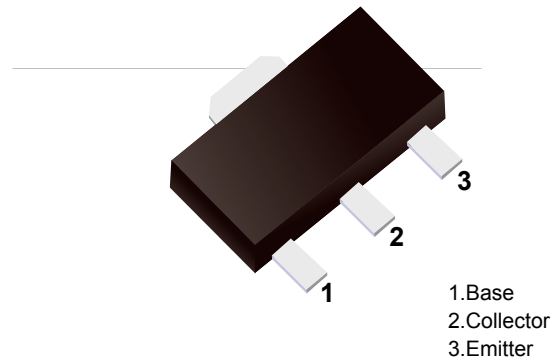


NPN Transistors

■ Features

- Collector Current Capability $I_c=2A$
- Collector Emitter Voltage $V_{CE0}=32V$
- High-speed switching.
- Complements to 2SB1188



■ Simplified outline(SOT-89)

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	40	V
Collector - Emitter Voltage	V_{CE0}	32	
Emitter - Base Voltage	V_{EB0}	5	
Collector Current - Continuous	I_c	2	A
Collector Power Dissipation	P_c	0.5	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature range	T_{stg}	-55 to 150	

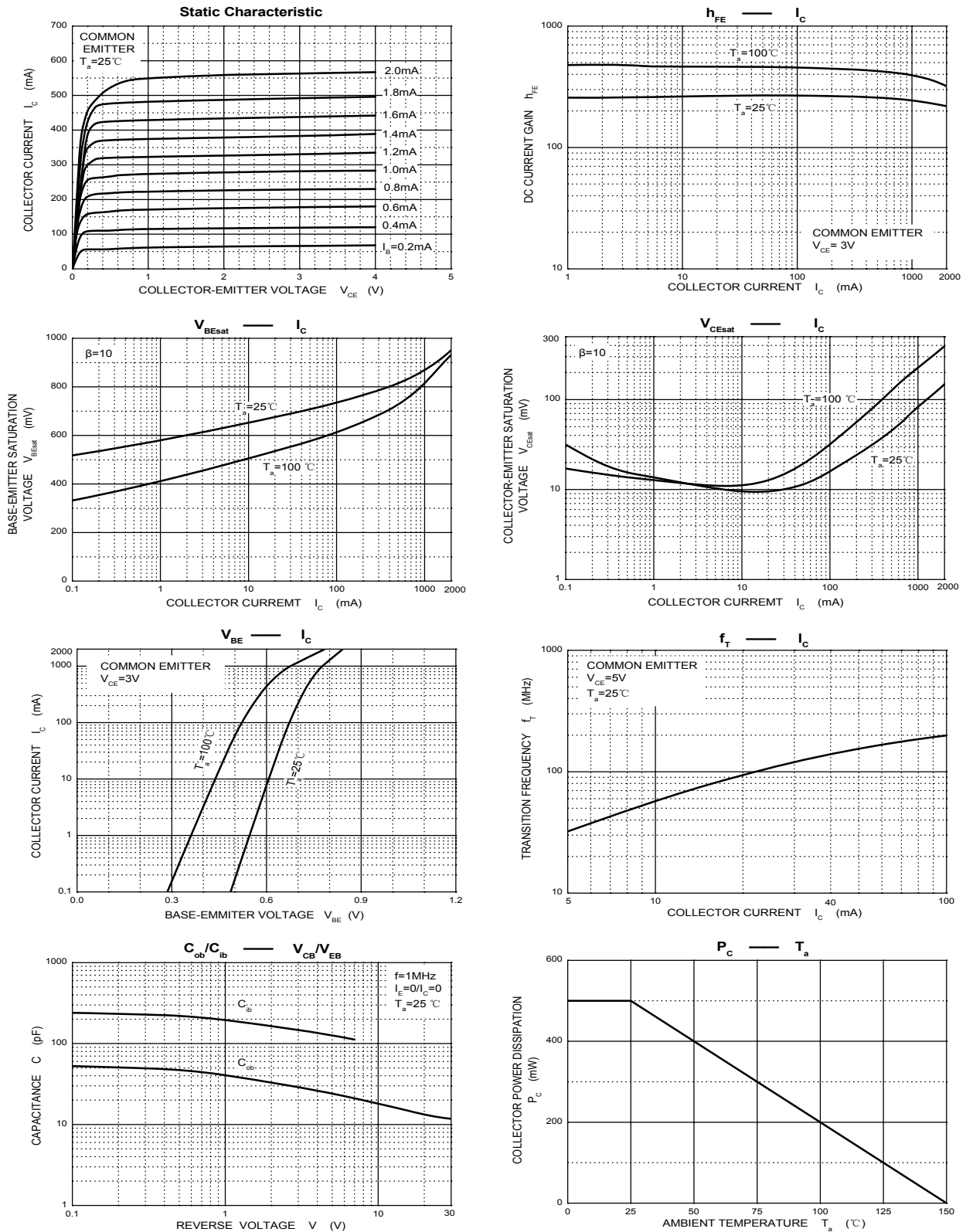
■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	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}	$I_c = 1 mA, I_B = 0$	32			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu A, I_c = 0$	5			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 20 V, I_E = 0$			1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 4 V, I_c = 0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 2 A, I_B = 200 mA$			0.8	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 2 A, I_B = 200 mA$			1.2	
DC current gain	h_{FE}	$V_{CE} = 3 V, I_c = 500 mA$	82		390	
Collector output capacitance	C_{ob}	$V_{CB} = 10 V, I_E = 0, f = 1 MHz$		30		pF
Transition frequency	f_T	$V_{CE} = 5 V, I_E = 50 mA, f = 100 MHz$		100		MHz

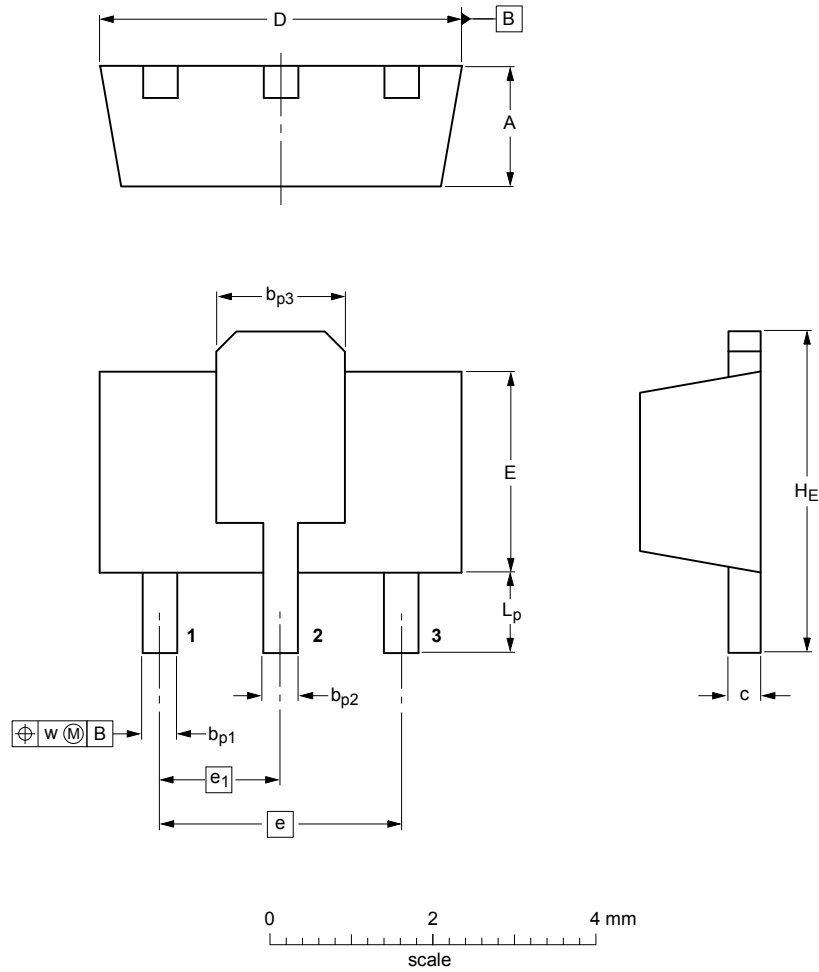
■ Classification of h_{FE}

Type	2SD1776-P	2SD1776-Q	2SD1776-R
Range	82-180	120-270	180-390
Marking	DBP	DBQ	DBR

■ 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	0.48	0.53	1.8	0.44	4.6	2.6	3.0	1.5	4.25	1.2	0.13
	1.4	0.35	0.40	1.4	0.23	4.4	2.4			3.75	0.8	