



Micro Commercial Components

Micro Commercial Components  
 20736 Marilla Street Chatsworth  
 CA 91311  
 Phone: (818) 701-4933  
 Fax: (818) 701-4939

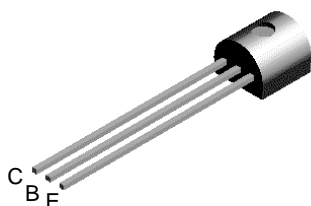
**S9013**

**NPN Silicon  
 Transistors**

**Features**

- TO-92 Plastic-Encapsulate Transistors
- Capable of 0.625Watts( $T_{amb}=25^{\circ}C$ ) of Power Dissipation.
- Collector-current 0.5A
- Collector-base Voltage 40V
- Operating and storage junction temperature range:  $-55^{\circ}C$  to  $+150^{\circ}C$
- Marking Code: S9013

Pin Configuration



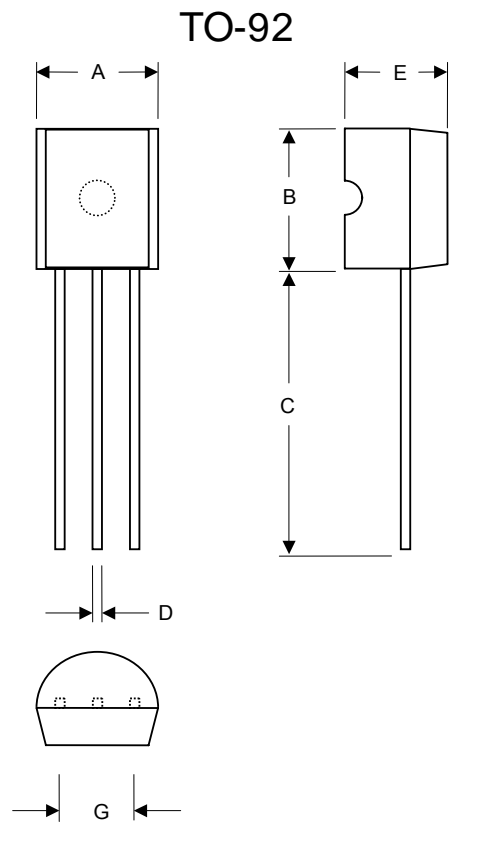
Electrical Characteristics @  $25^{\circ}C$  Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
<b>OFF CHARACTERISTICS</b>				
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=100\mu A$ , $I_E=0$ )	40	---	Vdc
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=0.1mA$ , $I_B=0$ )	25	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=100\mu A$ , $I_C=0$ )	5.0	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=40Vdc$ , $I_E=0$ )	---	0.1	$\mu A$
$I_{CEO}$	Collector Cutoff Current ( $V_{CE}=20Vdc$ , $I_B=0$ )	---	0.1	$\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=5.0Vdc$ , $I_C=0$ )	---	0.1	$\mu A$

<b>ON CHARACTERISTICS</b>				
$h_{FE(1)}$	DC Current Gain ( $I_C=50mA$ , $V_{CE}=1.0Vdc$ )	64	300	---
$h_{FE(2)}$	DC Current Gain ( $I_C=500mA$ , $V_{CE}=1.0Vdc$ )	40	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=500mA$ , $I_B=50mA$ )	---	0.6	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=500mA$ , $I_B=50mA$ )	---	1.2	Vdc
$V_{EB}$	Base- Emitter Voltage ( $I_E=100mA$ )	---	1.4	Vdc

<b>SMALL-SIGNAL CHARACTERISTICS</b>				
$f_T$	Transistor Frequency ( $I_C=20mA$ , $V_{CE}=6.0Vdc$ , $f=30MHz$ )	150	---	MHz

CLASSIFICATION OF $h_{FE(1)}$				
Rank	G	H	I	
Range	120-150	150-200	190-300	



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.170	.190	4.33	4.83	
B	.170	.190	4.30	4.83	
C	.550	.590	13.97	14.97	
D	.010	.020	0.36	0.56	
E	.130	.160	3.30	3.96	
G	.010	.104	2.44	2.64	