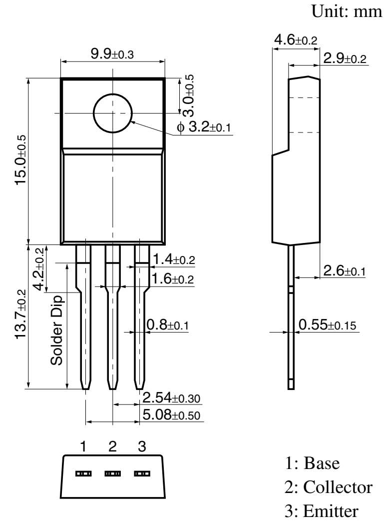
2SD2538

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

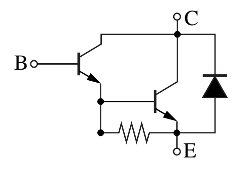


TO-220D Full Pack Package

■ Absolute Maximum Ratings $T_C = 25°C$

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	$T_C = 25°C$	P_C	35	W
	$T_a = 25°C$		2	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

Internal Connection



■ Electrical Characteristics $T_C = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 60$ V, $I_E = 0$			1	mA
	I_{CEO}	$V_{CE} = 30$ V, $I_B = 0$			2	mA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5$ V, $I_C = 0$			2	mA
Collector to emitter voltage	V_{CEO}	$I_C = 30$ mA, $I_B = 0$	60			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = 4$ V, $I_C = 1$ A	1 000			
	h_{FE2} *	$V_{CE} = 4$ V, $I_C = 2$ A	2 000		10 000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2$ A, $I_B = 8$ mA			2.5	V
Base to emitter voltage	V_{BE}	$V_{CE} = 4$ V, $I_C = 2$ A			2.8	V
Transition frequency	f_T	$V_{CE} = 10$ V, $I_C = 0.5$ A, f = 1 MHz		20		MHz
Turn-on time	t_{on}	$I_C = 2$ A, $I_{B1} = 8$ mA, $I_{B2} = -8$ mA $V_{CC} = 50$ V		0.5		µs
Storage time	t_{stg}			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