

2SD2538

Silicon NPN triple diffusion planer type Darlington

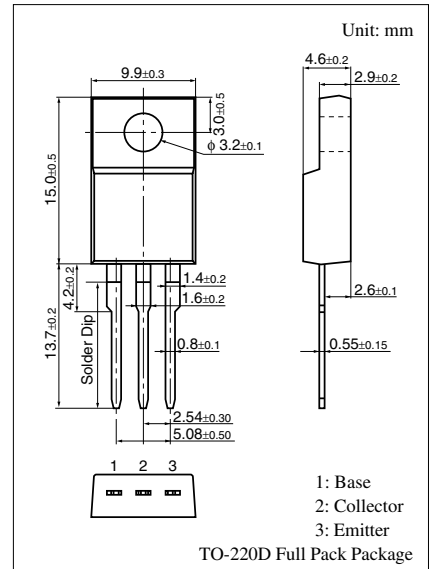
For power amplification

■ Features

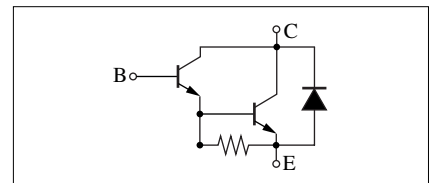
- High forward current transfer ratio h_{FE}
- Full-pack package which can be installed to the heat sink with one screw

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

Parameter	Symbol	Rating	Unit	
Collector to base voltage	V_{CBO}	60	V	
Collector to emitter voltage	V_{CEO}	60	V	
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	$T_C = 25^\circ\text{C}$	35	W
		$T_a = 25^\circ\text{C}$	2	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	



Internal Connection



■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$			1	mA
	I_{CEO}	$V_{CE} = 30\text{ V}, I_B = 0$			2	mA
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
Forward current transfer ratio	h_{FE1}	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	1 000			
	h_{FE2}^*	$V_{CE} = 4\text{ V}, I_C = 2\text{ A}$	2 000		10 000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{ A}, I_B = 8\text{ mA}$			2.5	V
Base to emitter voltage	V_{BE}	$V_{CE} = 4\text{ V}, I_C = 2\text{ A}$			2.8	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}	$I_C = 2\text{ A}, I_{B1} = 8\text{ mA}, I_{B2} = -8\text{ mA}$		0.5		μs
Storage time	t_{stg}	$V_{CC} = 50\text{ V}$		4.0		μs
Fall time	t_f			1.0		μs

Note) *: Rank classification

Rank	P	Q
h_{FE2}	4 000 to 10 000	2 000 to 5 000