

# 2SD1641

## Silicon PNP Triple-Diffused Planar Type

High DC Current Gain ( $h_{FE}$ ), High Power Amplifier  
TV Power Source Output

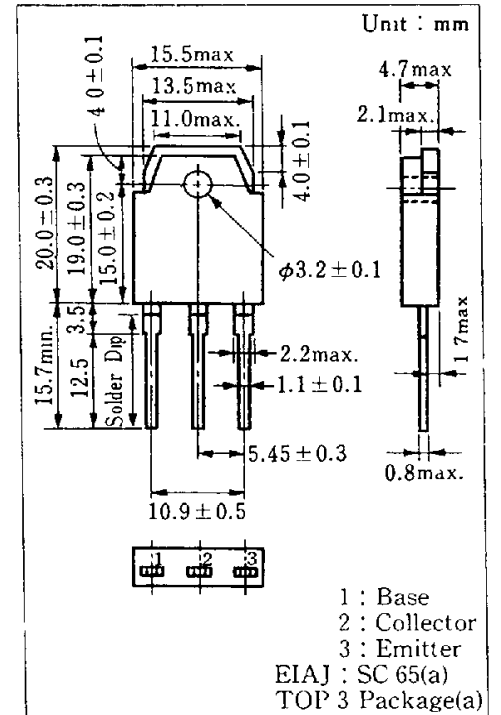
### ■ Features

- Wide area of safety operation (ASO)
- Protective avalanche diode built-in
- High DC current gain ( $h_{FE}$ )
- Good linearity of DC current gain ( $h_{FE}$ )

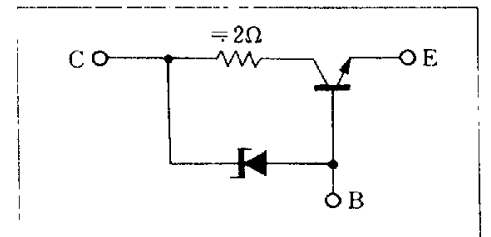
### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Value	Unit	
Collector-base voltage	$V_{CB0}$	$55 \pm \frac{15}{10}$	V	
Collector-emitter voltage	$V_{CE0}$	$55 \pm \frac{15}{10}$	V	
Emitter-base voltage	$V_{EB0}$	5	V	
Peak collector current	$I_{CP}$	20	A	
Collector current	$I_C$	4	A	
Collector power dissipation	$P_C$	$T_c=25^\circ\text{C}$	80	W
		$T_a=25^\circ\text{C}$	2.5	
Junction temperature	$T_J$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$	

### ■ Package Dimensions



### ■ Inner Circuit

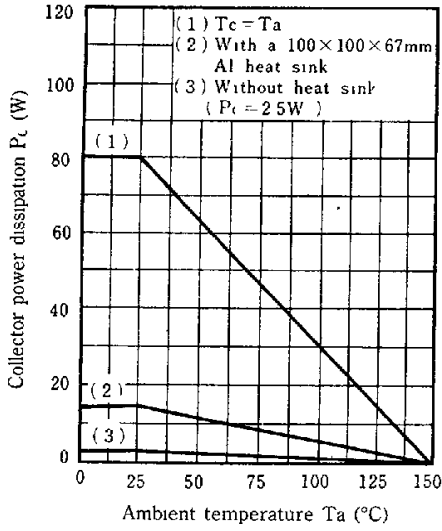


### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

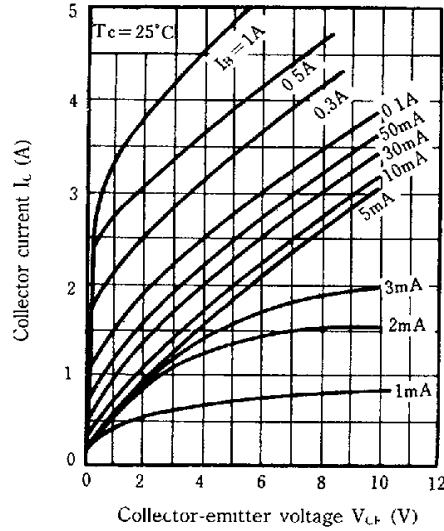
Item	Symbol	Condition	min	typ	max	Unit
Collector cutoff current	$I_{CB0}$	$V_{CB} = 30\text{ V}, I_E = 0$			100	$\mu\text{A}$
Emitter cutoff current	$I_{EB0}$	$V_{EB} = 5\text{ V}, I_C = 0$			10	$\mu\text{A}$
Collector-base voltage	$V_{CB0}$	$I_C = 10\text{ mA}, I_E = 0$	45		70	V
Collector-emitter voltage	$V_{CE0}$	$I_C = 100\text{ mA}, I_B = 0$	45		70	V
DC current gain	$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	500		2500	
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = 0.5\text{ A}, I_B = 2\text{ mA}$			2	V
Base-emitter saturation voltage	$V_{CE(sat)2}$	$I_C = 1\text{ A}, I_B = 20\text{ mA}$			3	V
Base voltage	$V_{BE}$	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$			0.8	V
Transition frequency	$f_T$	$V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}, f = 10\text{ MHz}$		45		MHz

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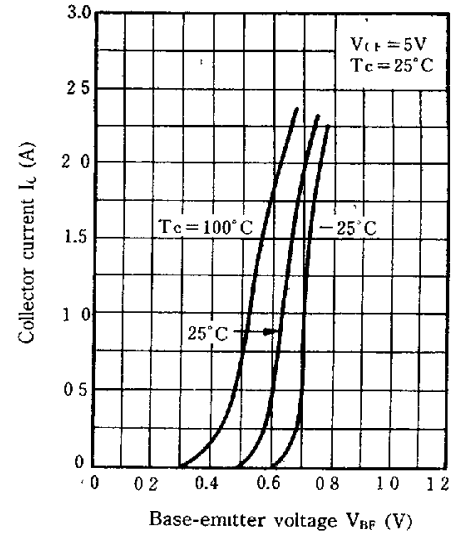
**$P_c - T_a$**



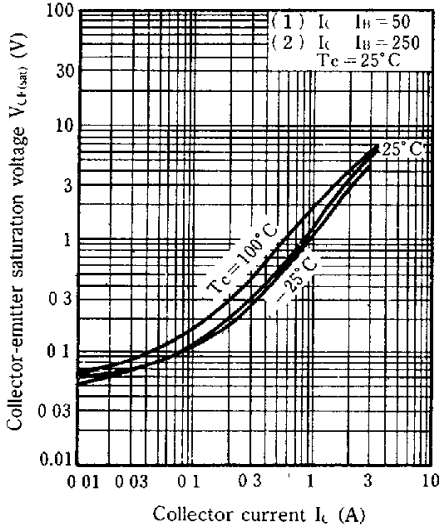
**$I_c - V_{CE}$**



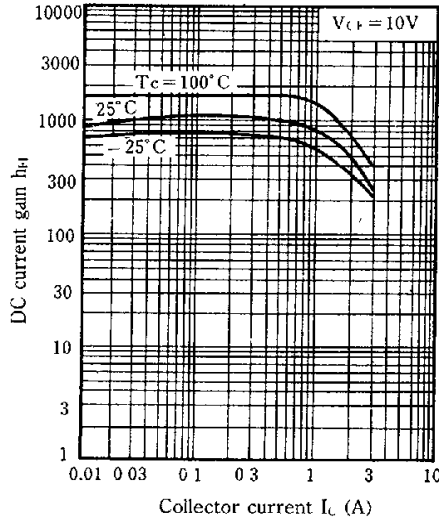
**$I_c - V_{BE}$**



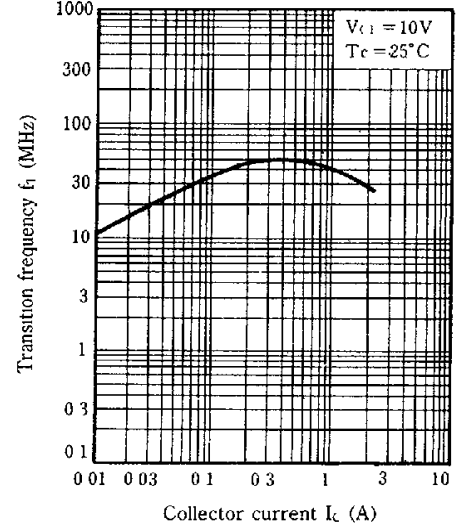
**$V_{CE(sat)} - I_c$**



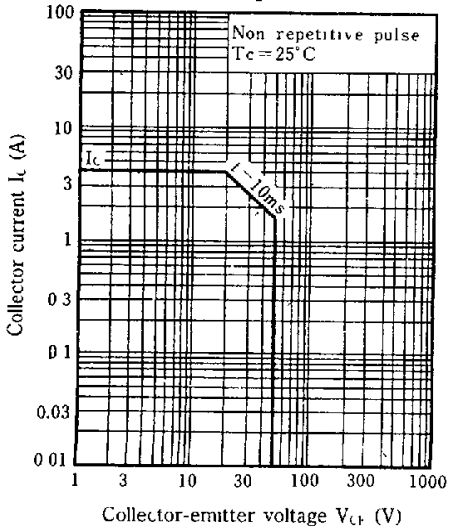
**$h_{FE} - I_c$**



**$f_T - I_c$**



**Area of safe operation (ASO)**



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

