

2SB1503

Silicon PNP epitaxial planar type Darlington

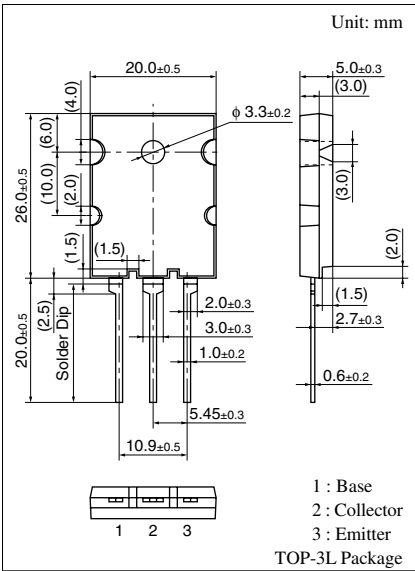
For power amplification
Complementary to 2SD2276

■ Features

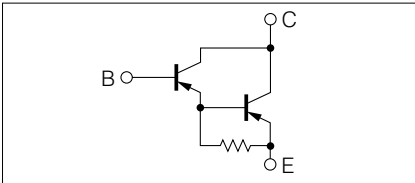
- Optimum for 110 W Hi-Fi output
- High forward current transfer ratio h_{FE} : 5 000 to 30 000
- Low collector to emitter saturation voltage $V_{CE(sat)}$: < -2.5 V

■ 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}	-140	V
Emitter to base voltage	V_{EBO}	-5	V
Peak collector current	I_{CP}	-12	A
Collector current	I_C	-7	A
Collector power dissipation	$T_C = 25^\circ\text{C}$ $T_a = 25^\circ\text{C}$	P_C	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



Internal Connection

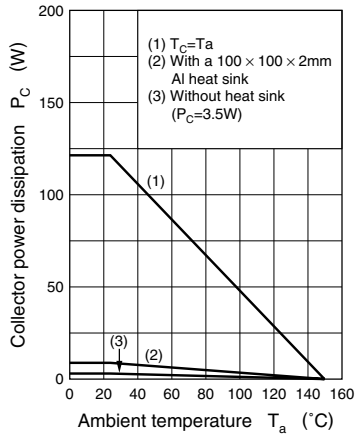
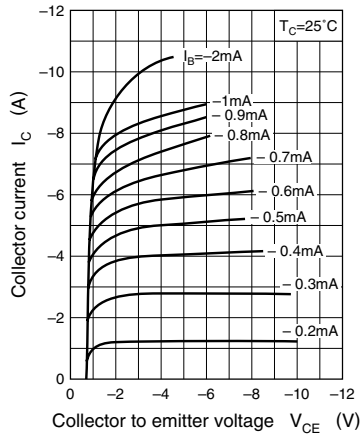
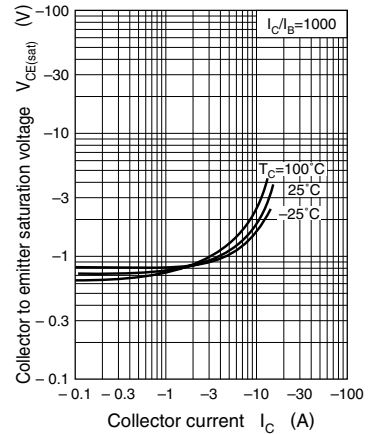
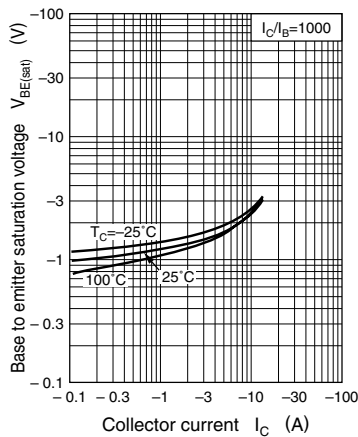
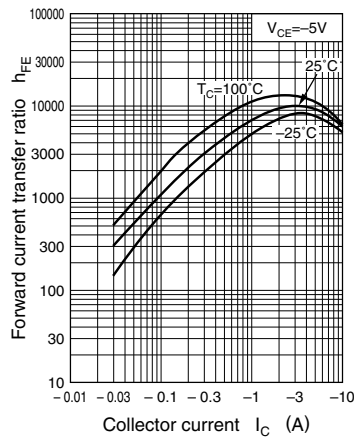
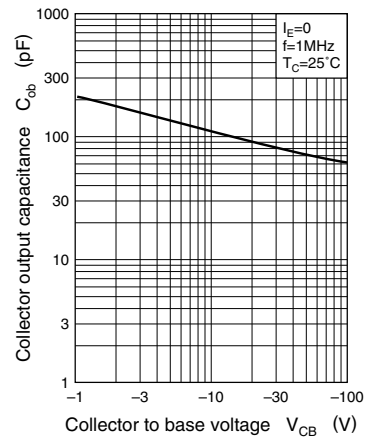
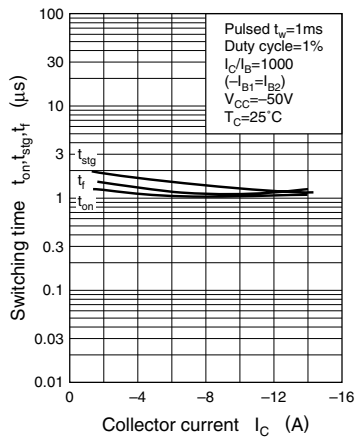


■ Electrical Characteristics $T_C = 25^\circ\text{C}$

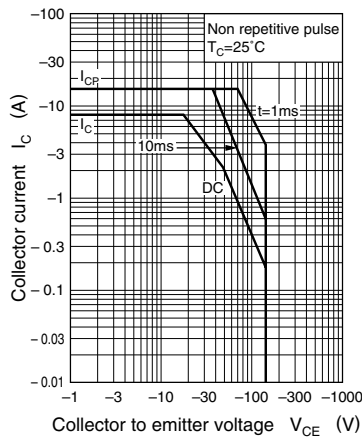
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -160$ V, $I_E = 0$			-100	μA
	I_{CEO}	$V_{CE} = -140$ V, $I_B = 0$			-100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5$ V, $I_C = 0$			-100	μA
Collector to emitter voltage	V_{CEO}	$I_C = -30$ mA, $I_B = 0$	-140			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = -5$ V, $I_C = -1$ A	2 000			
	h_{FE2}^*	$V_{CE} = -5$ V, $I_C = -7$ A	5 000		30 000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = -7$ A, $I_B = -7$ mA			-2.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = -7$ A, $I_B = -7$ mA			-3.0	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, $V_{CC} = -50$ V		1.0		μs
Storage time	t_{stg}			1.5		μs
Fall time	t_f			1.2		μs

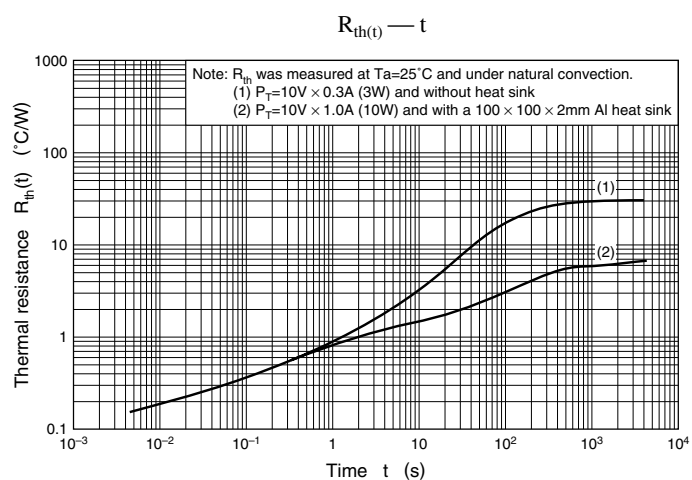
Note) *: Rank classification

Rank	Q	S	P
h_{FE2}	5 000 to 15 000	7 000 to 21 000	8 000 to 30 000

$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$  $t_{on}, t_{sg}, t_f - I_C$ 

Area of safe operation (ASO)





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