

2SD1277, 2SD1277A

Silicon NPN triple diffusion planar type darlington

For midium speed power switching

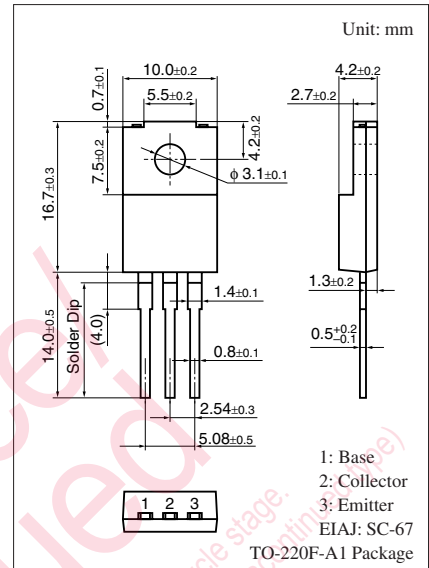
Complementary to 2SB0951, 2SB0951A

■ Features

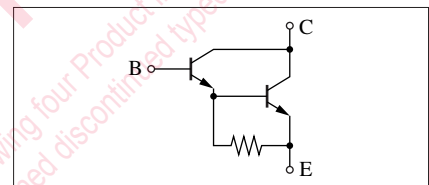
- High forward current transfer ratio h_{FE}
- High-speed switching
- Full-pack package which can be installed to the heat sink with one screw

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

Parameter	Symbol	Rating	Unit	
Collector-base voltage (Emitter open)	2SD1277	V_{CBO}	60	V
	2SD1277A		80	
Collector-emitter voltage (Base open)	2SD1277	V_{CEO}	60	V
	2SD1277A		80	
Emitter-base voltage (Collector open)	V_{EBO}	7	V	
Collector current	I_C	8	A	
Peak collector current	I_{CP}	12	A	
Collector power dissipation	$T_C = 25^\circ\text{C}$	P_C	45	W
			2.0	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	



Internal Connection



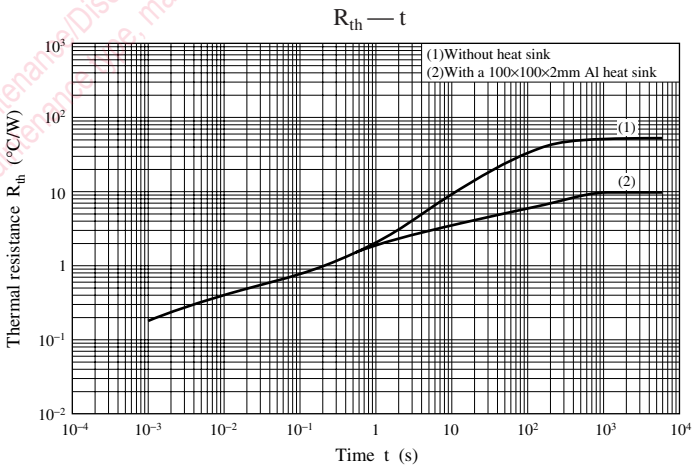
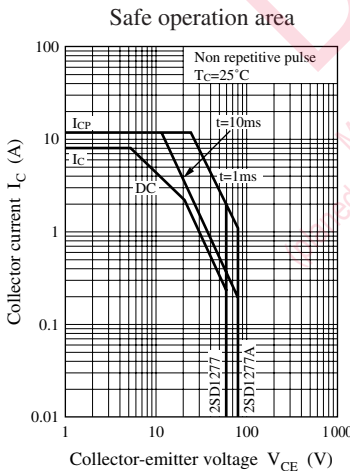
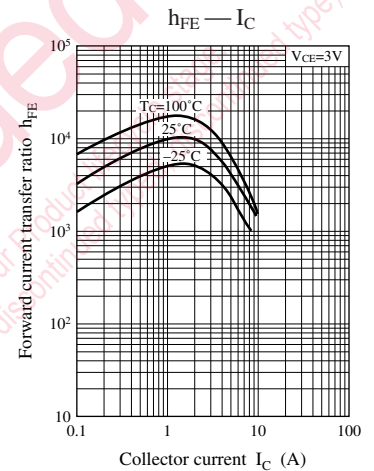
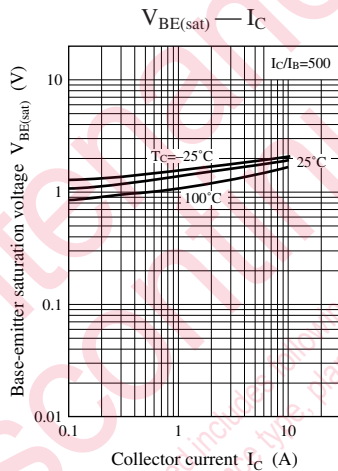
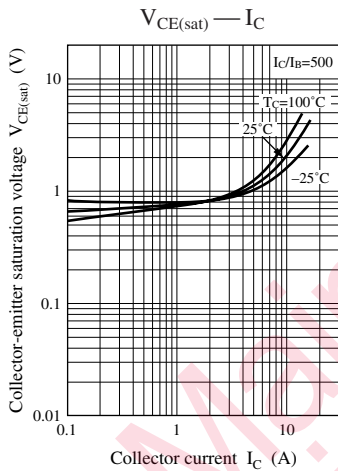
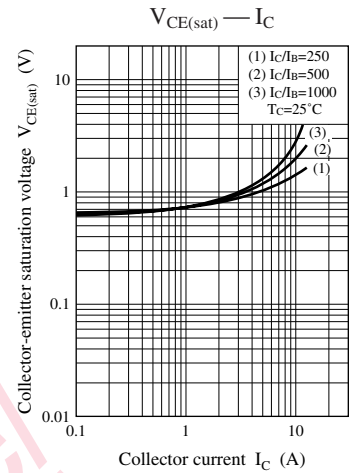
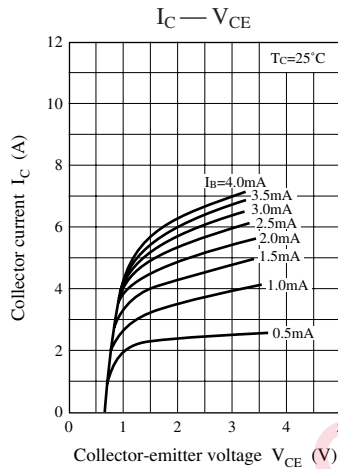
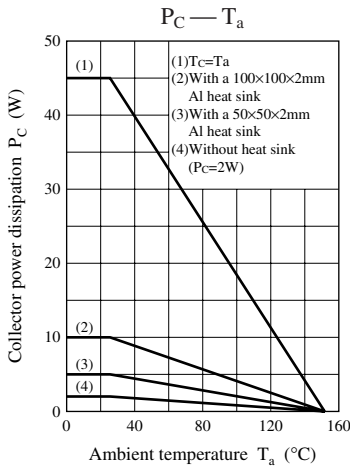
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	2SD1277	$I_C = 30\text{ mA}, I_B = 0$	60			V
	2SD1277A		80			
Collector-base cutoff current (Emitter open)	2SD1277	$V_{CB} = 60\text{ V}, I_E = 0$			100	μA
	2SD1277A		$V_{CB} = 80\text{ V}, I_E = 0$			100
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$			2	mA
Forward current transfer ratio	h_{FE1}^*	$V_{CE} = 3\text{ V}, I_C = 4\text{ A}$	1000		10000	—
	h_{FE2}	$V_{CE} = 3\text{ V}, I_C = 8\text{ A}$	500			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4\text{ A}, I_B = 8\text{ mA}$			1.5	V
Base-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}	$I_C = 2\text{ A}, I_{B1} = 8\text{ mA}, I_{B2} = -8\text{ mA}$		0.5		μs
Storage time	t_{stg}	$V_{CC} = 50\text{ V}$		4.0		μs
Fall time	t_f			1.0		μs

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Rank classification

Rank	R	Q	P
h_{FE1}	1000 to 2500	2000 to 5000	4000 to 10000



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