

2SD1324

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
- "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}	30 ± 5	V	
Collector-emitter voltage	V_{CE0}	30 ± 5	V	
Emitter-base voltage	V_{EB0}	7	V	
Peak collector current	I_{CP}	12	A	
Collector current	I_C	8	A	
Collector power dissipation	P_C	$T_C = 25^\circ\text{C}$	45	W
		$T_a = 25^\circ\text{C}$	2	
Junction temperature	T_J	150	°C	
Storage temperature	T_{stg}	-55 ~ +150	°C	

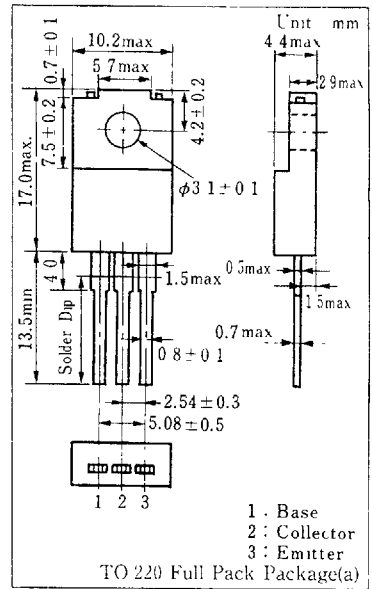
Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min	typ	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 25\text{V}, I_B = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$			2	mA
Collector-emitter voltage	V_{CE0}	$I_C = 5\text{mA}, I_B = 0$	25		35	V
DC current gain	h_{FE1}^{-1}	$V_{CE} = 3\text{V}, I_C = 4\text{A}$	1000		10000	
	h_{FE2}	$V_{CE} = 3\text{V}, I_C = 8\text{A}$	500			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4\text{A}, I_B = 8\text{mA}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 4\text{A}, I_B = 8\text{mA}$			2	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}	$I_C = 4\text{A}, I_{B1} = 8\text{mA}, I_{B2} = -8\text{mA}$ $V_{CC} = 20\text{V}$		0.5		μs
Storage time	t_{sk}		4			μs
Fall time	t_f		1			μs
Energy handling capability	E_{cb}^{*2}	$I_C = 2\text{A}, L = 100\text{mH}, R_{th} = 100\Omega$	200			mJ

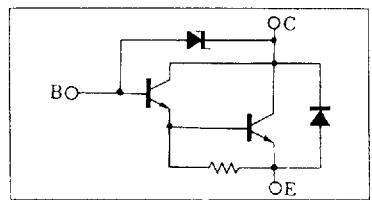
h_{FE1} Classifications

Class	R	Q	P
h_{FE1}	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

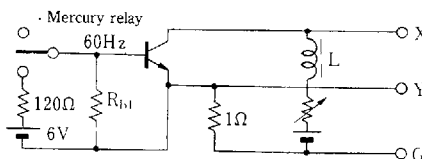
Package Dimensions



Inner Circuit

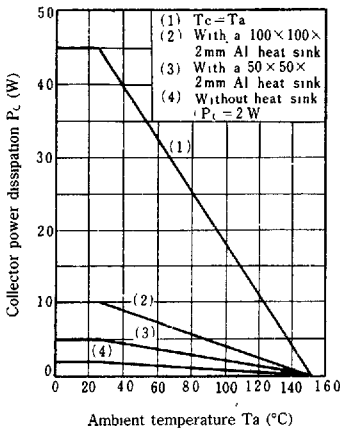


*²E_{cb} Test method

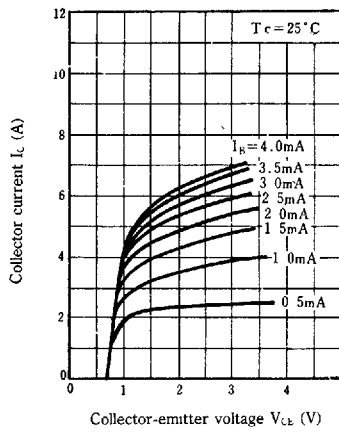


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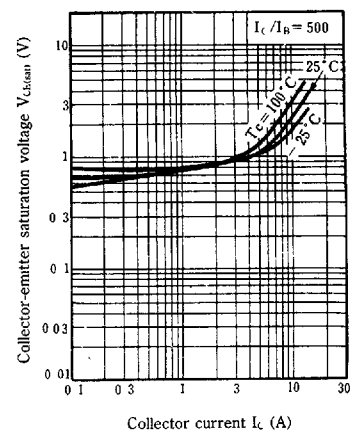
$P_C - T_a$



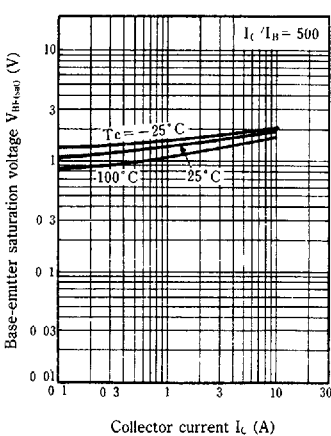
$I_C - V_{CE}$



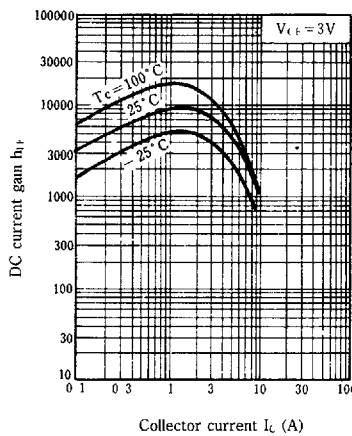
$V_{CE(sat)} - I_C$



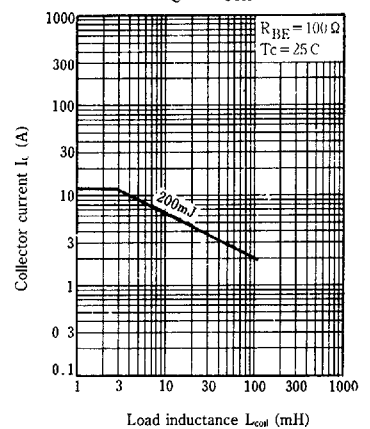
$V_{BE(sat)} - I_C$



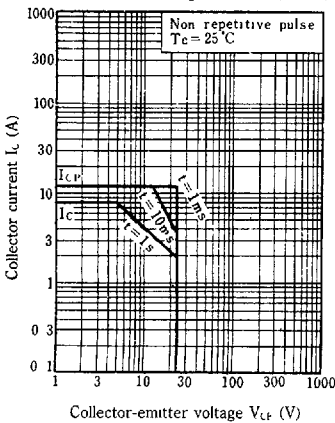
$h_{FE} - I_C$



$I_C - L_{coil}$



Area of safe operation (ASO)



$R_{th(t)} - t$

