

# 2SD1325

## 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
- "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	$V_{CB0}$	60 ± 10	V	
Collector-emitter voltage	$V_{CE0}$	60 ± 10	V	
Emitter-base voltage	$V_{EB0}$	5	V	
Peak collector current	$I_{CP}$	4	A	
Collector current	$I_C$	2	A	
Collector power dissipation	$P_C$	Tc = 25 °C	35	W
		Ta = 25 °C	2	
Junction temperature	$T_J$	150	°C	
Storage temperature	$T_{stg}$	-55 ~ +150	°C	

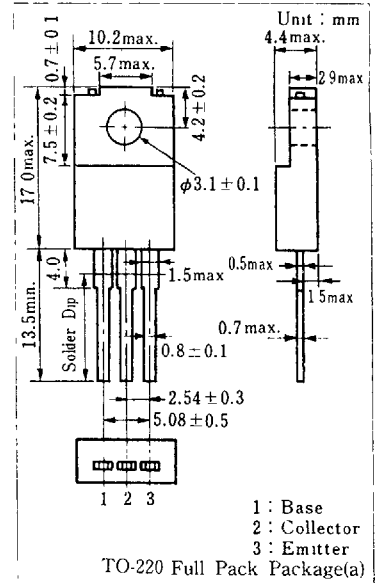
#### ■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CB0}$	$V_{CB} = 50 \text{ V}, I_E = 0$			100	μA
Emitter cutoff current	$I_{EB0}$	$V_{EB} = 5 \text{ V}, I_C = 0$			2	mA
Collector-emitter voltage	$V_{CE0}$	$I_C = 5 \text{ mA}, I_B = 0$	50		70	V
DC current gain	$h_{FE1}$	$V_{CE} = 4 \text{ V}, I_C = 1 \text{ A}$	1000			
	$h_{FE2}^{*1}$	$V_{CE} = 4 \text{ V}, I_C = 2 \text{ A}$	1000		10000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2 \text{ A}, I_B = 8 \text{ mA}$			2.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2 \text{ A}, I_B = 8 \text{ mA}$			2.5	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	$t_{on}$	$I_C = 2 \text{ A}, I_{B1} = 8 \text{ mA}, I_{B2} = -8 \text{ mA}$ $V_{CC} = 20 \text{ V}$		0.4		μs
Storage time	$t_{str}$			3		μs
Fall time	$t_f$			1		μs
Energy handling capability	$E_{s,b}^{*2}$	$I_C = 0.71 \text{ A}, L = 100 \text{ mH}, R_{BE} = 100 \Omega$	25			mJ

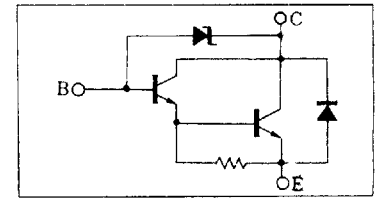
#### \*1 $h_{FE2}$ Classifications

Class	R	Q	P
$h_{FE2}$	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

#### ■ Package Dimensions



#### ■ Inner Circuit



#### \*2 $E_{s,b}$ Test method

