

# UNR7231 (UN7231)

## Silicon NPN epitaxial planar type

For low-frequency amplification

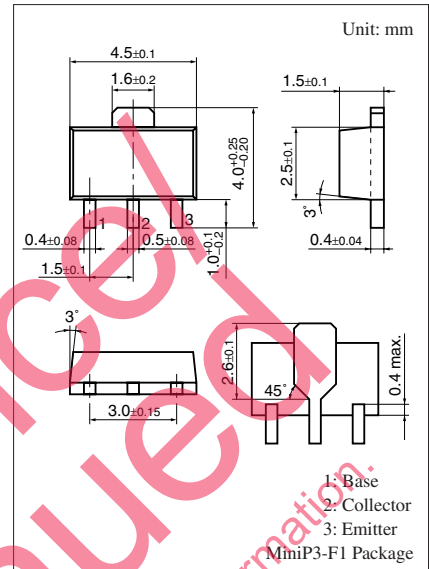
### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.

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

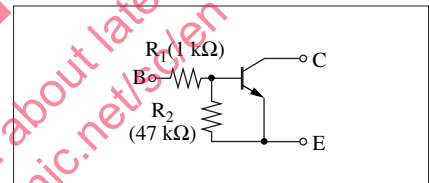
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	20	V
Collector-emitter voltage (Base open)	$V_{CEO}$	20	V
Collector current	$I_C$	0.7	A
Peak collector current	$I_{CP}$	1.5	A
Total power dissipation *	$P_T$	1.0	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note) \*: Printed circuit board: Copper foil area of 1 cm<sup>2</sup> or more, and the board thickness of 1.7 mm for the collector portion



Marking Symbol: IC

### Internal Connection



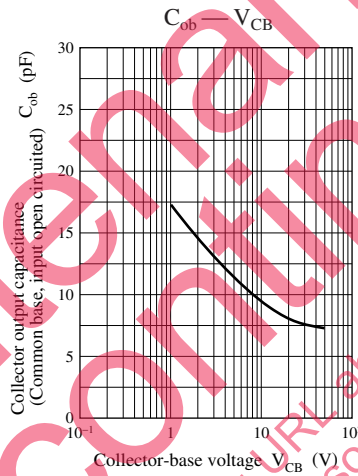
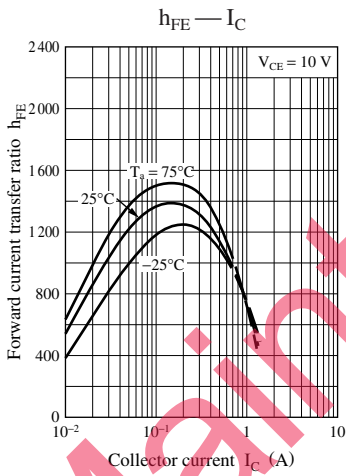
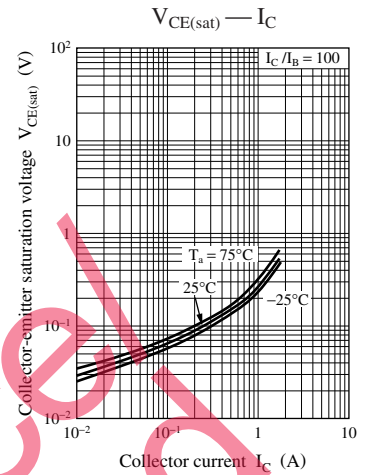
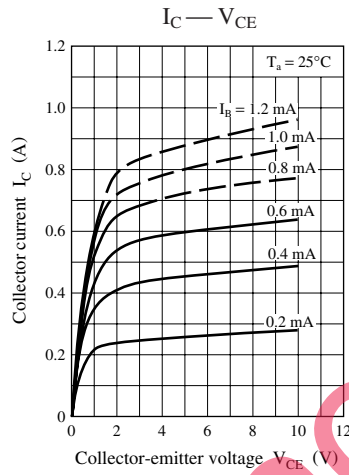
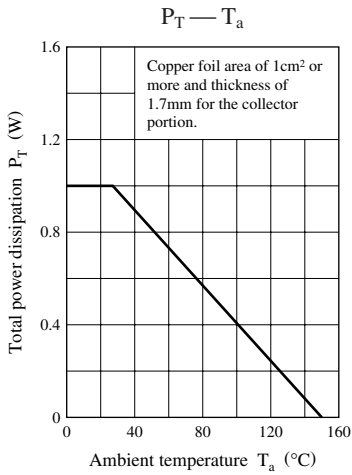
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$	20			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	20			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 15 \text{ V}, I_E = 0$			1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 15 \text{ V}, I_B = 0$			10	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 14 \text{ V}, I_C = 0$			0.5	mA
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 10 \text{ V}, I_C = 150 \text{ mA}$	800		2 100	—
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 500 \text{ mA}, I_B = 5 \text{ mA}$			0.4	V
Input resistance	$R_1$		0.7	1.0	1.3	k $\Omega$
Resistance ratio	$R_1/R_2$		0.016	0.021	0.025	—
Transition frequency	$f_T$	$V_{CB} = 20 \text{ V}, I_E = -20 \text{ mA}, f = 200 \text{ MHz}$		55		MHz

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

2. \*: Pulse measurement

Note) The part number in the parenthesis shows conventional part number.



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