

# 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	$V_{CB0}$	$30 \pm 5$	V	
Collector-emitter voltage	$V_{CEO}$	$30 \pm 5$	V	
Emitter-base voltage	$V_{EBO}$	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	

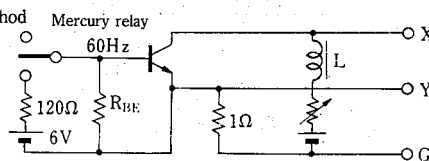
### ■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CB0}$	$V_{CB}=25V, I_E=0$			100	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			2	mA
Collector-emitter voltage	$V_{CEO}$	$I_C=5mA, I_B=0$	25		35	V
DC current gain	$h_{FE1}$	$V_{CE}=3V, I_C=0.5A$	1000			
	$h_{FE2}^{*1}$	$V_{CE}=3V, I_C=3A$	1000		10000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3A, I_B=12mA$			2.5	V
		$I_C=5A, I_B=20mA$			4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=3A, I_B=12mA$			2.5	V
Transition frequency	$f_T$	$V_{CE}=10V, I_C=0.5A, f=1MHz$		20		MHz
Turn-on time	$t_{on}$	$I_C=3A, I_{B1}=12mA, I_{B2}=-12mA$ $V_{CC}=20V$		0.3		$\mu s$
Storage time	$t_{stg}$			3		$\mu s$
Fall time	$t_f$			1		$\mu s$
Energy handling capability	$E_{s/b}^{*2}$	$I_C=2A, L=100mH, R_{BE}=100\Omega$	200			mJ

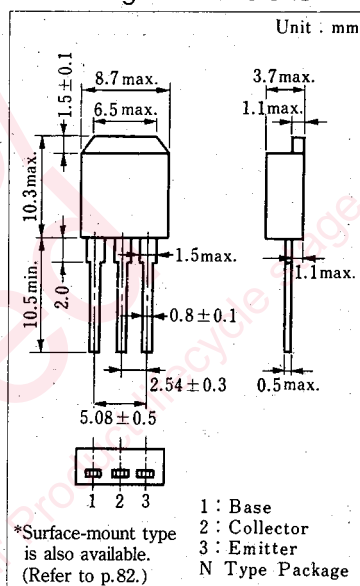
### \*1 $h_{FE2}$ Classifications

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

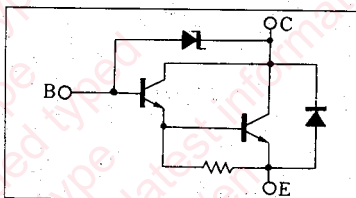
### \*2 $E_{s/b}$ Test method

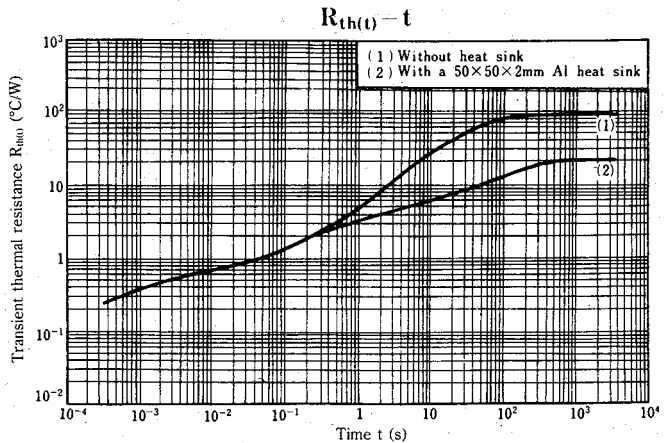
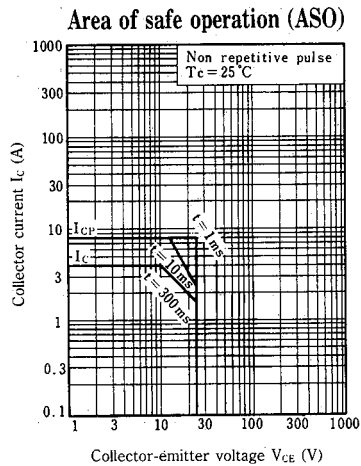
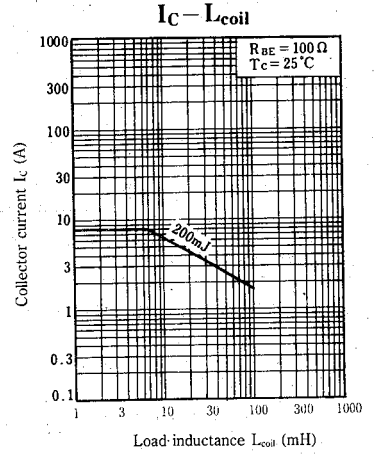
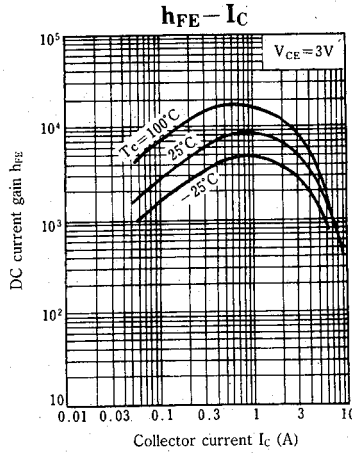
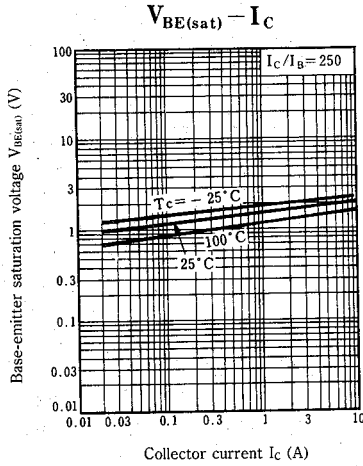
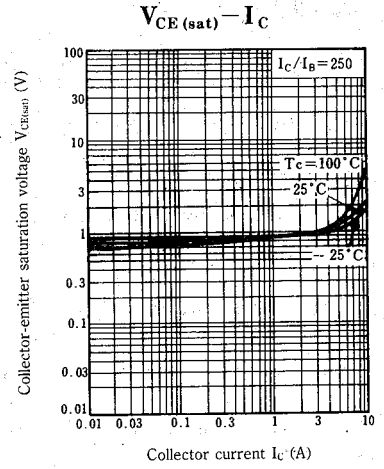
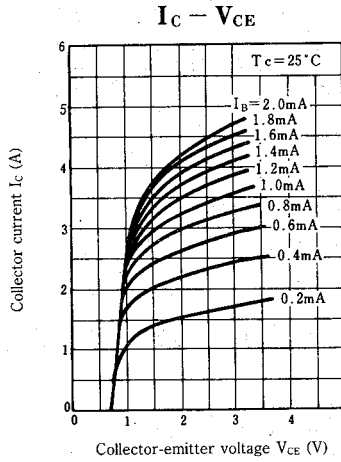
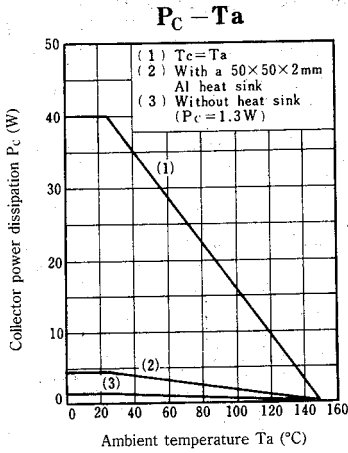


### ■ Package Dimensions



### ■ Inner Circuit





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