

2SD2220

Silicon NPN triple diffusion planar type Darlington

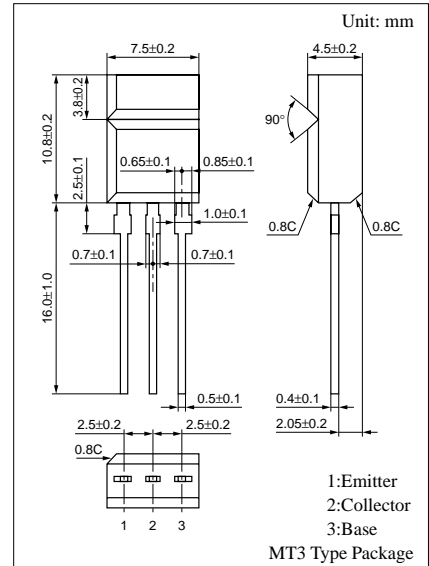
For low-frequency amplification

Features

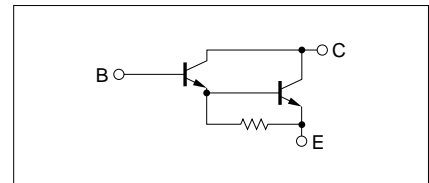
- Suitable for the driver circuit of a motor, a printer hammer and like that, since this transistor is designed for the high forward current transfer ratio h_{FE}
- A shunt resistor is omitted from the driver
- Allowing supply with the radial taping

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

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	100	V
Collector to emitter voltage	V_{CEO}	80	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	1.5	A
Collector current	I_C	1	A
Collector power dissipation ($T_C=25^\circ\text{C}$)	P_C	1.5	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



Internal Connection



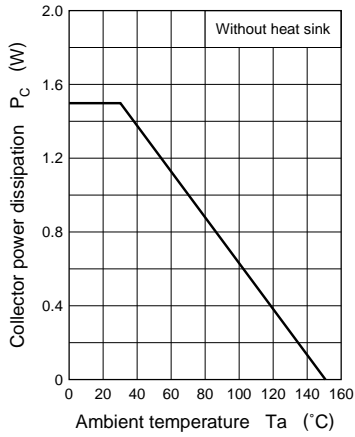
Electrical Characteristics ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 25\text{V}, I_E = 0$			100	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$			100	nA
Collector to base voltage	V_{CBO}	$I_C = 100\mu\text{A}, I_E = 0$	100			V
Collector to emitter voltage	V_{CEO}	$I_C = 1\text{mA}, I_B = 0$	80			V
Emitter to base voltage	V_{EBO}	$I_E = 100\mu\text{A}, I_C = 0$	5			V
Forward current transfer ratio	h_{FE}^*	$V_{CE} = 10\text{V}, I_C = 1\text{A}$	4000		20000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\text{A}, I_B = 1\text{mA}$			1.8	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 1\text{mA}$			2.2	V
Transition frequency	f_T	$V_{CB} = 10\text{V}, I_E = -50\text{mA}, f = 200\text{MHz}$		150		MHz

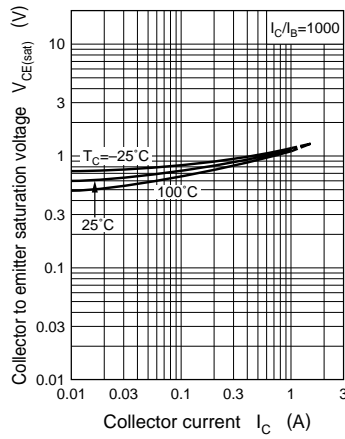
* h_{FE} Rank classification

Rank	Q	R
h_{FE}	4000 to 10000	8000 to 20000

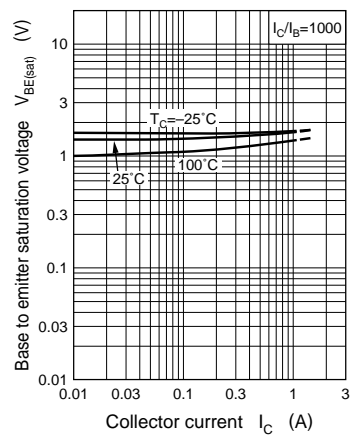
$P_C - T_a$



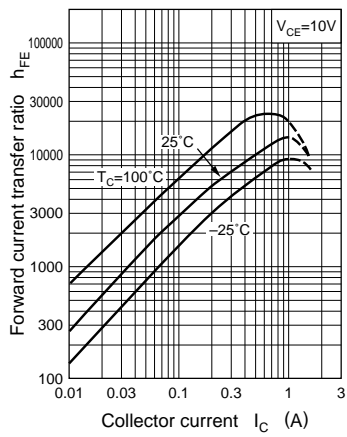
$V_{CE(sat)} - I_C$



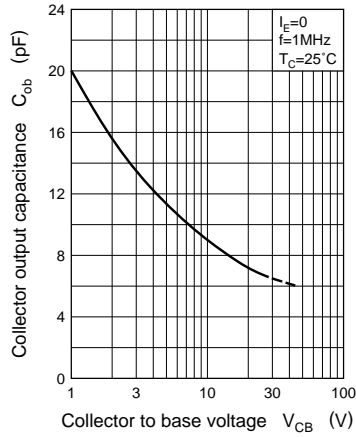
$V_{BE(sat)} - I_C$



$h_{FE} - I_C$



$C_{ob} - V_{CB}$



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