

## SOT-223 Plastic-Encapsulate Transistors

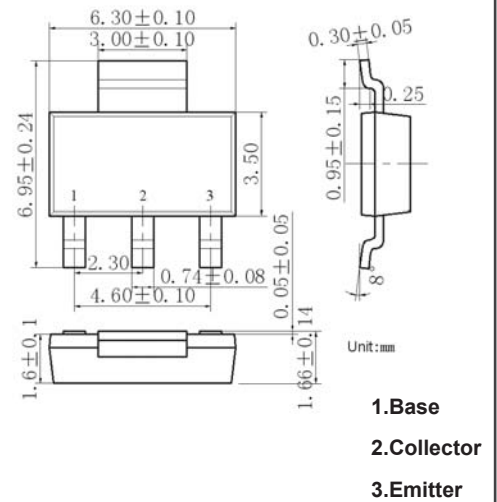
### Features

- PNP silicon planar high current (high performance) transistors
- 4 Amps continuous current (10 Amps peak current)
- Very low saturation voltages.
- Excellent gain characteristics specified up to 3 Amps.
- $P_{tot} = 3$  watts.

### MECHANICAL DATA

- Case style: SOT-223 molded plastic
- Mounting position: any

SOT-223



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector Emitter Voltage	-140	V
$V_{CBO}$	Collector Base Voltage	-180	V
$V_{EBO}$	Emitter Base Voltage	-6	V
$I_{CM}$	Peak Pulse Current	-10	A
$I_C$	Continuous Collector Current	-4	A
$P_{tot}$	Power Dissipation at $T_{amb} = 25^\circ\text{C}$	3	W
$T_j, T_{stg}$	Operating and Storage Temperature Range	- 55 to +150	$^\circ\text{C}$

\*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 4 square inch minimum

### Electrical Characteristics ( $T_{amb} = 25^\circ\text{C}$ unless otherwise stated)

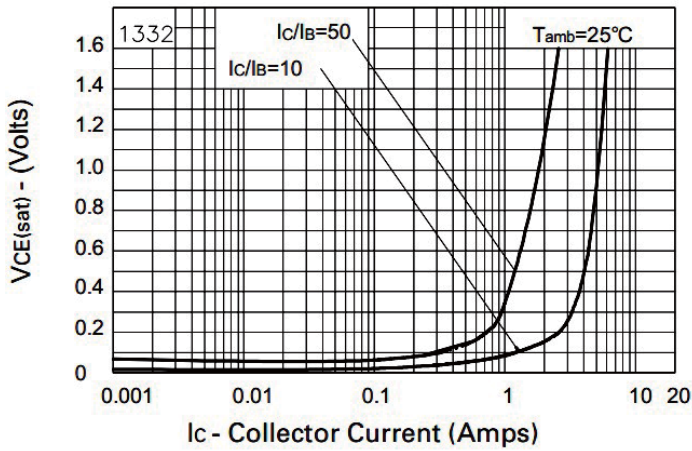
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = -100\mu\text{A}, I_E = 0$	-180	-210		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = -10\text{mA}^*, I_B = 0$	-140	-170		V
$V_{(BR)CER}$	Collector-emitter breakdown voltage	$I_C = -1\mu\text{A}, R_B \leq 1\text{k}\Omega$	-180	-210		
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = -100\mu\text{A}, I_C = 0$	-6	-8		V
$I_{CBO}$	Collector cut-off current	$V_{CB} = -150\text{V}$ ,			-50	nA
		$V_{CB} = -150\text{V}, T_{amb} = 100^\circ\text{C}$			-1	$\mu\text{A}$
$I_{CER}$ $R \leq 1\text{k}\Omega$	Collector Cut-Off Current	$V_{CB} = -150\text{V}$			-50	nA
		$V_{CB} = -150\text{V}, T_{amb} = 100^\circ\text{C}$			-1	$\mu\text{A}$
$I_{EBO}$	Emitter cut-off current	$V_{EB} = -6\text{V}$			-10	nA
$h_{FE(1)}$	Static forward current transfer ratio	$V_{CE} = -5\text{V}^*, I_C = -10\text{mA}$	100	200		
$h_{FE(2)}$		$V_{CE} = -5\text{V}^*, I_C = -1\text{A}$	100	200	300	
$h_{FE(3)}$		$V_{CE} = -5\text{V}^*, I_C = -3\text{A}$	75	140		
$h_{FE(4)}$		$V_{CE} = -5\text{V}^*, I_C = -10\text{A}$		10		
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = -100\text{mA}, I_B = -10\text{mA}^*$		-30	-60	mV
		$I_C = -500\text{mA}, I_B = -50\text{mA}^*$		-70	-120	mV
		$I_C = -1\text{A}, I_B = -100\text{mA}^*$		-110	-150	mV
		$I_C = -3\text{A}, I_B = -300\text{mA}^*$		-275	-370	mV
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C = -3\text{A}, I_B = -300\text{mA}^*$		-970	-1110	mV
$V_{BE(on)}$	Base-Emitter Turn-On Voltage	$I_C = -3\text{A}, V_{CE} = -5\text{V}^*$		-830	-950	mV
$f_T$	Transition frequency	$V_{CE} = -10\text{V}, I_C = -100\text{mA}, f = 50\text{MHz}$		110		MHz
$C_{obo}$	Output capacitance	$V_{CB} = -20\text{V}, f = 1\text{MHz}$		40		pF
$t_{on}$	Switching Times	$I_C = -1\text{A}, V_{CC} = -50\text{V}$		68		ns
$t_{off}$		$I_{B1} = -100\text{mA}, I_{B2} = 200\text{mA}$		1030		ns

\*Measured under pulsed conditions. Pulse Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

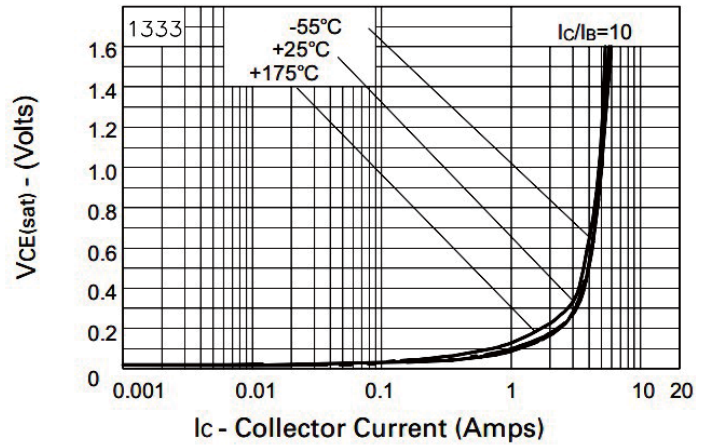
Spice parameter data is available upon request for this device

# RATINGS AND CHARACTERISTIC CURVES

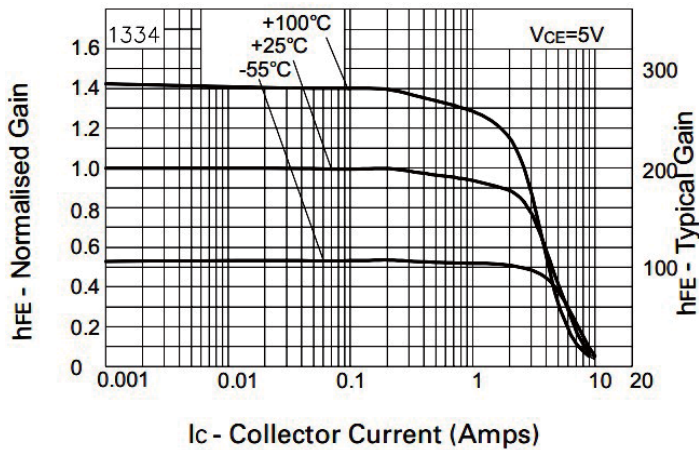
## Typical Characteristics



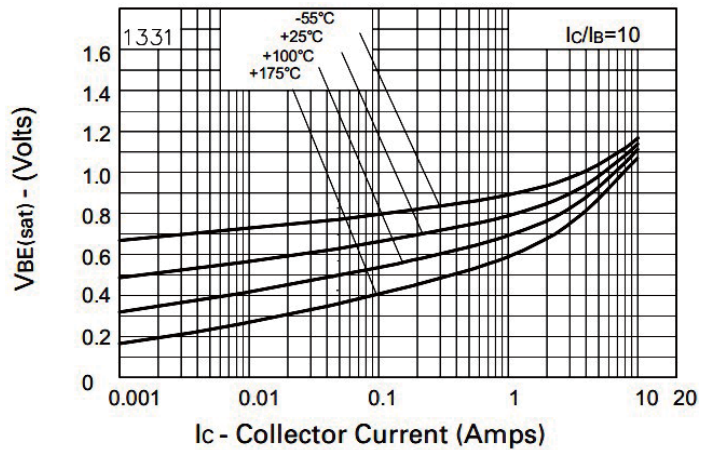
**VCE(sat) v IC**



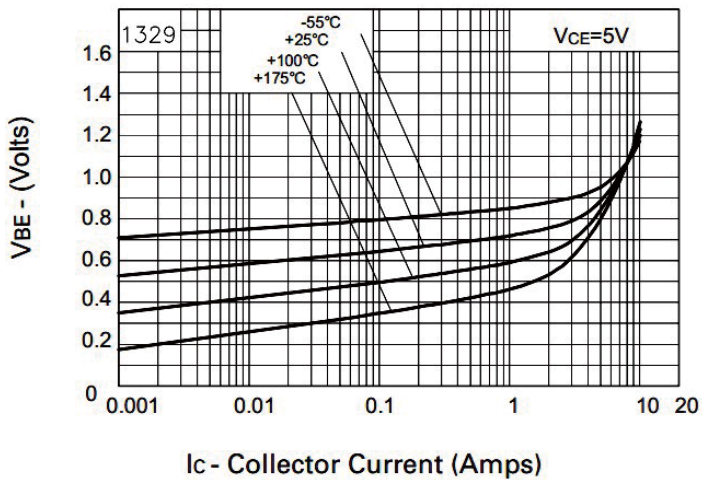
**VCE(sat) v IC**



**hFE v IC**



**BE(sat) v IC**



**VBE(on) v IC**

