

# 2SD2222

## Silicon NPN triple diffusion planar type Darlington

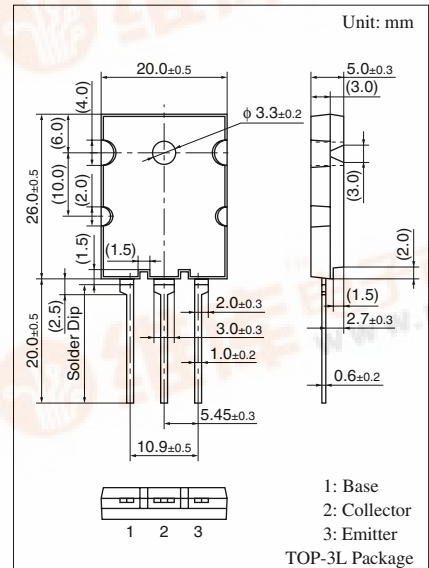
For power amplification  
Complementary to 2SB1470

### ■ Features

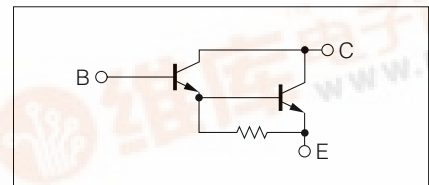
- Optimum for 120 W Hi-Fi output
- High forward current transfer ratio  $h_{FE}$
- Low collector to emitter saturation voltage  $V_{CE(sat)}$

### ■ Absolute Maximum Ratings $T_C = 25^\circ C$

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



### Internal Connection



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

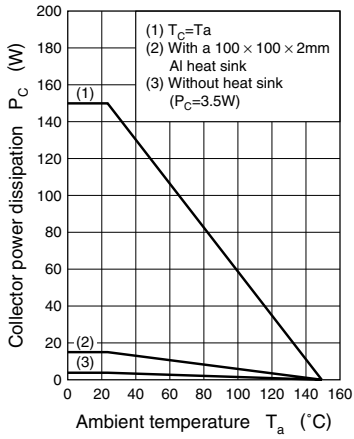
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 160 V, I_E = 0$			100	$\mu A$
	$I_{CEO}$	$V_{CE} = 160 V, I_B = 0$			100	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 5 V, I_C = 0$			100	$\mu A$
Collector to emitter voltage	$V_{CEO}$	$I_C = 30 mA, I_B = 0$	160			V
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = 5 V, I_C = 1 A$	10 000			
	$h_{FE2}^*$	$V_{CE} = 5 V, I_C = 7 A$	3 500		20 000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 7 A, I_B = 7 mA$			3	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 7 A, I_B = 7 mA$			3	V
Transition frequency	$f_T$	$V_{CE} = 10 V, I_C = 0.5 A, f = 1 MHz$		20		MHz
Turn-on time	$t_{on}$	$I_C = 7 A, I_{B1} = 7 mA, I_{B2} = -7 mA,$		2		$\mu s$
Storage time	$t_{stg}$	$V_{CC} = 50 V$		6		$\mu s$
Fall time	$t_f$			1.2		$\mu s$

Note) \*: Rank classification

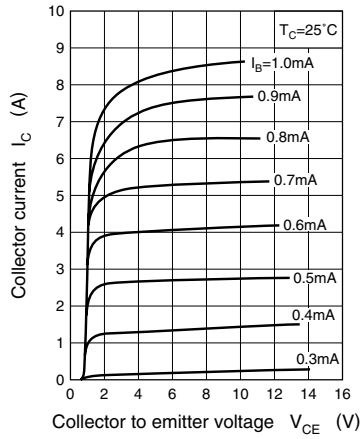
Rank	Q	P
$h_{FE2}$	3 500 to 10 000	7 000 to 20 000



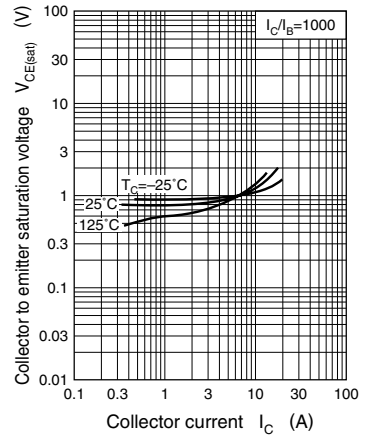
$P_C - T_a$



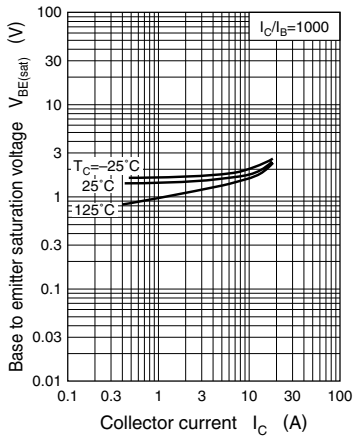
$I_C - V_{CE}$



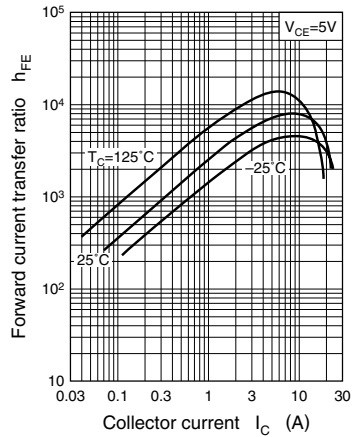
$V_{CE(sat)} - I_C$



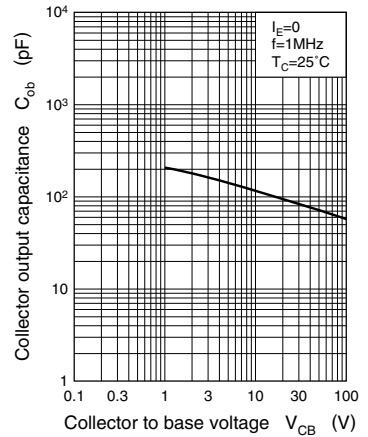
$V_{BE(sat)} - I_C$



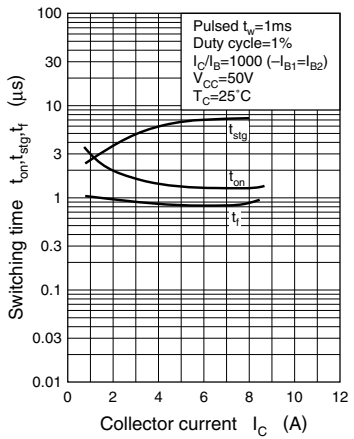
$h_{FE} - I_C$



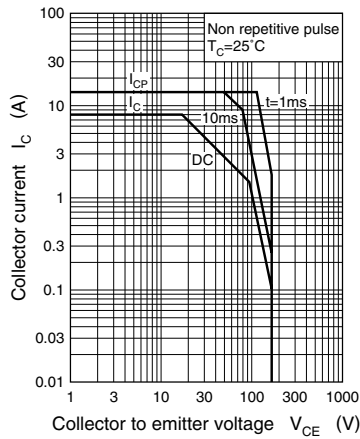
$C_{ob} - V_{CB}$

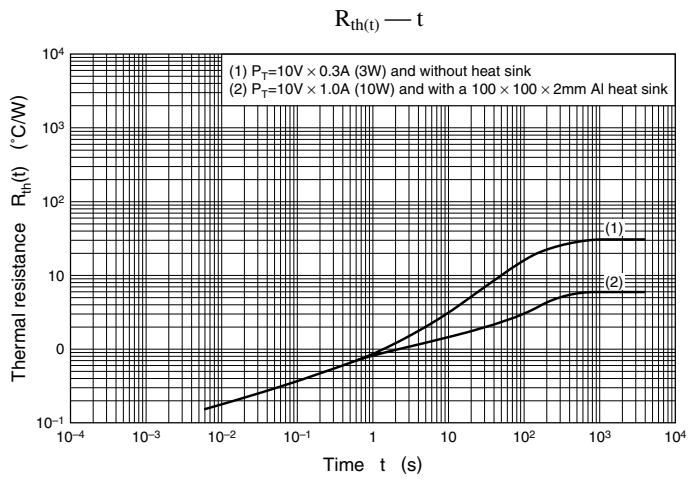


$t_{on}, t_{stg}, t_f - I_C$



Area of safe operation (ASO)





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