

2SB1178, 2SB1178A

Silicon PNP Epitaxial Planar Darlington Type

AF Power Amplifier

Complementary Pair with 2SD1748, 2SD1748A

■ Features

- High DC current gain (h_{FE})
- High speed switching
- "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	2SB1178	V_{CBO}	V
	2SB1178A	-60	
Collector-emitter voltage	2SB1178	V_{CEO}	V
	2SB1178A	-80	
Emitter-base voltage	V_{EBO}	-5	V
Peak collector current	I_{CP}	-4	A
Collector current	I_C	-2	A
Collector power dissipation	$T_c=25^\circ\text{C}$	P_C	W
	$T_a=25^\circ\text{C}$	15	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

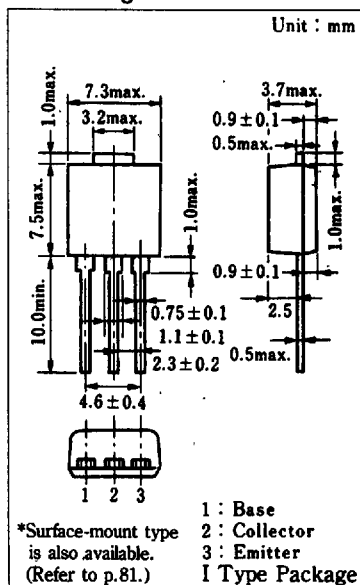
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	2SB1178	$V_{CB} = -60\text{ V}, I_E = 0$			-1	mA
	2SB1178A	$V_{CB} = -80\text{ V}, I_E = 0$			-1	
Collector cutoff current	2SB1178	$V_{CE} = -30\text{ V}, I_B = 0$			-2	mA
	2SB1178A	$V_{CE} = -40\text{ V}, I_B = 0$			-2	
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0$			-2	mA
Collector-emitter voltage	2SB1178	$I_C = -30\text{ mA}, I_B = 0$	-60			V
	2SB1178A		-80			
DC current gain	h_{FE1}	$V_{CE} = -4\text{ V}, I_C = -1\text{ A}$	1000			
	h_{FE2}^*	$V_{CE} = -4\text{ V}, I_C = -2\text{ A}$	1000		10000	
Base-emitter voltage	V_{BE}	$V_{CE} = -4\text{ V}, I_C = -2\text{ A}$			-2.8	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2\text{ A}, I_B = -8\text{ mA}$			-2.5	V
Transition frequency	f_T	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 1\text{ MHz}$		20		MHz
Turn-on time	t_{on}	$I_C = -2\text{ A},$		0.4		μs
Storage time	t_{stg}	$I_{B1} = -8\text{ mA}, I_{B2} = 8\text{ mA},$		1.5		μs
Collector current fall time	t_f	$V_{CC} = -50\text{ V}$		0.5		μs

* h_{FE2} Classifications

Class	R	Q	P
h_{FE2}	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

■ Package Dimensions



■ Inner Circuit

