

# 2SD1320

Silicon NPN Triple-Diffused Planar Darlington Type

Medium Speed Power Switching

## ■ Features

- 60V Zener diode built-in between C and B
- Very small fluctuation in breakdown voltages
- Large energy handling capability
- High speed switching
- "N Type" package configuration with a cooling fin for direct soldering on PC board of a small-size electronic equipment

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

Item	Symbol	Value	Unit
Collector-base voltage	V <sub>CB0</sub>	60 ± 10	V
Collector-emitter voltage	V <sub>CE0</sub>	60 ± 10	V
Emitter-base voltage	V <sub>EB0</sub>	5	V
Peak collector current	I <sub>CP</sub>	8	A
Collector current	I <sub>C</sub>	4	A
Collector power dissipation	P <sub>c</sub>	40	W
		1.3	
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 ~ +150	°C

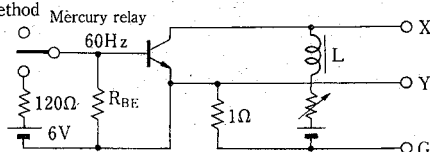
## ■ Electrical Characteristics (T<sub>c</sub>=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> =50 V, I <sub>E</sub> =0			100	μA
Emitter cutoff current	I <sub>EBO</sub>	V <sub>EB</sub> =5 V, I <sub>C</sub> =0			2	mA
Collector-emitter voltage	V <sub>CE0</sub>	I <sub>C</sub> =5 mA, I <sub>B</sub> =0	50		70	V
DC current gain	h <sub>FE1</sub>	V <sub>CE</sub> =3 V, I <sub>C</sub> =0.5 A	1000			
	h <sub>FE2</sub> *1	V <sub>CE</sub> =3 V, I <sub>C</sub> =3 A	1000		10000	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =3 A, I <sub>B</sub> =12 mA			2.5	V
		I <sub>C</sub> =5 A, I <sub>B</sub> =20 mA			4	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =3 A, I <sub>B</sub> =12 mA			2.5	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> =3A, I <sub>B1</sub> =12mA, I <sub>B2</sub> =-12mA V <sub>CC</sub> =50V		0.3		μs
Storage time	t <sub>stg</sub>			3		μs
Fall time	t <sub>f</sub>			1		μs
Energy handling capability	E <sub>s/b</sub> *2	I <sub>C</sub> =2 A, L=100 mH, R <sub>BE</sub> =100 Ω	50			mJ

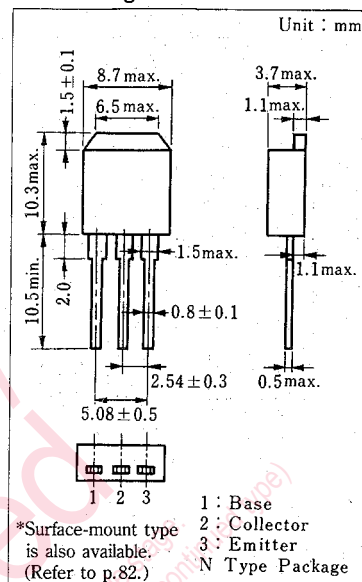
### \*1 h<sub>FE2</sub> Classifications

Class	R	Q	P
h <sub>FE2</sub>	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

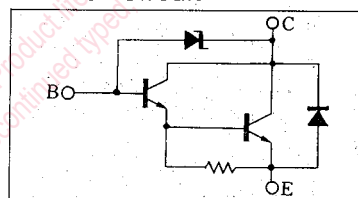
### \*2 E<sub>s/b</sub> Test method

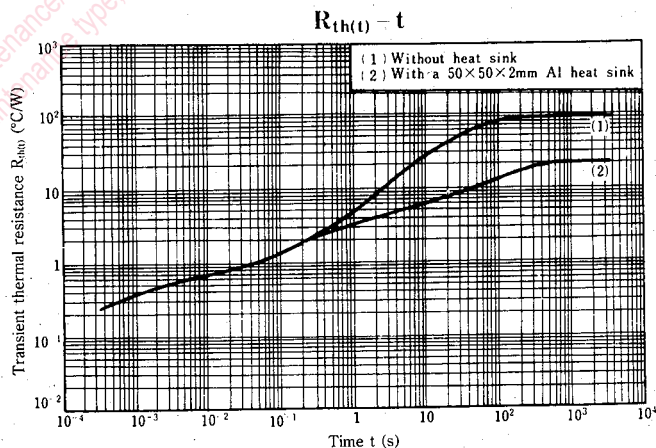
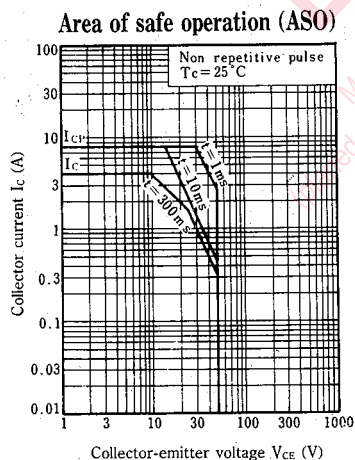
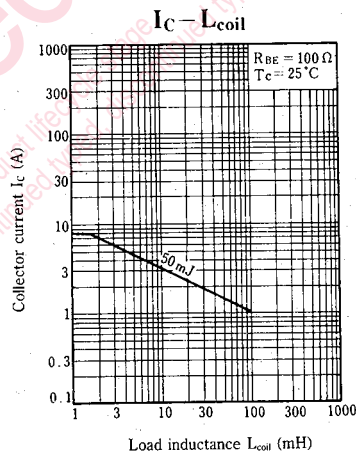
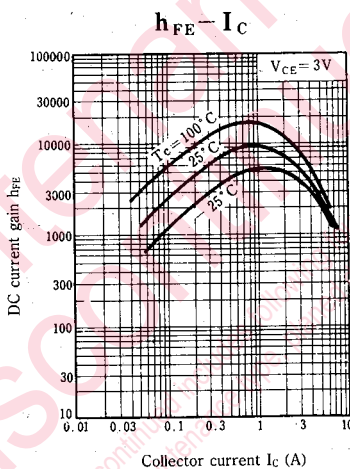
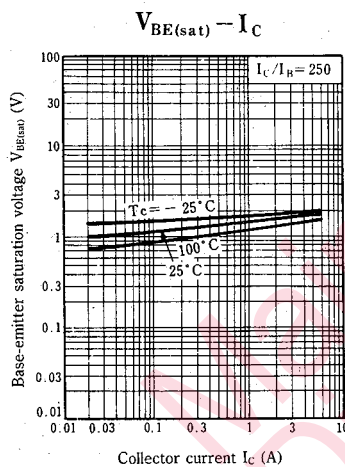
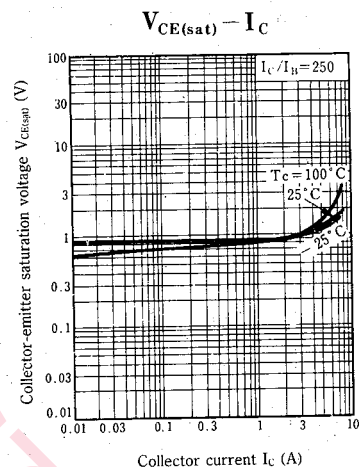
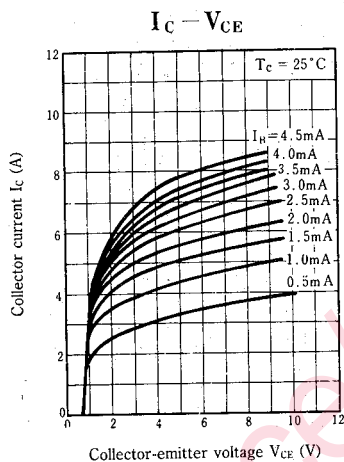
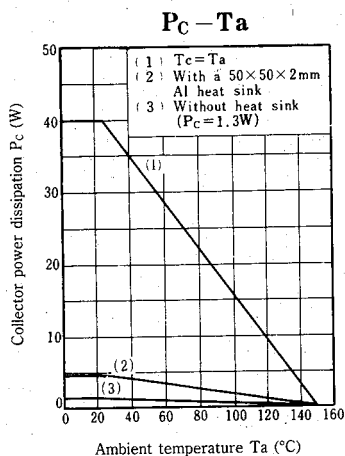


## ■ Package Dimensions



## ■ Inner Circuit





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