

# 2SD1850

## Silicon NPN Triple-Diffused Planar Type

### Horizontal Deflection Output

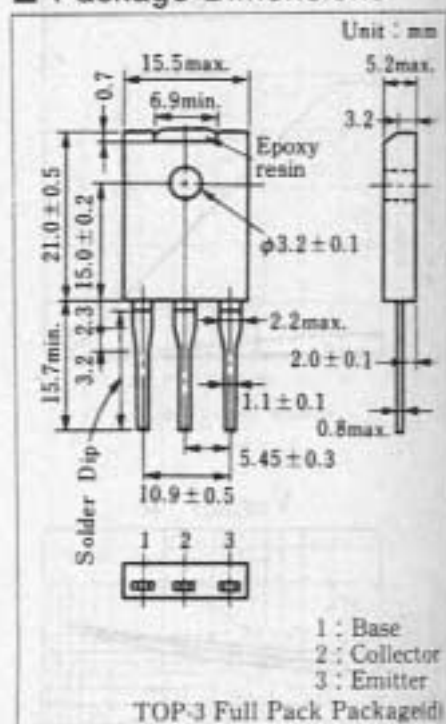
#### ■ Features

- High breakdown voltage, high reliability
- High speed switching
- Wide area of safety operation (ASO)
- "Full Pack" package for simplified mounting on a heat sink with one screw

#### ■ Absolute Maximum Ratings (T<sub>c</sub>=25°C)

Item	Symbol	Value	Unit	
Collector-base voltage	V <sub>CB0</sub>	1500	V	
Collector-emitter voltage	V <sub>CES</sub>	1500	V	
	V <sub>CEO</sub>	700	V	
Emitter-base voltage	V <sub>EBO</sub>	7	V	
Peak collector current	I <sub>CP</sub>	20	A	
Collector current	I <sub>C</sub>	7	A	
Base current	I <sub>B</sub>	3	A	
Collector power dissipation	P <sub>C</sub>	T <sub>C</sub> = 25°C	120	W
		T <sub>A</sub> = 25°C	3	
Junction temperature	T <sub>J</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55 ~ +150	°C	

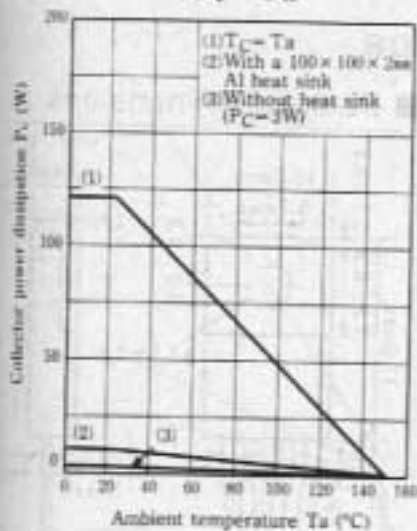
#### ■ Package Dimensions



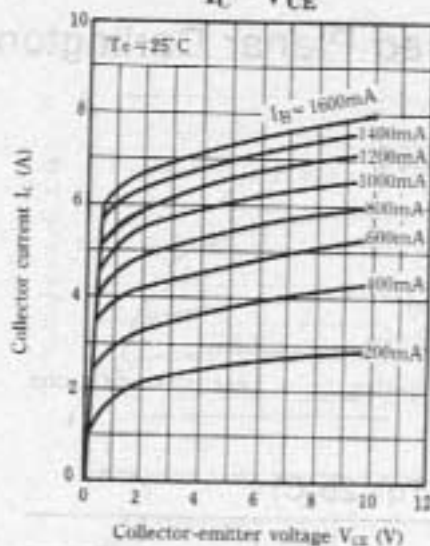
#### ■ Electrical Characteristics (T<sub>c</sub>=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I <sub>CB0</sub>	V <sub>CB</sub> = 1000V, I <sub>E</sub> = 0			10	μA
		V <sub>CB</sub> = 1500V, I <sub>E</sub> = 0			1	mA
Emitter-base voltage	V <sub>EBO</sub>	I <sub>E</sub> = 1mA, I <sub>C</sub> = 0		7		V
DC current gain	h <sub>FE1</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1A	5		25	
	h <sub>FE2</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 6A	4.5			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 6A, I <sub>B</sub> = 1.5A			8	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 6A, I <sub>B</sub> = 1.5A			1.5	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1A, f = 0.5MHz		2		MHz
Storage time (L load)	t <sub>stg</sub>	I <sub>C</sub> = 6A, I <sub>B1</sub> = 1.5A			11	μs
Collector current fall time (L load)	t <sub>f</sub>	I <sub>B2</sub> = -1.5A, L <sub>break</sub> = 5μH			0.8	μs
Storage time (R load)	t <sub>stg</sub>	I <sub>C</sub> = 6A, I <sub>B1</sub> = 1.5A		1.5		μs
Collector current fall time (R load)	t <sub>f</sub>	I <sub>B2</sub> = -3A, V <sub>CC</sub> = 200V		0.2		μs

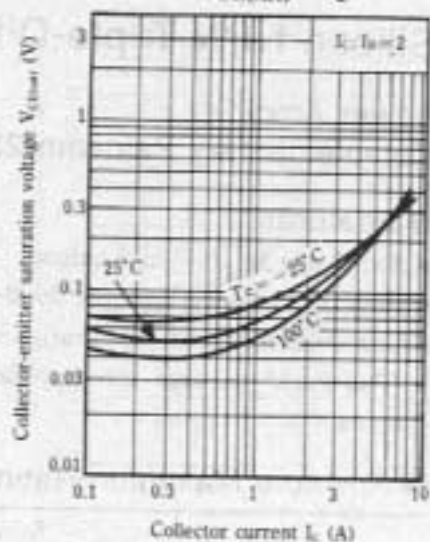
**$P_C - T_a$**



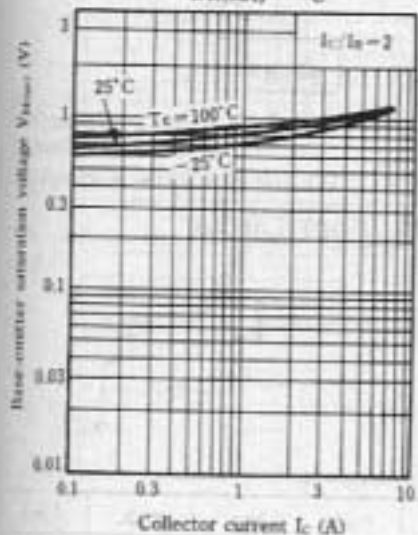
**$I_C - V_{CE}$**



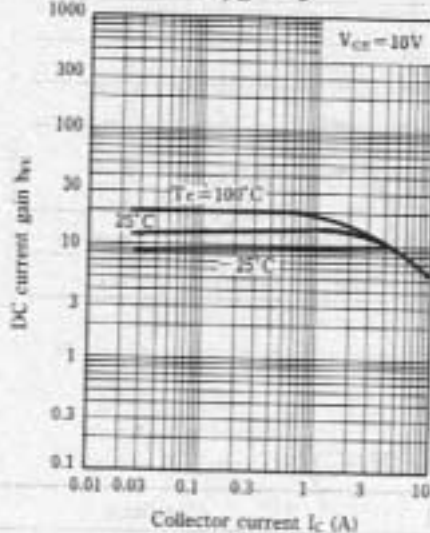
**$V_{CE(sat)} - I_C$**



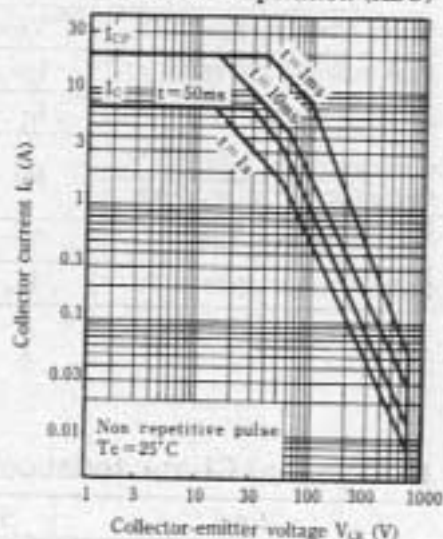
**$V_{BE(sat)} - I_C$**



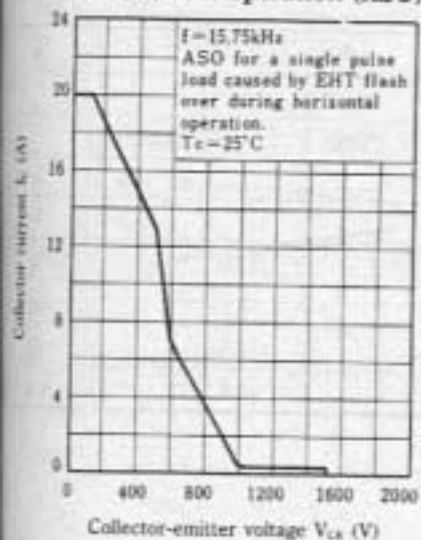
**$h_{FE} - I_C$**



**Area of safe operation (ASO)**



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**$R_{th(t)} - t$**

