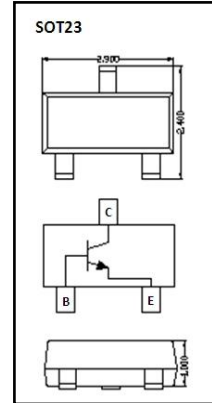


DATA SHEET

S9013

- ◇ Capable of 225mWatts of Power Dissipation
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ Surface Mount SOT-23 Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
S9013	J3



Maximum Ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	40	V
V <sub>CE0</sub>	Collector-Emitter Voltage	25	V
V <sub>EB0</sub>	Emitter-Base Voltage	5	V
I <sub>c</sub>	Collector Current	500	mA
P <sub>c</sub>	Collector Power Dissipation	300	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	416	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

**Electrical Characteristics @ 25° C Unless Otherwise Specified**

Symbol	Parameter	Test Conditions	Min	Max	Units
$V_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C=1.0mA, I_B=0$	25		V
$V_{CBO}$	Collector-Base Breakdown Voltage	$I_C=100\mu A, I_E=0$	40		V
$V_{EBO}$	Emitter-Base Breakdown Voltage	$I_E=100\mu A, I_C=0$	5.0		V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=40V, I_E=0$		100	nA
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=20V, I_B=0$		100	nA
$I_{EBO}$	Emitter cut-off current	$V_{EB}=5V, I_C=0$		100	nA
$h_{FE}$	DC Current Gain	$I_C=50mA, V_{CE}=1V$	120	400	
		$I_C=500mA, V_{CE}=1V$	40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=500mA, I_B=50mA$		0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=500mA, I_B=50mA$		1.2	V
$V_{BE}$	Base- Emitter Voltage	$I_E=100mA$		1.4	V
$f_T$	Current Gain-Bandwidth Product	$I_C=20mA, V_{CE}=6V, f=30MHz$	150		MHZ
$C_{ob}$	Output Capacitance	$V_{CB}=6V, I_E=0, f=1.0MHz$		8	PF

**Classification Of  $h_{FE}$**

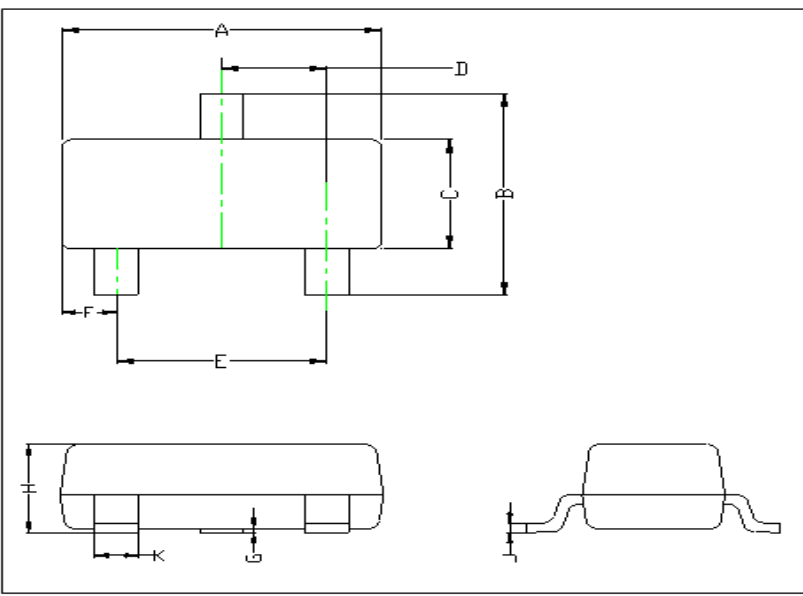
RANK	L	H	J
RANGE	120-200	200-350	300-400

Ordering Information

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
S9013	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

Package Dimensions

**Package Outline : SOT23**



The diagram shows three views of the SOT23 package: a top view with dimensions A, B, C, D, E, and F; a side view with dimension G; and a perspective view with dimension K. Dimension A is the total width, B is the width of the main body, C is the width of the lead frame, D is the width of the top lead, E is the width of the bottom lead, F is the width of the lead frame, G is the height of the package, and K is the length of the lead frame.

Symbol	Dimensions in mm	
	Min.	Max.
A	2.800	3.040
B	2.100	2.640
C	1.200	1.400
D	0.890	1.030
E	1.780	2.050
F	0.450	0.600
G	0.013	0.100
H	0.900	1.110
J	0.090	0.180
K	0.370	0.510

**SOT23 Package Outline**

Note:  
 1. Halogen free ,EMC  
 2. Pb free solder  
 3. Lead thickness solder plating  
 4. Lead frame CAC-5  
 5. Other Tolerance  $\pm 0.05$   
 6. Dimensions are exclusive of Burrs Mold Flash and Tie Bar extrusions  
 7. Unit :mm

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