

# 2SA2140

## Silicon PNP epitaxial planar type

For power amplification

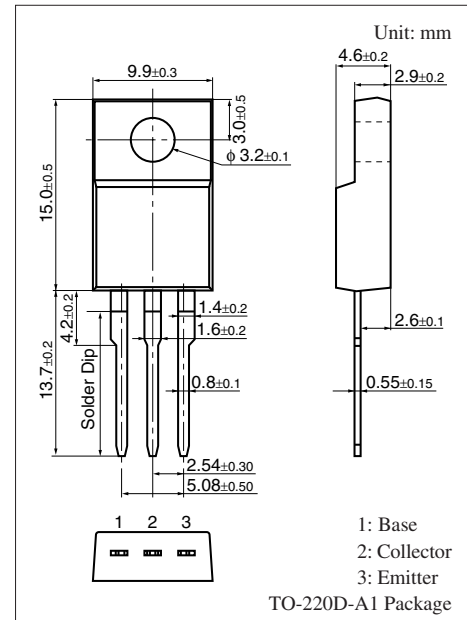
For TV VM circuit

### ■ Features

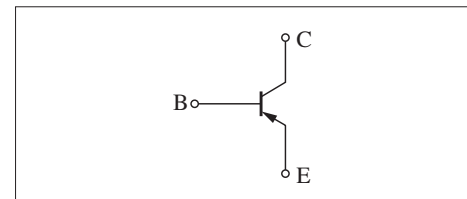
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- High transition frequency ( $f_T$ )
- Full-pack package which can be installed to the heat sink with one screw.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-180	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-180	V
Emitter-base voltage (Collector open)	$V_{EBO}$	-6	V
Collector current	$I_C$	-1.5	A
Peak collector current	$I_{CP}$	-3	A
Collector power dissipation	$P_C$	20	W
	$T_a = 25^\circ\text{C}$	2.0	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



### Internal Connection



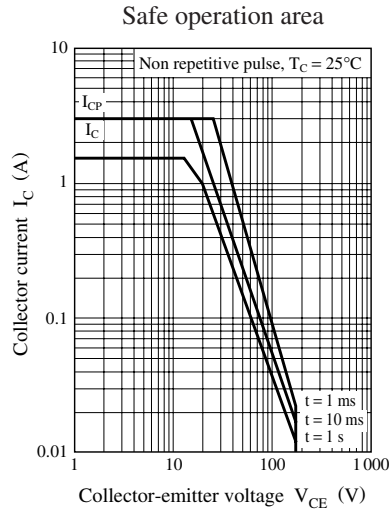
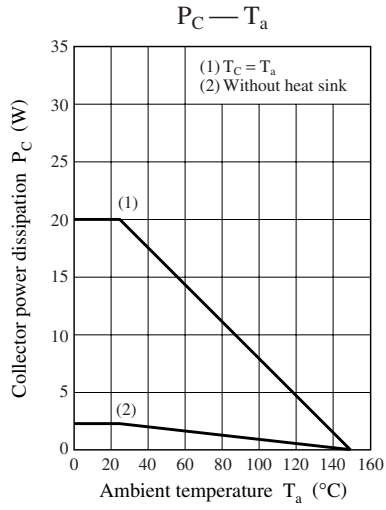
### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -10 \text{ mA}, I_B = 0$	-180			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -180 \text{ V}, I_E = 0$			-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 *	$h_{FE}$	$V_{CE} = -5 \text{ V}, I_C = -0.1 \text{ A}$	60		240	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -1 \text{ A}, I_B = -0.1 \text{ A}$			-0.5	V
Transition frequency	$f_T$	$V_{CE} = -10 \text{ V}, I_C = -0.2 \text{ A}, f = 10 \text{ MHz}$		100		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		30		pF
Turn-on time	$t_{on}$	$I_C = -0.4 \text{ A}, \text{Resistance loaded}$		0.1		$\mu\text{s}$
Storage time	$t_{stg}$	$I_{B1} = 0.04 \text{ A}, I_{B2} = -0.04 \text{ A}$		1.0		$\mu\text{s}$
Fall time	$t_f$	$V_{CC} = 100 \text{ V}$		0.1		$\mu\text{s}$

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

Rank	Q	P
$h_{FE}$	60 to 140	120 to 240



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