

# 2SD1749, 2SD1749A

Silicon NPN Triple-Diffused Planar Darlington Type

AF Power Amplifier

Complementary Pair with 2SB1179, 2SB1179A

### ■ 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	2SD1749	60	V
	2SD1749A	80	
Collector-emitter voltage	2SD1749	60	V
	2SD1749A	80	
Emitter-base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	8	A
Collector current	$I_C$	4	A
Collector power dissipation	$P_C$	$T_c=25^\circ\text{C}$	15
		$T_a=25^\circ\text{C}$	1.3
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

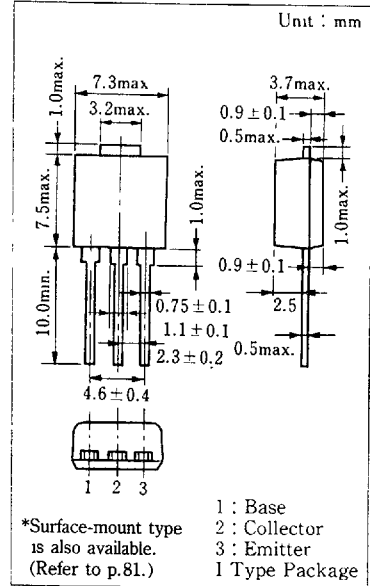
### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB}=60\text{ V}, I_E=0$			200	$\mu\text{A}$
		$V_{CB}=80\text{ V}, I_E=0$			200	
Collector cutoff current	$I_{CEO}$	$V_{CE}=30\text{ V}, I_B=0$			500	$\mu\text{A}$
		$V_{CE}=40\text{ V}, I_B=0$			500	
Emitter cutoff current	$I_{EBO}$	$V_{EB}=5\text{ V}, I_C=0$			2	mA
Collector-emitter voltage	$V_{CEO}$	$I_C=30\text{ mA}, I_B=0$	60			V
			80			
DC current gain	$h_{FE1}$	$V_{CE}=3\text{ V}, I_C=0.5\text{ A}$	1000			
		$\Delta V_{CE}=3\text{ V}, I_C=3\text{ A}$	1000		10000	
Base-emitter voltage	$V_{BE}$	$V_{CE}=3\text{ V}, I_C=3\text{ A}$			2.5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{ A}, I_B=12\text{ mA}$			2	V
		$I_C=5\text{ A}, I_B=20\text{ mA}$			4	
Transition frequency	$f_T$	$V_{CE}=10\text{ V}, I_C=0.5\text{ A}, f=1\text{ MHz}$		20		MHz
Turn-on time	$t_{on}$	$I_C=3\text{ A}, I_{B1}=12\text{ mA}, I_{B2}=-12\text{ mA}$ $V_{CC}=50\text{ V}$		0.5		$\mu\text{s}$
Storage time	$t_{stg}$			4		$\mu\text{s}$
Fall time	$t_f$			1		$\mu\text{s}$

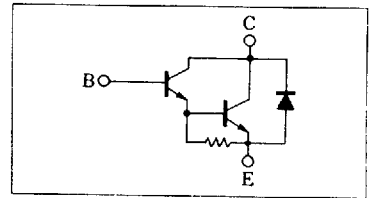
### \* $h_{FE2}$ Classifications

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

### ■ Package Dimensions



### ■ Inner Circuit



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