

Medium power transistor (30V, 1.0A)

2SC5730

●Features

- 1) High speed switching. (T_f : Typ. : 35ns at $I_c = 1.0A$)
- 2) Low saturation voltage, typically
(Typ. : 150mV at $I_c = 500mA$, $I_B = 50mA$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2048

●Applications

Small signal low frequency amplifier
High speed switching

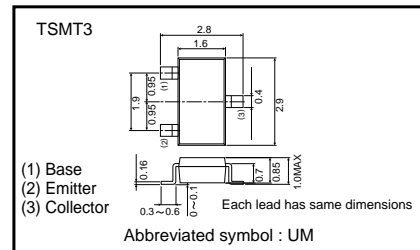
●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SC5730		○

●External dimensions (Units : mm)



●Absolute maximum ratings ($T_a=25^\circ C$)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	30	V
Collector-emitter voltage	V_{CE0}	30	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_c	1	A
	I_{cP}	2	A ^{*1}
Power dissipation	P_c	500	mW ^{*2}
Junction temperature	T_j	150	$^\circ C$
Range of storage temperature	T_{stg}	-55~+150	$^\circ C$

*1 $P_w=10ms$

*2 Each terminal mounted on a recommended land.

Transistor

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	30	-	-	V	I _C =100μA
Collector-emitter breakdown voltage	BV _{CEO}	30	-	-	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} =20V
Emitter cut-off current	I _{EBO}	-	-	1.0	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	-	150	300	mV	I _C =500mA, I _B =50mA
DC current gain	h _{FE}	120	-	390	-	V _{CE} =2V, I _C =100mA
Transition frequency	f _T	-	270	-	MHz	V _{CE} =10V, I _E =-100mA, f=10MHz*1
Collector output capacitance	C _{ob}	-	10	-	pF	V _{CB} =10V, I _E =0mA*2, f=1MHz
Turn-on time	T _{on}	-	30	-	ns	I _C =1A, I _{B1} =0.1A
Storage time	T _{stg}	-	120	-	ns	I _{B2} =-0.1A
Fall time	T _f	-	35	-	ns	V _{CC} ≈25V

*1 Non repetitive pulse

*2 See switching characteristics measurement circuits

●h_{FE} RANK

Q	R
120-270	180-390

●Electrical characteristic curves

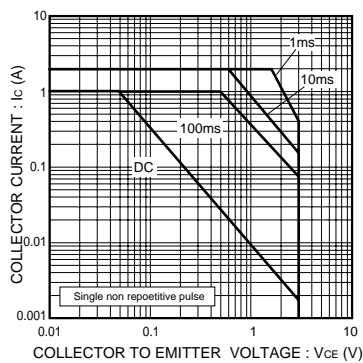


Fig.1 Safe operating area

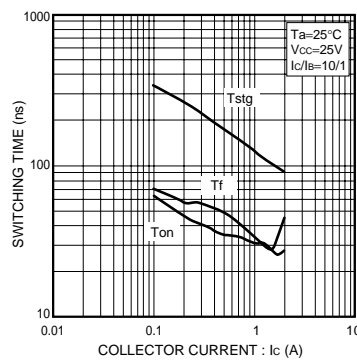


Fig.2 Switching Time

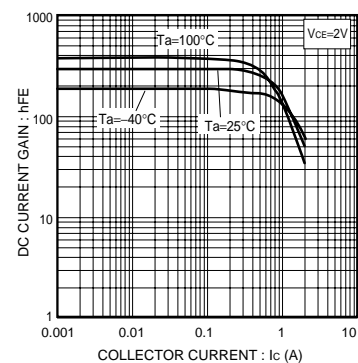


Fig.3 DC current gain vs. collector current

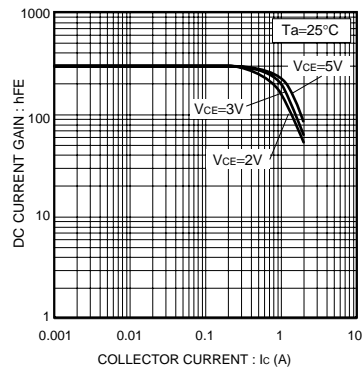


Fig.4 DC current gain vs. collector current

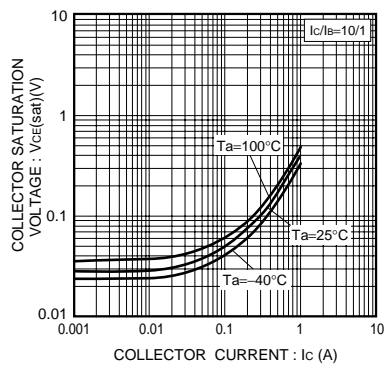


Fig.5 Collector-emitter saturation voltage vs. collector current

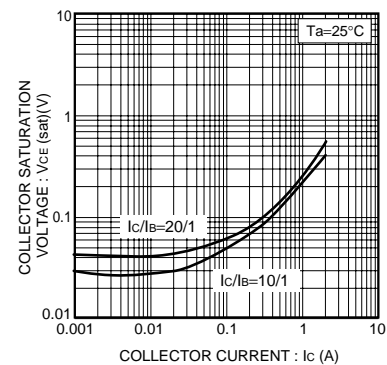


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistor

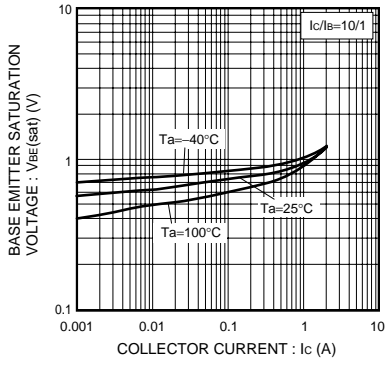


Fig.7 Base-emitter saturation voltage vs. collector current

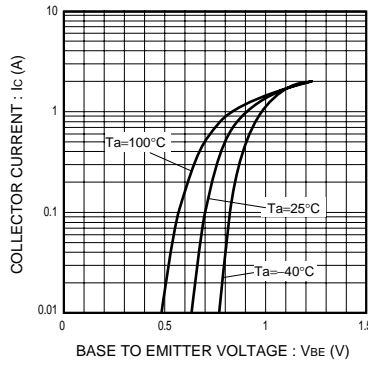


Fig.8 Ground emitter propagation characteristics

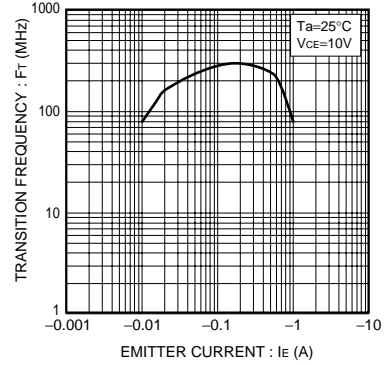


Fig.9 Transition frequency

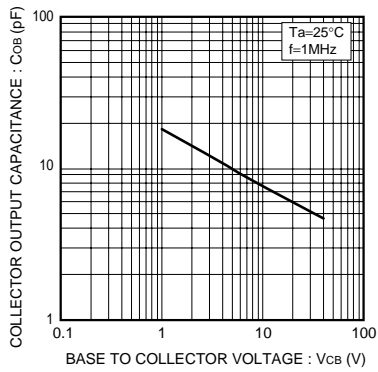
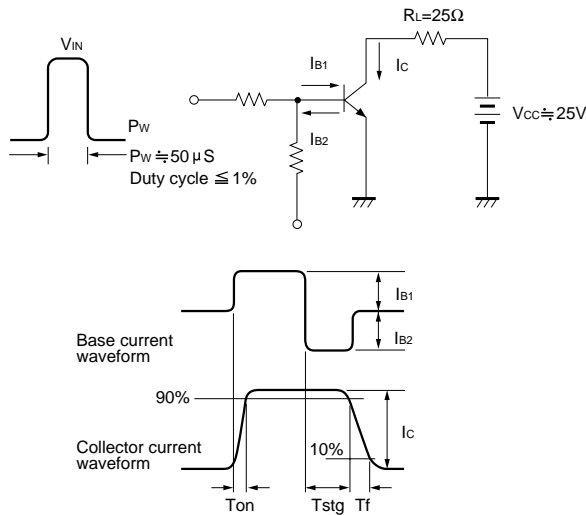


Fig.10 Collector output capacitance

●Switching characteristics measurement circuits





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