

# 2SD1634

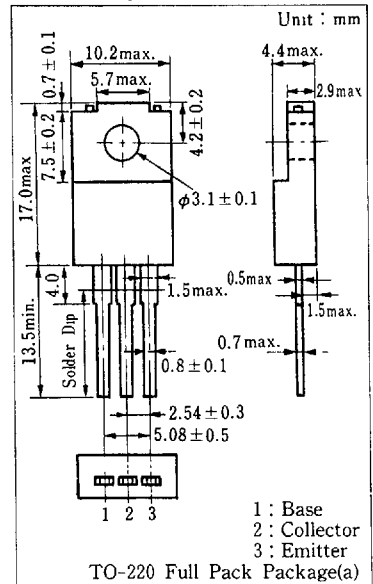
## Silicon PNP Triple-Diffused Planar Darlington Type

### Power Switching

#### ■ Features

- High speed switching
- Good linearity of DC current gain ( $h_{FE}$ )
- "Full Pack" package for simplified mounting on a heat sink with one screw

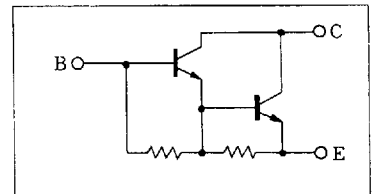
#### ■ Package Dimensions



#### ■ Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Value	Unit
Collector-base voltage	$V_{CB0}$	100	V
Collector-emitter voltage	$V_{CEO}$	100	V
Emitter-base voltage	$V_{EBO}$	7	V
Peak collector current	$I_{CP}$	12	A
Collector current	$I_C$	8	A
Base current	$I_B$	0.5	A
Collector power dissipation	$T_c = 25^\circ\text{C}$	50	W
	$T_a = 25^\circ\text{C}$	2	
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C

#### ■ Inner Circuit



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

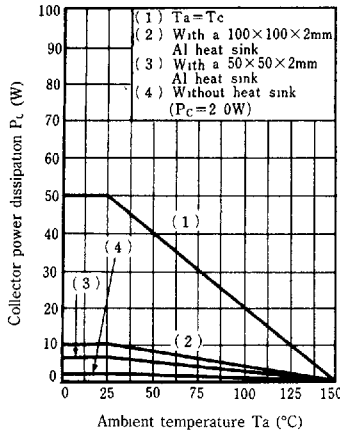
Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CB0}$	$V_{CB} = 100\text{ V}, I_E = 0$			100	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = 100\text{ V}, I_B = 0$			100	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 7\text{ V}, I_C = 0$			5	mA
Collector-emitter voltage	$V_{CEO(sus)}$	$I_C = 0.2\text{ A}$	100			V
DC current gain	$h_{FE}^*$	$V_{CE} = 3\text{ V}, I_C = 5\text{ A}$	1500		10000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5\text{ A}, I_B = 5\text{ mA}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 5\text{ A}, I_B = 5\text{ mA}$			2	V
Transition frequency	$f_T$	$V_{CE} = 10\text{ V}, I_C = 1\text{ A}, f = 1\text{ MHz}$		15		MHz
Turn-on time	$t_{on}$	$I_C = 8\text{ A}, I_{B1} = 8\text{ mA}, I_{B2} = -8\text{ mA}$ $V_{CC} = 50\text{ V}$			3	$\mu\text{s}$
Storage time	$t_{stg}$				5	$\mu\text{s}$
Fall time	$t_f$				3	$\mu\text{s}$

#### \* $h_{FE}$ Classifications

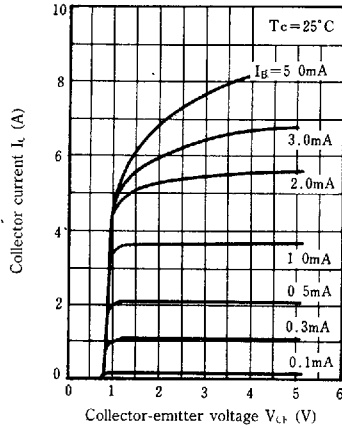
Class	Q	P
$h_{FE}$	1500 ~ 6000	5000 ~ 10000

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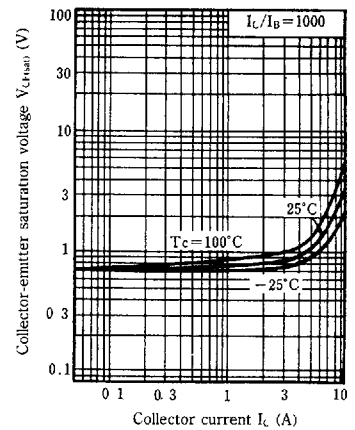
$P_C - T_a$



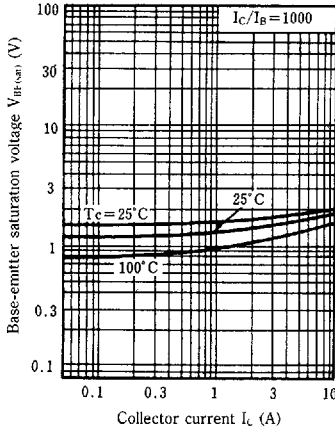
$I_C - V_{CE}$



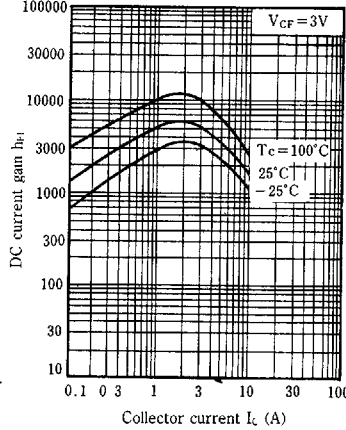
$V_{CE(sat)} - I_C$



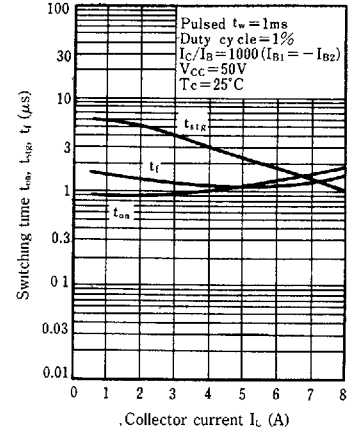
$V_{BE(sat)} - I_C$



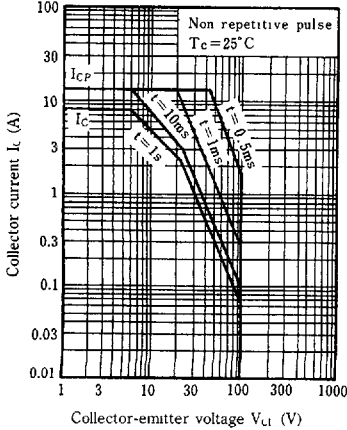
$h_{FE} - I_C$



$t_{on}, t_{stg}, t_f - I_C$



Area of safe operation (ASO)



$R_{th}(t) - t$

