

2SD1748, 2SD1748A

Silicon NPN triple diffusion planar type Darlington

For low-frequency power amplification

Complementary to 2SB1178 and 2SB1178A

Features

- High forward current transfer ratio h_{FE}
- High-speed switching
- I type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment.

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

Parameter	Symbol	Rated	Unit	
Collector to base voltage	V_{CBO}	60	V	
2SD1748A		80		
Collector to emitter voltage	V_{CEO}	60	V	
2SD1748A		80		
Emitter to base voltage	V_{EBO}	5	V	
Peak collector current	I_{CP}	4	A	
Collector current	I_C	2	A	
Collector power dissipation	P_C	$T_C=25^\circ\text{C}$	15	W
$T_a=25^\circ\text{C}$		1.3		
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	

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

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 60\text{V}, I_E = 0$			1	mA
2SD1748A		$V_{CB} = 80\text{V}, I_B = 0$			1	
Collector cutoff current	I_{CEO}	$V_{CE} = 30\text{V}, I_B = 0$			2	mA
2SD1748A		$V_{CE} = 40\text{V}, I_B = 0$			2	
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$			2	mA
Collector to emitter voltage	V_{CEO}	$I_C = 30\text{mA}, I_B = 0$	60			V
2SD1748A			80			
Forward current transfer ratio	h_{FE1}	$V_{CE} = 4\text{V}, I_C = 1\text{A}$	1000			
	h_{FE2}^*	$V_{CE} = 4\text{V}, I_C = 2\text{A}$	2000		10000	
Base to emitter voltage	V_{BE}	$V_{CE} = 4\text{V}, I_C = 2\text{A}$			2.8	V
Collector to 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}	$I_C = 2\text{A}, I_{B1} = 8\text{mA}, I_{B2} = -8\text{mA}, V_{CC} = 50\text{V}$		0.5		μs
Storage time	t_{stg}		4			μs
Fall time	t_f		1			μs

* h_{FE2} Rank classification

Rank	Q	P
h_{FE2}	2000 to 5000	4000 to 10000

Internal Connection



