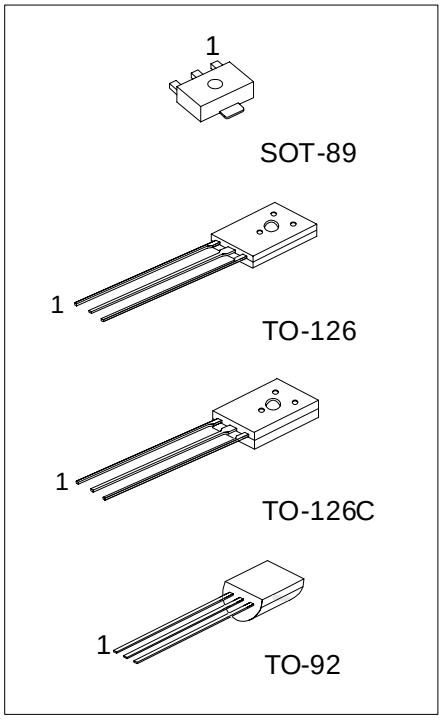
2SB649/A

PNP SILICON TRANSISTOR

BIPOLAR POWER GENERAL PURPOSE TRANSISTOR



*Pb-free plating product number: 2SB649L/2SB649AL

■ APPLICATIONS

* Low frequency power amplifier complementary pair with UTC 2SB669/A

■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
2SB649-x-AB3-R	2SB649L-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SB649-x-T6C-K	2SB649L-x-T6C-K	TO-126C	E	C	B	Bulk
2SB649-x-T60-K	2SB649L-x-T60-K	TO-126	E	C	B	Bulk
2SB649-x-T92-B	2SB649L-x-T92-B	TO-92	E	C	B	Tape Box
2SB649-x-T92-K	2SB649L-x-T92-K	TO-92	E	C	B	Bulk
2SB649A-x-AB3-R	2SB649AL-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SB649A-x-T6C-K	2SB649AL-x-T6C-K	TO-126C	E	C	B	Bulk
2SB649A-x-T60-K	2SB649AL-x-T60-K	TO-126	E	C	B	Bulk
2SB649A-x-T92-B	2SB649AL-x-T92-B	TO-92	E	C	B	Tape Box
2SB649A-x-T92-K	2SB649AL-x-T92-K	TO-92	E	C	B	Bulk

2SB649L-x-AB3-R
(1)Packing Type
(2)Package Type
(3)Rank
(4)Lead Plating

(1) B: Tape Box, K: Bulk, R: Tape Reel
(2) AB3: SOT-89, T6C: TO-126C, T60: TO-126, T92: TO-92
(3) x: refer to Classification of h_{FE}
(4) L: Lead Free Plating, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATING (Ta=25℃, unless otherwise specified)

PARAMETER		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	-180	V
Collector-Emitter Voltage	2SB649	V_{CEO}	-120	V
	2SB649A		-160	
Emitter-Base Voltage		V_{EBO}	-5	V
Collector Current		I_C	-1.5	A
Collector Peak Current		$I_{C(PEAK)}$	-3	A
Collector Power Dissipation	TO-126/TO-126C	P_D	1.4	W
	TO-92		1	W
	SOT-89		500	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta=25℃, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Breakdown Voltage		BV_{CBO}	I_C=-1mA, I_E=0	-180			V
Collector to Emitter Breakdown Voltage	2SB649	BV_{CEO}	I_C=-10mA, R_{BE}=∞	-120			V
	2SB649A			-160			
Emitter to Base Breakdown Voltage		BV_{EBO}	I_E=-1mA, I_C=0	-5			V
Collector Cut-off Current		I_{CBO}	V_{CB}=-160V, I_E=0			-10	μA
DC Current Gain	2SB649	h_{FE1}	V_{CE}=-5V, I_C=-150mA (note)	60		320	
		h_{FE2}	V_{CE}=-5V, I_C=-500mA (note)	30			
	2SB649A	h_{FE1}	V_{CE}=-5V, I_C=-150mA (note)	60		200	
		h_{FE2}	V_{CE}=-5V, I_C=-500mA (note)	30			
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	Ic=-600mA, I_B=-50mA			-1	V
Base-Emitter Voltage		V_{BE}	V_{CE}=-5V, I_C=-150mA			-1.5	V
Current Gain Bandwidth Product		f_T	V_{CE}=-5V,I_C=-150mA		140		MHz
Output Capacitance		Cob	V_{CB}=-10V, I_E=0, f=1MHz		27		pF

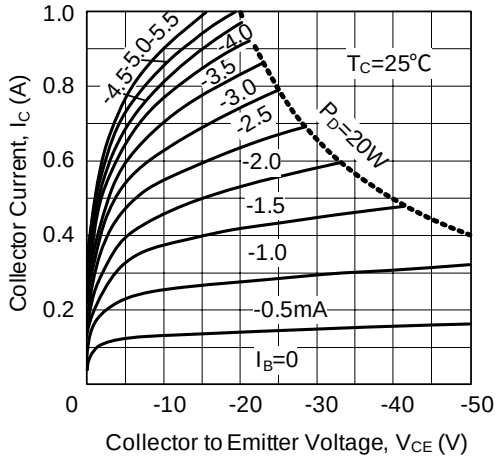
Note: Pulse test.

■ CLASSIFICATION OF h_{FE}

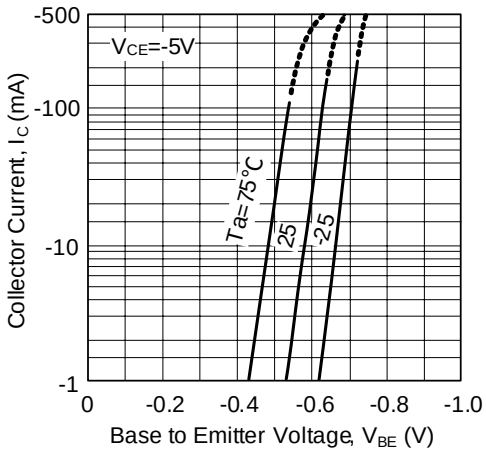
RANK	B	C	D
RANGE	60-120	100-200	160-320

■ TYPICAL CHARACTERISTICS

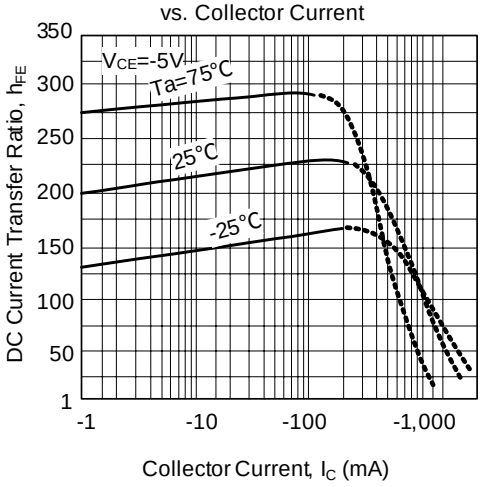
Typical Output Characteristecs



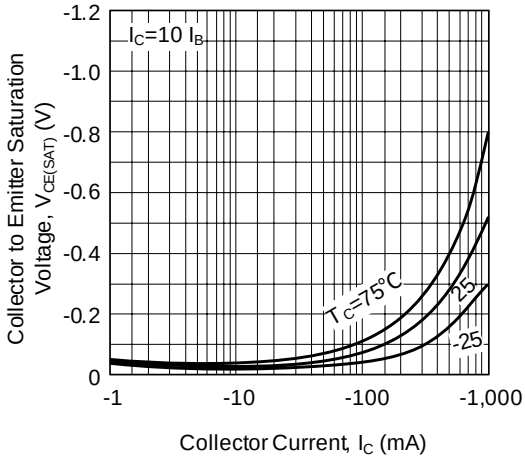
Typical Transfer Characteristics



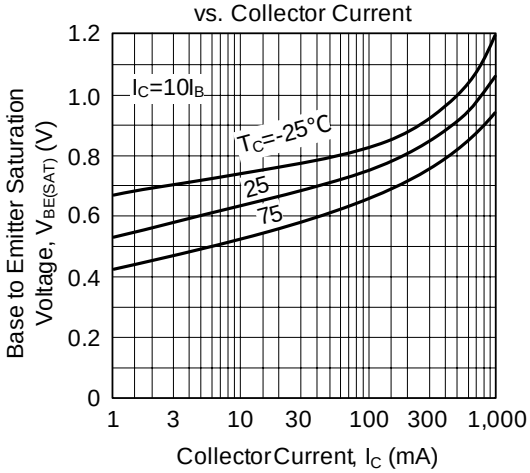
DC Current Transfer Ratio
vs. Collector Current



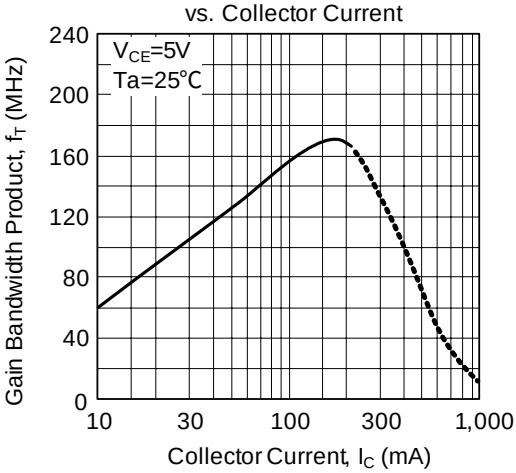
Collector to Emitter Saturation Voltage
vs. Collector Current



Base to Emitter Saturation Voltage
vs. Collector Current

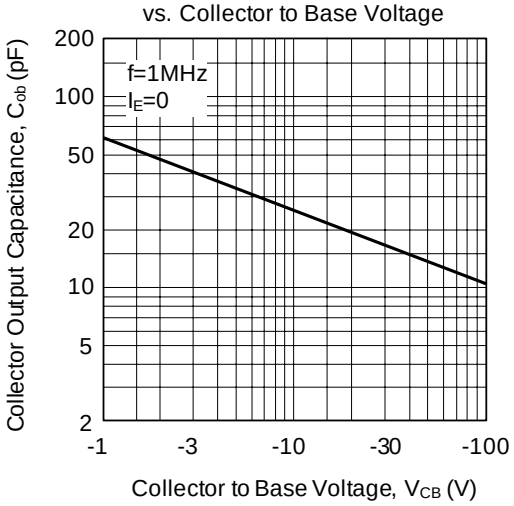


Gain Bandwidth Product
vs. Collector Current



■ TYPICAL CHARACTERISTICS(Cont.)

Collector Output Capacitance vs. Collector to Base Voltage



Area of Safe Operation