

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

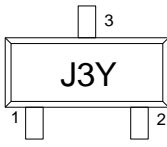
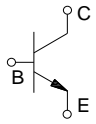
1. Features

- Complementary to S8550
- 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	Schematic
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	$R_{\theta JA}$	417	°C/W

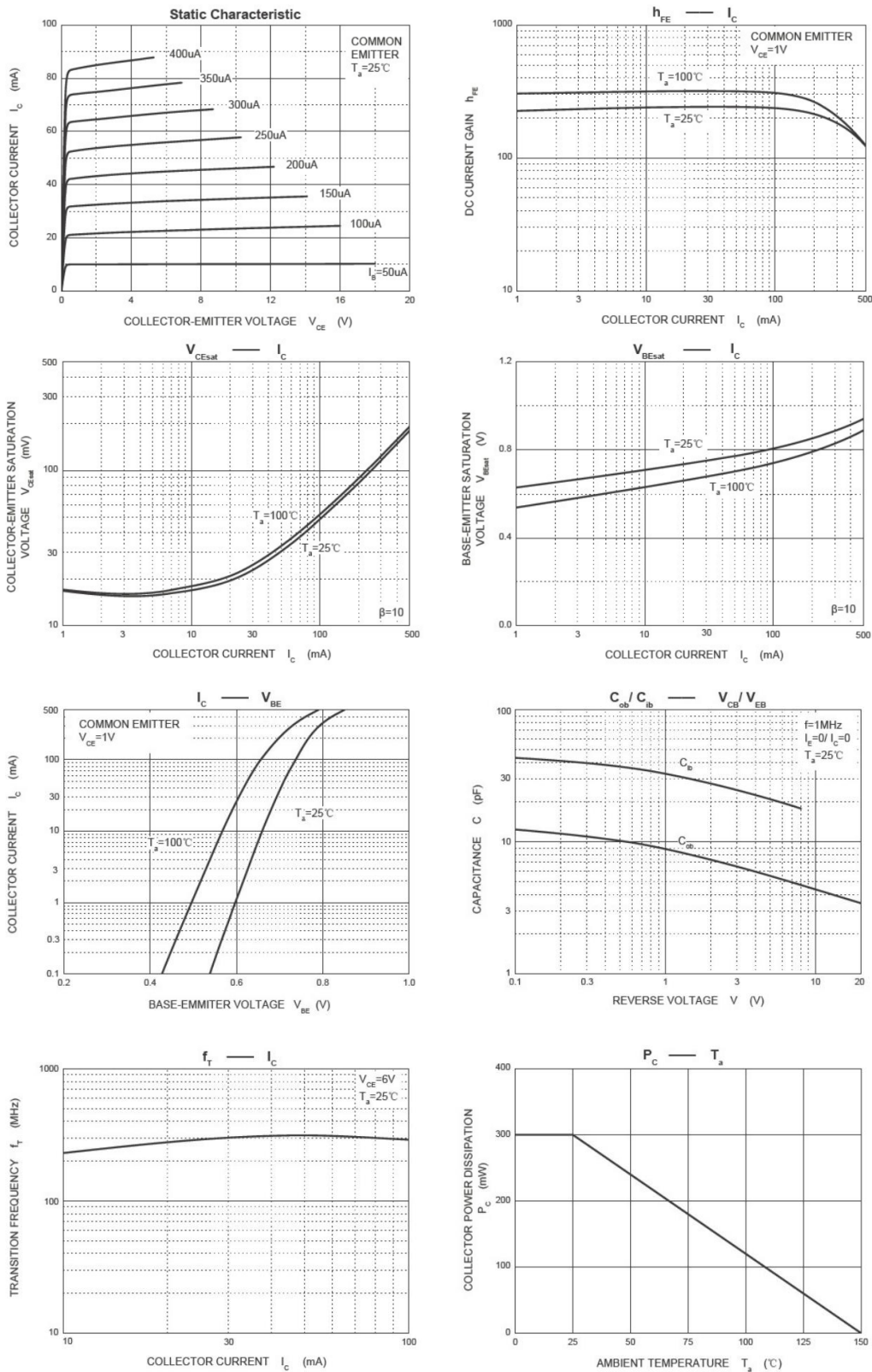
Electrical Characteristics (At  $T_A = 25^\circ\text{C}$  unless otherwise specified)

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	$h_{FE1}$	$V_{CE}=1\text{V}, I_C=50\text{mA}$	120		400	
	$h_{FE2}$	$V_{CE}=1\text{V}, I_C=500\text{mA}$	50			
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

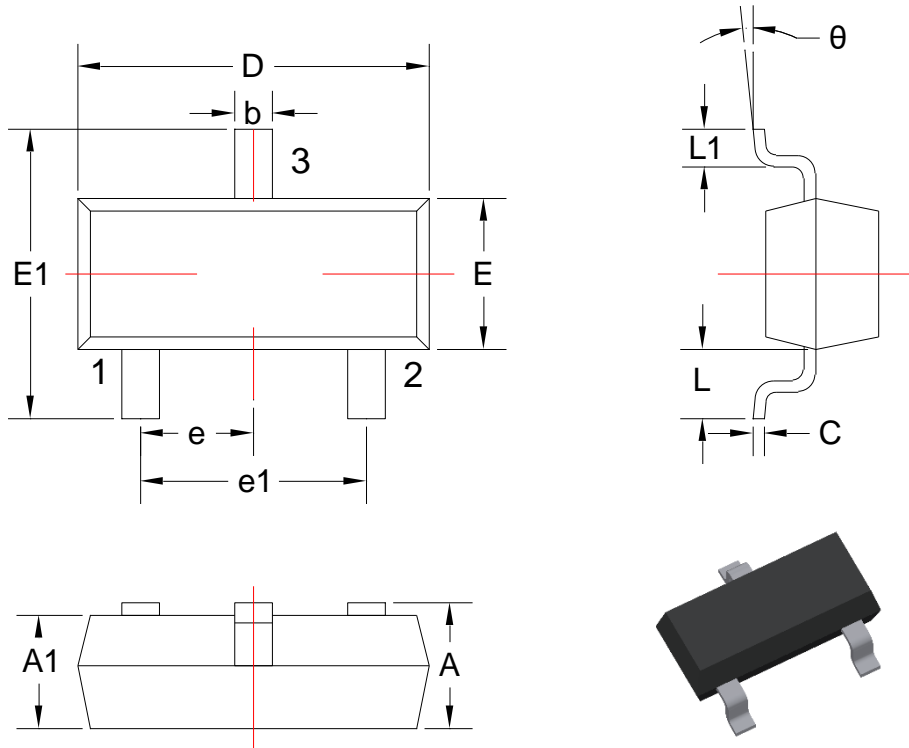
Classification of  $h_{FE(1)}$ 

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

**5. Typical Characteristic**

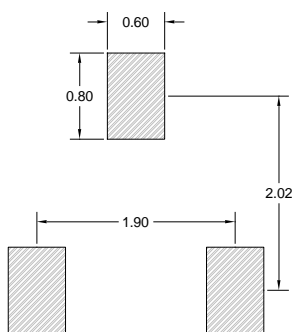


**6. Dimension and Patterns (SOT-23)**



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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