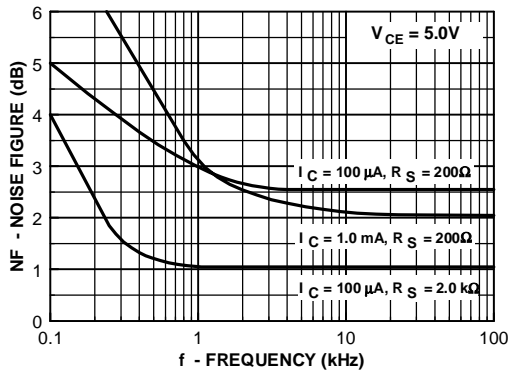
# PNP General Purpose Amplifier

(continued)

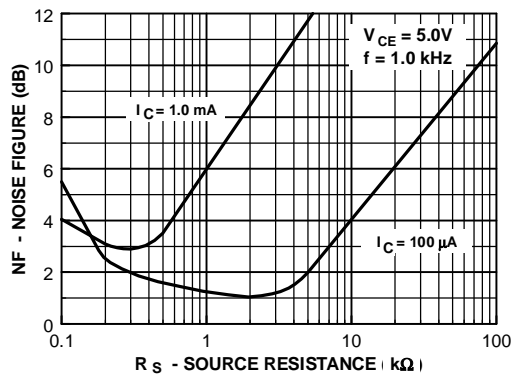
2N4126 / MMBT4126

## Typical Characteristics (continued)

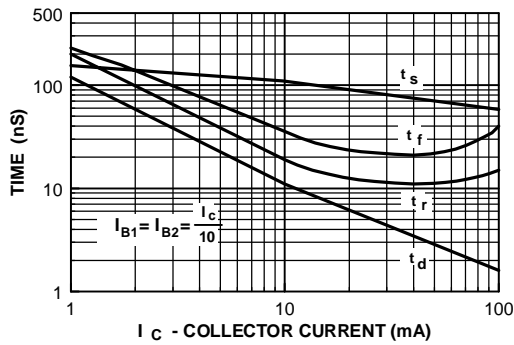
### Noise Figure vs Frequency



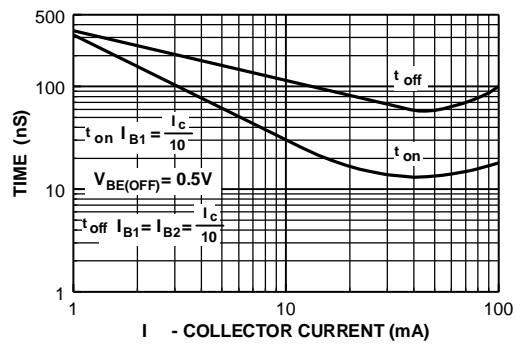
### Noise Figure vs Source Resistance



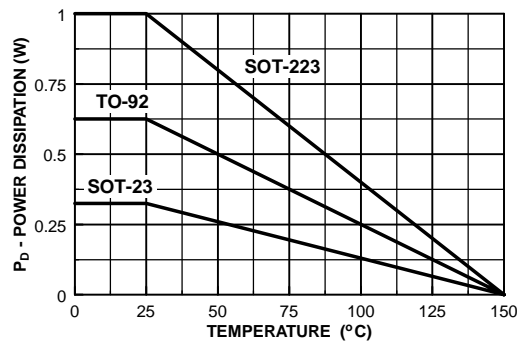
### Switching Times vs Collector Current



### Turn On and Turn Off Times vs Collector Current



### Power Dissipation vs Ambient Temperature



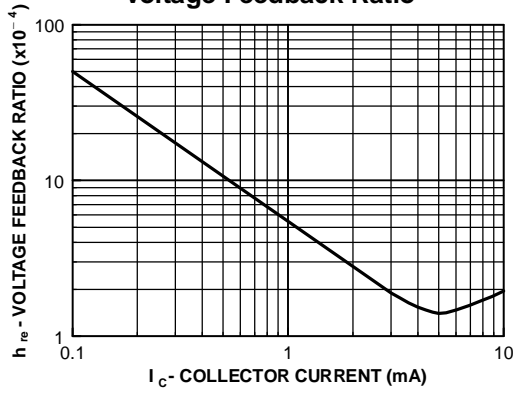
# PNP General Purpose Amplifier

(continued)

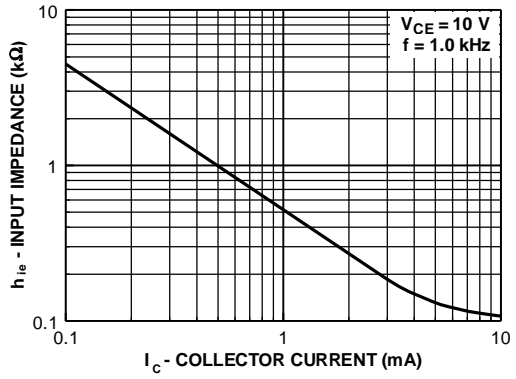
2N4126 / MMBT4126

## Typical Characteristics (continued)

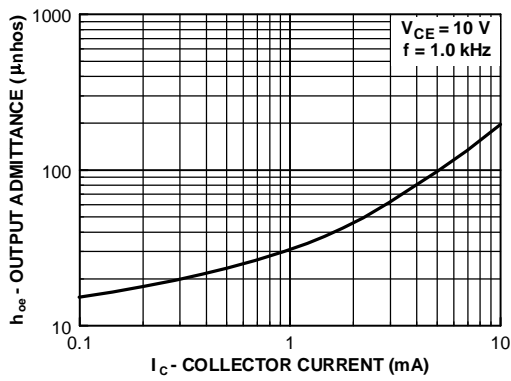
**Voltage Feedback Ratio**



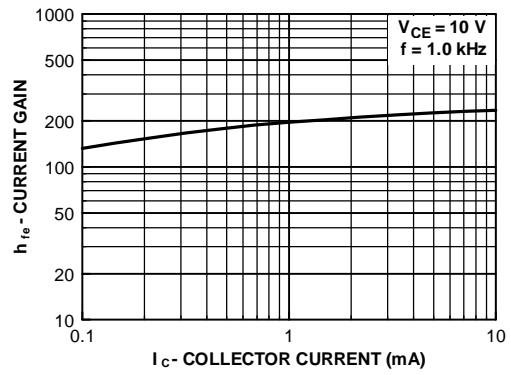
**Input Impedance**



**Output Admittance**



**Current Gain**



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Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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## 2N4126

PNP General Purpose Amplifier

### Contents

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• [Qualification Support](#)

### General description

This device is designed for general purpose amplifier and switch-ing applications at collector currents to 10  $\mu$ A as a switch and to 100 mA as an amplifier.

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### Product status/pricing/packageing

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### Datasheet

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Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
2N4126BU	Full Production	Full Production	\$0.025	<a href="#">TO-92</a>	3	BULK	Line 1: 2N Line 2: 4126 Line 3: -&3
2N4126TA	Full Production	Full Production	\$0.025	<a href="#">TO-92</a>	3	AMMO	Line 1: 2N Line 2: 4126 Line 3: -&3
2N4126TAR	Full Production	Full Production	\$0.025	<a href="#">TO-92</a>	3	AMMO	Line 1: 2N Line 2: 4126 Line 3: -&3
2N4126TF	Full Production		\$0.025	<a href="#">TO-92</a>	3	TAPE REEL	Line 1: 2N Line 2: 4126 Line 3: -&3

		 Full Production					
2N4126TFR	Full Production	 Full Production	\$0.025	<a href="#">TO-92</a>	3	TAPE REEL	Line 1: 2N Line 2: 4126 Line 3: -&3

\* Fairchild 1,000 piece Budgetary Pricing

\*\* A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

Package marking information for product 2N4126 is available. [Click here for more information](#).

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### Models

Package & leads	Condition	Temperature range	Software version	Revision date
<b>PSPICE</b>				
TO-92-3	<a href="#">Electrical</a>	25°C	N/A	N/A

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### Qualification Support

Click on a product for detailed qualification data

Product
<a href="#">2N4126BU</a>
<a href="#">2N4126TA</a>
<a href="#">2N4126TAR</a>
<a href="#">2N4126TF</a>
<a href="#">2N4126TFR</a>

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