

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

2SC4102 / 2SC3906K / 2SC2389S

●Features

- 1) High breakdown voltage. ($BV_{CEO} = 120V$)
- 2) Complements the 2SA1579 / 2SA1514K / 2SA1038S.

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

Parameter	Symbol	Limits	Unit	
Collector-base voltage	V_{CB0}	120	V	
Collector-emitter voltage	V_{CE0}	120	V	
Emitter-base voltage	V_{EB0}	5	V	
Collector current	I_C	50	mA	
Collector power dissipation	2SC4102 / 2SC3906K 2SC2389S	P_C	0.2	W
			0.3	
Junction temperature	T_j	150	$^\circ C$	
Storage temperature	T_{stg}	-55 to +150	$^\circ C$	

●Packaging specifications and h_{FE}

Type	2SC4102	2SC3906K	2SC2389S
Package	UMT3	SMT3	SPT
h_{FE}	RS	RS	RS
Marking	T*	T*	-
Code	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	5000

*Denotes h_{FE}

●External dimensions (Unit : mm)

2SC4102

ROHM : UMT3 (1) Emitter
EIAJ : SC-70 (2) Base
JEDEC : SOT-323 (3) Collector

2SC3906K

ROHM : SMT3 (1) Emitter
EIAJ : SC-59 (2) Base
JEDEC : SOT-346 (3) Collector

2SC2389S

ROHM : SPT (1) Emitter
EIAJ : SC-72 (2) Collector
(3) Base

●Electrical characteristics ($T_a=25^\circ C$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CB0}	120	-	-	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	BV_{CE0}	120	-	-	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EB0}	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	$I_C/I_B=10mA/1mA$
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	$V_{CB}=12V, I_E=0A, f=1MHz$

Transistors

●Electrical characteristics curves

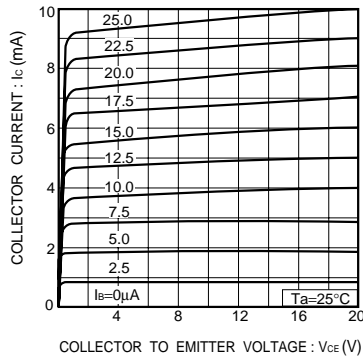


Fig.1 Ground emitter output characteristics

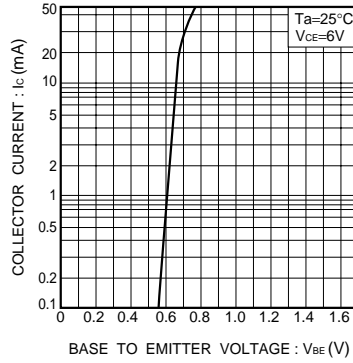


Fig.2 Ground emitter propagation characteristics

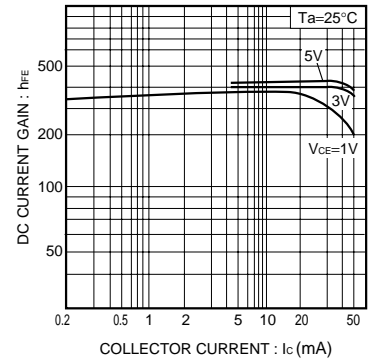


Fig.3 DC current gain vs. collector current

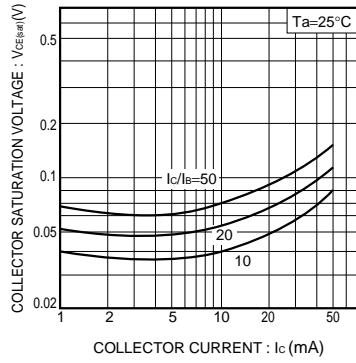


Fig.4 Collector-emitter saturation voltage vs. collector current (I)

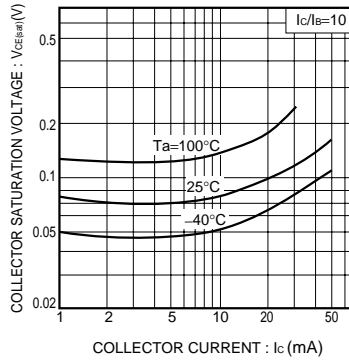


Fig.5 Collector-emitter saturation voltage vs. collector current (II)

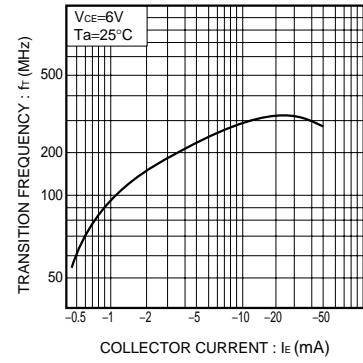


Fig.6 Gain bandwidth product vs. emitter current

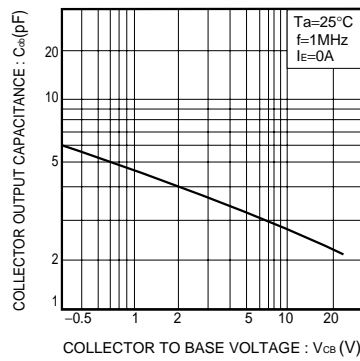


Fig.7 Collector output capacitance vs. collector-base voltage

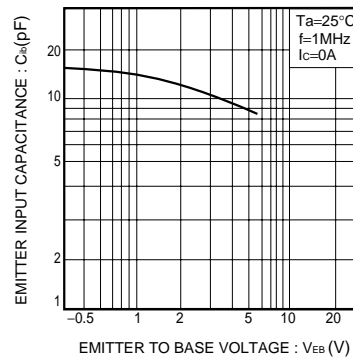


Fig.8 Emitter input capacitance vs. emitter-base voltage