# 2SD2139

### Silicon NPN triple diffusion planar type

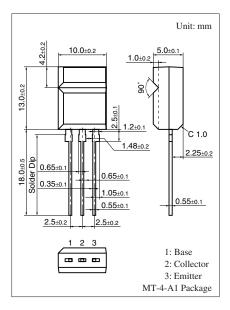
For high-speed switching and high current amplification ratio

#### Features

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

Absolute Maximum Hatings $T_{\rm C} = 25$ C							
Parameter	Symbol	Rating	Unit				
Collector-base voltage (En	V <sub>CBO</sub>	80	V				
Collector-emitter voltage	V <sub>CEO</sub>	60	V				
Emitter-base voltage (Col	V <sub>EBO</sub>	6	V				
Collector current		I <sub>C</sub>	3	А			
Peak collector current		I <sub>CP</sub>	6	А			
Base current		IB	1	А			
Collector power dissipation		P <sub>C</sub>	15	W			
	$T_a = 25^{\circ}C$		2.0				
Junction temperature		Tj	150	°C			
Storage temperature		T <sub>stg</sub>	-55 to +150	°C			





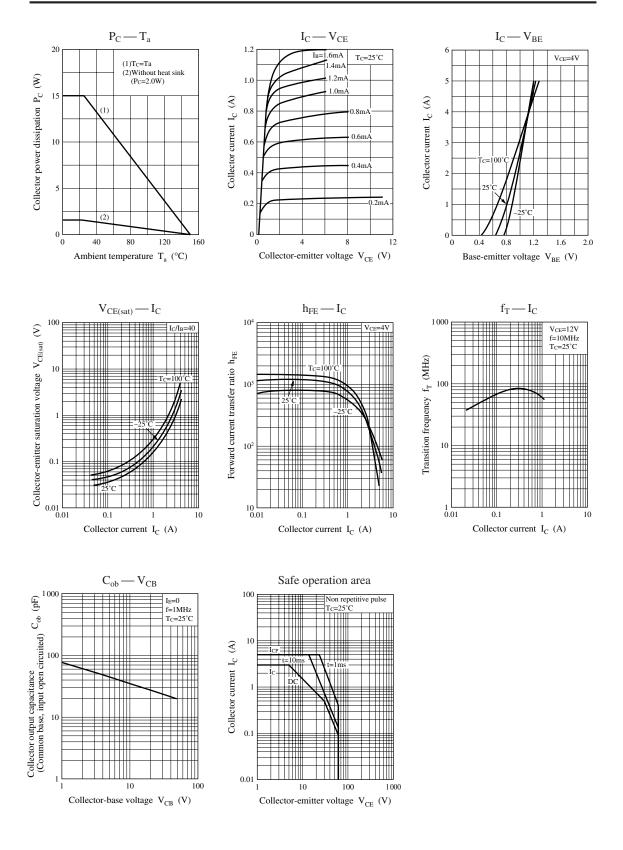
#### Electrical Characteristics $T_C = 25^{\circ}C \pm 3^{\circ}C$

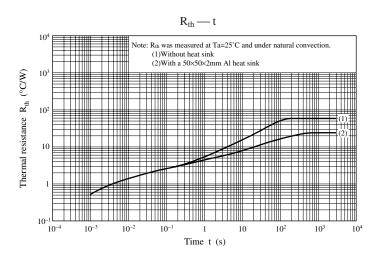
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_{\rm C} = 25 \text{ mA}, I_{\rm B} = 0$	60			V
Collector-base cutoff current (Emitter open)	I <sub>CBO</sub>	$V_{CB} = 80 V, I_E = 0$			100	μΑ
Collector-emitter cutoff current (Base open)	I <sub>CEO</sub>	$V_{CE} = 40 V, I_B = 0$			100	μA
Emitter-base cutoff current (Collector open)	I <sub>EBO</sub>	$V_{EB} = 6 V, I_C = 0$			100	μΑ
Forward current transfer ratio *	h <sub>FE</sub>	$V_{CE} = 4 V, I_C = 0.5 A$	500		2 500	_
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_{\rm C} = 2 \text{ A}, I_{\rm B} = 0.05 \text{ A}$			1.0	V
Transition frequency	f <sub>T</sub>	$V_{CE} = 12 \text{ V}, \text{ I}_{C} = 0.2 \text{ A}, \text{ f} = 10 \text{ MHz}$		50		MHz

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors. 2. \*: Rank classification

Rank	Q	Р	0	
$h_{\mathrm{FE}}$	500 to 1 000	800 to 1 500	1 200 to 2 500	

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