

# UNR4221/4222/4223/4224

## (UN4221/4222/4223/4224)

Silicon NPN epitaxial planer transistor

For digital circuits

### Features

- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- New S type package, allowing supply with the radial taping.

### Resistance by Part Number

	(R <sub>1</sub> )	(R <sub>2</sub> )
● UNR4221	2.2kΩ	2.2kΩ
● UNR4222	4.7kΩ	4.7kΩ
● UNR4223	10kΩ	10kΩ
● UNR4224	2.2kΩ	10kΩ

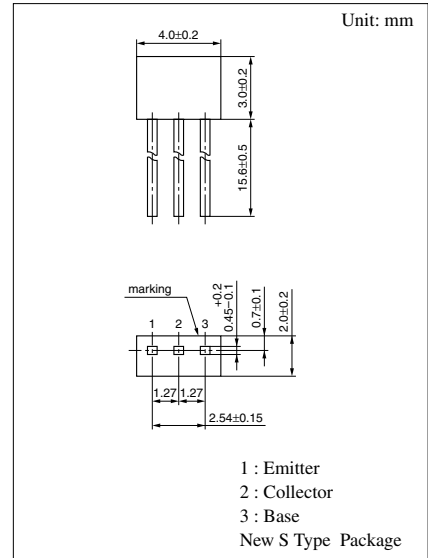
### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	50	V
Collector to emitter voltage	V <sub>CEO</sub>	50	V
Collector current	I <sub>C</sub>	500	mA
Total power dissipation	P <sub>T</sub>	300	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

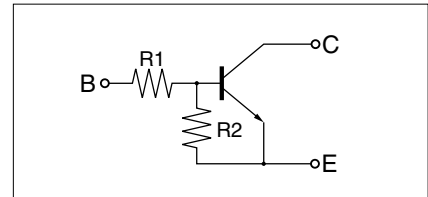
### Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I <sub>CBO</sub>	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0			1	μA
		I <sub>CEO</sub>	V <sub>CE</sub> = 50V, I <sub>B</sub> = 0			1	μA
Emitter cutoff current	UNR4221	I <sub>EBO</sub>	V <sub>EB</sub> = 6V, I <sub>C</sub> = 0			5	mA
	UNR4222					2	
	UNR4223/4224					1	
Collector to base voltage		V <sub>CBO</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	50			V
Collector to emitter voltage		V <sub>CEO</sub>	I <sub>C</sub> = 2mA, I <sub>B</sub> = 0	50			V
Forward current transfer ratio	UNR4221	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 100mA	40			
	UNR4222			50			
	UNR4223/4224			60			
Collector to emitter saturation voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> = 100mA, I <sub>B</sub> = 5mA			0.25	V
Output voltage high level		V <sub>OH</sub>	V <sub>CC</sub> = 5V, V <sub>B</sub> = 0.5V, R <sub>L</sub> = 500Ω	4.9			V
Output voltage low level		V <sub>OL</sub>	V <sub>CC</sub> = 5V, V <sub>B</sub> = 3.5V, R <sub>L</sub> = 500Ω			0.2	V
Input resistance	UNR4221/4224	R <sub>1</sub>		(-30%)	2.2	(+30%)	kΩ
	UNR4222				4.7		
	UNR4223				10		
Resistance ratio		R <sub>1</sub> /R <sub>2</sub>		0.8	1.0	1.2	
				UNR4224	0.17	0.22	

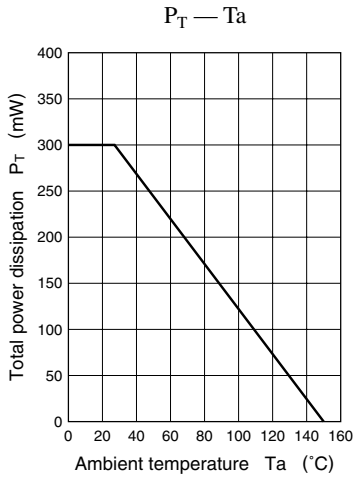
Note.) The Part numbers in the Parenthesis show conventional part number.



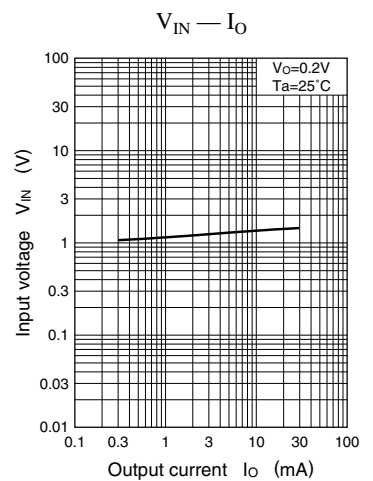
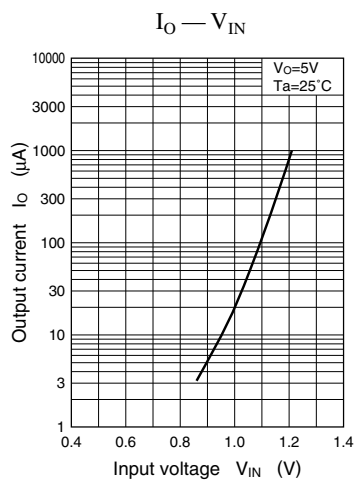
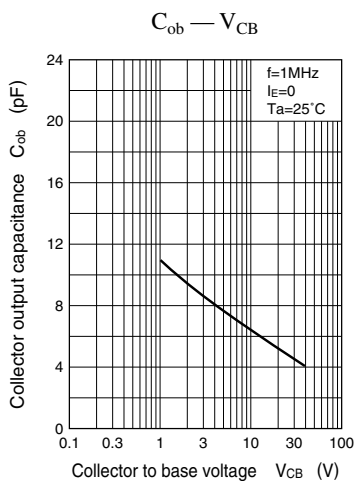
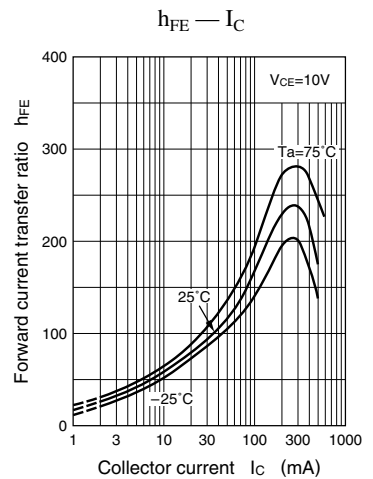
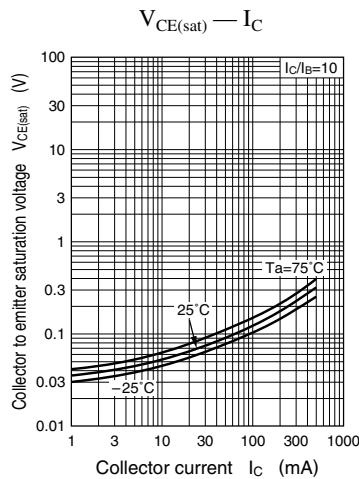
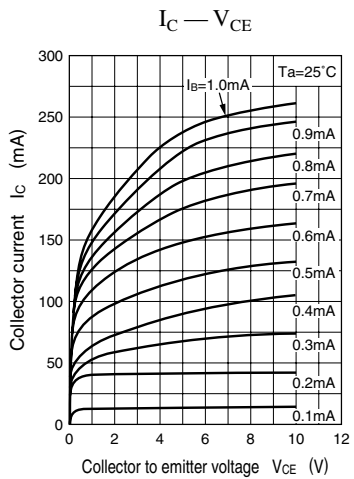
### Internal Connection



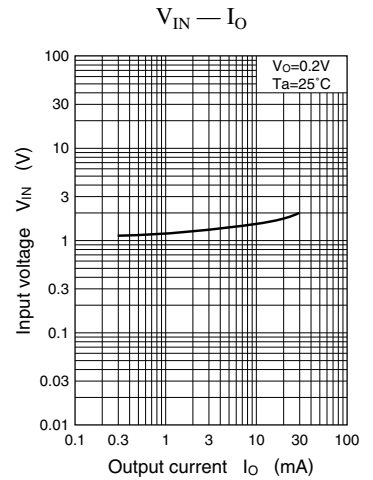
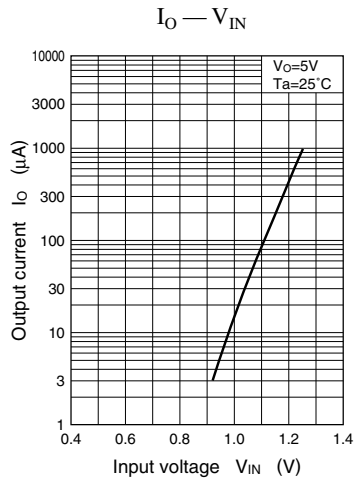
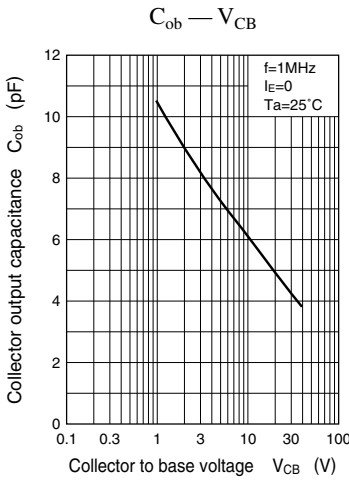
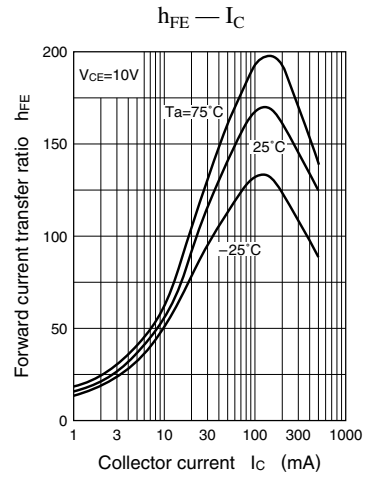
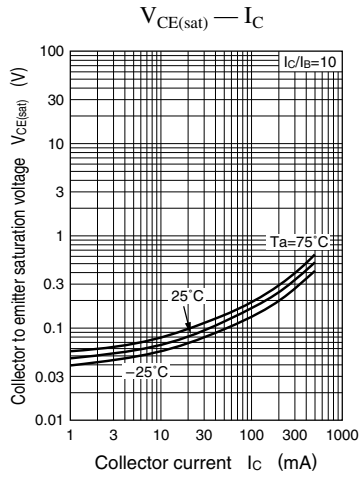
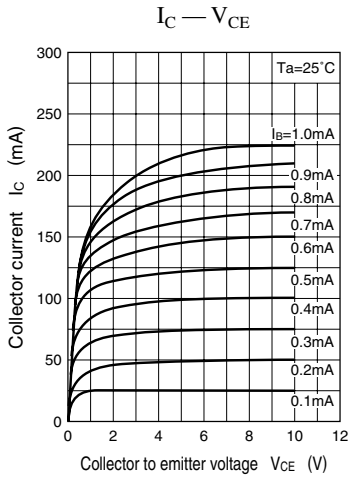
Common characteristics chart



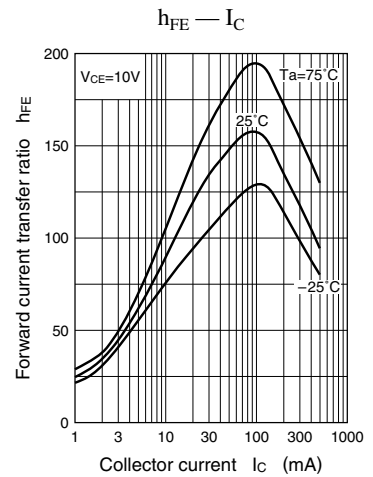
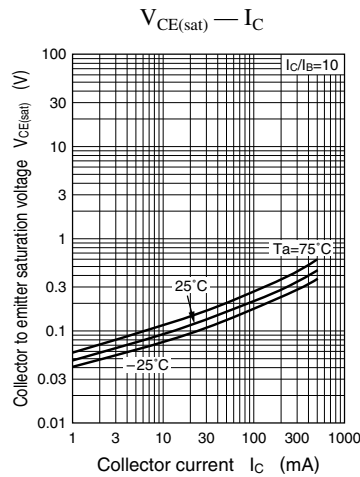
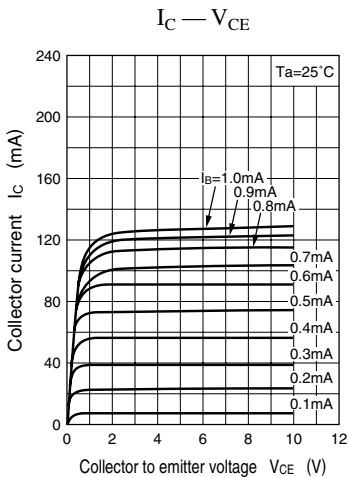
Characteristics charts of UNR4221

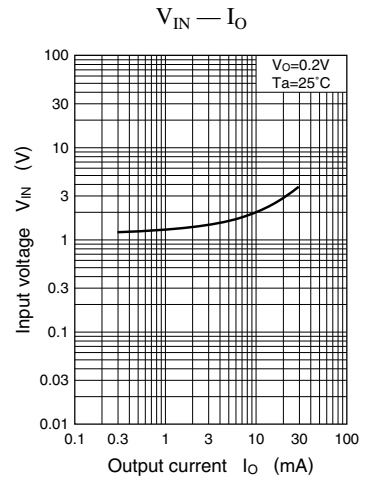
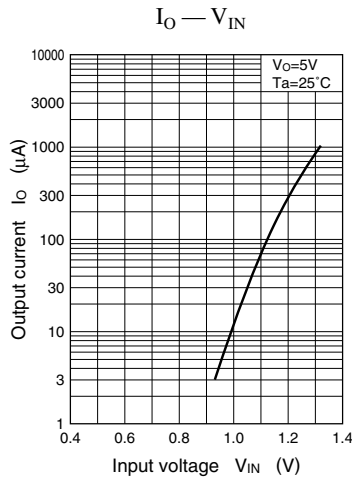
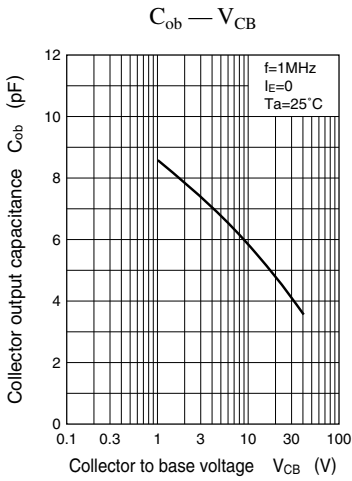


Characteristics charts of UNR4222

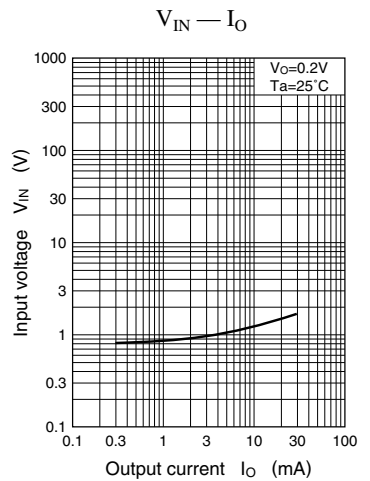
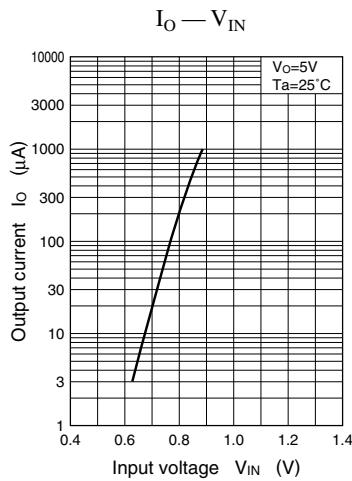
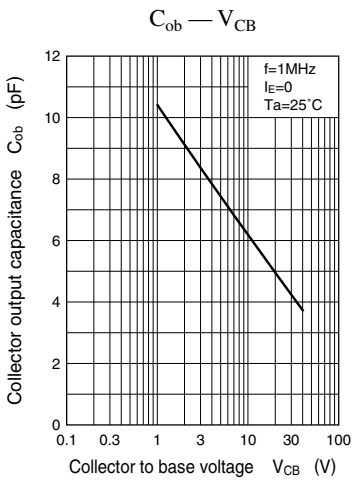
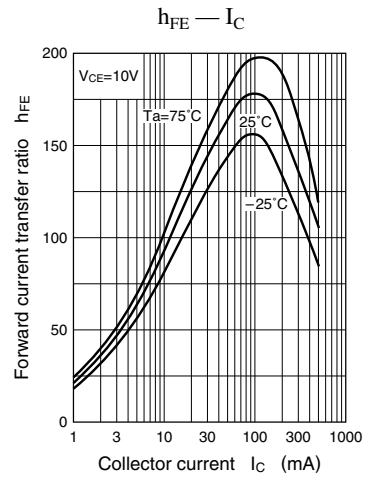
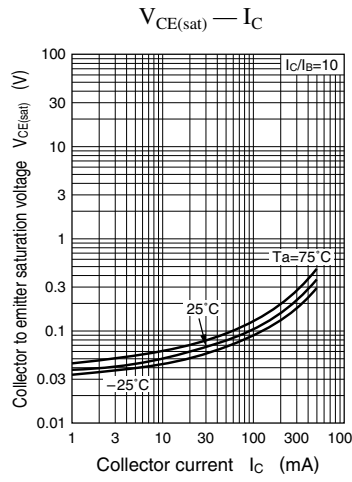
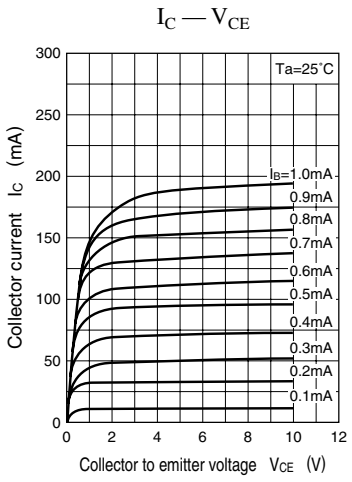


Characteristics charts of UNR4223





Characteristics charts of UNR4224



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