

2SB1193

Silicon PNP Epitaxial Planar Darlington Type

Medium Speed Switching

Complementary Pair with 2SD1773

■ Features

- High DC current gain (h_{FE})
- High speed switching
- “Full Pack” package for simplified mounting on a heat sink with one screw

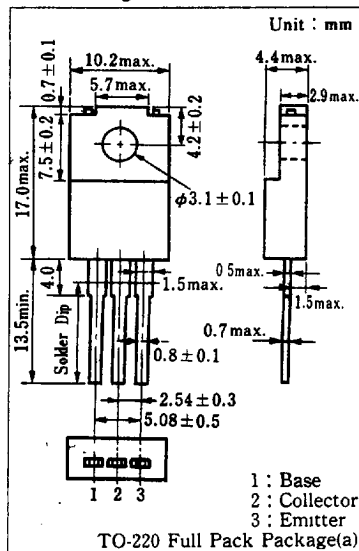
■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage		V_{CBO}	-120	V
Collector-emitter voltage		V_{CEO}	-120	V
Emitter-base voltage		V_{EB0}	-7	V
Peak collector current		I_{CP}	-12	A
Collector current		I_C	-8	A
Collector power dissipation	$T_c = 25^\circ C$	P_C	50	W
	$T_a = 25^\circ C$		2	
Junction temperature		T_j	150	$^\circ C$
Storage temperature		T_{stg}	-55~+150	$^\circ C$

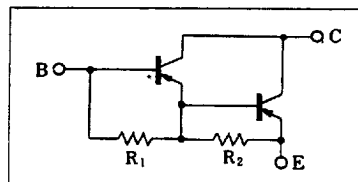
■ Electrical Characteristics (Tc=25°C)

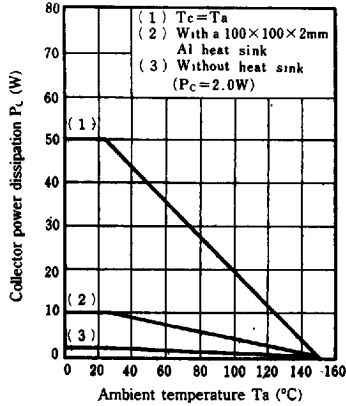
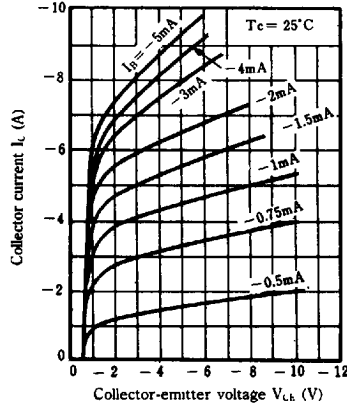
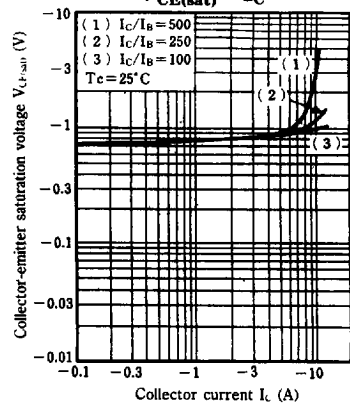
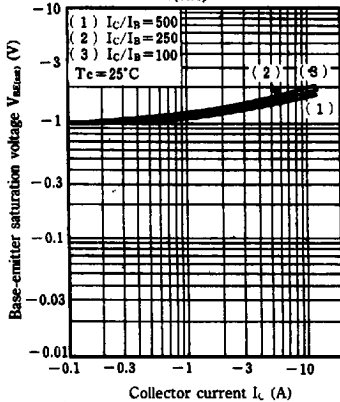
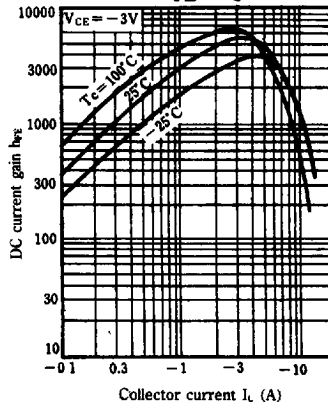
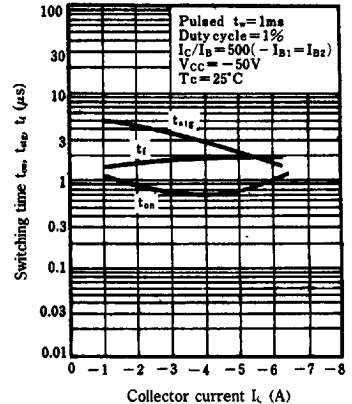
Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -120\text{ V}, I_E = 0$			-100	μA
	I_{CEO}	$V_{OE} = -100\text{ V}, R_{BE} = \infty$			-10	μA
Collector-emitter voltage	$V_{CE(sus)}$	$I_C = -2\text{ A}, R_{BE} = \infty, L = 10\text{ mH}$	-120			V
Emitter-base voltage	V_{EBO}	$I_E = -50\text{ mA}, I_C = 0$	-7			V
DC current gain	h_{FE}	$V_{CE} = -3\text{ V}, I_C = -4\text{ A}$	1000		20000	
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = -4\text{ A}, I_B = -8\text{ mA}$			-1.5	V
	$V_{CE(sat)2}$	$I_C = -8\text{ A}, I_B = -80\text{ mA}$			-3	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C = -4\text{ A}, I_B = -8\text{ mA}$			-2	V
	$V_{BE(sat)2}$	$I_C = -8\text{ A}, I_B = -80\text{ mA}$			-3.5	V
Transition frequency	f_T	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 1\text{ MHz}$		15		MHz
Turn-on time	t_{on}	$I_C = -4\text{ A}, I_{B1} = -8\text{ mA}, I_{B2} = 8\text{ mA}$ $V_{CC} = -50\text{ V}$		0.7		μs
Storage time	t_{stg}			3.5		μs
Collector current fall time	t_f			2		μs

■ Package Dimensions

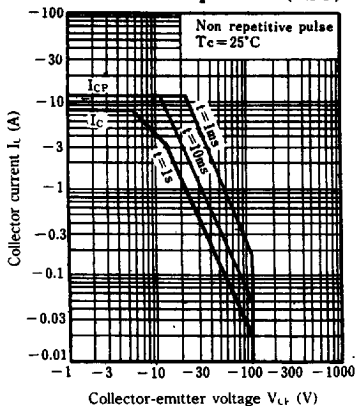
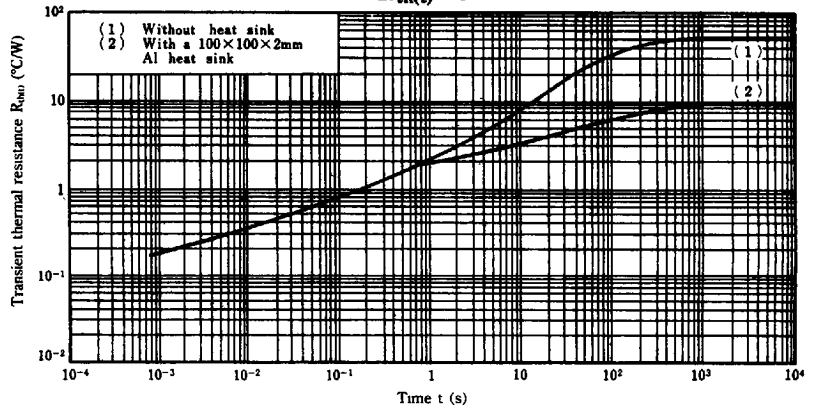


■ Inner Circuit



$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $t_{on}, t_{stg}, t_f - I_C$ 

Area of safe operation (ASO)

 $R_{th(t)} - t$ 

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