2SB1169, 2SB1169A

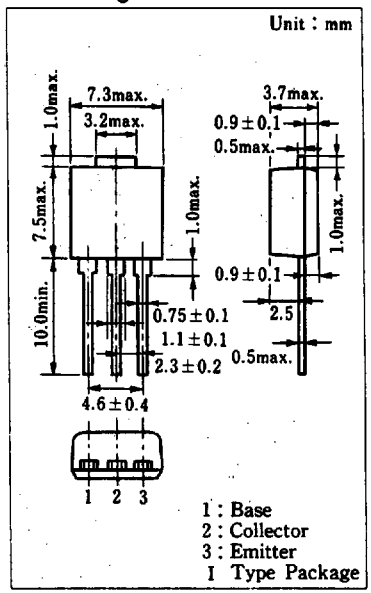
Silicon PNP Epitaxial Planar Type

Power Amplifier

■ Features

- High DC current gain (h_{FE}) and good linearity
- Low collector-emitter voltage (V_{CE})
- "I Type" package configuration with a cooling fin for direct soldering on PC board of a small-size electronic equipment

■ Package Dimensions



*Surface-mount type is also available. (Refer to p.81.)

■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage	2SB1169	V_{CBO}	−60	V
	2SB1169A		−80	
Collector-emitter voltage	2SB1169	V_{CEO}	−60	V
	2SB1169A		−80	
Emitter-base voltage		V_{EBO}	−5	V
Peak collector current		I_{CP}	−2	A
Collector current		I_C	−1	A
Collector power dissipation	Tc=25 ℃	P_C	15	W
	Ta=25 ℃		1.3	
Junction temperature		T_j	150	℃
Storage temperature		T_{stg}	−55~+150	℃

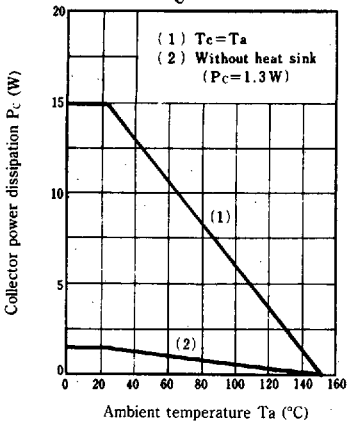
■ Electrical Characteristics (Tc=25°C)

Item		Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	2SB1169	I_{CEO}	V_{CB}=−30 V, I_E=0			−300	μA
	2SB1169A		V_{CB}=−60 V, I_E=0			−300	
Collector cutoff current	2SB1169	I_{CES}	V_{CE}=−60 V, V_{BE}=0			−200	μA
	2SB1169A		V_{CE}=−80 V, V_{BE}=0			−200	
Emitter cutoff current		I_{EBO}	V_{EB}=−5 V, I_C=0			−1	mA
Collector-emitter voltage	2SB1169	V_{CEO}	I_C=−30 mA, I_B=0	−60			V
	2SB1169A			−80			
DC current gain		h_{FE1}*	V_{CE}=−4 V, I_C=−0.2 A	40		450	
		h_{FE2}	V_{CE}=−4 V, I_C=−1 A	15			
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=−1 A, I_B=−0.125 A			−1	V
Base-emitter saturation voltage		V_{BE}	V_{CE}=−4 V, I_C=−1 A			−1.3	V
Transition frequency		f_T	V_{CE}=−10V, I_C=−0.1A, f=10MHz		40		MHz
Turn-on time		t_{on}	I_C=−1A, I_{B1}=−0.1 A, I_{B2}=0.1 A, V_{CC}=−50V		0.5		μs
Storage time		t_{stg}			1.2		μs
Collector current fall time		t_f			0.3		μs

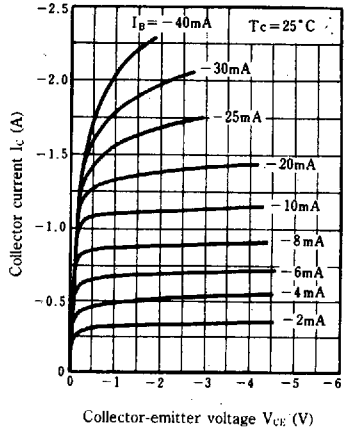
*h_{FE1} Classifications

Class	R	Q	P	O
h_{FE1}	40~90	70~150	120~250	200~450

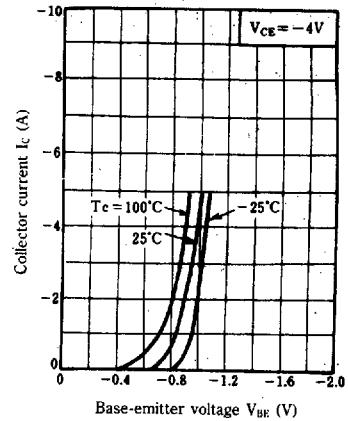
$P_C - Ta$



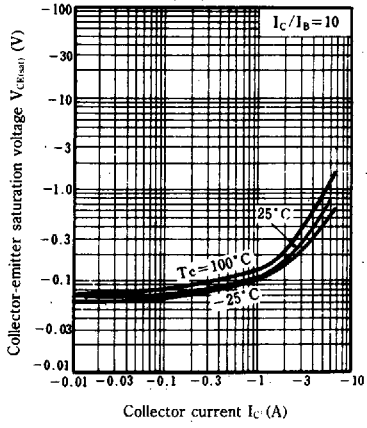
$I_C - V_{CE}$



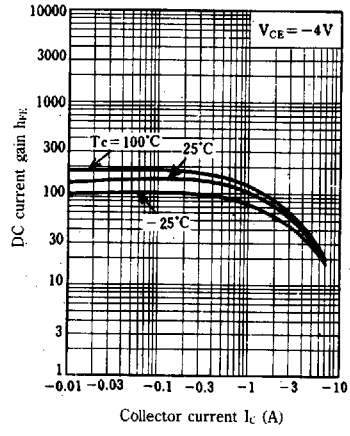
$I_C - V_{BE}$



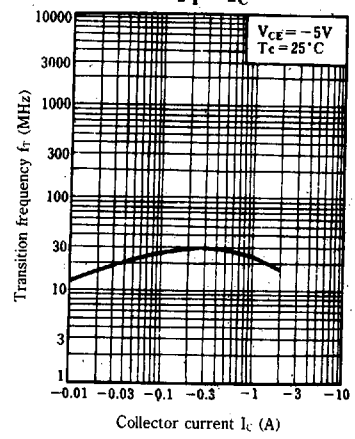
$V_{CE(sat)} - I_C$



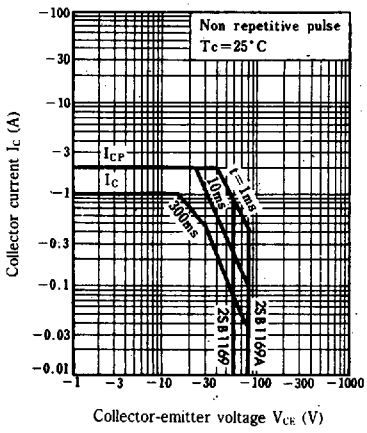
$h_{FE} - I_C$



$f_T - I_C$



Area of safe operation (ASO)



$R_{th(t)} - t$