

# 2SD2659

## Silicon NPN triple diffusion planar type

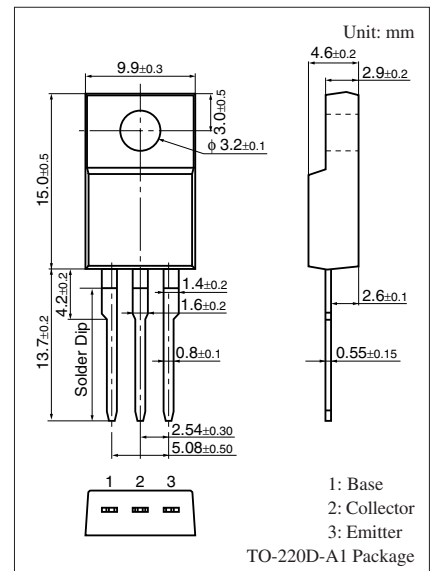
For power switching

### ■ Features

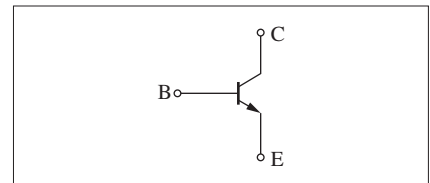
- High forward current transfer ratio  $h_{FE}$
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- TO-220D built-in: Excellent package with withstand voltage 5 kV guaranteed

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Collector-base voltage (Emitter open)	$V_{CBO}$	80	V	
Collector-emitter voltage (Base open)	$V_{CEO}$	60	V	
Emitter-base voltage (Collector open)	$V_{EBO}$	6	V	
Collector current	$I_C$	3	A	
Peak collector current	$I_{CP}$	6	A	
Collector power dissipation	$T_C = 25^\circ\text{C}$	$P_C$	20	W
			2	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	



### Internal Connection

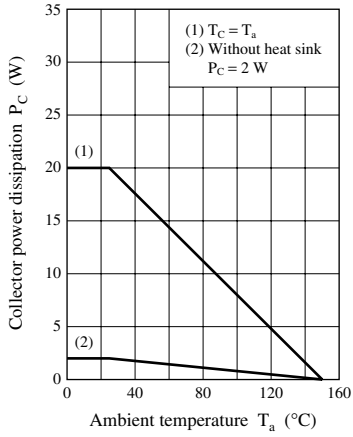


### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

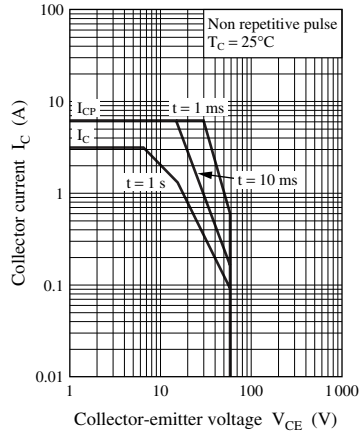
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	60			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 80 \text{ V}, I_E = 0$			100	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 60 \text{ V}, I_B = 0$			100	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 6 \text{ V}, I_C = 0$			100	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 4.0 \text{ V}, I_C = 0.5 \text{ A}$	500		1500	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2.0 \text{ A}, I_B = 0.05 \text{ A}$			1.2	V
Transition frequency	$f_T$	$V_{CE} = 12 \text{ V}, I_C = 0.2 \text{ A}, f = 10 \text{ MHz}$		50		MHz

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

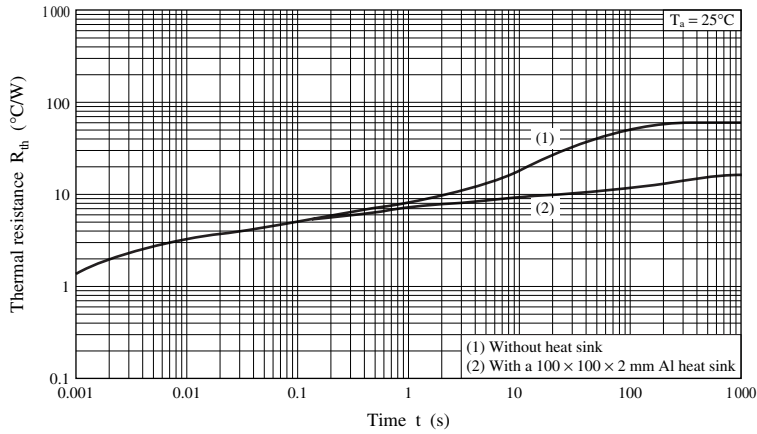
$P_C - T_a$



Safe operation area



$R_{th} - t$



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