

2SB1170

Silicon NPN Triple-Diffused Planar Type

Power Amplifier

Complementary Pair with 2SD1751

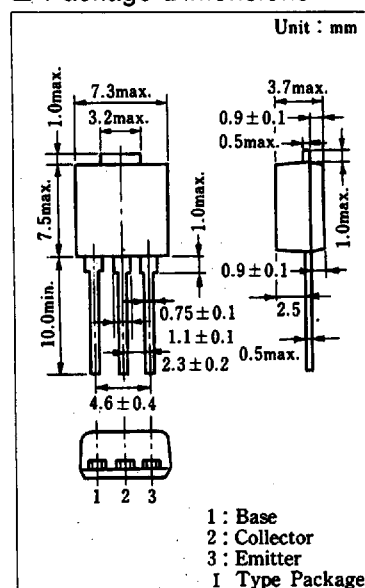
■ Features

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

■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	-60	V
Collector-emitter voltage	V_{CEO}	-60	V
Emitter-base voltage	V_{EBO}	-6	V
Peak collector current	I_{CP}	-4	A
Collector current	I_C	-2	A
Collector power dissipation	$T_c=25^\circ\text{C}$	15	W
	$T_a=25^\circ\text{C}$	1.3	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~+150	$^\circ\text{C}$

■ Package Dimensions



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

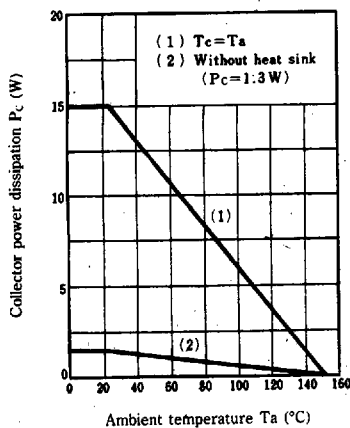
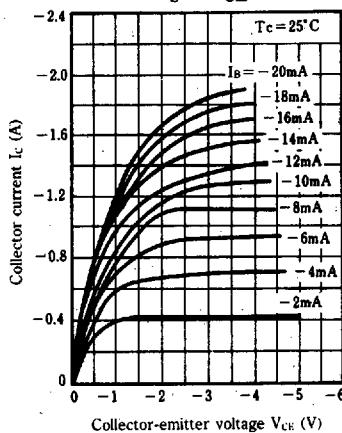
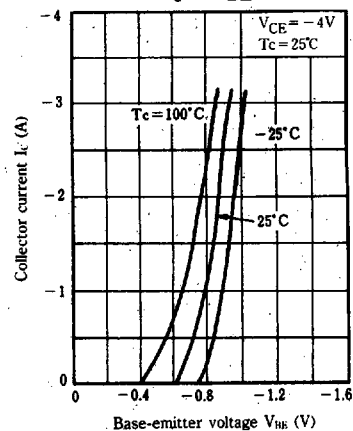
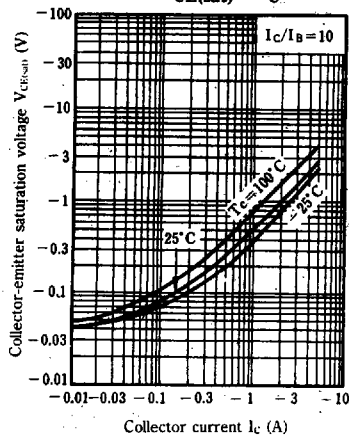
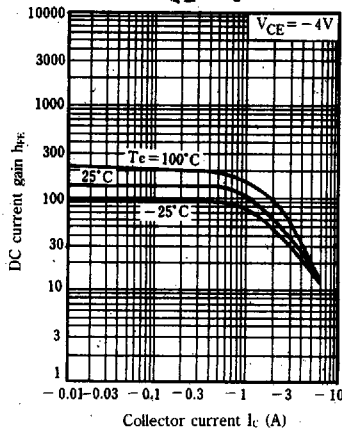
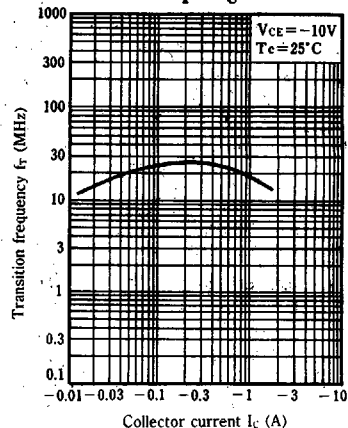
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CES}	$V_{CE}=-60\text{ V}, V_{BE}=0$			-200	μA
	I_{CEO}	$V_{CE}=-30\text{ V}, I_{BF}=0$			-300	μA
Emitter cutoff current	I_{EBO}	$V_{EB}=-6\text{ V}, I_C=0$			-1	mA
Collector-emitter voltage	V_{CEO}	$I_C=-30\text{ mA}, I_E=0$	-60			V
DC current gain	h_{FE1}	$V_{CE}=-4\text{ V}, I_C=-0.1\text{ A}$	35			
	h_{FE2}^*	$V_{CE}=-4\text{ V}, I_C=-1\text{ A}$	40		250	
Base-emitter voltage	V_{BE}	$V_{CE}=-4\text{ V}, I_C=-1\text{ A}$			-1.2	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-2\text{ A}, I_B=-0.2\text{ A}$			-2	V
Transition frequency	f_T	$V_{CE}=-10\text{ V}, I_C=-0.5\text{ A}, f=10\text{ MHz}$		25		MHz
Turn-on time	t_{on}	$I_C=-1\text{ A}, I_{B1}=-0.1\text{ A}, I_{B2}=0.1\text{ A}$		0.1		μs
Storage time	t_{stg}			1.5		μs
Collector current fall time	t_f			0.3		μs

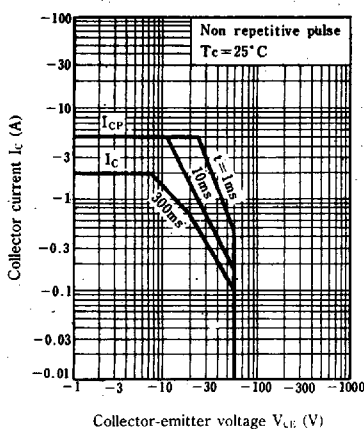
* h_{FE2} Classifications

Class	R	Q	P
h_{FE2}	40~90	70~150	120~250

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$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$ 

Area of safe operation (ASO)

 $R_{th(t)} - t$ 