

2SD2222

Silicon NPN triple diffusion planar type Darlington

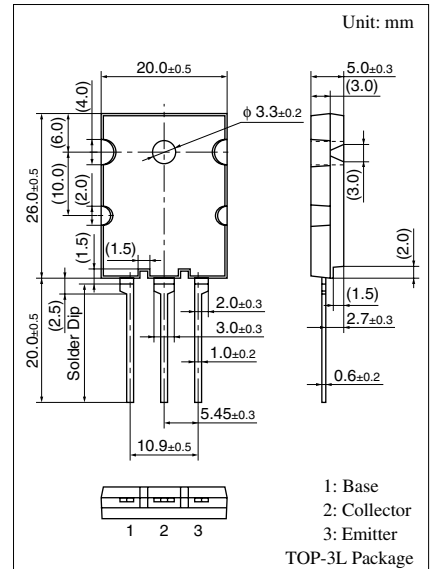
For power amplification
Complementary to 2SB1470

■ Features

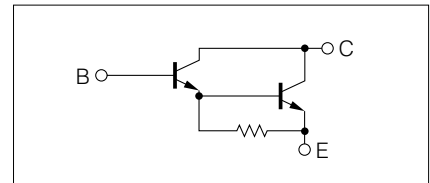
- Optimum for 120 W Hi-Fi output
- High forward current transfer ratio h_{FE}
- Low collector to emitter saturation voltage $V_{CE(sat)}$

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

Parameter	Symbol	Rating	Unit	
Collector to base voltage	V_{CBO}	160	V	
Collector to emitter voltage	V_{CEO}	160	V	
Emitter to base voltage	V_{EBO}	5	V	
Peak collector current	I_{CP}	15	A	
Collector current	I_C	8	A	
Collector power dissipation	$T_C = 25^\circ\text{C}$ $T_a = 25^\circ\text{C}$	P_C	150	W
			3.5	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	



Internal Connection



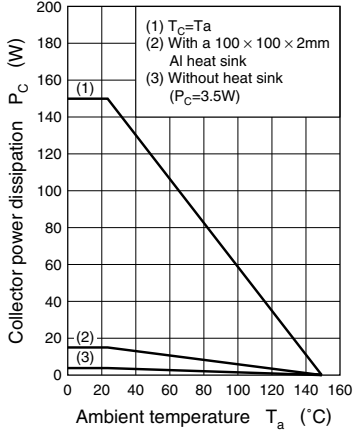
■ Electrical Characteristics $T_C = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 160\text{ V}, I_E = 0$			100	μA
	I_{CEO}	$V_{CE} = 160\text{ V}, I_B = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$			100	μA
Collector to emitter voltage	V_{CEO}	$I_C = 30\text{ mA}, I_B = 0$	160			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	10 000			
	h_{FE2}^*	$V_{CE} = 5\text{ V}, I_C = 7\text{ A}$	3 500		20 000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 7\text{ A}, I_B = 7\text{ mA}$			3	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 7\text{ A}, I_B = 7\text{ mA}$			3	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}	$I_C = 7\text{ A}, I_{B1} = 7\text{ mA}, I_{B2} = -7\text{ mA}, V_{CC} = 50\text{ V}$		2		μs
Storage time	t_{stg}			6		μs
Fall time	t_f			1.2		μs

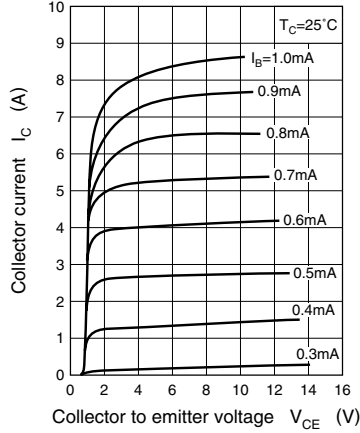
Note) *: Rank classification

Rank	Q	P
h_{FE2}	3 500 to 10 000	7 000 to 20 000

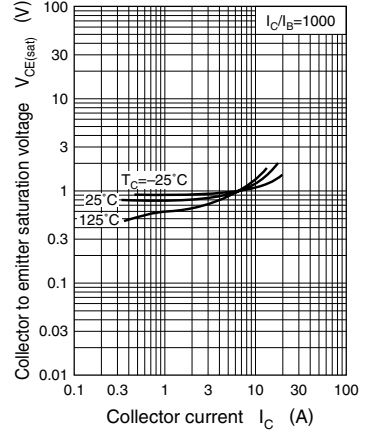
$P_C - T_a$



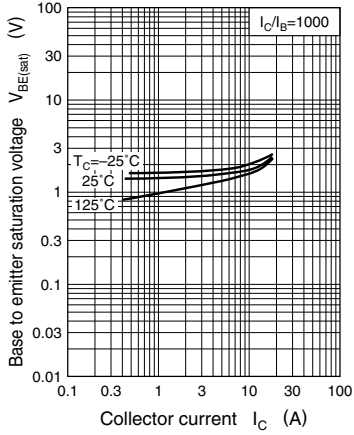
$I_C - V_{CE}$



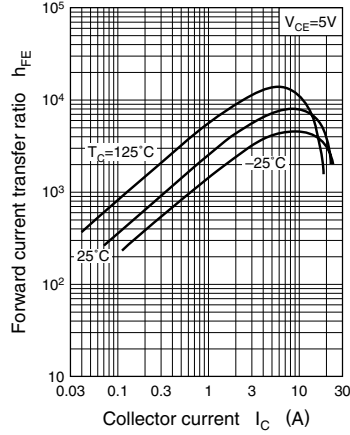
$V_{CE(sat)} - I_C$



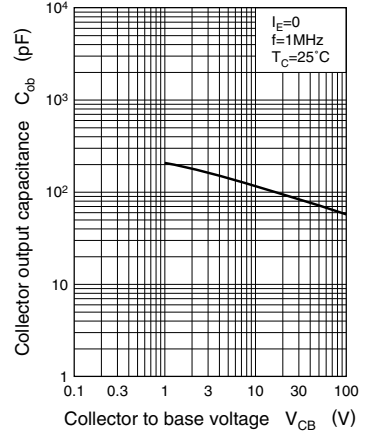
$V_{BE(sat)} - I_C$



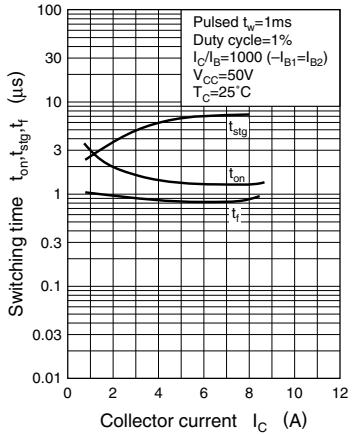
$h_{FE} - I_C$



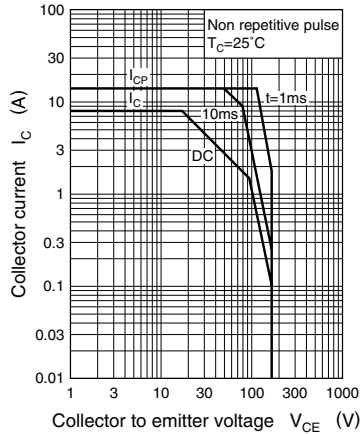
$C_{ob} - V_{CB}$

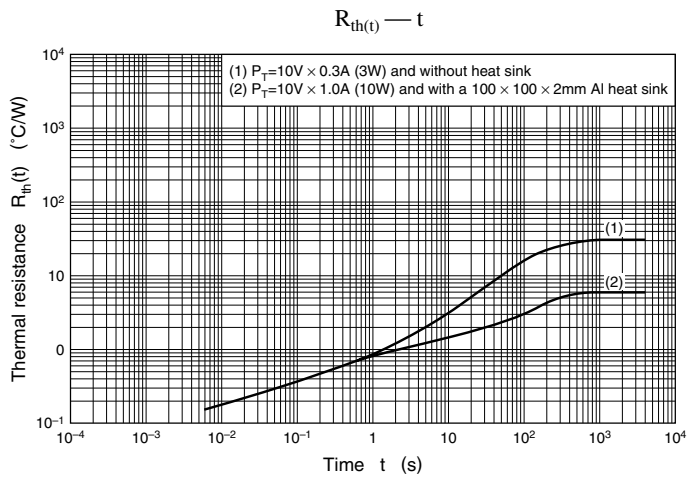


$t_{on}, t_{stg}, t_f - I_C$



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