

SuperTransistor –  $V_{CBO}$  -40V,  $I_c$  -500mA SOT-23 Plastic-Encapsulate PNP Transistors

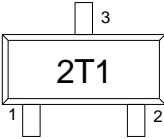
**1. Features**

- Complementary to S9013
- Power dissipation of 300mW
- High stability and high reliability

**2. Mechanical Data**

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

**3. Pin configuration**

Pin	Function	Outline
1	Base	
2	Emitter	
3	Collector	

**4. Specification**

**Absolute Maximum Rating & Thermal Characteristics**

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameters	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-25	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current-Continuous	$I_c$	-500	mA
Collector Power Dissipation	$P_c$	300	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{STG}$	-55~150	°C
Thermal resistance From junction to ambient	$R_{\theta JA}$	416	°C/W

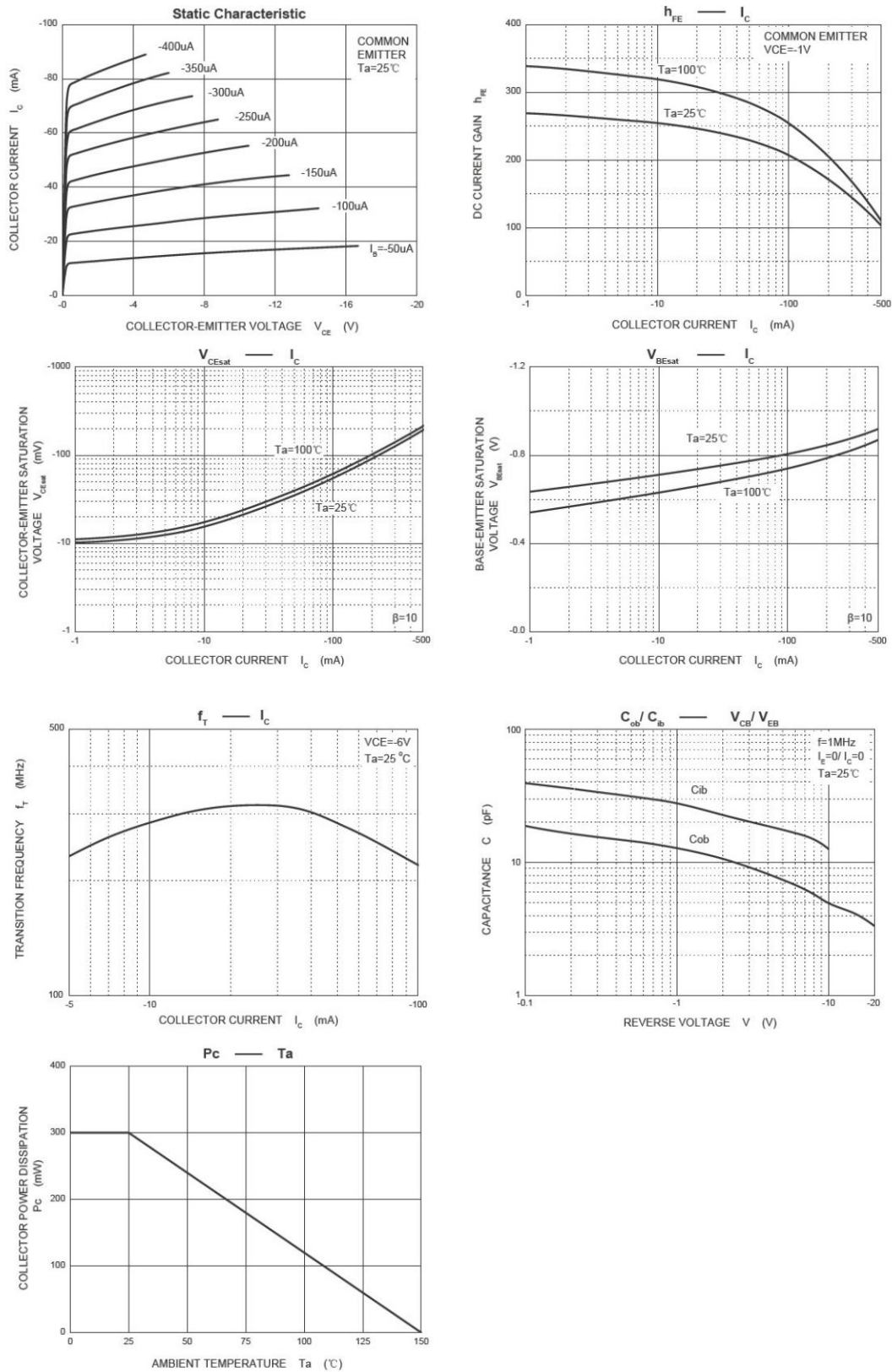
Electrical Characteristics (At  $T_A = 25^\circ\text{C}$  unless otherwise specified)

Parameters	Symbols	Test Condition	Limits			
			Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	$I_{CEO}$	$V_{CE} = -20\text{V}, I_B = 0$			-100	nA
	$I_{CBO}$	$V_{CB} = -40\text{V}, I_E = 0$			-100	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$			-100	nA
DC current gain	$h_{FE}$	$V_{CE} = -1\text{V}, I_C = -50\text{mA}$	120		400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$			-0.60	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$			-1.20	V
Transition frequency	$f_T$	$V_{CE} = -6\text{V}, I_C = -20\text{mA},$ $f = 30\text{MHz}$	150			MHz
Collector output capacitance	$C_{OB}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$			5	pF

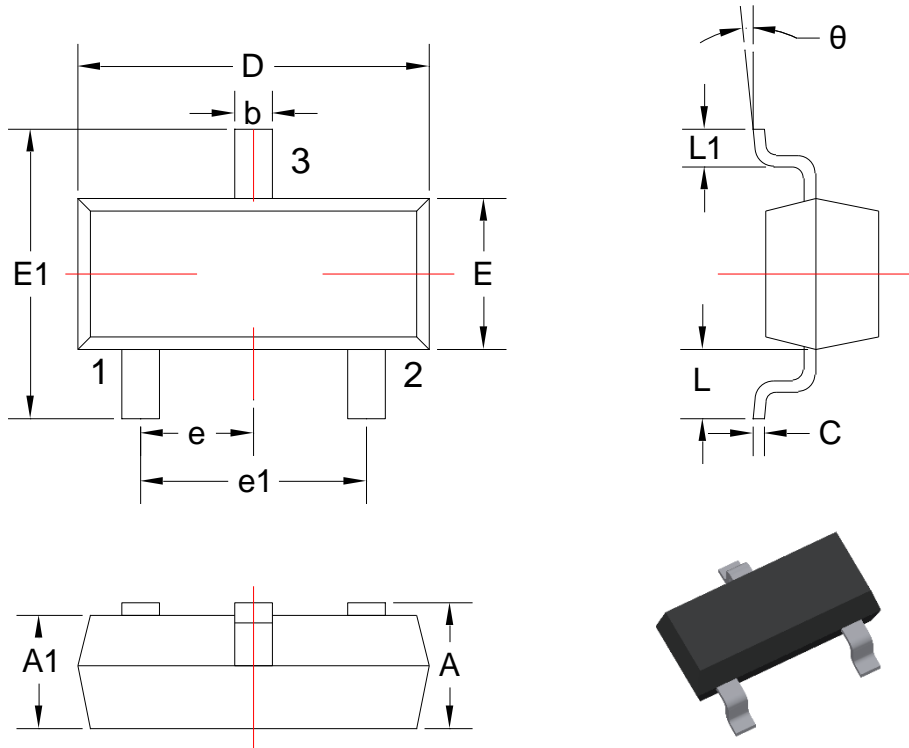
Classification of  $h_{FE}$ 

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

### 5. Typical Characteristic

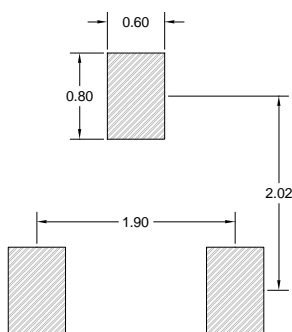


6. Dimension and Patterns (SOT-23)



Units: mm

Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	0.900	1.150	E1	2.250	2.550
A1	0.900	1.050	e	0.950TYP	
b	0.300	0.500	e1	1.800	2.000
c	0.080	0.150	L	0.550REF	
D	2.800	3.00	L1	0.300	0.500
E	1.200	1.400	θ	0°	8°



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only
4. Unit: mm

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