



2SD1664U SILICON TRANSISTOR

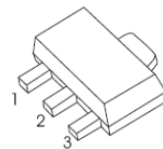
CLASSIFICATION OF hFE

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	DAP	DAQ	DAR

1. BASE

2. COLLECTOR

3. EMITTER



SOT-89-3L

Absolute Maximum Ratings (T_a = 25 °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 - DC	I _C	1	A
Collector Current - Pulse ¹⁾	I _{CP}	2	A
Total Power Dissipation	P _{tot}	0.5 2 ²⁾	W
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{Stg}	- 55 to + 150	°C

¹⁾ Single pulse, PW = 100 ms.

²⁾ When mounted on a 40 X 40 X 0.7 mm ceramic board.

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V _{CE} = 3 V, I _C = 100 mA	h _{FE} P Q R	82	-	180	-
Current Gain Group		120	-	270	-
		180	-	390	-
Collector Base Breakdown Voltage at I _C = 50 μA	V _{(BR)CBO}	40	-	-	V
Collector Emitter Breakdown Voltage at I _C = 1 mA	V _{(BR)CEO}	32	-	-	V
Emitter Base Breakdown Voltage at I _E = 50 μA	V _{(BR)EBO}	5	-	-	V
Collector Cutoff Current at V _{CB} = 20 V	I _{CBO}	-	-	0.5	μA
Emitter Cutoff Current at V _{EB} = 4 V	I _{EBO}	-	-	0.5	μA
Collector Emitter Saturation Voltage at I _C = 500 mA, I _B = 50 mA	V _{CE(sat)}	-	-	0.4	V
Transition Frequency at -I _E = 50 mA, V _{CE} = 5 V, f = 100 MHz	f _T	-	150	-	MHz
Output Capacitance at V _{CB} = 10 V, f = 1 MHz	C _{ob}	-	15	-	pF

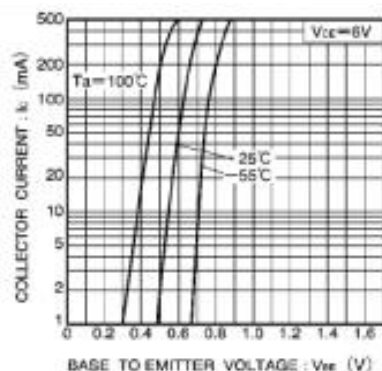


Fig.1 Grounded emitter propagation characteristics

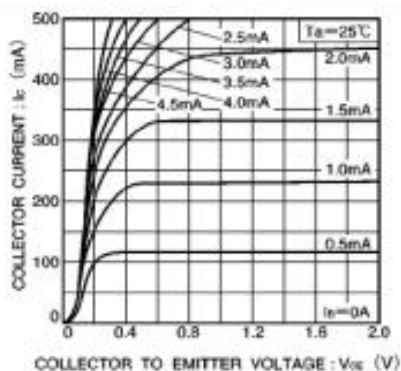


Fig.2 Grounded emitter output characteristics

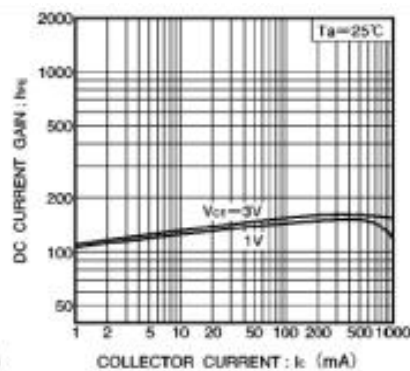


Fig.3 DC current gain vs. collector current (I)

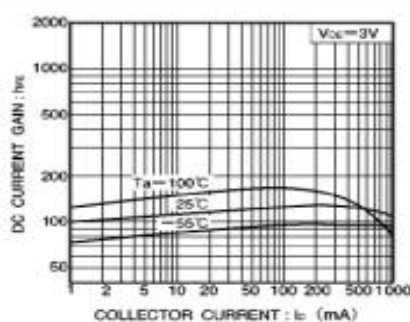


Fig.4 DC current gain vs. collector current (II)

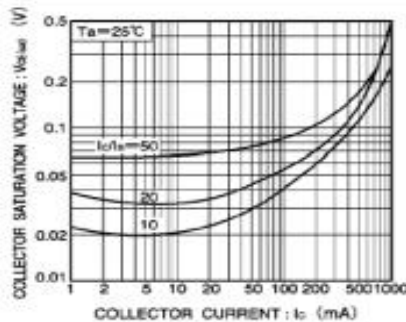


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

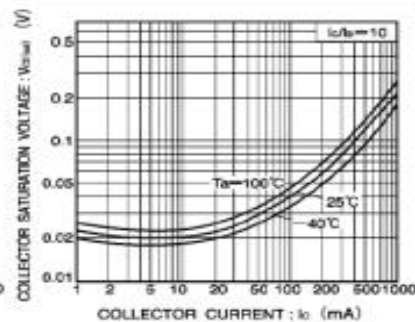


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

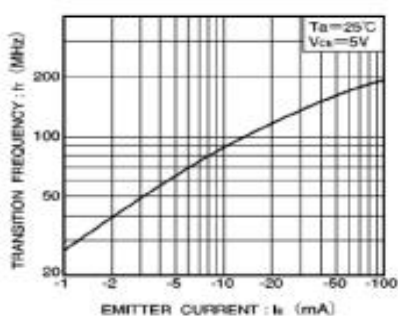


Fig.7 Gain bandwidth product vs. emitter current

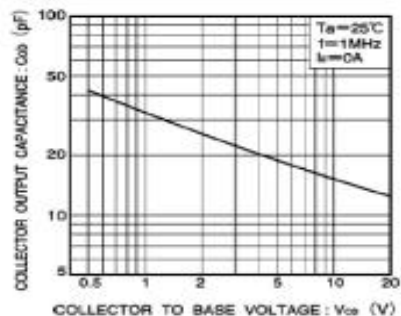


Fig.8 Collector output capacitance vs. collector-base voltage

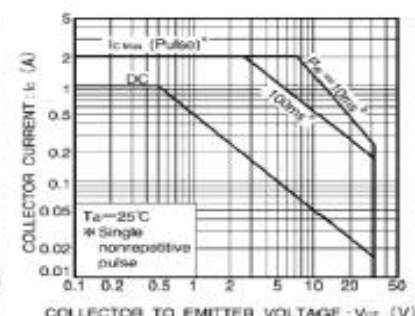


Fig.9 Safe operating area (2SD1664)

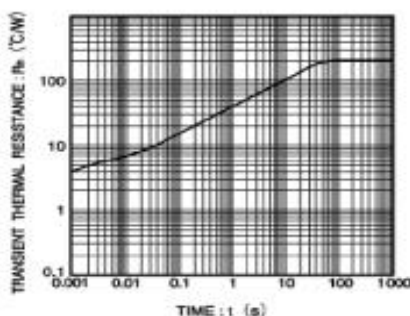
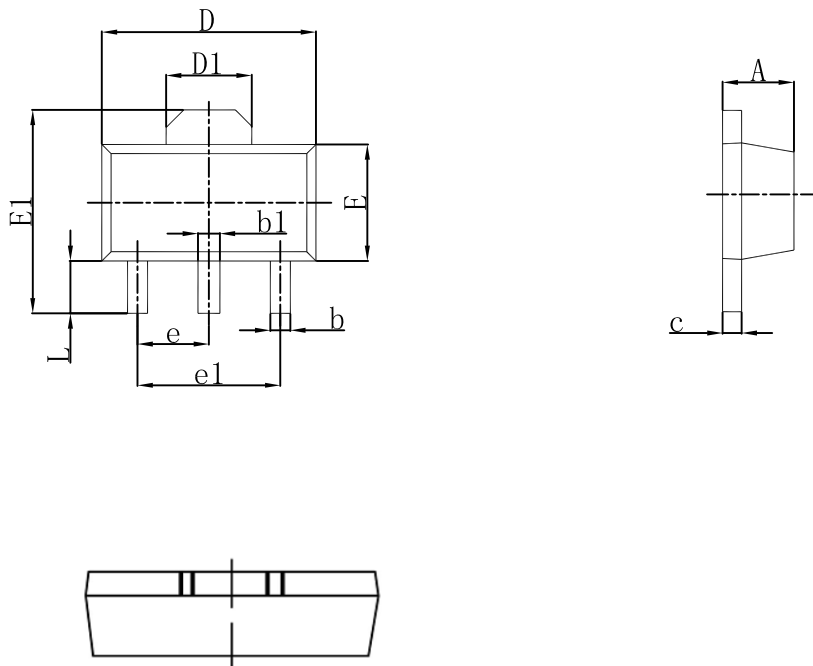


Fig.10 Transient thermal resistance (2SD1664)



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