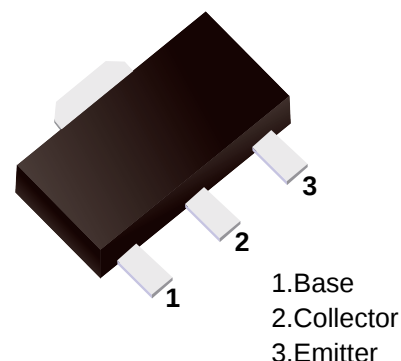


NPN Transistors

■ Features

- Excellent current-to-gain characteristics
- Low collector saturation voltage $V_{CE(sat)}$
- Complementary to 2SB1412



■ Simplified outline(SOT-89)

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	40	V
Collector - Emitter Voltage	V_{CEO}	20	
Emitter - Base Voltage	V_{EBO}	6	
Collector Current - Continuous	I_C	3	A
Collector Power Dissipation	P_C	500	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

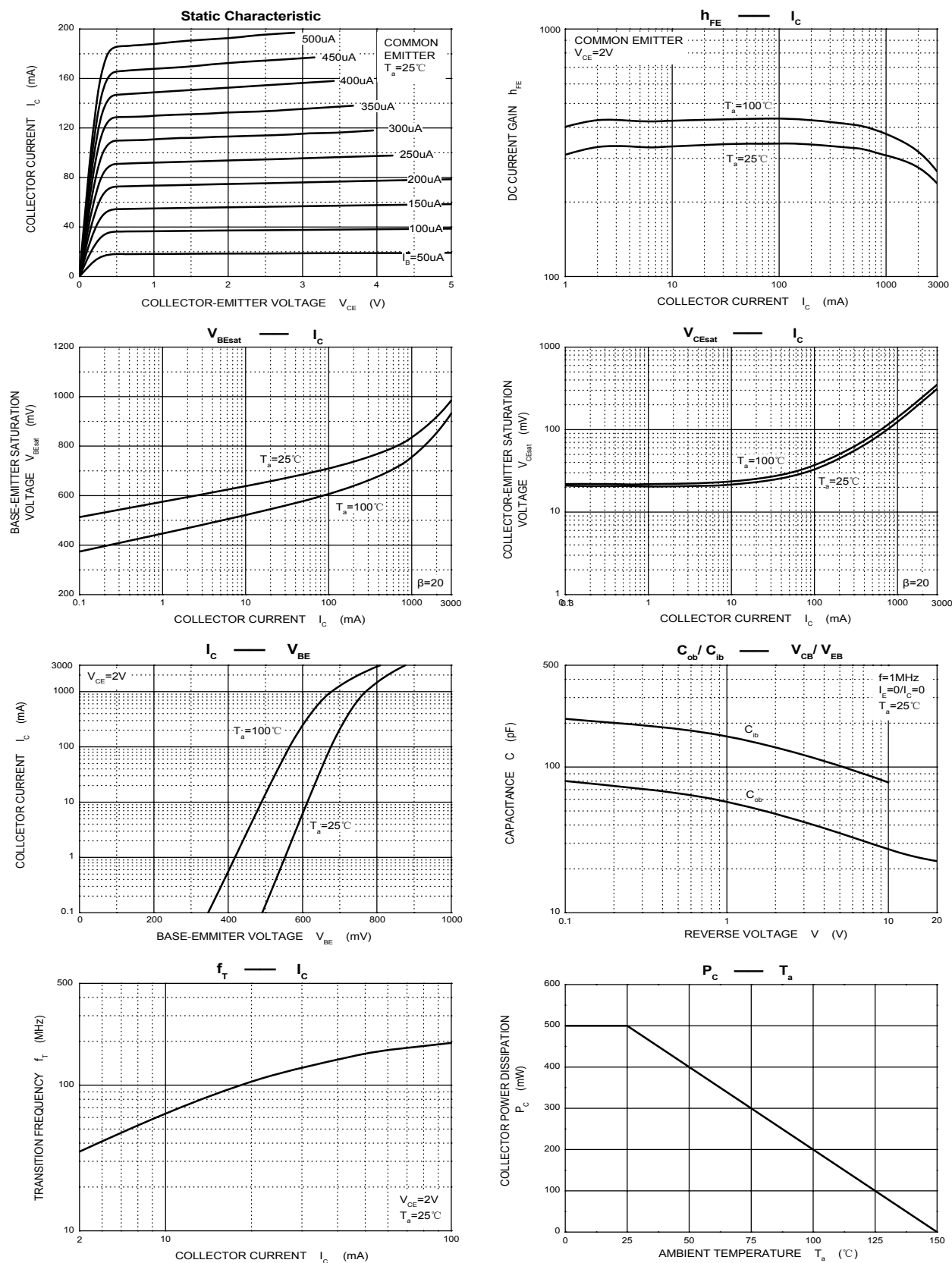
■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100\mu\text{A}$, $I_E = 0$	40			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1\text{ mA}$, $I_B = 0$	20			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100\mu\text{A}$, $I_C = 0$	6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 35\text{ V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{ A}$, $I_B = 100\text{ mA}$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{ A}$, $I_B = 100\text{ mA}$			1.2	
DC current gain	h_{FE}	$V_{CE} = 2\text{ V}$, $I_C = 100\text{ mA}$	180		560	
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$		25		pF
Transition frequency	f_T	$V_{CE} = 2\text{ V}$, $I_C = 500\text{ mA}$, $f = 100\text{ MHz}$		290		MHz

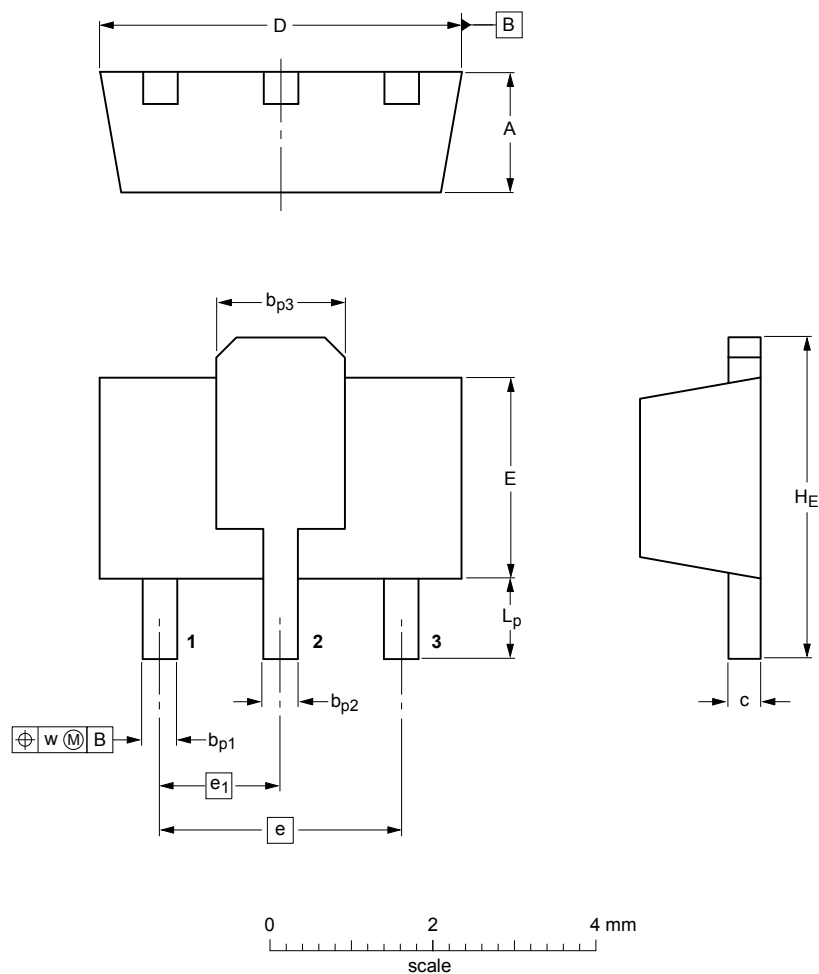
■ Classification of h_{FE}

Type	2SD2150-R	2SD2150-S
Range	180-390	270-560
Marking	CF R*	CF S*

■ Typical Characteristics



■ SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13