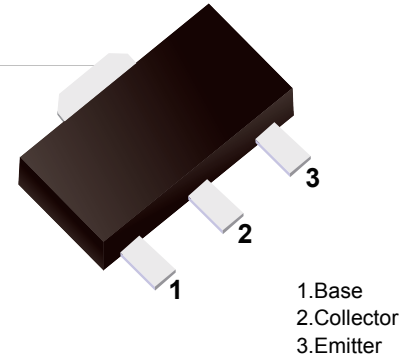


■ NPN Transistors

■ 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	$V_{CBO}$	40	V
Collector - Emitter Voltage	$V_{CEO}$	32	
Emitter - Base Voltage	$V_{EBO}$	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	

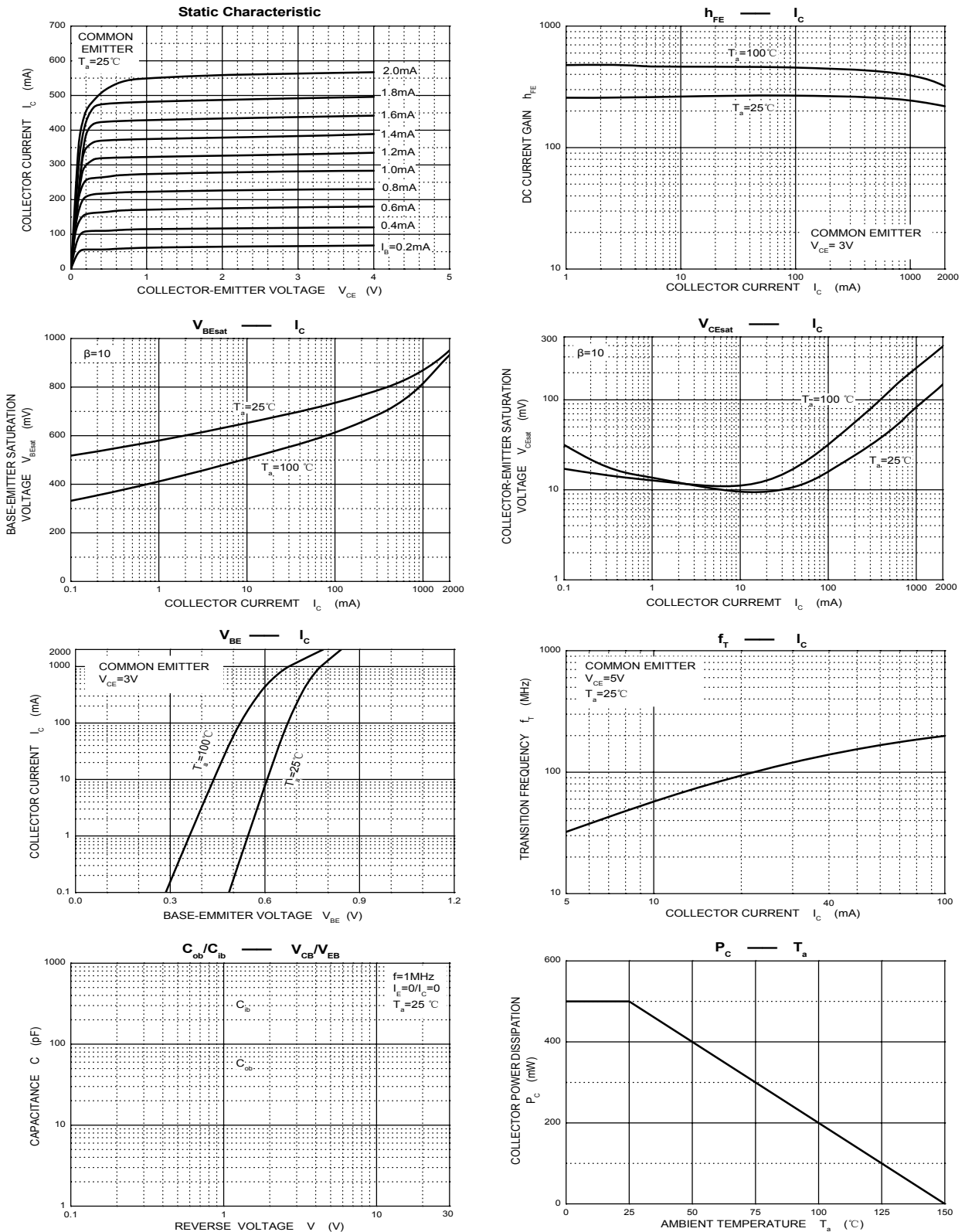
■ Electrical Characteristics  $T_a = 25^\circ C$

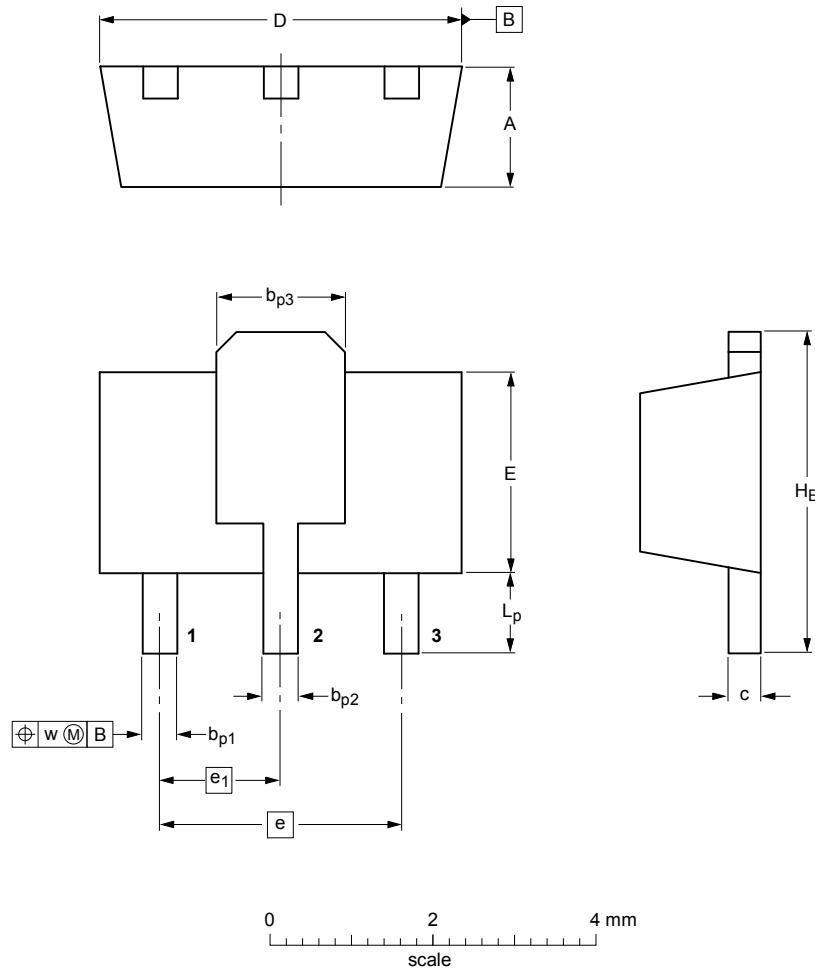
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_c = 100 \mu A, I_E = 0$	40			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_c = 1 mA, I_B = 0$	32			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100 \mu A, I_c = 0$	5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 20 V, I_E = 0$			1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4 V, I_c = 0$			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





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

**Summary of Packing Options**

Package	Package Description	Packing Quantity	Industry Standard
SOT-89	Tape/Reel, 7" reel	1000	EIA-481-1