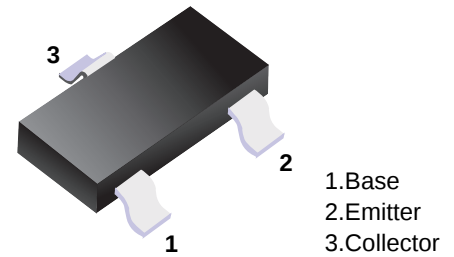


S9013

■ NPN Transistors

■ Features

- Excellent h_{FE} linearity
- Collector Current : $I_C=0.5A$



■ Simplified outline(SOT-23)

■ Absolute Maximum Ratings $T_a = 25^{\circ}C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	40	V
Collector - Emitter Voltage	V_{CE0}	25	V
Emitter - Base Voltage	V_{EB0}	5	V
Collector Current - Continuous	I_C	500	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	150	$^{\circ}C$
Storage Temperature	T_{stg}	-55 to 150	$^{\circ}C$

■ Electrical Characteristics $T_a = 25^{\circ}C$

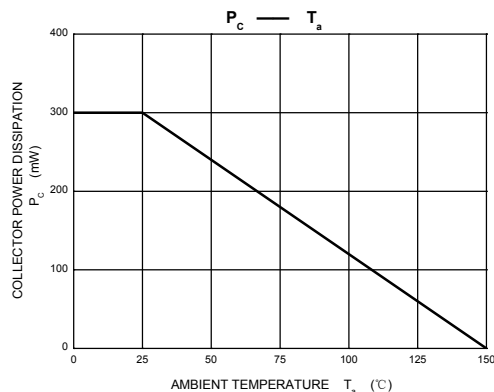
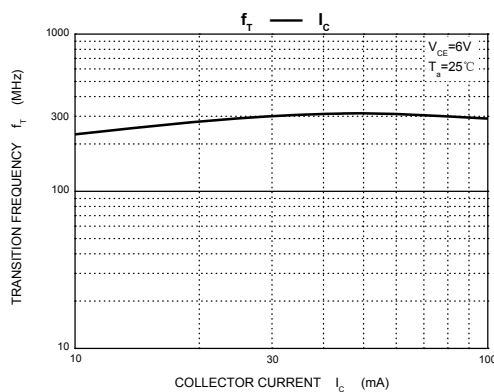
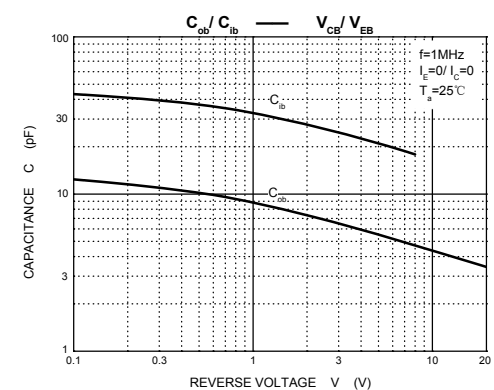
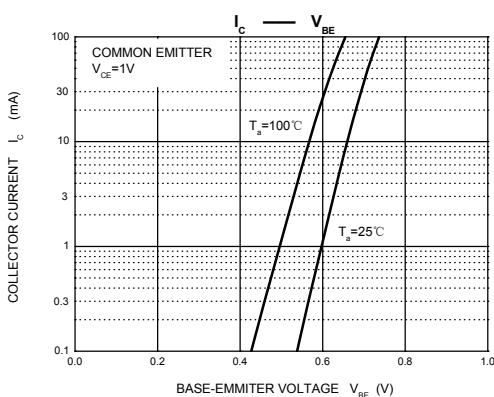
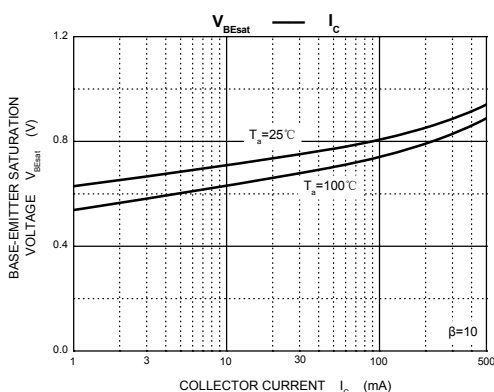
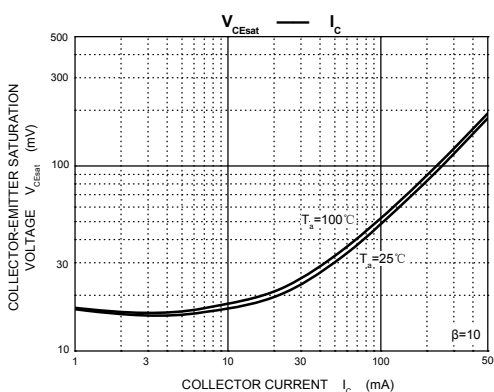
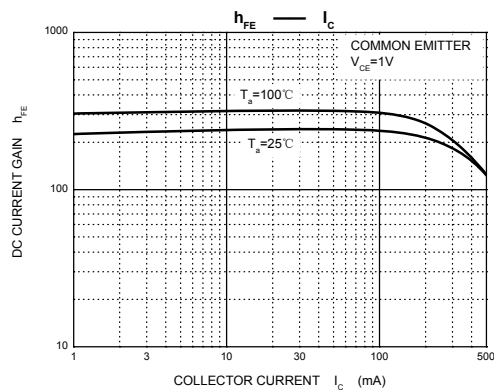
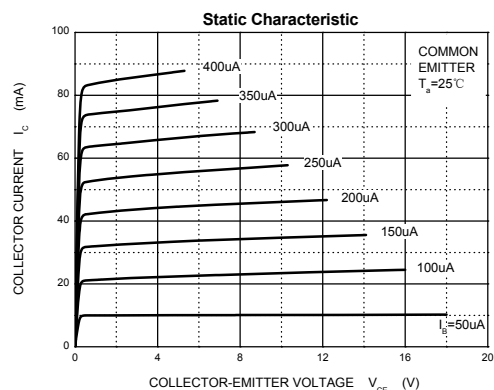
Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector - base breakdown voltage	V_{CB0}	$I_C = 100 \mu A, I_E = 0$	40			V
Collector - emitter breakdown voltage	V_{CE0}	$I_C = 0.1mA, I_B = 0$	25			V
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu A, I_C = 0$	5			V
Collector cut - off current	I_{CBO}	$V_{CB} = 40V, I_E = 0$			0.1	μA
Collector cut -off current	I_{CEO}	$V_{CE} = 20V, I_B = 0$			1	μA
Emitter cut - off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			0.1	μA
DC current gain	h_{FE}	$V_{CE} = 1V, I_C = 50mA$	120		400	
		$V_{CE} = 1V, I_C = 500mA$	40			
Collector - emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500mA, I_B = 50mA$			0.6	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500mA, I_B = 50mA$			1.2	V
Transition frequency	f_T	$V_{CE} = 6V, I_C = 20mA, f = 30MHz$	150			MHz

■ Classification of $h_{FE}(1)$

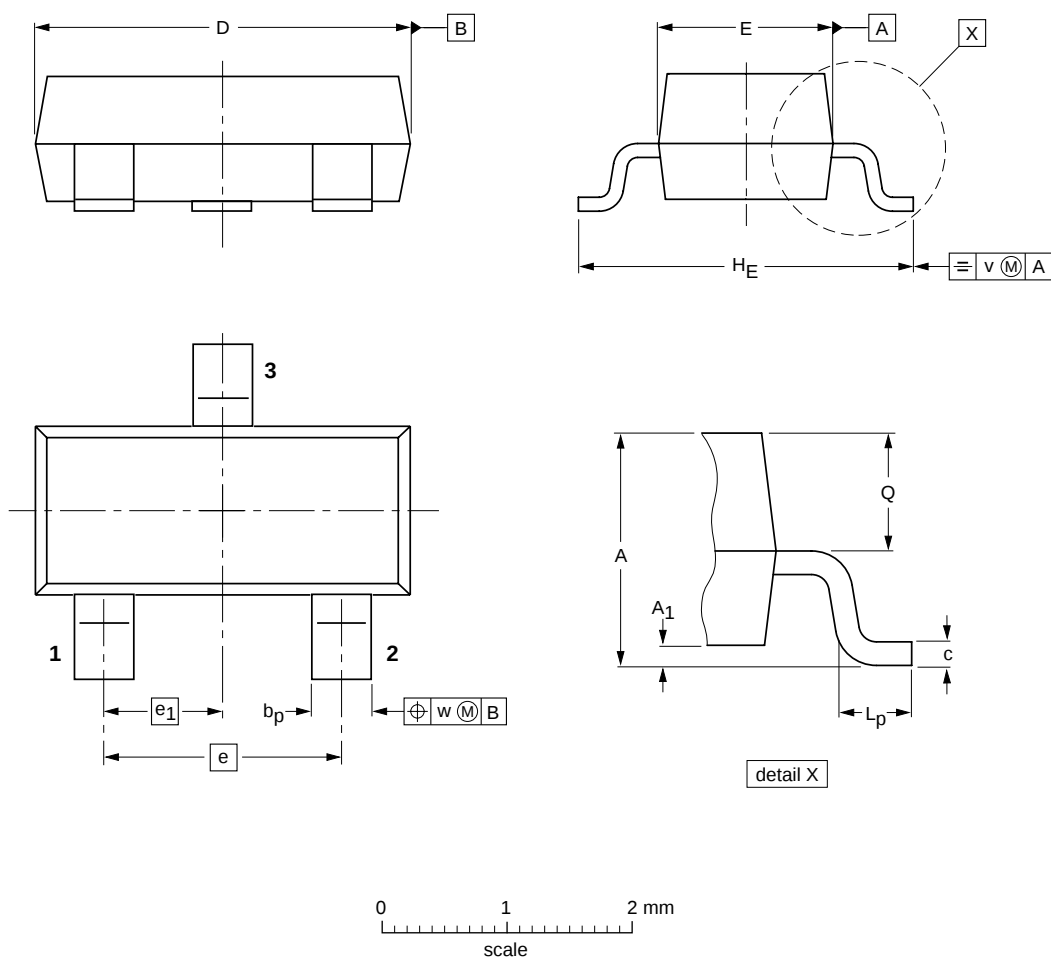
Type	S9013	S9013-L	S9013-H	S9013-J
Range	200-350	120-200	144-202	300-400
Marking	J3			

S9013

Typical Characteristics



■ SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1