

# UNR8231/UNR8231A (UN8231/UN8231A)

## Silicon NPN epitaxial planer transistor

For switching

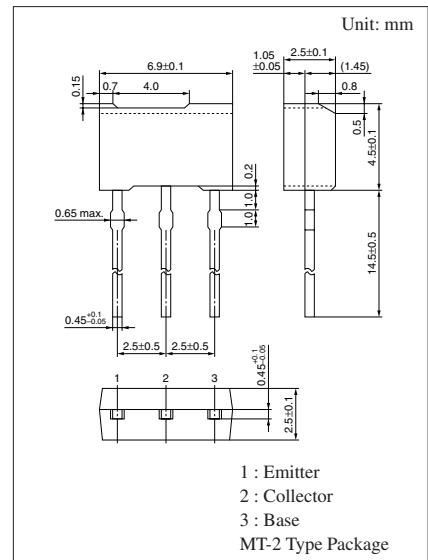
### Features

- High forward current transfer ratio  $h_{FE}$ .
- Resistor built-in type, allowing downsizing of the equipment and reduction of the number of parts.
- Available in a type with radial taping.

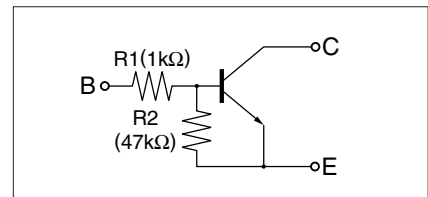
### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	UNR8231	20	V
	UNR8231A	60	
Collector to emitter voltage	UNR8231	20	V
	UNR8231A	50	
Peak collector current	$I_{CP}$	1.5	A
Collector current	$I_C$	0.7	A
Total power dissipation	$P_T^*$	1	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

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



### Internal Connection



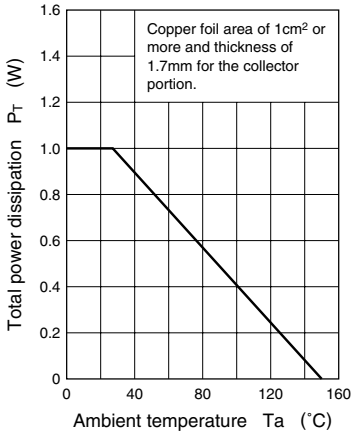
### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 15V, I_E = 0$			1	μA
Collector cutoff current	$I_{CEO}$	$V_{CE} = 15V, I_B = 0$			10	μA
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 14V, I_C = 0$			0.5	mA
Collector to base voltage	UNR8231	$I_C = 10\mu A, I_E = 0$	20			V
	UNR8231A		60			
Collector to emitter voltage	UNR8231	$I_C = 1mA, I_B = 0$	20			V
	UNR8231A		50			
Forward current transfer ratio	$h_{FE}^*$	$V_{CE} = 10V, I_C = 150mA$	800		2100	
Collector to emitter saturation voltage	$V_{CE(sat)}^*$	$I_C = 500mA, I_B = 5mA$			0.4	V
Input resistance	$R_1$		0.7	1	1.3	kΩ
Resistance ratio		$R_1/R_2$	0.016	0.021	0.025	
Transition frequency	$f_T$	$V_{CB} = 10V, I_E = -50mA, f = 200MHz$		200		MHz

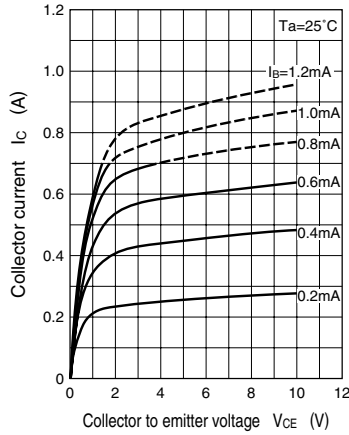
\*Pulse measurement

Note.) The Part numbers in the Parenthesis show conventional part number.

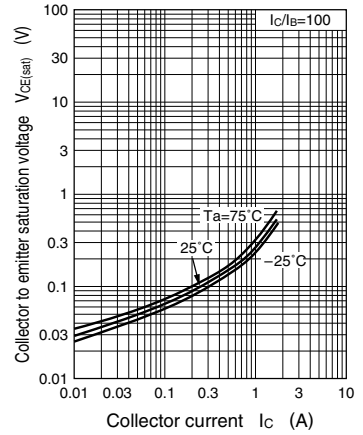
$P_T - T_a$



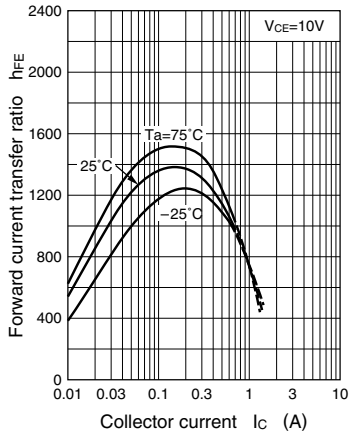
$I_C - V_{CE}$



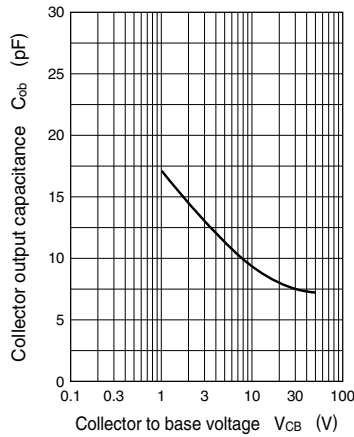
$V_{CE(sat)} - I_C$



$h_{FE} - I_C$



$C_{ob} - V_{CB}$



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