



Micro Commercial Components
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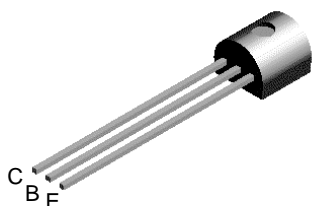
S9013

**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
OFF CHARACTERISTICS				
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=100\mu A$, $I_E=0$)	40	---	Vdc
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ($I_C=0.1mA$, $I_E=0$)	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	μA
I_{CEO}	Collector Cutoff Current ($V_{CE}=20Vdc$, $I_B=0$)	---	0.1	μA
I_{EBO}	Emitter Cutoff Current ($V_{EB}=5.0Vdc$, $I_C=0$)	---	0.1	μA

ON CHARACTERISTICS				
$h_{FE(1)}$	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

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

CLASSIFICATION OF $h_{FE(1)}$						
Rank	E	F	G	H	H1	I
Range	78-112	96-135	115-150	150-180	180-200	190-300

