

# S9014

## General Purpose Transistors NPN Silicon

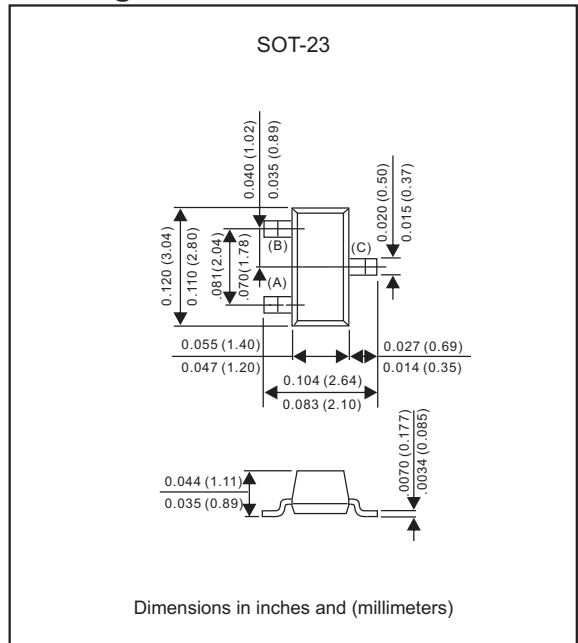
### Features

- Collector current. (100mA)
- Pb-Free package is available
- Suffix "-H" indicates Halogen-free part, ex. S9014-H.

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

### Package outline



### Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-emitter voltage	$V_{CEO}$	45	V
Collector-base voltage	$V_{CBO}$	50	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current -continuous	$I_C$	100	mA

### Thermal characteristics

PARAMETER	Symbol	MIN.	TYP.	MAX.	UNIT
Total device dissipation FR-5 board (1)	$T_A = 25^{\circ}\text{C}$ $P_D$			225	mW
				Derate above $25^{\circ}\text{C}$	1.8
Thermal resistance	Junction to ambient	$R_{\theta JA}$		556	$^{\circ}\text{C}/\text{W}$
Total device dissipation alumina substrate(2)	$T_A = 25^{\circ}\text{C}$ $P_D$			300	mW
				Derate above $25^{\circ}\text{C}$	2.4
Thermal resistance	Junction to ambient	$R_{\theta JA}$		417	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	$T_J$	-55		+150	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-55		+150	$^{\circ}\text{C}$

1. FR-5 = 1.0 X 0.75 X 0.062 in.

2. Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina.

**S9014****Electrical characteristics** (At  $T_A=25^\circ\text{C}$  unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
-----------	------------	--------	------	------	------	------

**Off characteristics**

Collector-emitter breakdown voltage	$I_C=1\text{mA}$	$V_{(BR)CEO}$	45			V
Emitter-base breakdown voltage	$I_E=100\mu\text{A}$	$V_{(BR)EBO}$	5			V
Collector-base breakdown voltage	$I_C=100\mu\text{A}$	$V_{(BR)CBO}$	50			V
Collector cutoff current	$V_{CB}=40\text{V}$	$I_{CBO}$			100	nA
Emitter cutoff current	$V_{EB}=3\text{V}$	$I_{EBO}$			100	nA

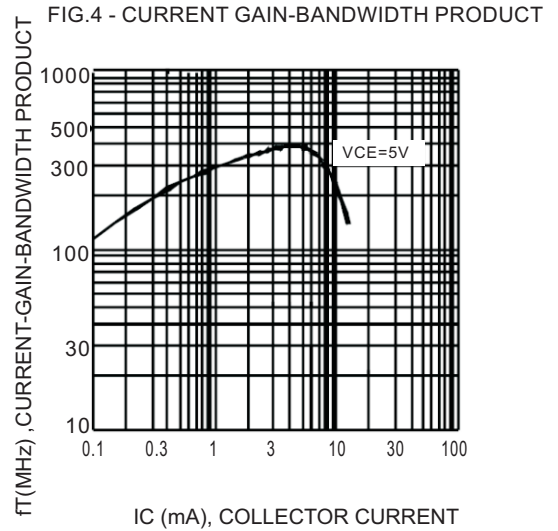
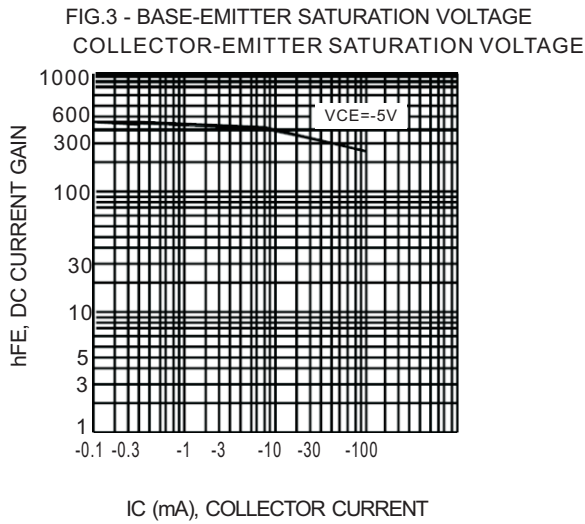
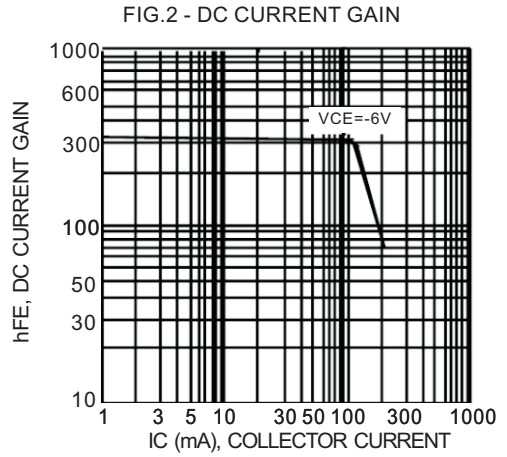
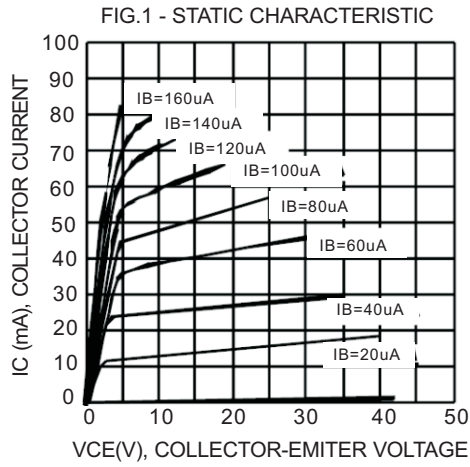
**On characteristics**

Collector-emitter saturation voltage	$I_C=100\text{mA}$ $I_B=5\text{mA}$	$V_{CE(sat)}$			0.3	V
DC current gain	$I_C=1\text{mA}$ $V_{CE}=5\text{V}$	$h_{FE}$	200		1000	-

 **$h_{FE}$  values are classified as follows:**

RANK	L	H
RANGE	200~450	450~1000

## Rating and characteristic curves (S9014)



# S9014

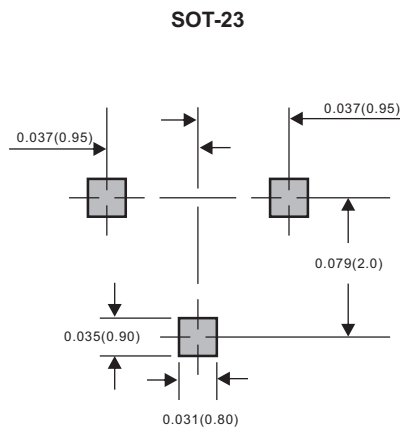
## Pinning information

Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

## Marking

Type number	Marking code
S9014	J6

## Suggested solder pad layout



Dimensions in inches and (millimeters)

## Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA. (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-23	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	11.6