

# 2SD1317

Silicon NPN Triple-Diffused Planar Darlington Type

Medium Speed Power Switching

### ■ Features

- 30V 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 (Tc=25°C)

Item	Symbol	Value	Unit	
Collector-base voltage	$V_{CB0}$	30 ± 5	V	
Collector-emitter voltage	$V_{CE0}$	30 ± 5	V	
Emitter-base voltage	$V_{EB0}$	5	V	
Peak collector current	$I_{CP}$	8	A	
Collector current	$I_C$	4	A	
Collector power dissipation	$P_C$	Tc=25 °C	40	W
		Ta=25 °C	1 3	
Junction temperature	$T_J$	150	°C	
Storage temperature	$T_{stg}$	-55 ~ +150	°C	

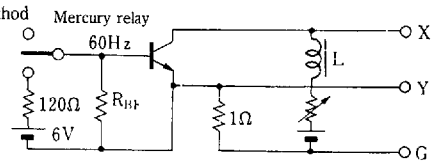
### ■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CB0}$	$V_{CB}=25\text{ V}, I_E=0$			100	$\mu\text{A}$
Emitter cutoff current	$I_{EB0}$	$V_{EB}=5\text{ V}, I_C=0$			2	mA
Collector-emitter voltage	$V_{CE0}$	$I_C=5\text{ mA}, I_B=0$	25		35	A
DC current gain	$h_{FE1}$	$V_{CE}=3\text{ V}, I_C=0.5\text{ A}$	1000			
	$h_{FE2}^{*1}$	$V_{CE}=3\text{ V}, I_C=3\text{ A}$	1000		10000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{ A}, I_B=12\text{ mA}$			2.5	V
		$I_C=5\text{ A}, I_B=20\text{ mA}$			4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=3\text{ A}, I_B=12\text{ mA}$			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	$t_{on}$	$I_C=3\text{ A}, I_{B1}=12\text{ mA}, I_{B2}=-12\text{ mA}$ $V_{CC}=20\text{ V}$		0.3		$\mu\text{s}$
Storage time	$t_{stg}$			3		$\mu\text{s}$
Fall time	$t_f$			1		$\mu\text{s}$
Energy handling capability	$E_{s/b}^{*2}$	$I_C=2\text{ A}, L=100\text{ mH}, R_{BE}=100\Omega$	200			mJ

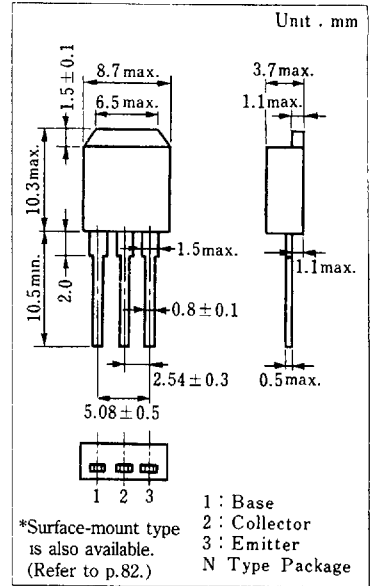
#### \*1 $h_{FE2}$ Classifications

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

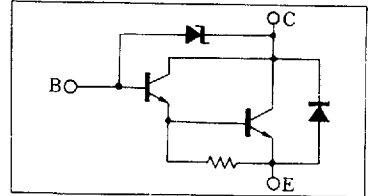
#### \*2 $E_{s/b}$ Test method



### ■ Package Dimensions



### ■ Inner Circuit



6932852 0016690 975

