

# 2SB1470

## Silicon PNP triple diffusion planar type darlington

For power amplification

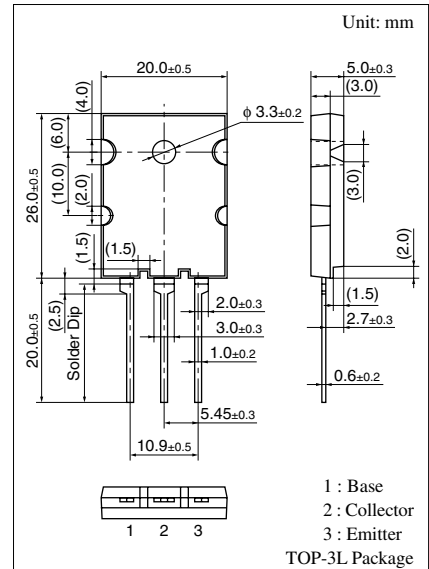
Complementary to 2SD2222

### ■ Features

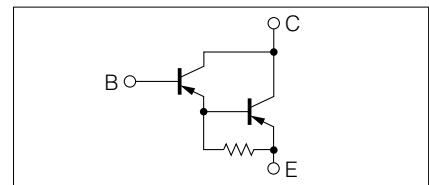
- Optimum for 120 W Hi-Fi output
- High forward current transfer ratio  $h_{FE}$
- Low collector to emitter saturation voltage  $V_{CE(sat)}$

### ■ 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	$T_C = 25^\circ\text{C}$	$P_C$	150	W
		$T_a = 25^\circ\text{C}$	3.5	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	



### Internal Connection



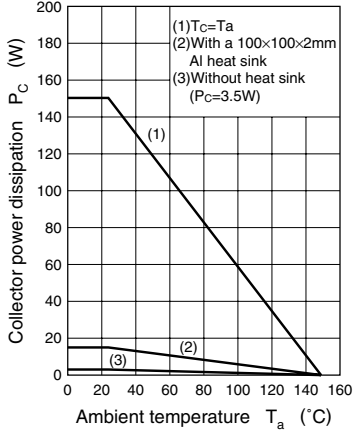
### ■ Electrical Characteristics $T_C = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = -160\text{ V}, I_E = 0$			-100	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = -160\text{ V}, I_B = 0$			-100	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$			-100	$\mu\text{A}$
Collector to emitter voltage	$V_{CEO}$	$I_C = -30\text{ mA}, I_B = 0$	-160			V
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = -5\text{ V}, I_C = -1\text{ A}$	1 000			
	$h_{FE2}^*$	$V_{CE} = -5\text{ V}, I_C = -7\text{ A}$	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	$t_{on}$	$I_C = -7\text{ A}, I_{B1} = -7\text{ mA}, I_{B2} = 7\text{ mA}, V_{CC} = -50\text{ V}$		1		$\mu\text{s}$
Storage time	$t_{stg}$			1.5		$\mu\text{s}$
Fall time	$t_f$			1.2		$\mu\text{s}$

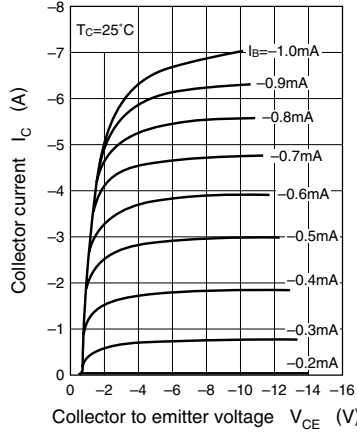
Note) \*: Rank classification

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

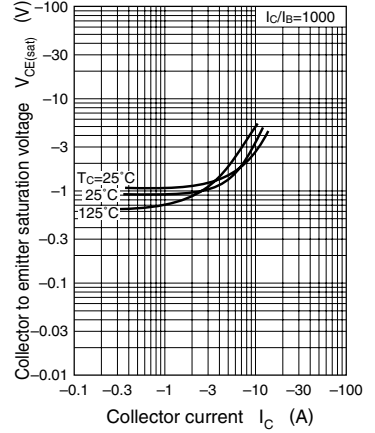
$P_C - T_a$



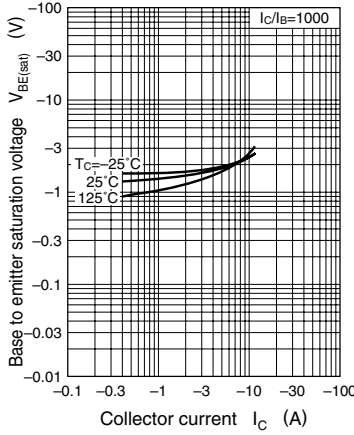
$I_C - V_{CE}$



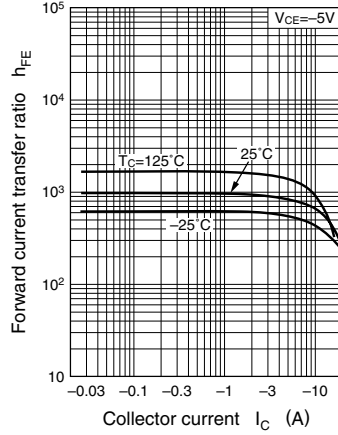
$V_{CE(sat)} - I_C$



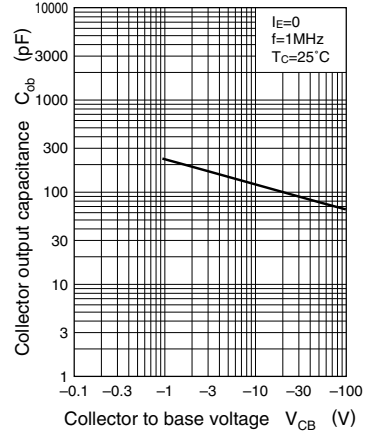
$V_{BE(sat)} - I_C$



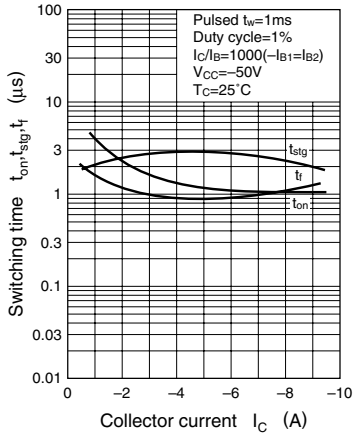
$h_{FE} - I_C$



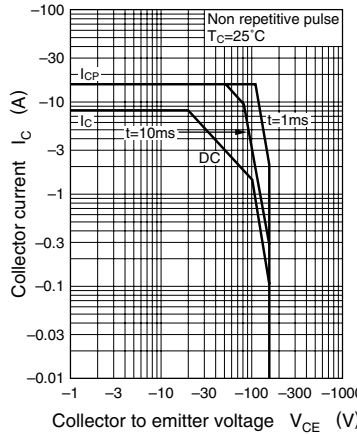
$C_{ob} - V_{CB}$



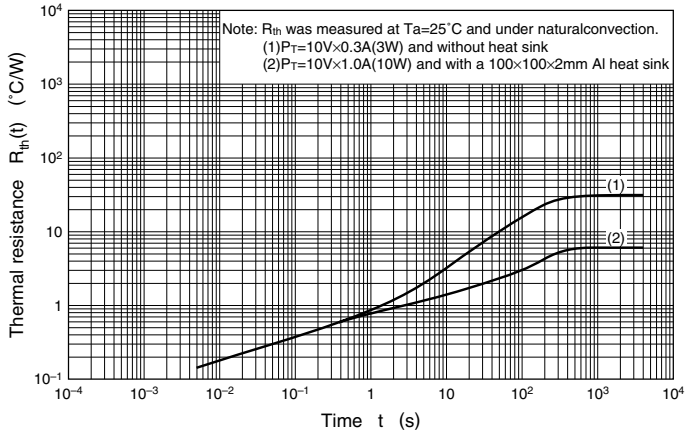
$t_{on}, t_{stg}, t_f - I_C$



Area of safe operation (ASO)



$$R_{th(t)} - t$$



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