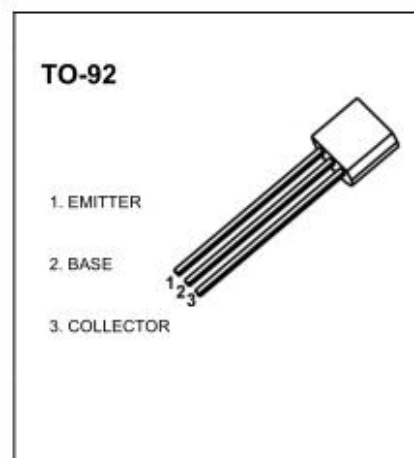


**isc Silicon NPN Power Transistor****S9013****DESCRIPTION**

- Excellent hFE linearity
- Complement to PNP Type S9012
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Power amplifier applications

**ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}\text{C}$ )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	500	mA
$P_C$	Collector Power Dissipation @ $T_c=25^{\circ}\text{C}$	625	mW
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^{\circ}\text{C}$

**isc Silicon NPN Power Transistor****S9013****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=100\mu\text{A}$ , $I_E=0$	40			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}$ ; $I_B=0$	25			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=100\mu\text{A}$ , $I_C=0$	5			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=500\text{mA}$ ; $I_B=50\text{mA}$			0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=500\text{mA}$ ; $I_B=50\text{mA}$			1.2	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=40\text{V}$ ; $I_E=0$			0.1	$\mu\text{A}$
$I_{CEO}$	Collector cut-off current	$V_{CE}=20\text{V}$ , $I_E=0$			0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}$ ; $I_C=0$			0.1	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=50\text{mA}$ ; $V_{CE}=1\text{V}$	64		400	
$h_{FE-2}$	DC Current Gain	$I_C=500\text{mA}$ ; $V_{CE}=1\text{V}$	40			
$f_T$	Current-Gain—Bandwidth Product	$V_{CE}=6\text{V}$ , $I_C=20\text{mA}$ , $f=30\text{MHz}$	150			MHz

 **$h_{FE-1}$  Classifications**

Rank	D	E	F	G	H	I	J
Range	64-91	78-112	96-135	112-166	144-202	190-300	300-400

**NOTICE:**

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