

SOT-23 Plastic-Encapsulate Transistors

S9013

NPN Transistors

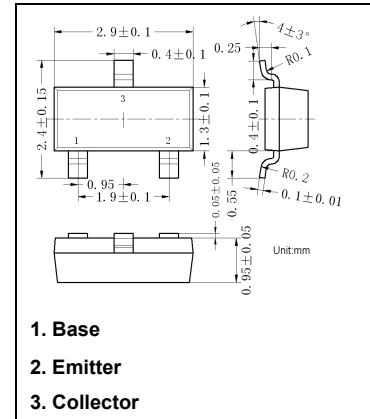
Features

- High Collector Current.
- Complementary to S9012.
- Excellent h_{FE} Linearity.

Marking: J3

Maximum Ratings ($T_a=25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector Emitter Voltage	40	V
V_{CBO}	Collector Base Voltage	25	V
V_{EBO}	Emitter Base Voltage	5	V
I_C	Collector Current Continuous	500	mA
P_C	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	416	$^{\circ}\text{C/W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	- 55 to +150	$^{\circ}\text{C}$



Electrical Characteristics ($T_a=25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Max	Unit
$V_{(BR)CEO}$	Collector Emitter Voltage	$I_C = 1\text{ mA}, I_B = 0$	25		V
$V_{(BR)CBO}$	Collector Base Voltage	$I_C = 100\mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter Base Voltage	$I_E = 100\mu\text{A}, I_C = 0$	7		V
I_{CBO}	Collector Cut Off Current	$V_{CB} = 40\text{ V}, I_E = 0$		100	nA
I_{CEO}	Collector Cut Off Current	$V_{CE} = 20\text{ V}, I_B = 0$		100	nA
I_{EBO}	Emitter Cut Off Current	$V_{EB} = 10\text{ V}, I_C = 0$		100	nA
$h_{FE(1)}$	DC Current Gain	$V_{CE} = 1\text{ V}, I_C = 50\text{ mA}$	120	400	
$h_{FE(2)}$		$V_{CE} = 1\text{ V}, I_C = 500\text{ mA}$	40		
$V_{CE(sat)}$	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
V_{BE}	Base Emitter On Voltage	$V_{CE} = 1\text{ V}, I_C = 10\text{ mA}$		0.7	V
f_T	Current Gain Bandwidth Product	$I_C = 20\text{ mA}, V_{CE} = 6\text{ V}, f = 10\text{ MHz}$	150		MHz
C_{ob}	Collector output capacitance	$V_{CB} = 6\text{ V}, I_E = 0, f = 1\text{ MHz}$		8	pF

Classification Of $h_{FE(1)}$

Rank	L	H	J
Range	120-200	200-350	300-400

Typical Characteristics

