

# General Purpose Transistors

## NPN Silicon

### FEATURE

- High current capacity in compact package.  
 $I_C = 1.5\text{ A}$ .
- Epitaxial planar type.
- NPN complement: S8050H
- Pb-Free Package is available.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

### DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
S8050HP	S-S8050HP	1HA 3000/Tape&Reel
S8050HQ	S-S8050HQ	1HC 3000/Tape&Reel
S8050HR	S-S8050HR	1HE 3000/Tape&Reel
S8050HS	S-S8050HS	1HG 3000/Tape&Reel

### MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	$V_{CEO}$	25	V
Collector-Base Voltage	$V_{CBO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	1500	mAdc

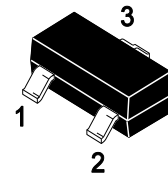
### THERMAL CHARACTERISTICS

Characteristic	Symbol	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	mW/ $^\circ\text{C}$
Thermal Resistance,Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate,(2) $T_A=25^\circ\text{C}$	$P_D$	300	mW
Derate above $25^\circ\text{C}$		2.4	mW/ $^\circ\text{C}$
Thermal Resistance,Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	$T_j, T_{stg}$	-55 to +150	$^\circ\text{C}$

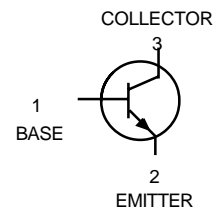
1. FR-5 = 1.0 x 0.75 x 0.062 in.

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

S8050H Series  
S-S8050H Series



SOT-23



**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)**

Characteristic	Symbol	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage (I <sub>C</sub> =1.0mA)	V <sub>(BR)CEO</sub>	25	-	-	V
Emitter-Base Breakdown Voltage (I <sub>E</sub> =100μA)	V <sub>(BR)EBO</sub>	5	-	-	V
Collector-Base Breakdown Voltage (I <sub>C</sub> =100μA)	V <sub>(BR)CBO</sub>	40	-	-	V
Collector Cutoff Current (V <sub>CB</sub> =35V)	I <sub>CBO</sub>	-	-	150	nA
Emitter Cutoff Current (V <sub>EB</sub> =4V)	I <sub>EBO</sub>	-	-	150	nA

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)**

Characteristic	Symbol	Min	Typ	Max	Unit
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**ON CHARACTERISTICS**

DC Current Gain I <sub>C</sub> =100mA, V <sub>CE</sub> =1V	h <sub>FE</sub>	100	-	600	
Collector-Emitter Saturation Voltage (I <sub>C</sub> =800mA I <sub>B</sub> =80mA)	V <sub>CE(S)</sub>	-	-	0.5	V

**NOTE :**

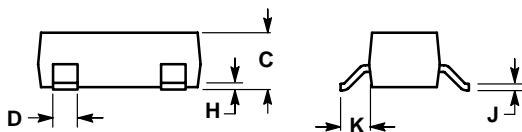
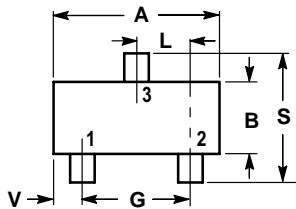
*	P	Q	R	S
h <sub>FE</sub>	100~200	150~300	200~400	300~600



**SOT-23**

**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

- PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

