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Power transistor (60V, 3A)

2SC5824
●Features

- 1) High speed switching. (T_f : Typ. : 30ns at $I_c = 3A$)
- 2) Low saturation voltage, typically
(Typ. : 200mV at $I_c = 2A$, $I_B = 200mA$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2071.

●Applications

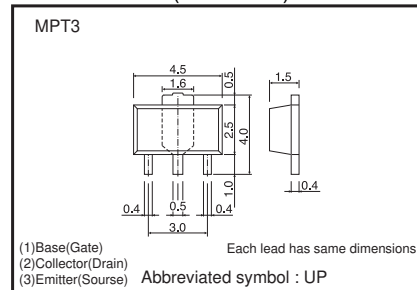
Low frequency amplifier
 High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
2SC5824		○

●Dimensions (Unit : mm)

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_c	3	A
	I_{CP}	6	A ^{*1}
Power dissipation	P_C	500	mW ^{*2}
	P_C	2.0	W ^{*3}
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

*1 $P_w=100ms$

*2 Each terminal mounted on a recommended land.

*3 Mounted on a 40x40x0.7(mm) ceramic substrate

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	60	-	-	V	I _C =100μA
Collector-emitter breakdown voltage	BV _{CEO}	60	-	-	V	I _C =1mA
Emitter-base breakdown voltage	BV _{EBO}	6	-	-	V	I _E =100μA
Collector cut-off current	I _{CB0}	-	-	1.0	μA	V _{CB} =40V
Emitter cut-off current	I _{EBO}	-	-	1.0	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	-	200	500	mV	I _C =2A, I _B =200mA *1
DC current gain	h _{FE}	120	-	390	-	V _{CE} =2V, I _C =100mA
Transition frequency	f _T	-	200	-	MHz	V _{CE} =10V, I _E =-100mA, f=10MHz *1
Collector output capacitance	C _{ob}	-	20	-	pF	V _{CB} =10V, I _E =0mA, f=1MHz
Turn-on time	t _{on}	-	50	-	ns	I _C =3A, I _{B1} =300mA
Storage time	t _{stg}	-	150	-	ns	I _{B2} =-300mA
Fall time	t _f	-	30	-	ns	V _{CC} =25V *2

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

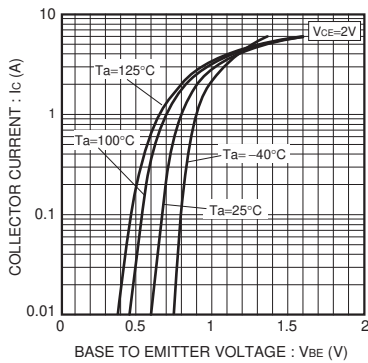


Fig.1 Ground emitter propagation characteristics

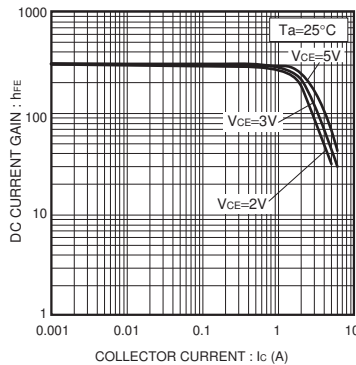


Fig.2 DC current gain vs. collector current

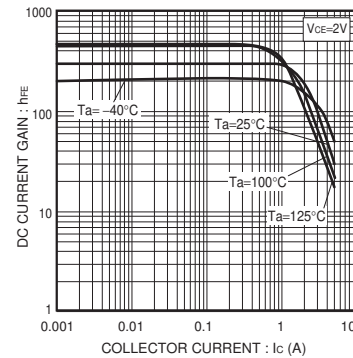


Fig.3 DC current gain vs. collector current

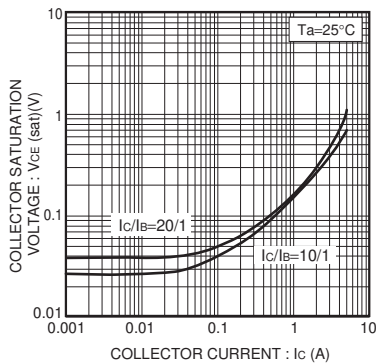


Fig.4 Collector-emitter saturation voltage vs. collector current

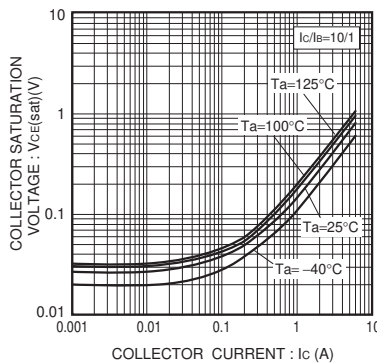


Fig.5 Collector-emitter saturation voltage vs. Collector Current

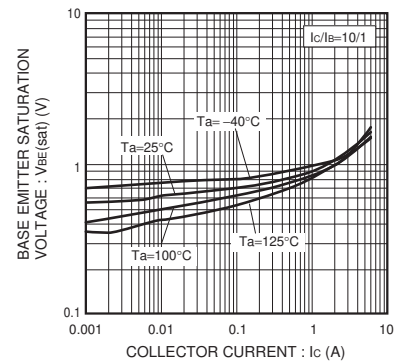


Fig.6 Base-emitter saturation voltage vs. collector current

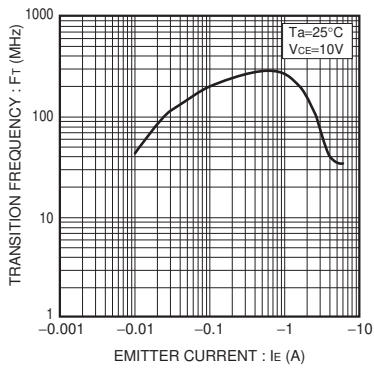


Fig.7 Transition frequency

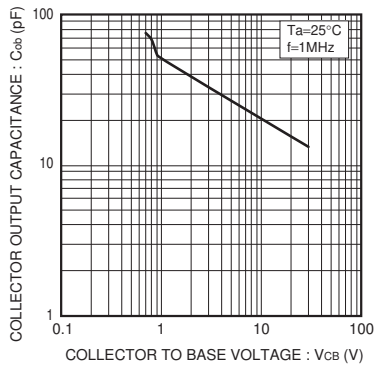


Fig.8 Collector output capacitance

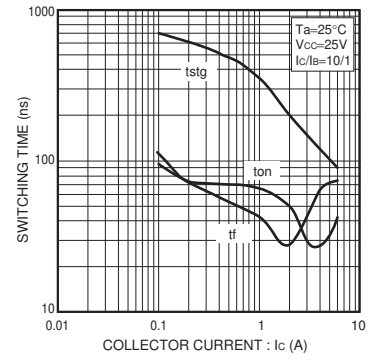
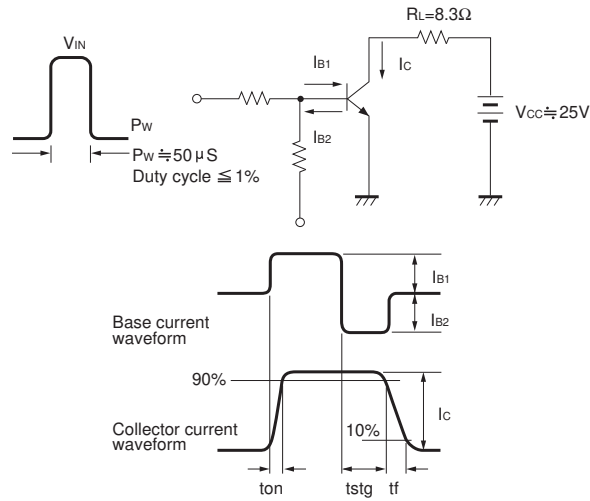


Fig.9 Switching Time

●Switching characteristics measurement circuits



Notes

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