

2SB1504

Silicon PNP epitaxial planar type darlington

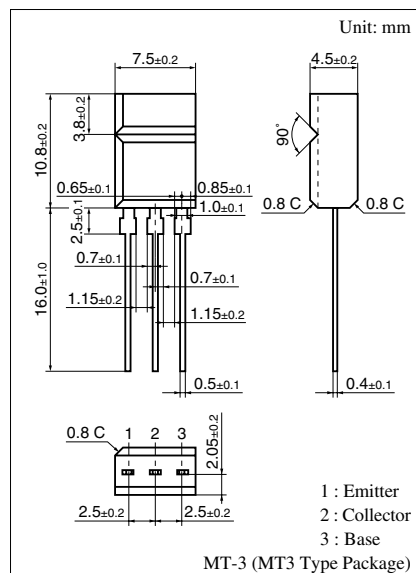
For power switching

■ Features

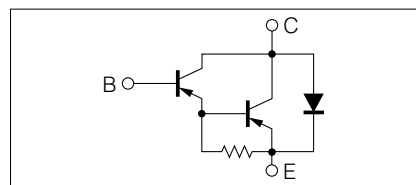
- High forward current transfer ratio h_{FE}
- High-speed switching
- Allowing automatic insertion with radial taping

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

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	-50	V
Collector to emitter voltage	V_{CEO}	-50	V
Emitter to base voltage	V_{EBO}	-7	V
Peak collector current	I_{CP}	-12	A
Collector current	I_C	-8	A
Collector power dissipation	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

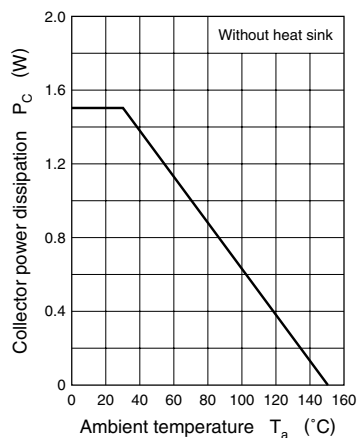
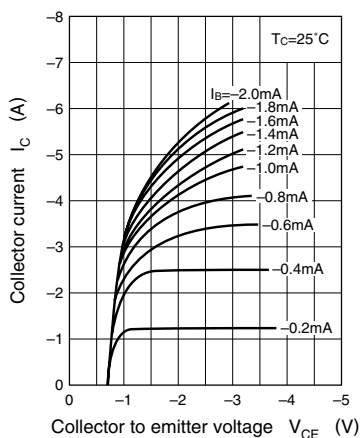
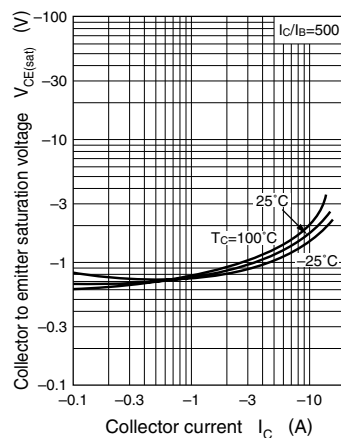
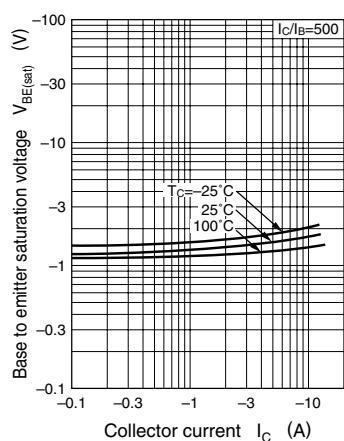
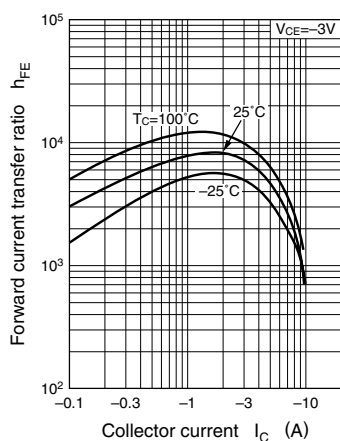
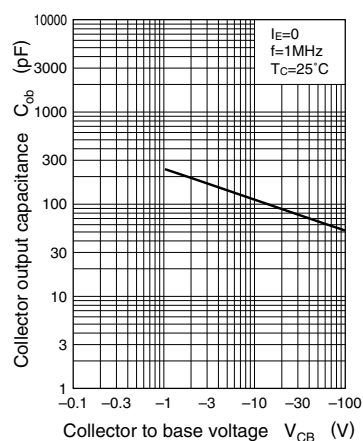


■ Electrical Characteristics $T_C = 25^\circ\text{C}$

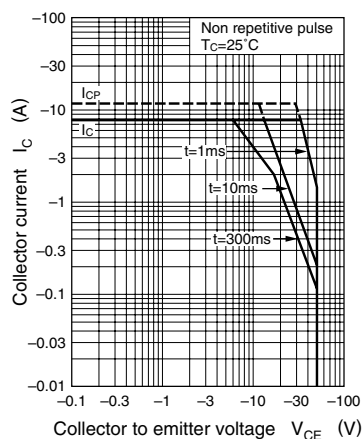
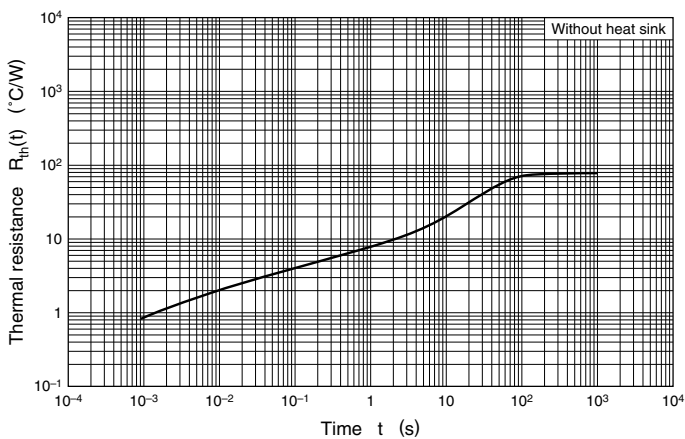
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -50\text{ V}, I_E = 0$			-100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -7\text{ V}, I_C = 0$			-2	mA
Collector to emitter voltage	V_{CEO}	$I_C = -30\text{ mA}, I_B = 0$	-50			V
Forward current transfer ratio	h_{FE1}^*	$V_{CE} = -3\text{ V}, I_C = -4\text{ A}$	1 000		10 000	
	h_{FE2}	$V_{CE} = -3\text{ V}, I_C = -8\text{ A}$	500			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = -4\text{ A}, I_B = -8\text{ mA}$			-1.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = -4\text{ A}, I_B = -8\text{ mA}$			-2.0	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}	$I_C = -4\text{ A}, I_{B1} = -8\text{ mA}, I_{B2} = 8\text{ mA}, V_{CC} = -50\text{ V}$		0.5		μs
Storage time	t_{stg}			2.0		μs
Fall time	t_f			1.0		μs

Note) *: Rank classification

Rank	P	Q	R
h_{FE1}	1 000 to 2 500	2 000 to 5 000	4 000 to 10 000

$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$ 

Area of safe operation (ASO)

 $R_{th(t)} - t$ 

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