Power Transistor (400V, 0.1A)

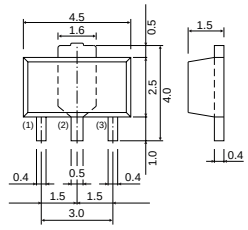
2SC4505

●Features

1) High breakdown voltage. (BV_{CEO} = 400V)
2) Low saturation voltage,
   typically $V_{CE\,(sat)}$= 0.05V at I_C / I_B = 10mA / 1mA.
3) High switching speed, typically tf = 1.7μs at Ic =100mA.
4) Complements the 2SC4505 and the 2SA1759.

●Dimensions (Unit : mm)

MPT3



(1)Base
(2)Collector
(3)Emitter

●Packaging specifications and h_{FE}

Type	2SC4505
Package	MPT3
h_{FE}	PQ
Marking	CE∗
Code	T100
Basic ordering unit (pieces)	1000

∗ Denotes h_{FE}

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	400	V
Collector-emitter voltage	V_{CEO}	400	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	I_C	0.1	A (DC)
		0.2	A (Pulse) ∗1
Collector power dissipation	P_C	0.5	W
		2	W ∗2
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

∗1 Single pulse, Pw=20ms, Duty=1/2
∗2 When mounted on a 40×40×0.7mm ceramic board.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	400	–	–	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	400	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	7	–	–	V	I_E=50μA
Collector cutoff current	I_{CBO}	–	–	10	μA	V_{CB}=400V
Emitter cutoff current	I_{EBO}	–	–	10	μA	V_{EB}=6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	0.05	0.5	V	I_C/I_B=10mA/1mA
Base-emitter saturation voltage	$V_{BE(sat)}$	–	–	1.5	V	I_C/I_B=10mA/1mA
DC current transfer ratio	h_{FE}	82	–	270	–	V_{CE}=10V , I_C=10mA
Transition frequency	f_T	–	20	–	MHz	V_{CE}=10V , I_E=−10mA , f=10MHz
Output capacitance	Cob	–	7	–	pF	V_{CB}=10V , I_E=0A , f=1MHz
Turn-on time	t_{on}	–	1	–	μs	I_C=−100mA R_L=1.5kΩ
Storage time	t_{stg}	–	5.5	–	μs	I_{B1}=−I_{B2}=10mA
Fall time	t_f	–	1.7	–	μs	V_{CC}≒−150V

●**Electrical characteristics** (Ta=25°C)

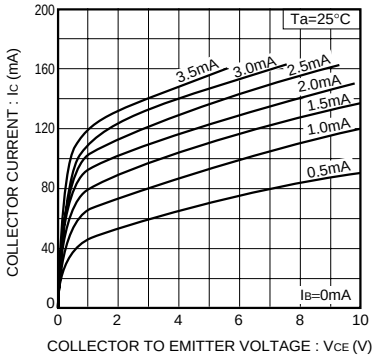


Fig.1 Ground emitter output characteristics

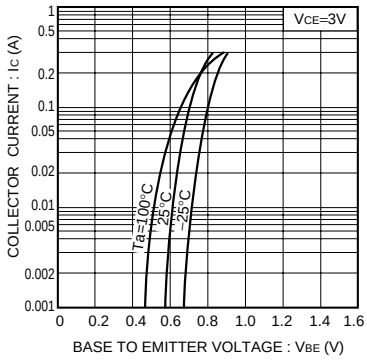


Fig.2 Ground emitter propagation characterisitics

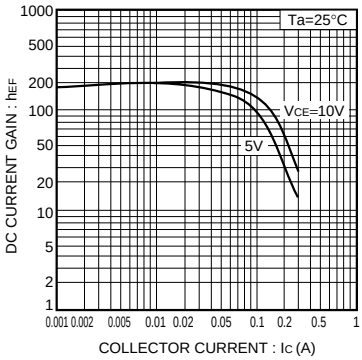


Fig.3 DC current gain vs. collector current (Ⅰ)

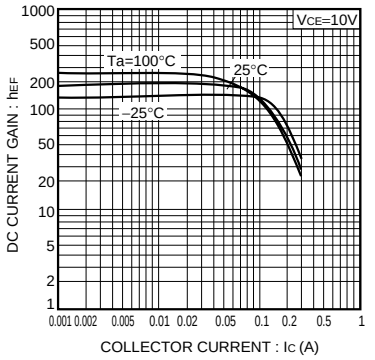


Fig.4 DC current gain vs. collector current (Ⅱ)

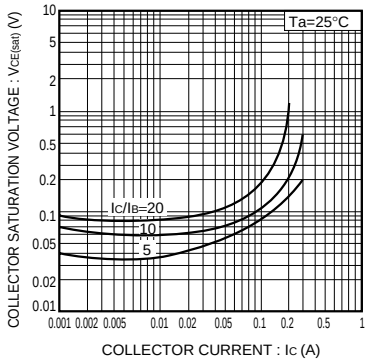


Fig.5 Collector-emitter saturation voltage vs. collector current

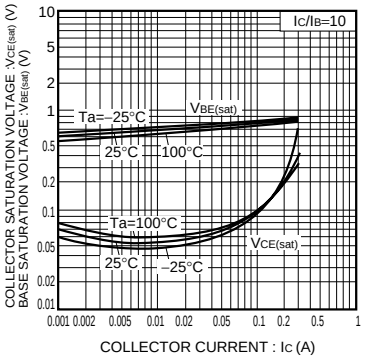


Fig.6 Collector-emitter saturation voltage
Collector-base saturation voltage vs. collector current

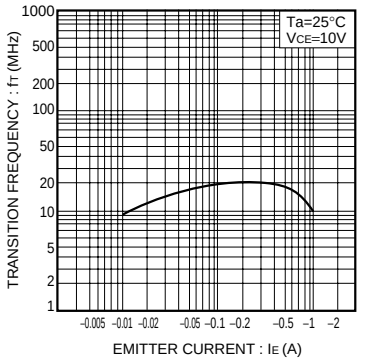


Fig.7 Gain bandwidth product vs. emitter current

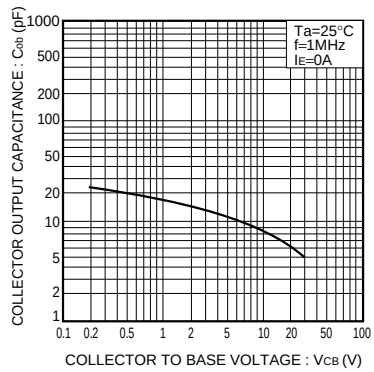


Fig.8 Collector output capacitance vs. collector-base voltage

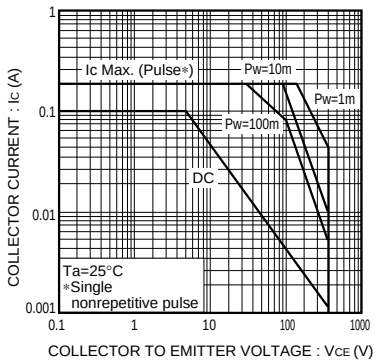


Fig.9 Safe operating area

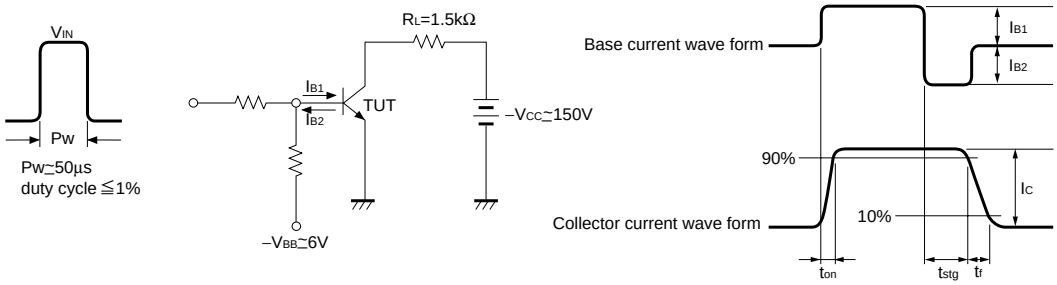


Fig.10 Switching time mesurement circuit

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