

SuperTransistor –  $V_{CBO}$  40V,  $I_C$  1500mA SOT-89-3L Plastic-Encapsulate NPN Transistors

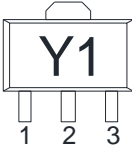
### 1. Features

- Power dissipation of 500mW
- High stability and high reliability

### 2. Mechanical Data

- SOT-89-3L Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

### 3. Pin configuration

Pin	Function	Outline
1	Base	
2	Collector	
3	Emitter	

### 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	$I_C$	1500	mA
Collector Power Dissipation	$P_C$	500	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{STG}$	-55~150	°C
Thermal resistance From junction to ambient	$R_{\theta JA}$	250	°C/W

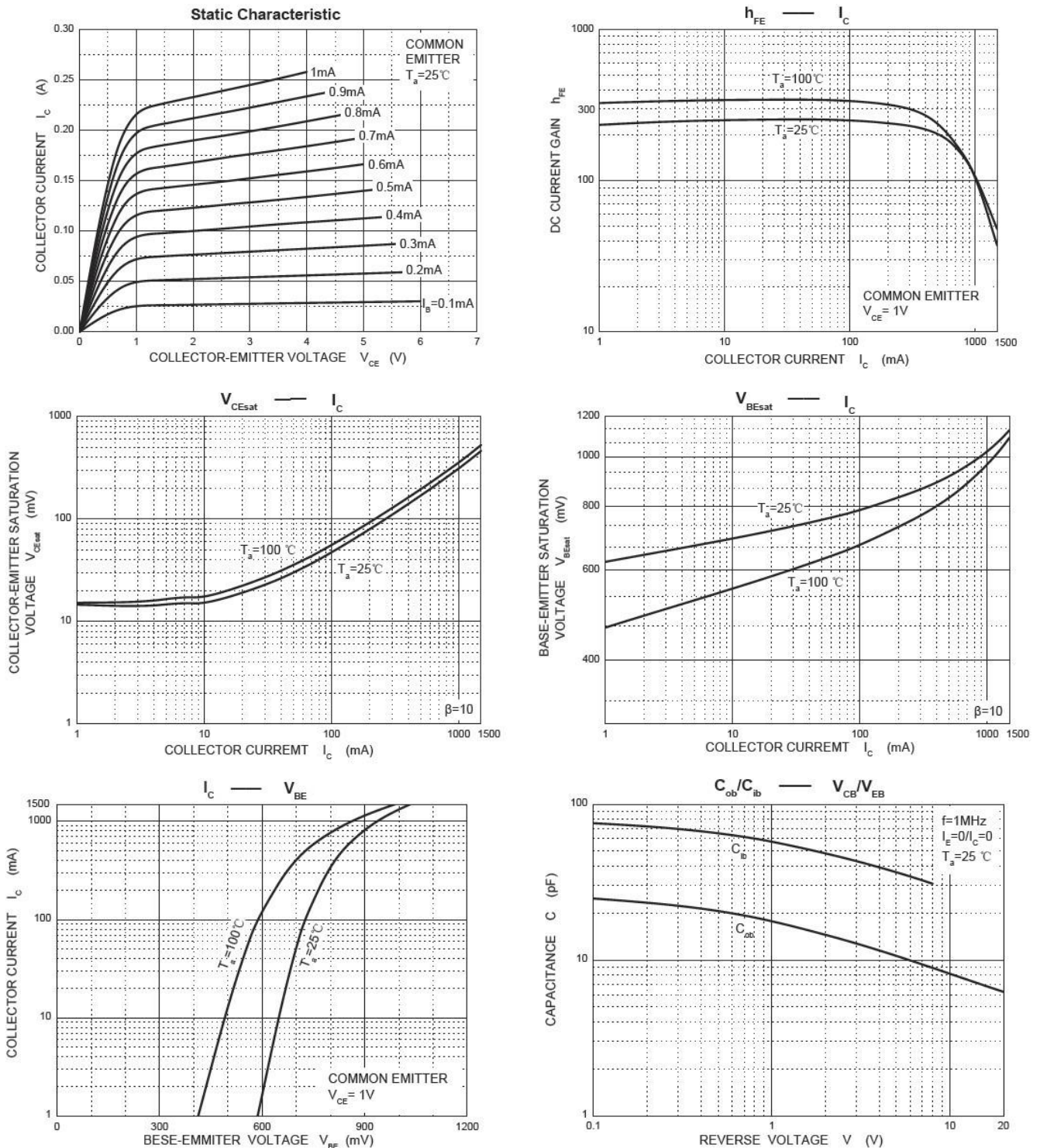
Electrical Characteristics (At  $T_A = 25^\circ\text{C}$  unless otherwise specified)

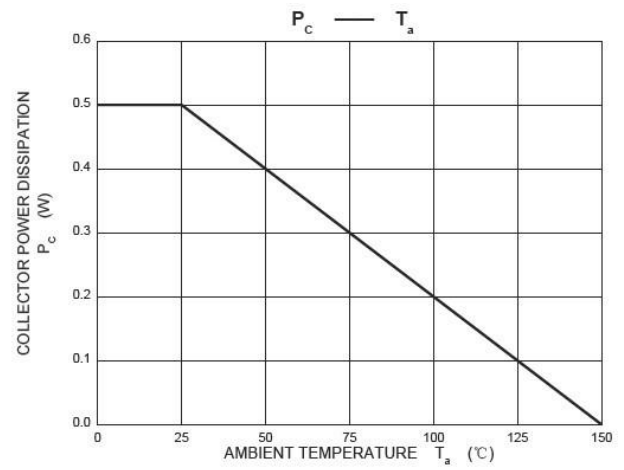
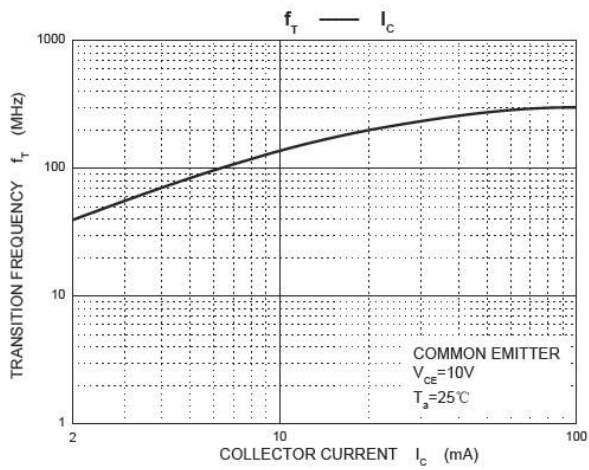
Parameters	Symbols	Test Condition	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=0.1\text{mA}, I_B=0$	25		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5		V
Collector 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	nA
	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$		100	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=1\text{V}, I_C=100\text{mA}$	85	400	
	$h_{FE(2)}$	$V_{CE}=1\text{V}, I_C=800\text{mA}$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=800\text{mA}, I_B=80\text{mA}$		0.50	V
Base -emitter saturation voltage	$V_{BE(sat)}$	$I_C=800\text{mA}, I_B=80\text{mA}$		1.20	V
Base -emitter voltage	$V_{BE}$	$V_{CE}=1\text{V}, I_C=10\text{mA}$		1.0	V
Base -emitter positive favor voltage	$V_{BEF}$	$I_B=1\text{A}$		1.55	V
Transition frequency	$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=30\text{MHz}$	100		MHz
Output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		15	pF

Classification of  $h_{FE}$ 

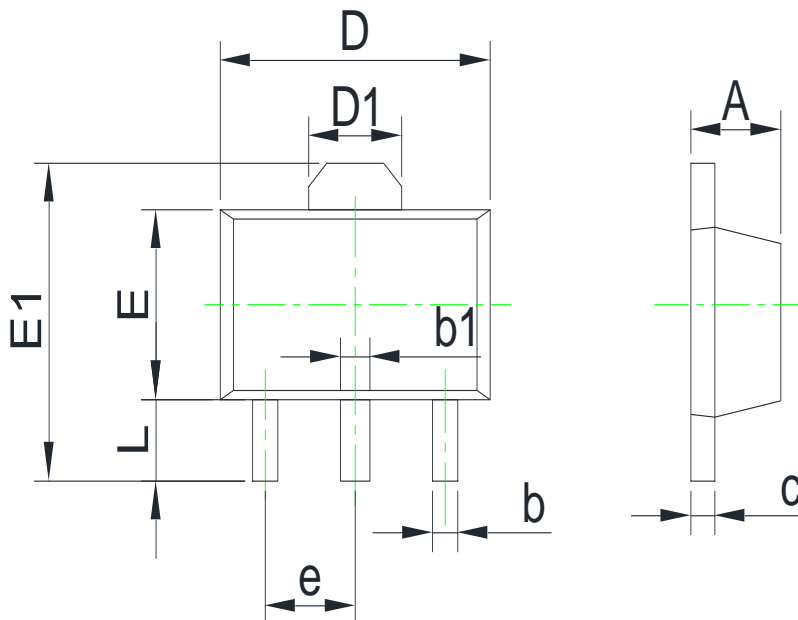
Rank	B	C	D	D3
Range	85~160	120~200	160~300	300~400

### 5. Typical Characteristic



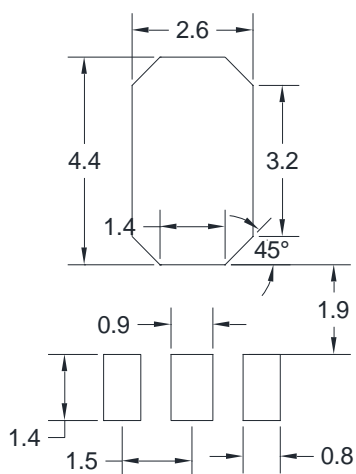


6. Dimension and Patterns (SOT-89-3L)



Units: mm

Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	1.40	1.60	D1	1.55REF	
b	0.32	0.52	E	2.30	2.60
b1	0.40	0.58	E1	3.94	4.25
c	0.35	0.44	e	1.50TYP	
D	4.40	4.60	L	0.90	1.20



Note:

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: m

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