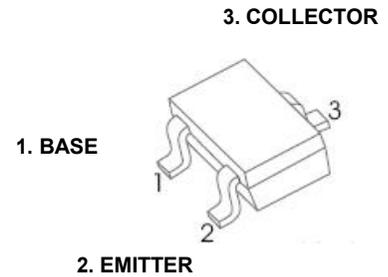


## TRANSISTOR (NPN)

### FEATURES

Ideal for medium power amplification and switching

**MARKING: G1**



**SOT- 523**

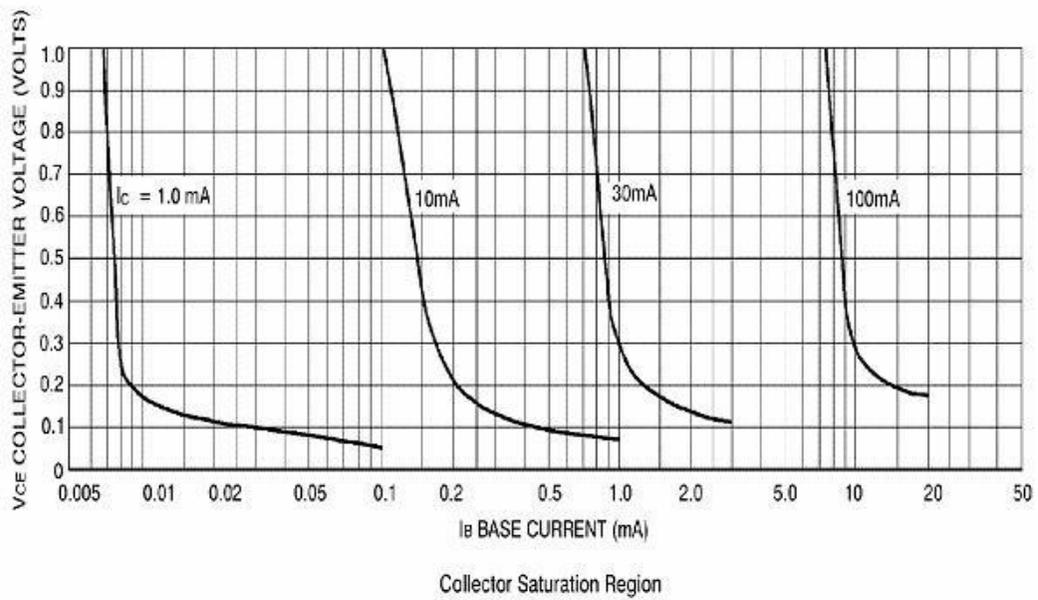
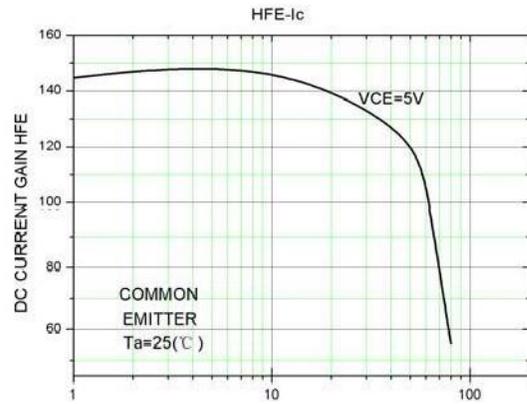
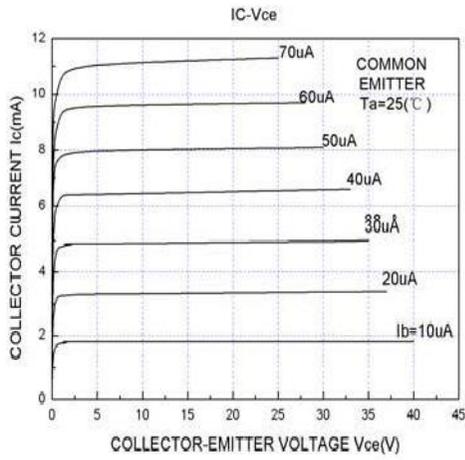
### MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	180	V
V <sub>CEO</sub>	Collector-Emitter Voltage	160	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>c</sub>	Collector Current -Continuous	0.6	A
P <sub>c</sub>	Collector Power Dissipation	200	mW
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C

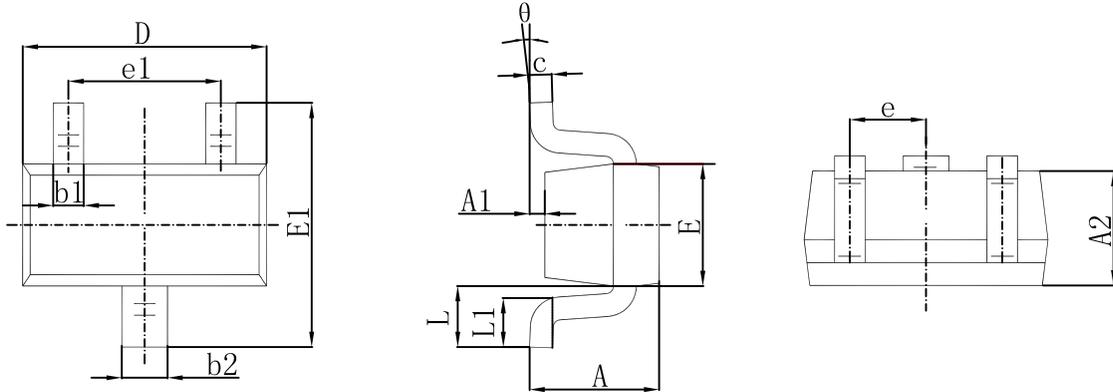
### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>c</sub> =100μA, I <sub>E</sub> =0	180			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO*</sub>	I <sub>c</sub> = 1mA, I <sub>B</sub> =0	160			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 10μA, I <sub>c</sub> =0	6			V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 120V, I <sub>E</sub> =0			50	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 4V, I <sub>c</sub> =0			50	nA
DC current gain	h <sub>FE1*</sub>	V <sub>CE</sub> =5V, I <sub>c</sub> =1mA	80			
	h <sub>FE2*</sub>	V <sub>CE</sub> =5V, I <sub>c</sub> =10mA	100		300	
	h <sub>FE3*</sub>	V <sub>CE</sub> =5V, I <sub>c</sub> =50mA	50			
Collector-emitter saturation voltage	V <sub>CEsat*</sub>	I <sub>c</sub> =10mA, I <sub>B</sub> =1mA			0.15	V
		I <sub>c</sub> =50mA, I <sub>B</sub> =5mA			0.2	
Base-emitter saturation voltage	V <sub>BEsat*</sub>	I <sub>c</sub> =10mA, I <sub>B</sub> = 1mA			1	V
		I <sub>c</sub> =50mA, I <sub>B</sub> = 5mA			1	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>c</sub> =10mA, f=100MHz	100		300	MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz			6	pF
Input capacitance	C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>c</sub> =0, f=1MHz			20	pF
Noise figure	NF	V <sub>CE</sub> =5V, I <sub>c</sub> =0.25mA, f=10Hz to 15.7KHz, R <sub>s</sub> =1kΩ			8	dB

## Typical Characteristics

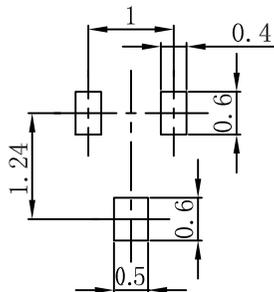


### SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

### SOT-523 Suggested Pad Layout



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.