

# 2SD1327

Silicon NPN triple diffusion planar type Darlington

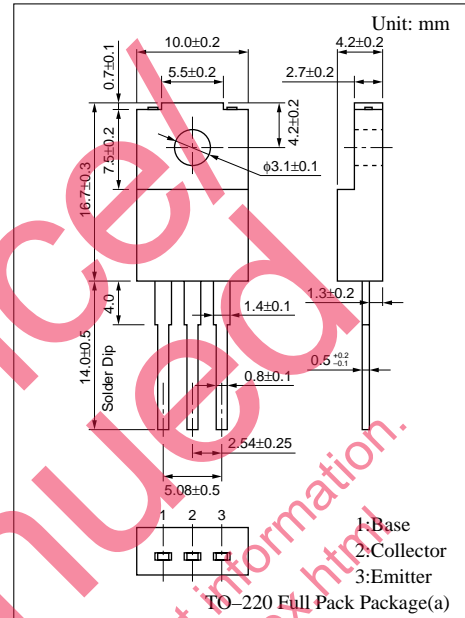
For midium speed power switching

### ■ Features

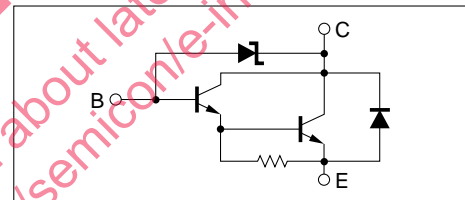
- Incorporating a zener diode of 60V zener voltage between collector and base
- Minimized variation in the breakdown voltage
- Large energy handling capability
- High-speed switching
- Full-pack package which can be installed to the heat sink with one screw

### ■ Absolute Maximum Ratings (T<sub>C</sub>=25°C)

Parameter	Symbol	Rated	Unit
Collector to base voltage	V <sub>CBO</sub>	60±10	V
Collector to emitter voltage	V <sub>CEO</sub>	60±10	V
Emitter to base voltage	V <sub>EBO</sub>	7	V
Peak collector current	I <sub>CP</sub>	12	A
Collector current	I <sub>C</sub>	8	A
Collector power dissipation	P <sub>C</sub>	T <sub>C</sub> =25°C	45
		T <sub>a</sub> =25°C	2
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C



### Internal Connection



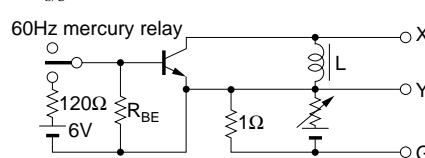
### ■ Electrical Characteristics (T<sub>C</sub>=25°C)

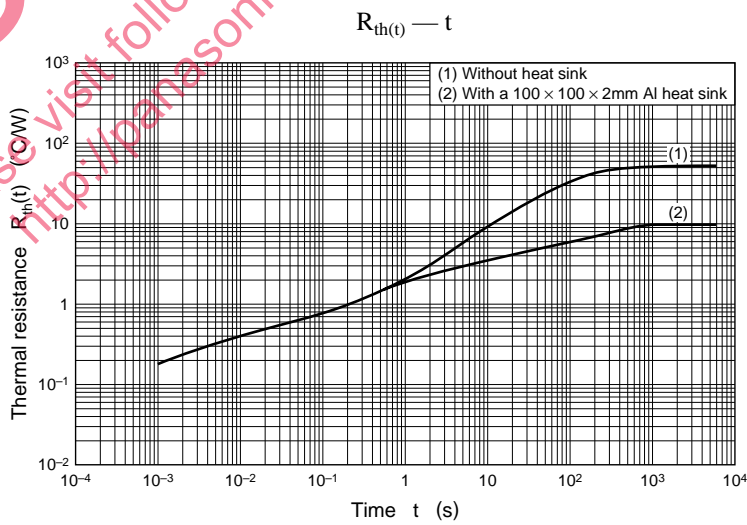
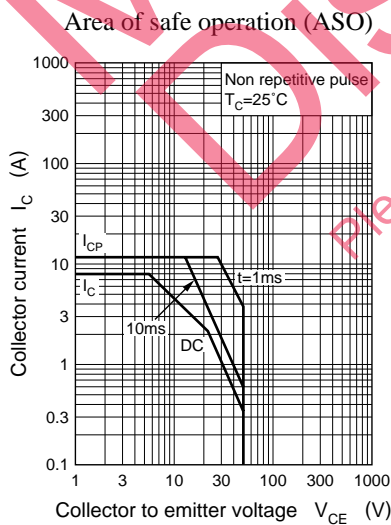
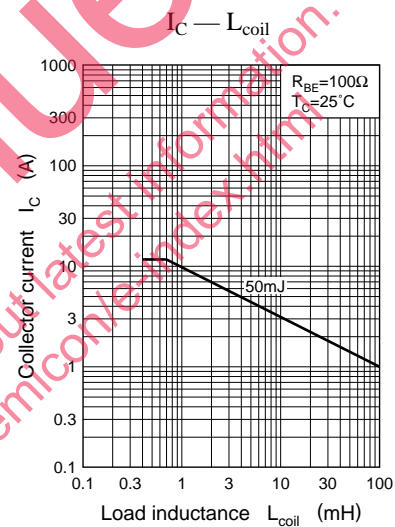
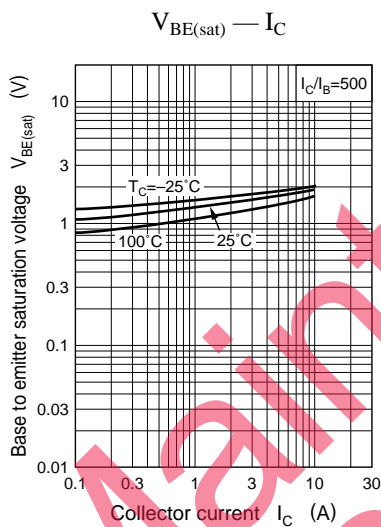
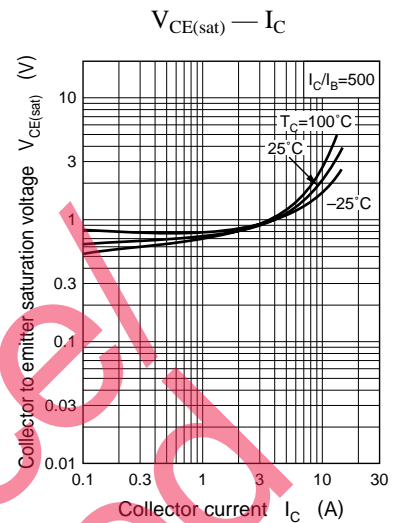
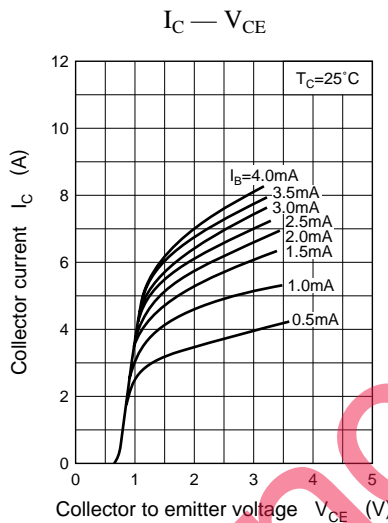
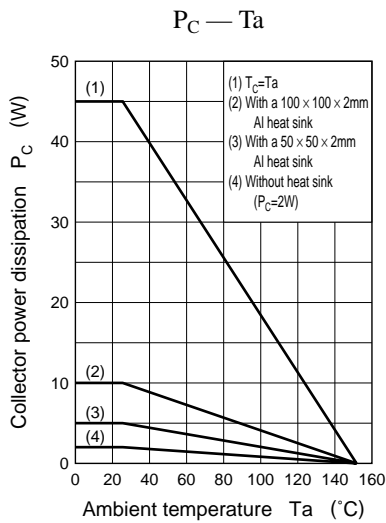
Parameter	Symbol	Conditions	min	typ	max	Unit	
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0			100	μA	
Emitter cutoff current	I <sub>EBO</sub>	V <sub>EB</sub> = 7V, I <sub>C</sub> = 0			2	mA	
Collector to emitter voltage	V <sub>CEO</sub>	I <sub>C</sub> = 5mA, I <sub>B</sub> = 0	50		70	V	
Forward current transfer ratio	h <sub>FE1</sub> <sup>*1</sup>	V <sub>CE</sub> = 3V, I <sub>C</sub> = 4A	2000		10000		
	h <sub>FE2</sub>	V <sub>CE</sub> = 3V, I <sub>C</sub> = 8A	500				
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 4A, I <sub>B</sub> = 8mA			1.5	V	
Base to emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 4A, I <sub>B</sub> = 8mA			2	V	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.5A, f = 1MHz		20		MHz	
Turn-on time	t <sub>on</sub>	I <sub>C</sub> = 4A, I <sub>B1</sub> = 8mA, I <sub>B2</sub> = -8mA, V <sub>CC</sub> = 50V		0.5		μs	
Storage time	t <sub>stg</sub>				4		μs
Fall time	t <sub>f</sub>				1		μs
Energy handling capability	E <sub>s/b</sub> <sup>*2</sup>	I <sub>C</sub> = 1A, L = 100mH, R <sub>BE</sub> = 100Ω	50			mJ	

<sup>\*1</sup>h<sub>FE1</sub> Rank classification

Rank	Q	P
h <sub>FE1</sub>	2000 to 5000	4000 to 10000

<sup>\*2</sup>E<sub>s/b</sub> Test circuit





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