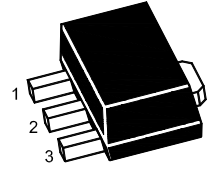




### 2SD1766U Silicon Epitaxial Planar Transistor

Medium power amplifier

Marking : 1766



1.Base 2.Collector 3.Emitter

SOT-89-3L

#### Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V <sub>CBO</sub>	40	V
Collector Emitter Voltage	V <sub>CEO</sub>	32	V
Emitter Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	2	A
Peak Collector Current (Single pulse, Pw = 20 ms)	I <sub>CP</sub>	2.5	A
Collector Power Dissipation	P <sub>C</sub>	0.5 2 <sup>1)</sup>	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	- 55 to + 150	°C

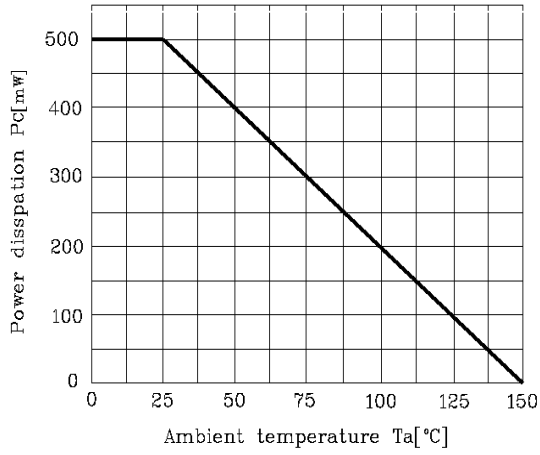
<sup>1)</sup> When mounted on a 40 X 40 X 0.7 mm ceramic board.

#### Characteristics at T<sub>a</sub> = 25 °C

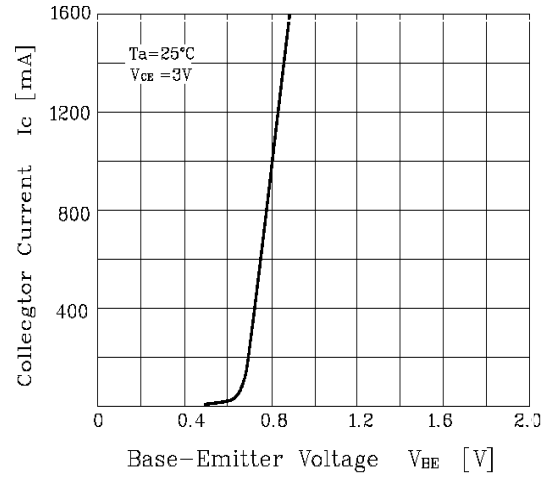
Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at V <sub>CE</sub> = 3 V, I <sub>C</sub> = 500 mA	Current Gain Group P	h <sub>FE</sub>	82	-	180	-
	Q	h <sub>FE</sub>	120	-	270	-
	R	h <sub>FE</sub>	180	-	390	-
Collector Base Cutoff Current at V <sub>CB</sub> = 20 V	I <sub>CBO</sub>	-	-	1	μA	
Emitter Base Cutoff Current at V <sub>EB</sub> = 4 V	I <sub>EBO</sub>	-	-	1	μA	
Collector Base Breakdown Voltage at I <sub>C</sub> = 50 μA	V <sub>(BR)CBO</sub>	40	-	-	V	
Collector Emitter Breakdown Voltage at I <sub>C</sub> = 1 mA	V <sub>(BR)CEO</sub>	32	-	-	V	
Emitter Base Breakdown Voltage at I <sub>E</sub> = 50 μA	V <sub>(BR)EBO</sub>	5	-	-	V	
Collector Emitter Saturation Voltage at I <sub>C</sub> = 2 A, I <sub>B</sub> = 200 mA	V <sub>CE(sat)</sub>	-	-	0.8	V	
Transition Frequency at V <sub>CE</sub> = 5 V, -I <sub>E</sub> = 500 mA, f = 100 MHz	f <sub>T</sub>	-	100	-	MHz	
Collector Base Capacitance at V <sub>CB</sub> = 10 V, f = 1 MHz	C <sub>ob</sub>	-	30	-	pF	



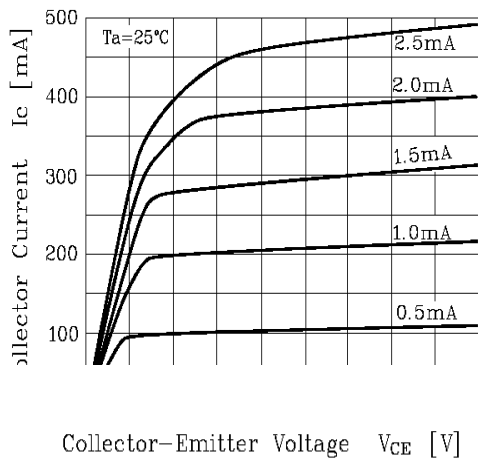
**Fig. 1**  $P_C - T_a$



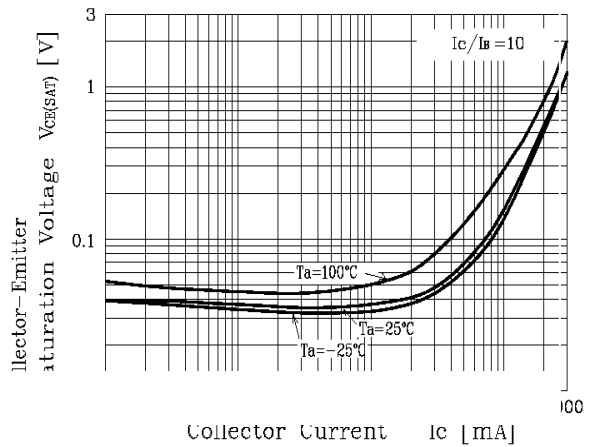
**Fig. 2**  $I_C - V_{BE}$



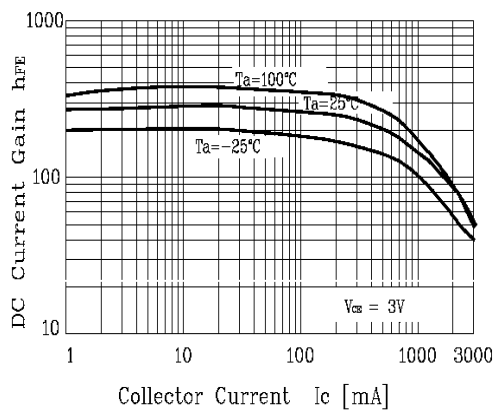
**Fig. 3**  $I_C - V_{CE}$



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

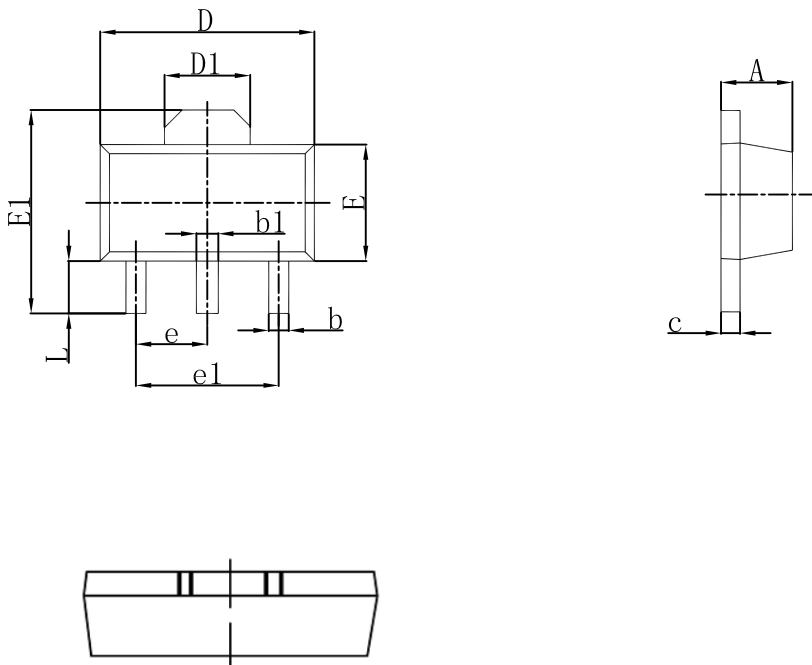


**Fig. 5**  $h_{FE} - I_C$





### SOT-89-3L Outlines Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047