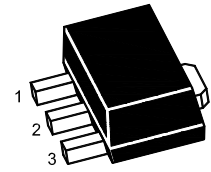


SOT-89 Plastic-Encapsulate Transistors

2SD1766U TRANSISTOR (NPN)



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

FEATURES

- Low $V_{CE(sat)}$. $V_{CE(sat)}=0.16V(Typ.)$ ($I_C/I_B=2A/0.2A$)
- Complements to 2SB1188U

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CEO}	32	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	2	A
Peak Collector Current (Single pulse, $P_w = 20\text{ ms}$)	I_{CP}	2.5	A
Collector Power Dissipation	P_C	0.5	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

¹⁾ When mounted on a 40 X 40 X 0.7 mm ceramic board.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 3\text{ V}$, $I_C = 500\text{ mA}$	Current Gain Group P	h_{FE}	82	-	180	-
	Q	h_{FE}	120	-	270	-
	R	h_{FE}	180	-	390	-
Collector Base Cutoff Current at $V_{CB} = 20\text{ V}$	I_{CBO}	-	-	1	μA	
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	I_{EBO}	-	-	1	μA	
Collector Base Breakdown Voltage at $I_C = 50\text{ }\mu\text{A}$	$V_{(BR)CBO}$	40	-	-	V	
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	32	-	-	V	
Emitter Base Breakdown Voltage at $I_E = 50\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V	
Collector Emitter Saturation Voltage at $I_C = 2\text{ A}$, $I_B = 200\text{ mA}$	$V_{CE(sat)}$	-	-	0.8	V	
Transition Frequency at $V_{CE} = 5\text{ V}$, $-I_E = 500\text{ mA}$, $f = 100\text{ MHz}$	f_T	-	100	-	MHz	
Collector Base Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	30	-	pF	

CLASSIFICATION OF $h_{FE(1)}$

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	DBP	DBQ	DBR

2SD1766U

Fig. 1 $P_C - T_a$

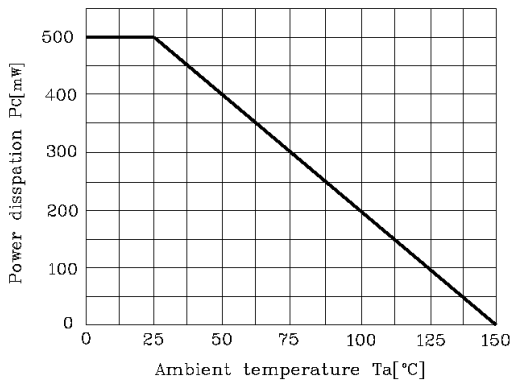


Fig. 2 $I_C - V_{BE}$

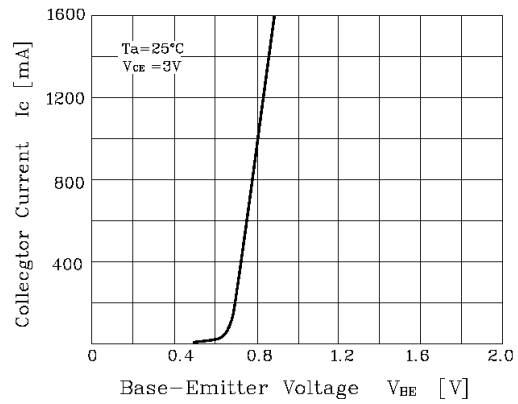


Fig. 3 $I_C - V_{CE}$

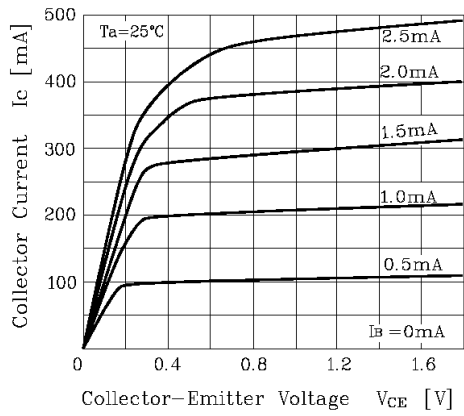


Fig. 4 $V_{CE(sat)} - I_C$

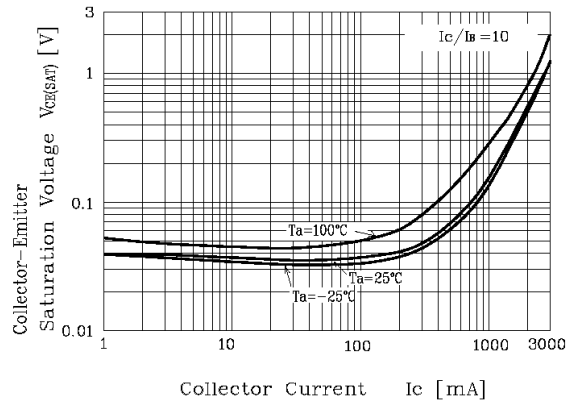
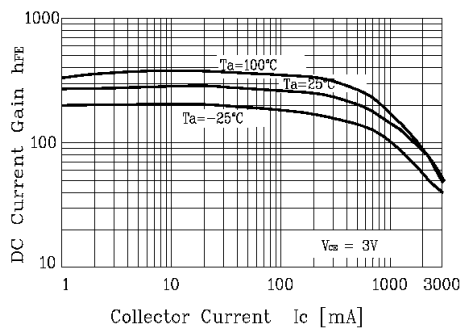


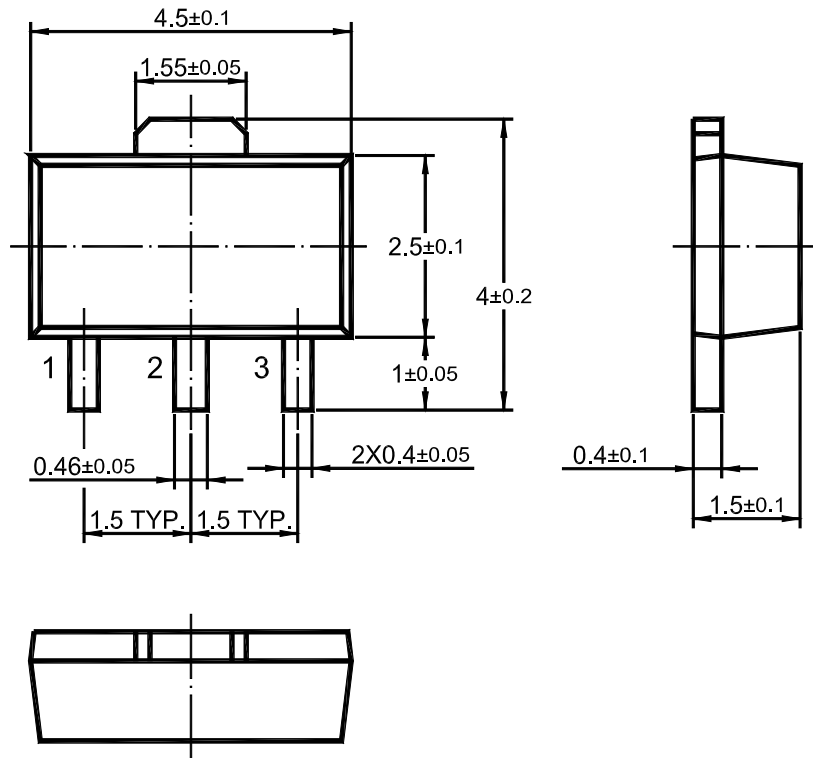
Fig. 5 $h_{FE} - I_C$





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SOT-89 PACKAGE OUTLINE



Dimensions in mm