

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_{CEO}	30 ± 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	$T_c = 25^\circ\text{C}$	40	W
	$T_a = 25^\circ\text{C}$	1.3	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	$-55 \sim +150$	°C

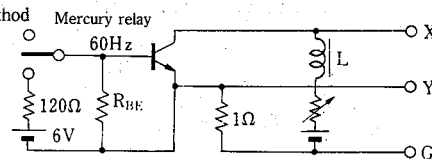
■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CB0}	$V_{CB} = 25\text{V}, I_E = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$			2	mA
Collector-emitter voltage	V_{CEO}	$I_C = 5\text{mA}, I_B = 0$	25		35	V
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		μs
Storage time	t_{stg}			3		μs
Fall time	t_f			1		μs
Energy handling capability	$E_{s/b}^{*2}$	$I_C = 2\text{A}, L = 100\text{mH}, R_{BE} = 100\Omega$	200			mJ

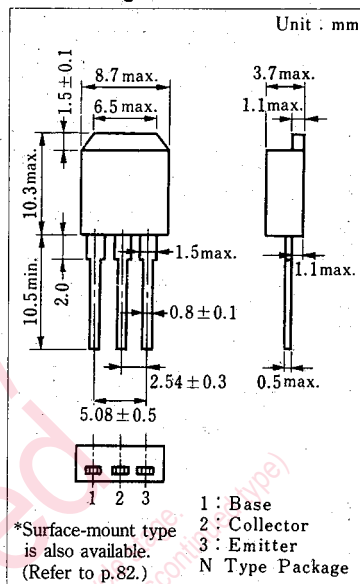
*1 h_{FE2} Classifications

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

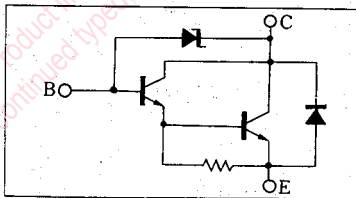
*2 $E_{s/b}$ Test method

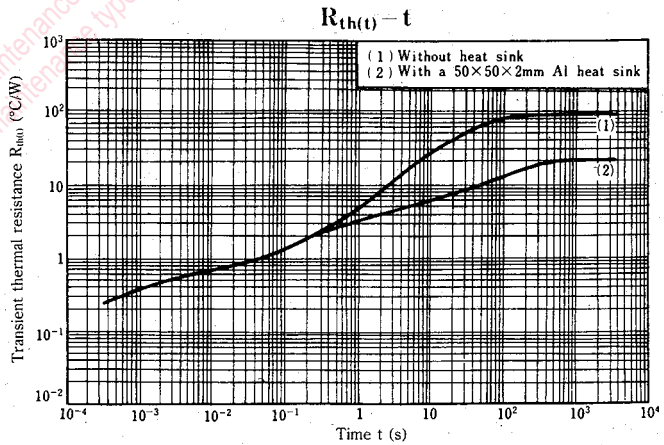
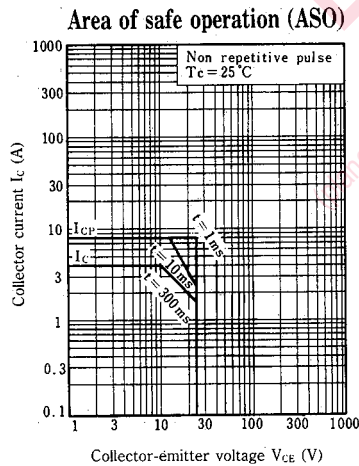
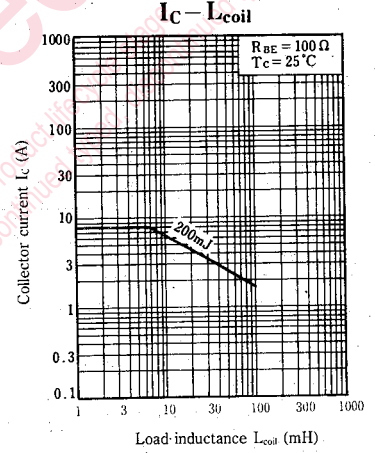
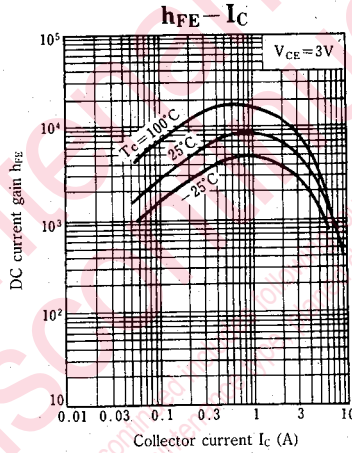
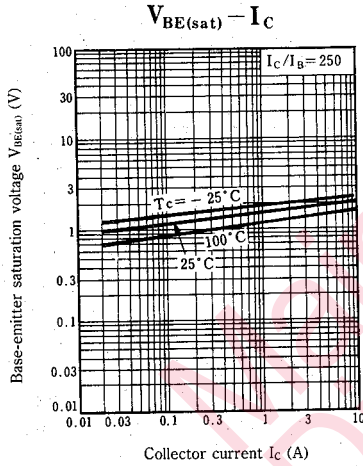
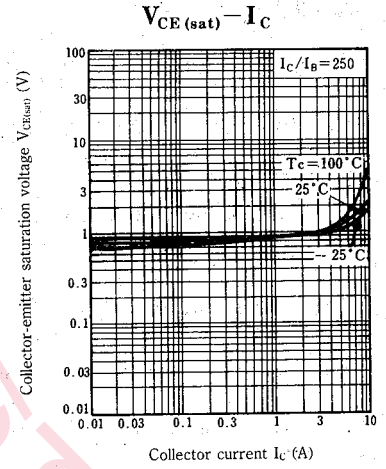
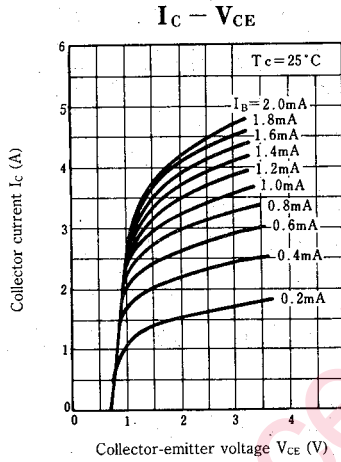
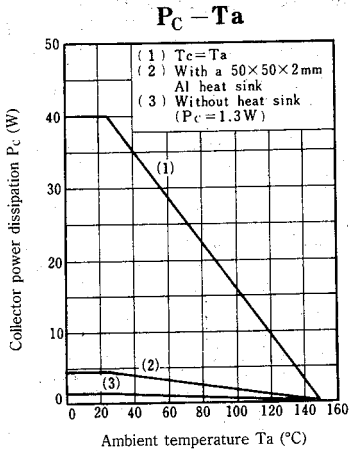


■ Package Dimensions



■ Inner Circuit





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