

2SD1891

Silicon NPN triple diffusion planar type Darlington

For power amplification
Complementary to 2SB1251

Features

- Optimum for 30W HiFi output
- High forward current transfer ratio h_{FE} : 5000 to 30000
- Low collector to emitter saturation voltage $V_{CE(sat)}$: $<3.0V$
- Full-pack package which can be installed to the heat sink with one screw

Absolute Maximum Ratings ($T_C=25^\circ C$)

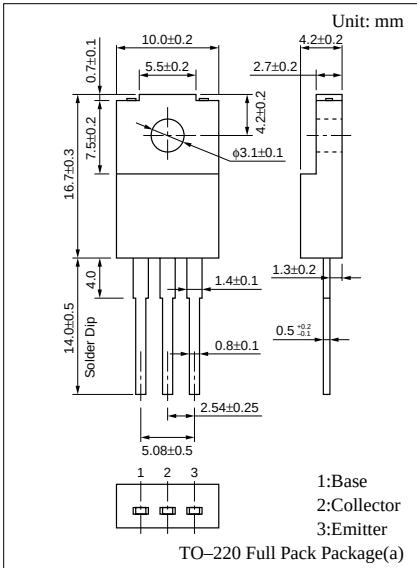
Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	110	V
Collector to emitter voltage	V_{CEO}	90	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	7	A
Collector current	I_C	4	A
Collector power dissipation	P_C	40	W
		2	
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

Electrical Characteristics ($T_C=25^\circ C$)

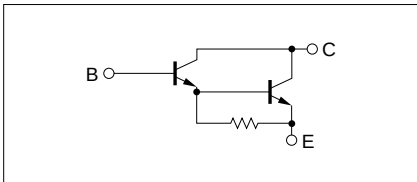
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 110V, I_E = 0$			100	μA
	I_{CEO}	$V_{CE} = 90V, I_B = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			100	μA
Collector to emitter voltage	V_{CEO}	$I_C = 30mA, I_B = 0$	90			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5V, I_C = 1A$	2000			
	h_{FE2}^*	$V_{CE} = 5V, I_C = 3A$	5000		30000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3A, I_B = 3mA$			3	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3A, I_B = 3mA$			3	V
Transition frequency	f_T	$V_{CE} = 10V, I_C = 0.5A, f = 1MHz$		20		MHz
Turn-on time	t_{on}	$I_C = 3A, I_{B1} = 3mA, I_{B2} = -3mA, V_{CC} = 50V$		2.5		μs
Storage time	t_{stg}			3.0		μs
Fall time	t_f			0.7		μs

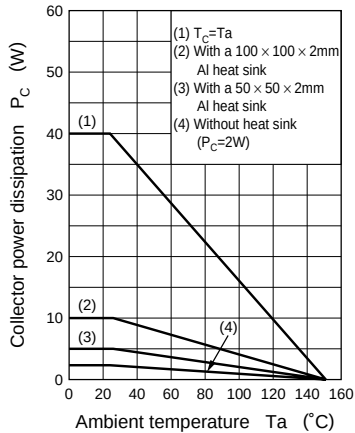
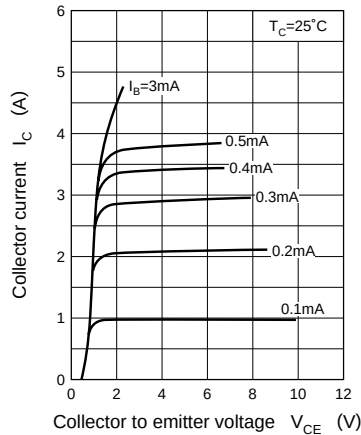
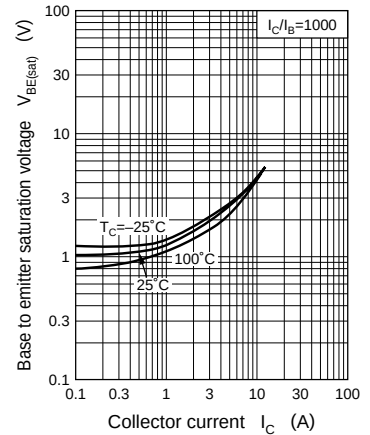
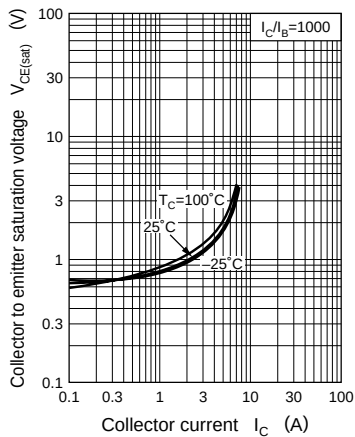
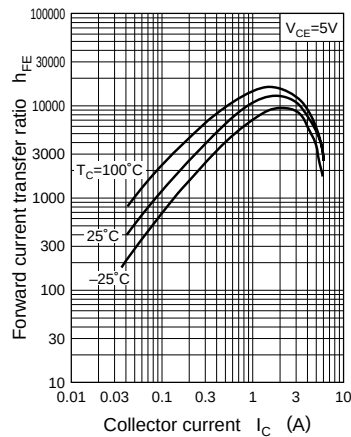
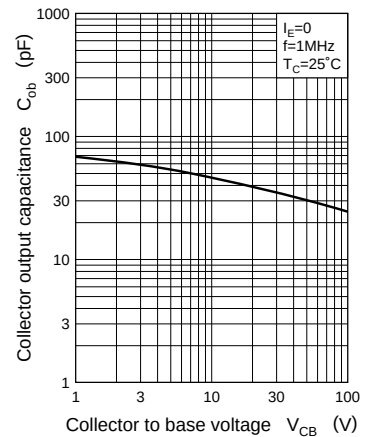
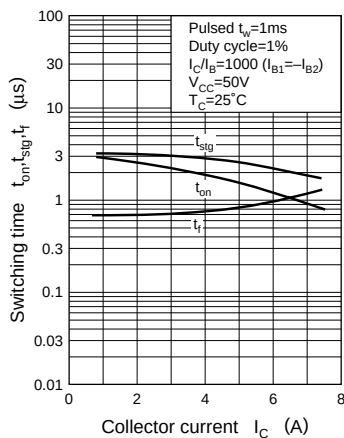
* h_{FE2} Rank classification

Rank	Q	P
h_{FE2}	5000 to 15000	8000 to 30000



Internal Connection



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

Area of safe operation (ASO)

