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 (Ta=25°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	2SC4102 / 2SC3906K	P_C	0.2	W
	2SC2389S		0.3	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	−55 to +150	°C

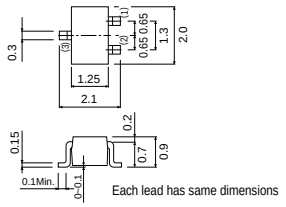
●Packaging specifications and h_{FE}

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)

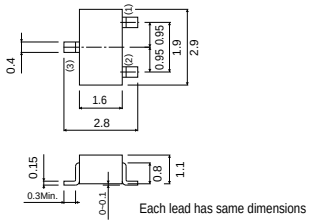
2SC4102



ROHM : UMT3
EIAJ : SC-70
JEDEC : SOT-323

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

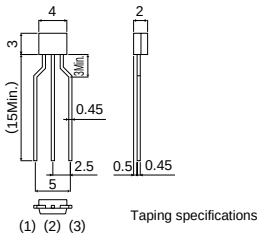
2SC3906K



ROHM : SMT3
EIAJ : SC-59
JEDEC : SOT-346

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

2SC2389S



ROHM : SPT
EIAJ : SC-72

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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	120	–	–	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	120	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	–	–	V	I_E=50μA
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	Cob	–	2.5	–	pF	V_{CB}=12V, I_E=0A, f=1MHz

●Electrical characteristics curves

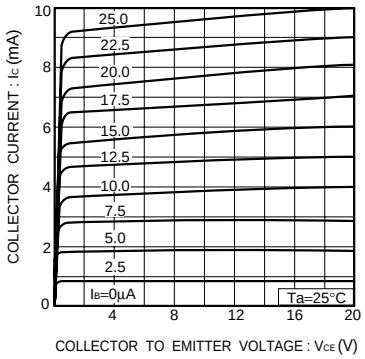


Fig.1 Ground emitter output characteristics

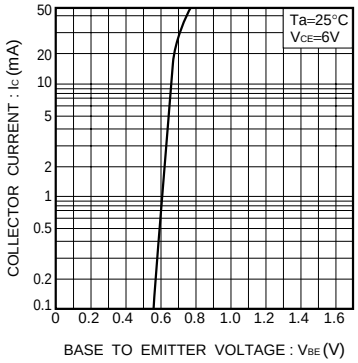


Fig.2 Ground emitter propagation characteristics

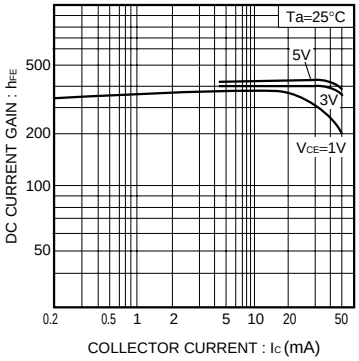


Fig.3 DC current gain vs. collector current

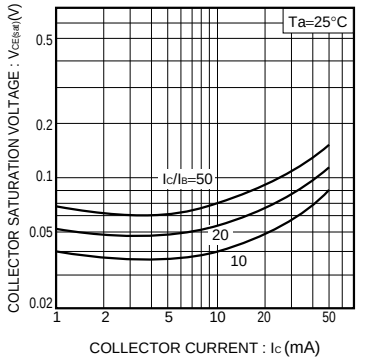


Fig.4 Collector-emitter saturation voltage vs. collector current (I)

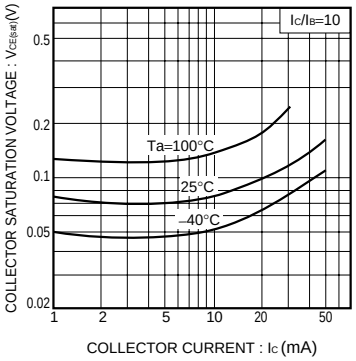


Fig.5 Collector-emitter saturation voltage vs. collector current (II)

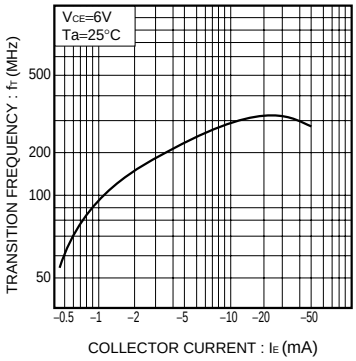


Fig.6 Gain bandwidth product vs. emitter current

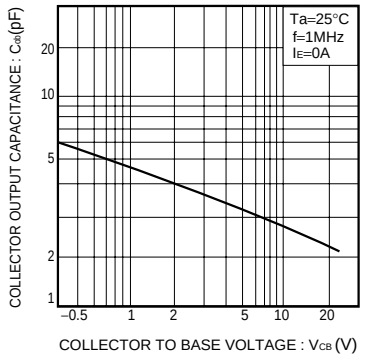


Fig.7 Collector output capacitance vs. collector-base voltage

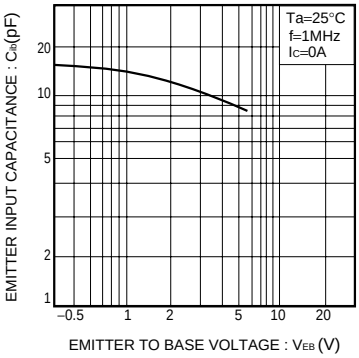


Fig.8 Emitter input capacitance vs. emitter-base voltage

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