

SOT-223 Plastic-Encapsulate Transistors

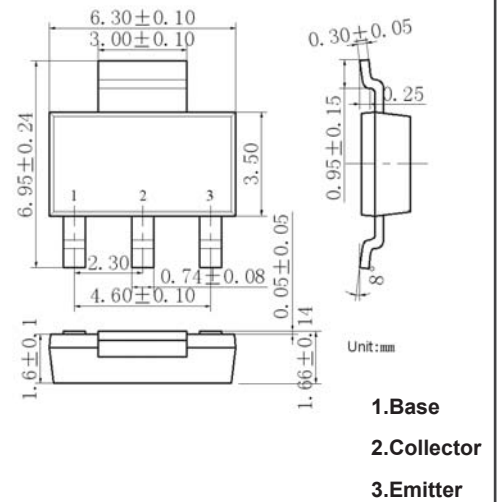
Features

- 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 $T_{amb} = 25^\circ C$	3	W
T_j, T_{stg}	Operating and Storage Temperature Range	- 55 to +150	$^\circ C$

*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 ($T_{amb} = 25^\circ C$ unless otherwise stated)

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

*Measured under pulsed conditions. Pulse Width=300 μs . Duty cycle $\leq 2\%$

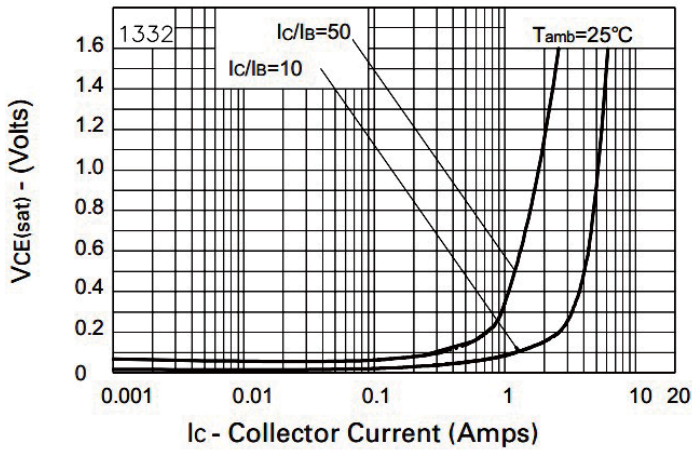
Spice parameter data is available upon request for this device



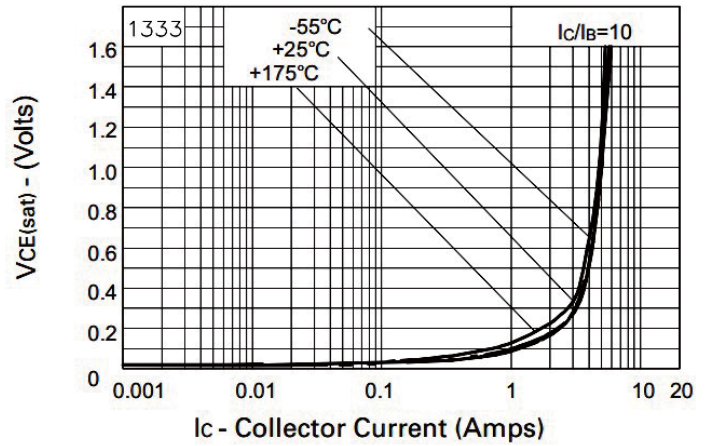
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RATINGS AND CHARACTERISTIC CURVES

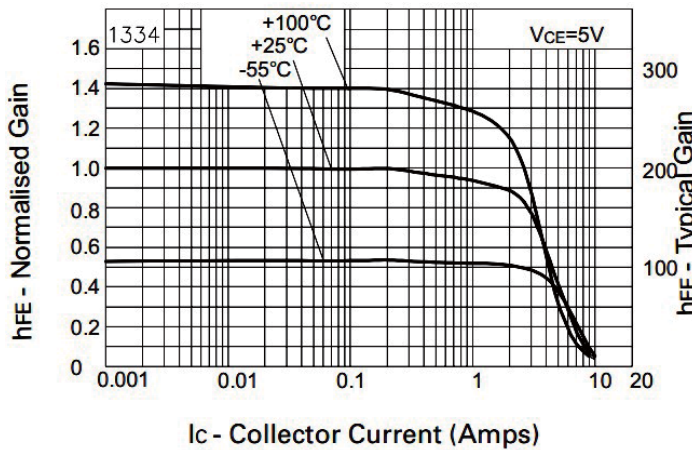
■ Typical Characteristics



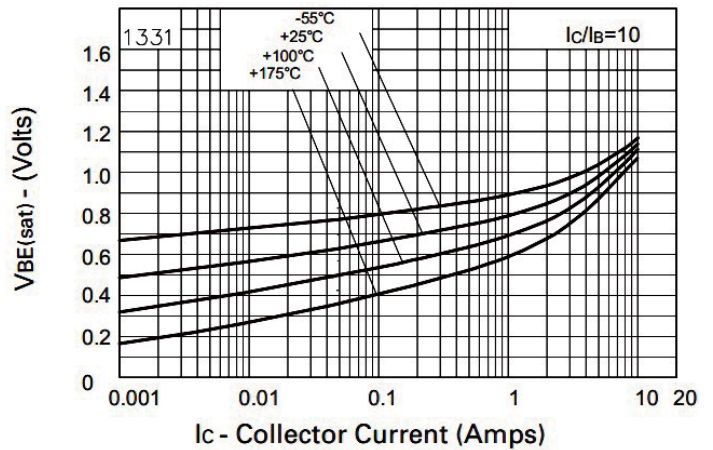
VCE(sat) v IC



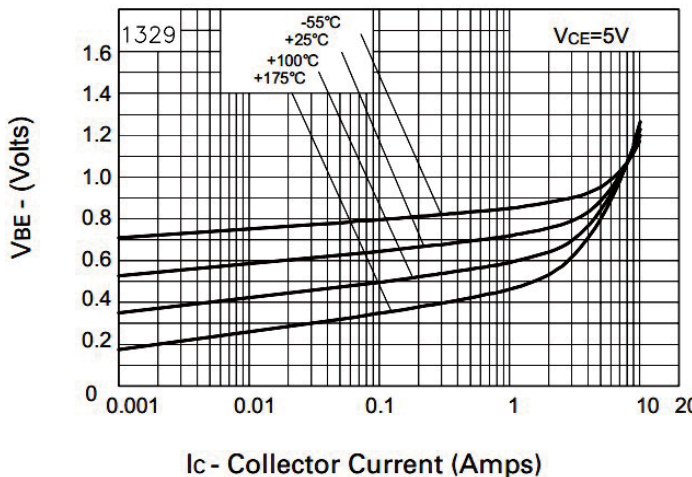
VCE(sat) v IC



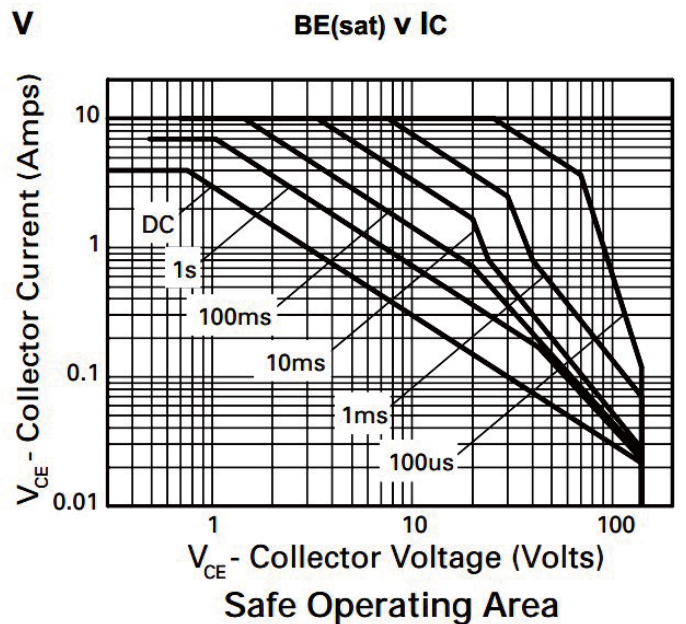
hFE v IC



BE(sat) v IC



VBE(on) v IC



Safe Operating Area