

# 2SD2139

## Silicon NPN triple diffusion planar type

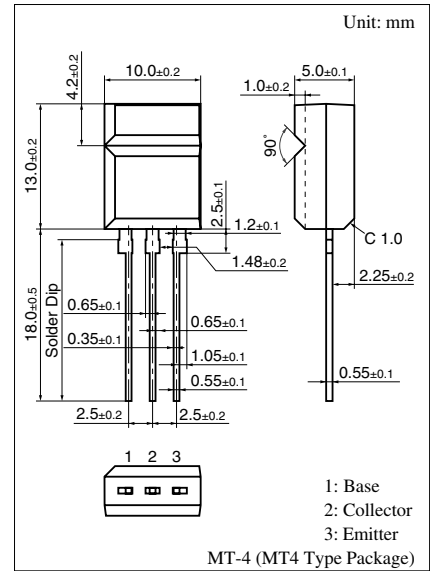
For high-current amplification ratio, power amplification

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- Allowing supply with the radial taping

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

Parameter	Symbol	Rating	Unit	
Collector to base voltage	$V_{CBO}$	80	V	
Collector to emitter voltage	$V_{CEO}$	60	V	
Emitter to base voltage	$V_{EBO}$	6	V	
Peak collector current	$I_{CP}$	6	A	
Collector current	$I_C$	3	A	
Base current	$I_B$	1	A	
Collector power dissipation	$T_C = 25^\circ\text{C}$ $T_a = 25^\circ\text{C}$	$P_C$	15	W
			2	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	

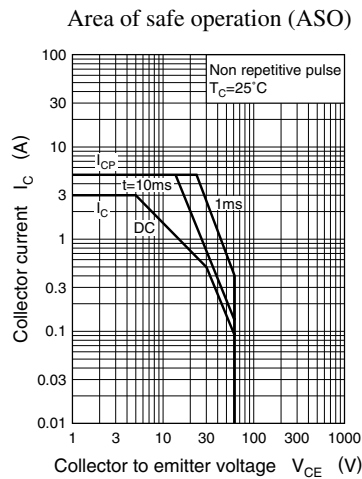
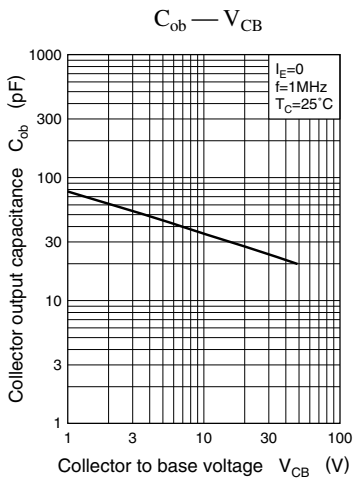
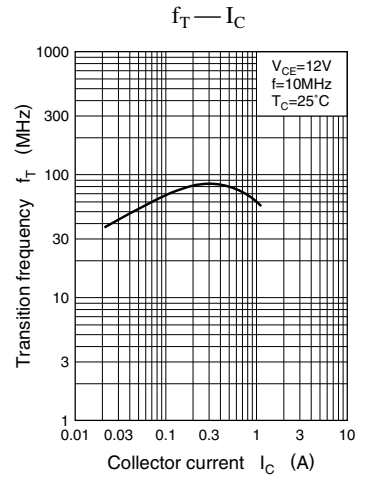
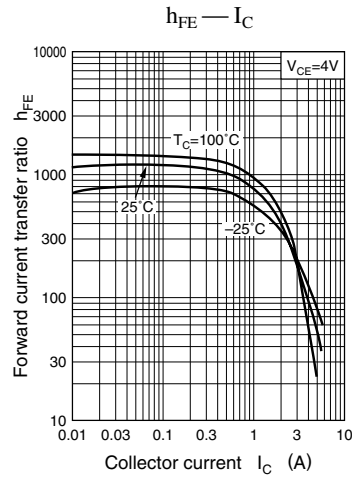
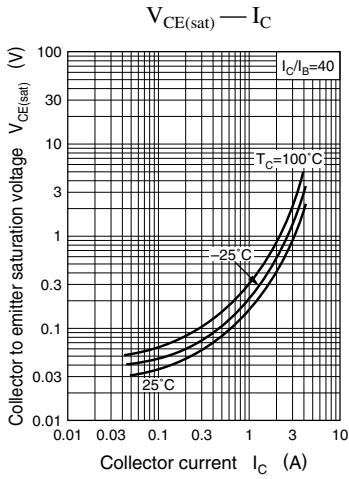
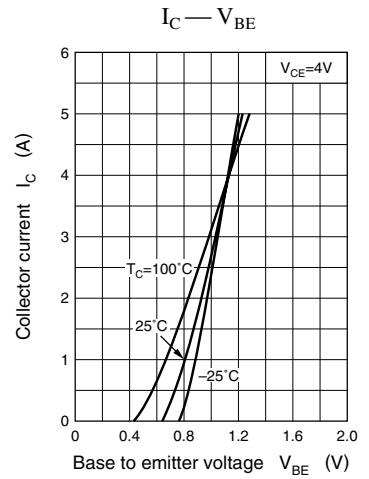
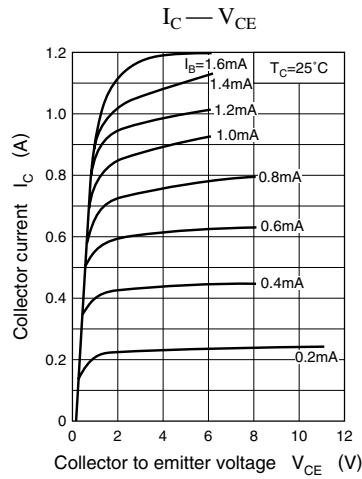
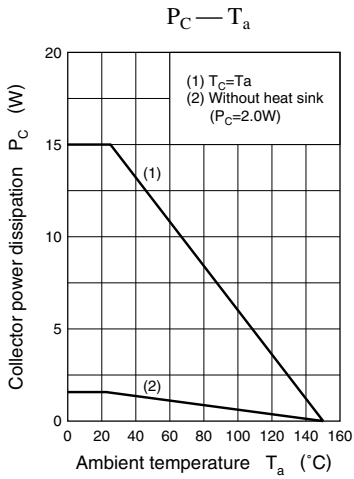


### ■ Electrical Characteristics $T_C = 25^\circ\text{C}$

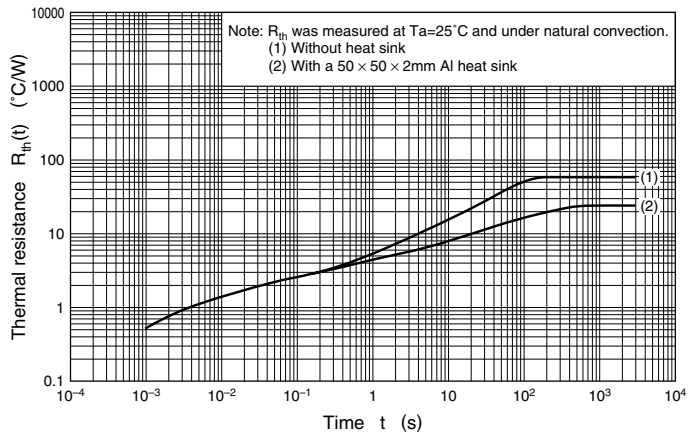
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 80\text{ V}, I_E = 0$			100	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = 40\text{ V}, I_B = 0$			100	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 6\text{ V}, I_C = 0$			100	$\mu\text{A}$
Collector to emitter voltage	$V_{CEO}$	$I_C = 25\text{ mA}, I_B = 0$	60			V
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 4\text{ V}, I_C = 0.5\text{ A}$	500		2 500	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{ A}, I_B = 0.05\text{ A}$			1	V
Transition frequency	$f_T$	$V_{CE} = 12\text{ V}, I_C = 0.2\text{ A}, f = 10\text{ MHz}$		50		MHz

Note) \*: Rank classification

Rank	Q	P	O
$h_{FE}$	500 to 1 000	800 to 1 500	1 200 to 2 500



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



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