

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

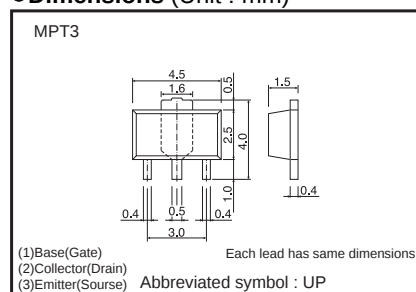
●Structure

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_{CBO}	60	—	—	V	$I_C=100\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	60	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	6	—	—	V	$I_E=100\mu A$
Collector cut-off current	I_{CBO}	—	—	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

●hFE RANK

Q	R
120-270	180-390

●Electrical characteristic curves

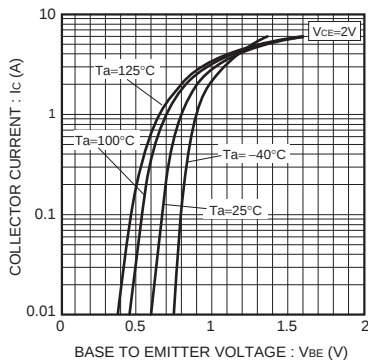


Fig.1 Ground emitter propagation characteristics

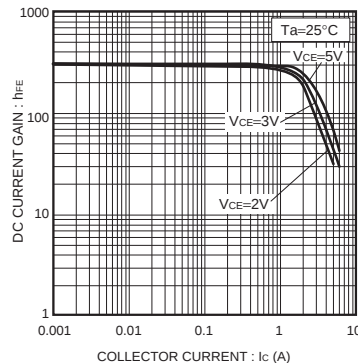


Fig.2 DC current gain vs. collector current

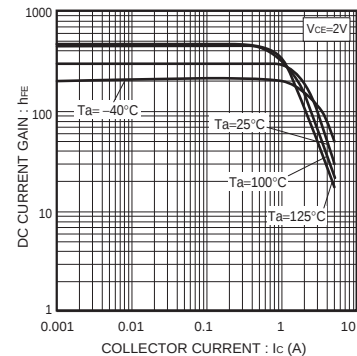


Fig.3 DC current gain vs. collector current

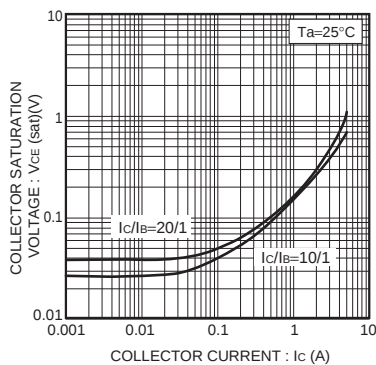


Fig.4 Collector-emitter saturation voltage vs. collector current

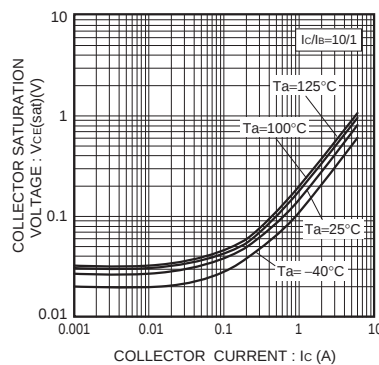


Fig.5 Collector-emitter saturation voltage vs. Collector Current

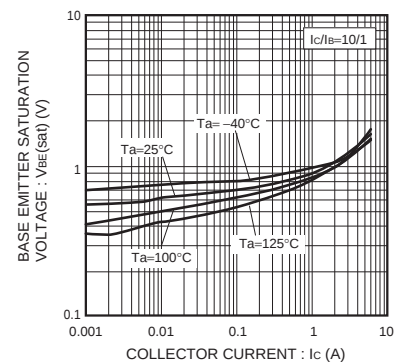


Fig.6 Base-emitter saturation voltage vs. collector current

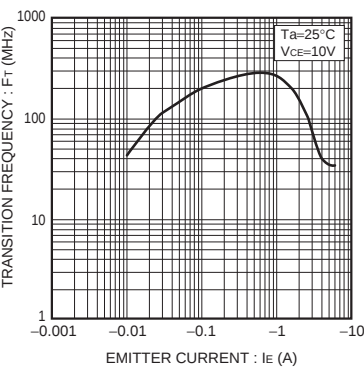


Fig.7 Transition frequency

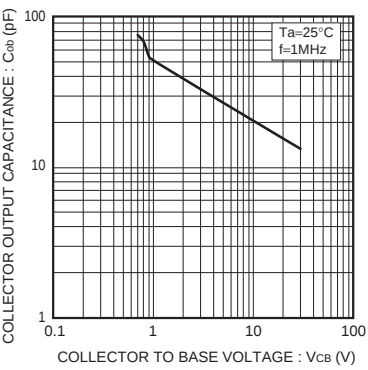


Fig.8 Collector output capacitance

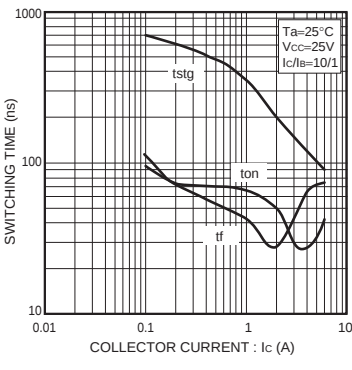
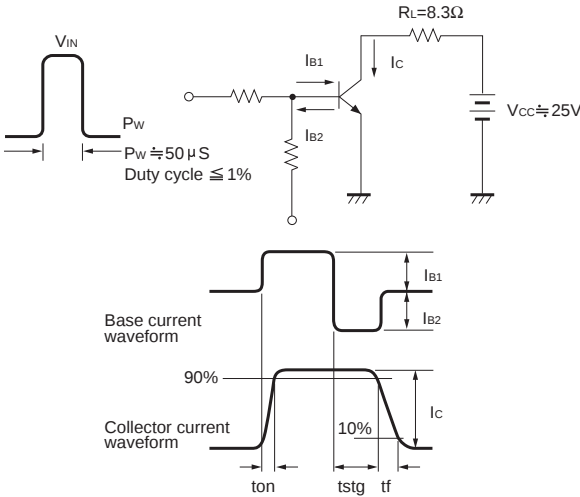


Fig.9 Switching Time

●Switching characteristics measurement circuits



Notes

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