

General Purpose Transistors NPN Silicon

FEATURE

- High current capacity in compact package.
 $I_C = 1.5 \text{ A}$.
- Epitaxial planar type.
- NPN complement: L8050H
- 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.

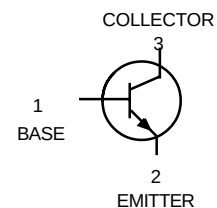
DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
M8050 S-M8050	1HC	3000/Tape&Reel

Dimensions SOT-23



Pin Configuration



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) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance,Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate,(2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW 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 = $1.0 \times 0.75 \times 0.062 \text{ in.}$

2. Alumina = $0.4 \times 0.3 \times 0.024 \text{ in.}$ 99.5% alumina.

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C=1.0\text{mA}$)	$V_{(BR)CEO}$	25	–	–	V
Emitter-Base Breakdown Voltage ($I_E=100\mu\text{A}$)	$V_{(BR)EBO}$	5	–	–	V
Collector-Base Breakdown Voltage ($I_C=100\mu\text{A}$)	$V_{(BR)CBO}$	40	–	–	V
Collector Cutoff Current ($V_{CB}=35\text{V}$)	I_{CBO}	–	–	150	nA
Emitter Cutoff Current ($V_{EB}=4\text{V}$)	I_{EBO}	–	–	150	nA

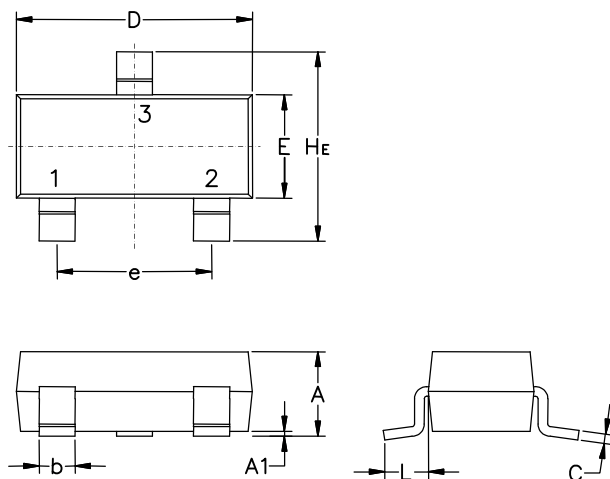
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

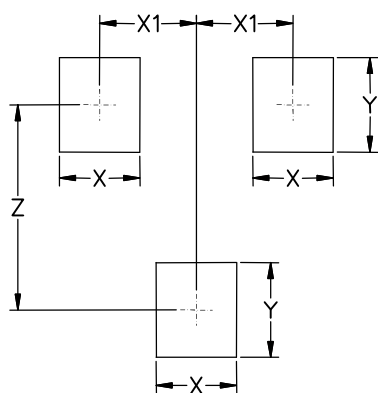
DC Current Gain $I_C=100\text{mA}, V_{CE}=1\text{V}$	h_{FE}	100	-	600	
Collector-Emitter Saturation Voltage ($I_C=800\text{mA}, I_B=80\text{mA}$)	$V_{CE(S)}$	-	-	0.5	V

SOT-23 Package Outline & Dimensions



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.15	0.18	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.029
H _E	2.10	2.40	2.64	0.083	0.094	0.104

Soldering Footprint



Symbol	Millimeters	Inches
X	0.80	0.031
X1	0.95	0.037
Y	0.90	0.035
Z	2.00	0.079