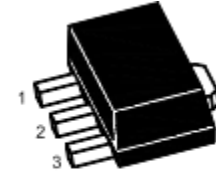


NPN SILICON EPITAXIAL MEDIUM POWER TRANSISTOR

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 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V _{CB0}	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 Current Gain Group	P	82	-	180	-
	Q	120	-	270	-
	R	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

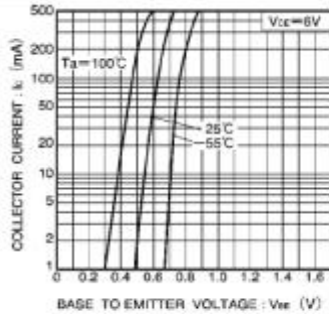


Fig.1 Grounded emitter propagation characteristics

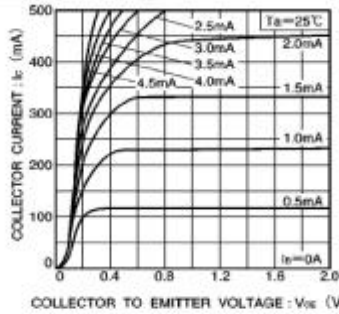


Fig.2 Grounded emitter output characteristics

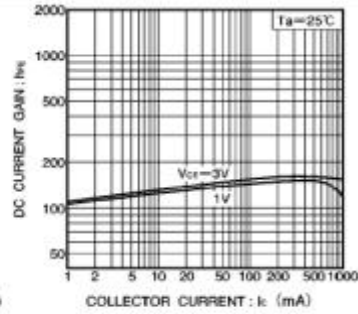


Fig.3 DC current gain vs. collector current (I)

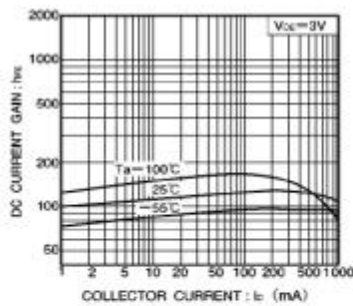


Fig.4 DC current gain vs. collector current (II)

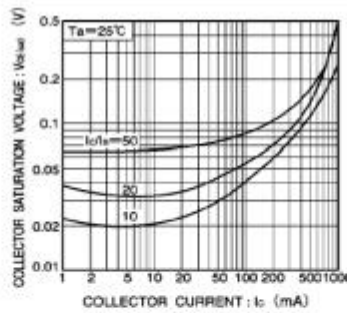


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

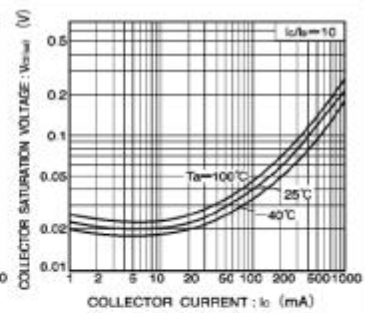


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

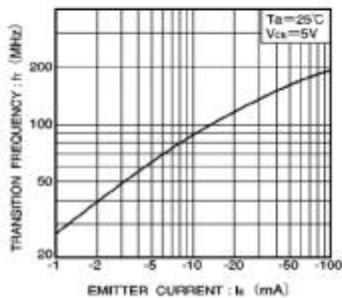


Fig.7 Gain bandwidth product vs. emitter current

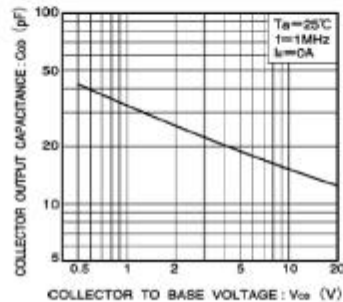


Fig.8 Collector output capacitance vs. collector-base voltage

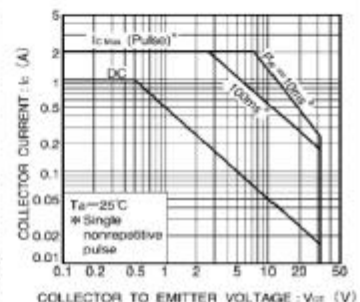


Fig.9 Safe operating area (2SD1664)

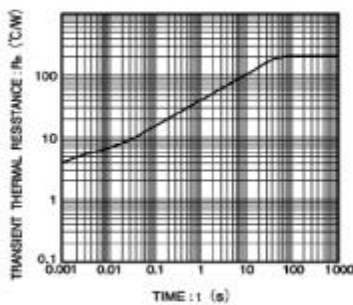


Fig.10 Transient thermal resistance (2SD1664)