

High-voltage Amplifier Transistor (120V, 50mA)

2SC4102 / 2SC3906K

●Features

- 1) High breakdown voltage. ($V_{CEO} = 120V$)
- 2) Complements the 2SA1579 / 2SA1514K

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	120	V
Collector-emitter voltage	V_{CEO}	120	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	0.2	W
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

●Packaging specifications and h_{FE}

Type	2SC4102	2SC3906K
Package	UMT3	SMT3
h_{FE}	RS	RS
Marking	T*	T*
Code	T106	T146
Basic ordering unit (pieces)	3000	3000

*Denotes h_{FE}

●Dimensions (Unit : mm)

2SC4102 ROHM : UMT3 EIAJ : SC-70 JEDEC : SOT-323 (1) Emitter (2) Base (3) Collector	2SC3906K ROHM : SMT3 EIAJ : SC-59 JEDEC : SOT-346 (1) Emitter (2) Base (3) Collector
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●Electrical characteristics ($T_a=25^\circ C$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	V_{CBO}	120	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	V_{CEO}	120	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	V_{EBO}	5	—	—	V	$I_E=50\mu A$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB}=100V$
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_C/I_E=10mA/1mA$
DC current transfer ratio	h_{FE}	180	—	560	—	$V_{CE}=6V, I_C=2mA$
Transition frequency	f_T	—	140	—	MHz	$V_{CE}=12V, I_E=2mA, f=100MHz$
Output capacitance	C_{ob}	—	2.5	—	pF	$V_{CB}=12V, I_E=0A, f=1MHz$

●Electrical characteristics curves

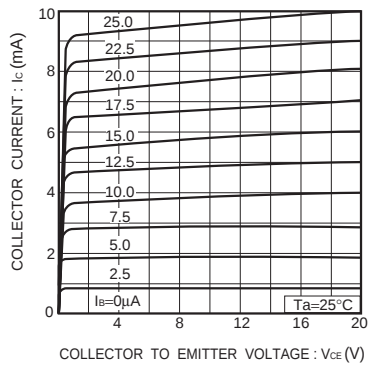


Fig.1 Ground emitter output characteristics

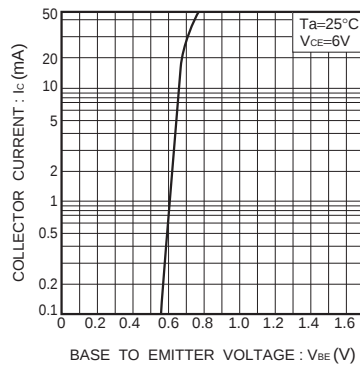


Fig.2 Ground emitter propagation characteristics

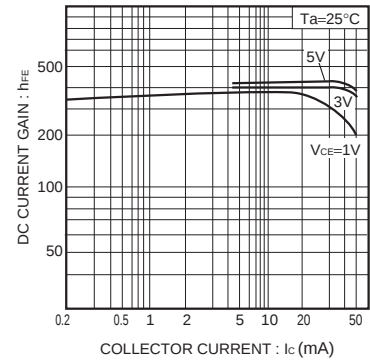


Fig.3 DC current gain vs. collector current

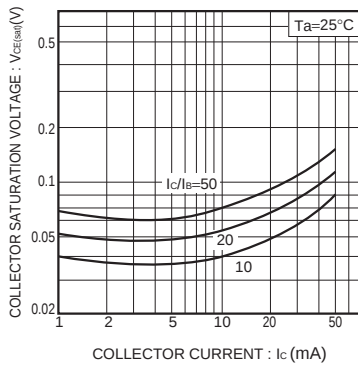


Fig.4 Collector-emitter saturation voltage vs. collector current (I)

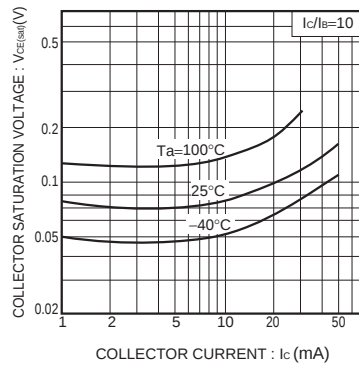


Fig.5 Collector-emitter saturation voltage vs. collector current (II)

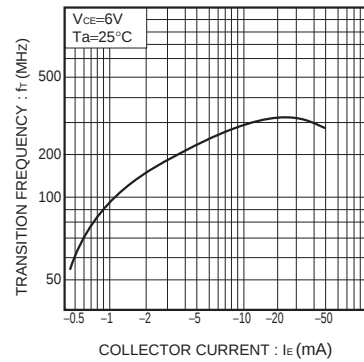


Fig.6 Gain bandwidth product vs. emitter current

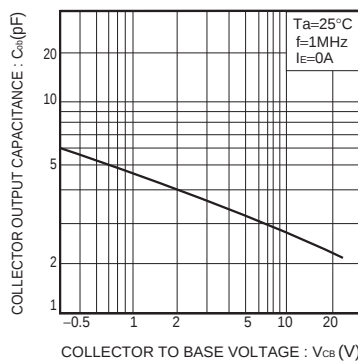


Fig.7 Collector output capacitance vs. collector-base voltage

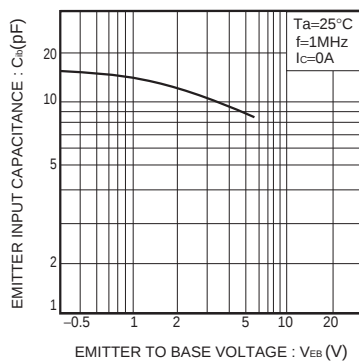


Fig.8 Emitter input capacitance vs. emitter-base voltage

Notes

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