

# UNR412x Series

## Silicon PNP epitaxial planar type

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> )
• UNR4121	2.2 kΩ	2.2 kΩ
• UNR4122	4.7 kΩ	4.7 kΩ
• UNR4123	10 kΩ	10 kΩ
• UNR4124	2.2 kΩ	10 kΩ

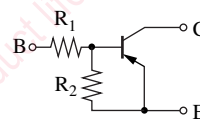
### ■ Absolute Maximum Ratings T<sub>a</sub> = 25°C

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V <sub>CB0</sub>	-50	V
Collector-emitter voltage (Base open)	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

### ■ Package

- Code  
NS-A1
- Pin Name  
1: Emitter  
2: Collector  
3: Base

### ■ Internal Connection



### ■ Electrical Characteristics T<sub>a</sub> = 25°C ± 3°C

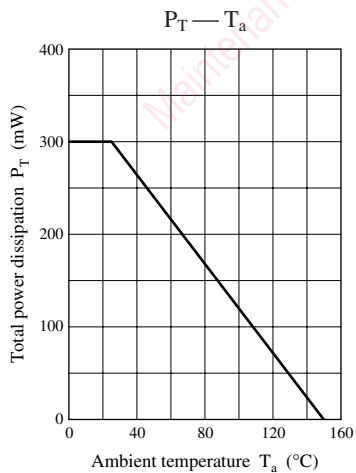
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V <sub>CB0</sub>	I <sub>C</sub> = -10 μA, I <sub>E</sub> = 0	-50			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	I <sub>C</sub> = -2 mA, I <sub>B</sub> = 0	-50			V
Collector-base cutoff current (Emitter open)	I <sub>CB0</sub>	V <sub>CB</sub> = -50 V, I <sub>E</sub> = 0			-1	μA
Collector-emitter cutoff current (Base open)	I <sub>CEO</sub>	V <sub>CE</sub> = -50 V, I <sub>B</sub> = 0			-1	μA
Emitter-base cutoff current (Collector open)	UNR4121	V <sub>EB</sub> = -6 V, I <sub>C</sub> = 0			-5	mA
	UNR4122			-2		
	UNR4123/4124				-1	

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

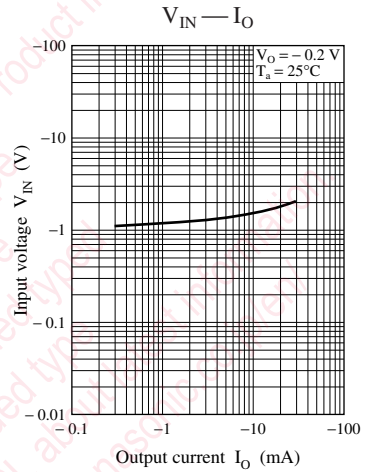
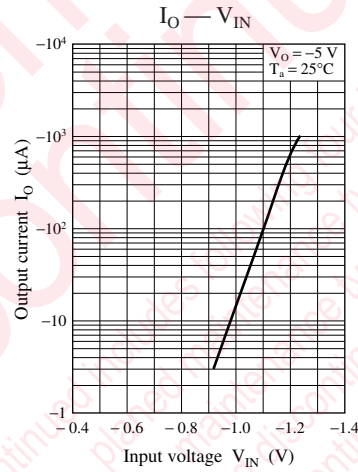
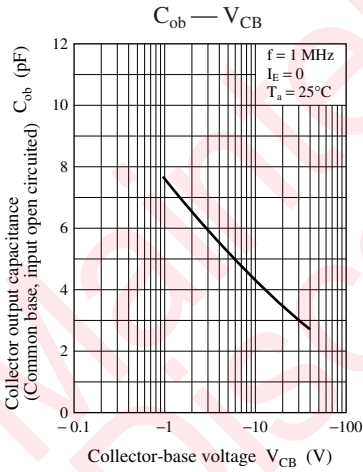
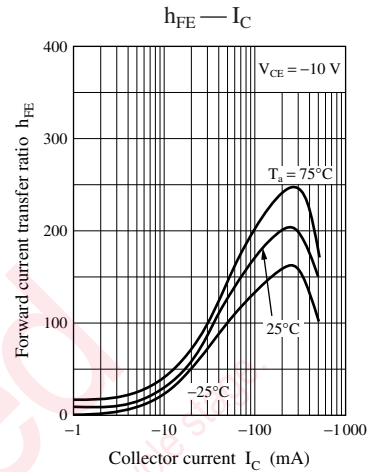
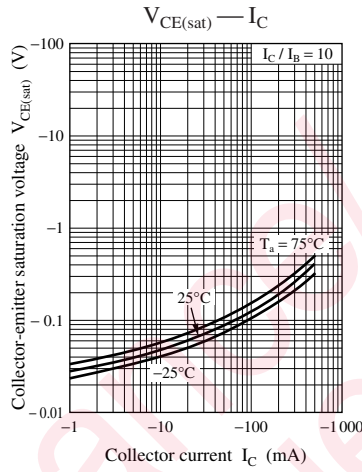
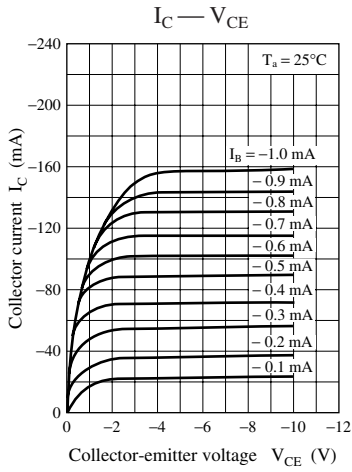
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Forward current transfer ratio	UNR4121	$h_{FE}$	$V_{CE} = -10\text{ V}$ , $I_C = -100\text{ mA}$	40			—
	UNR4122			50			
	UNR4123/4124			60			
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -100\text{ mA}$ , $I_B = -5\text{ mA}$			-0.25	V
Output voltage high-level		$V_{OH}$	$V_{CC} = -5\text{ V}$ , $V_B = -0.5\text{ V}$ , $R_L = 500\ \Omega$	-4.9			V
Output voltage low-level		$V_{OL}$	$V_{CC} = -5\text{ V}$ , $V_B = -3.5\text{ V}$ , $R_L = 500\ \Omega$			-0.2	V
Transition frequency		$f_T$	$V_{CB} = -10\text{ V}$ , $I_E = 50\text{ mA}$ , $f = 200\text{ MHz}$		200		MHz
Input resistance	UNR4121/4124	$R_1$		-30%	2.2	+30%	k $\Omega$
	UNR4122				4.7		
	UNR4123				10		
Resistance ratio		$R_1/R_2$		0.8	1.0	1.2	—
	UNR4124			0.17	0.22	0.27	

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

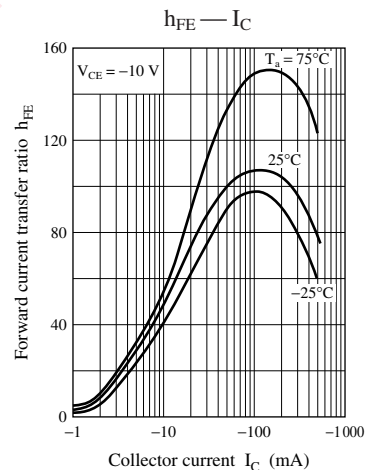
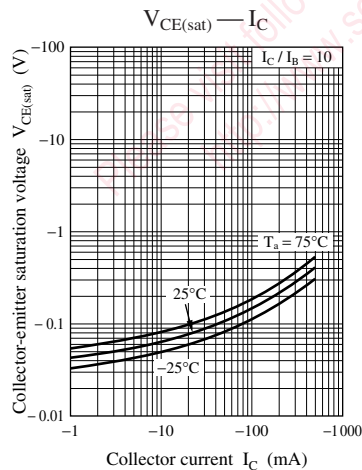
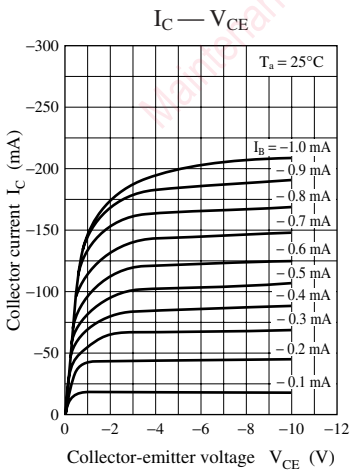
Common characteristics chart

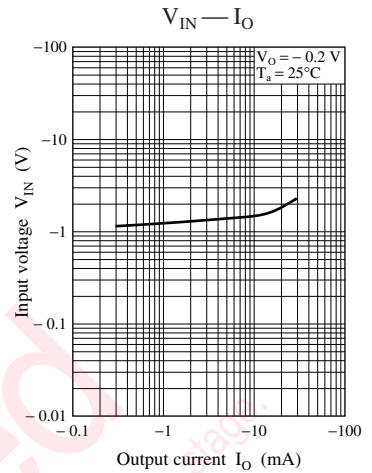
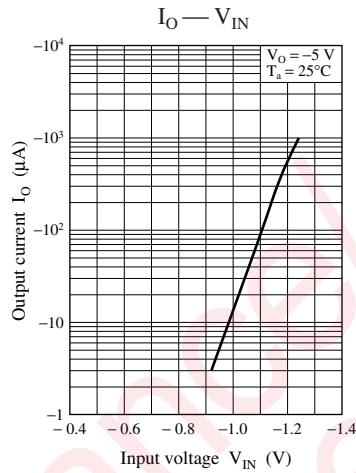
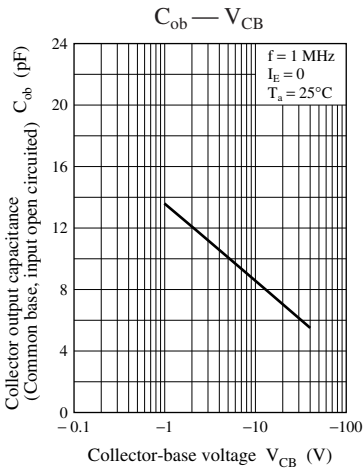


**Characteristics charts of UNR4121**

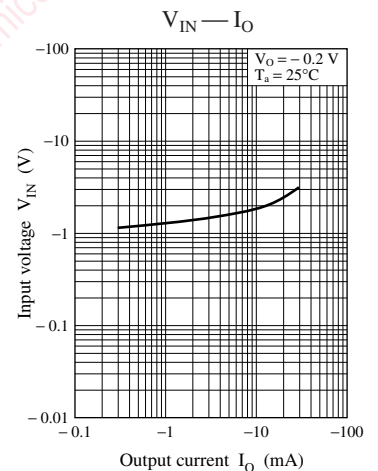
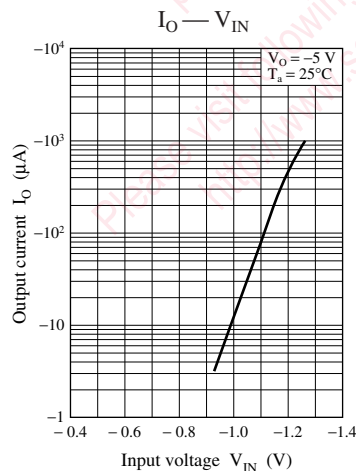
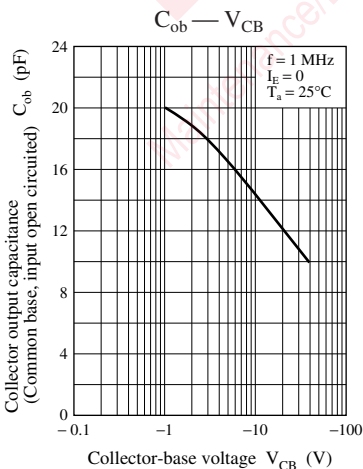
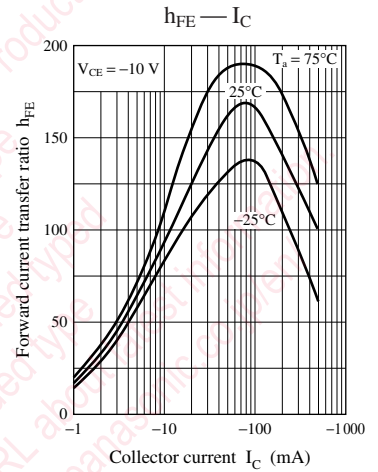
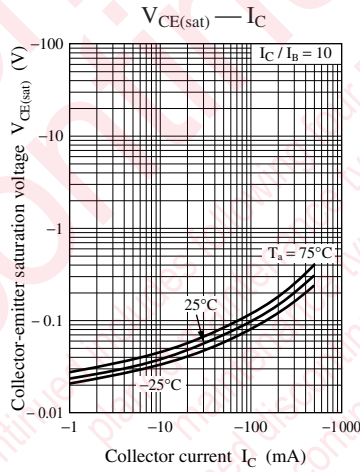
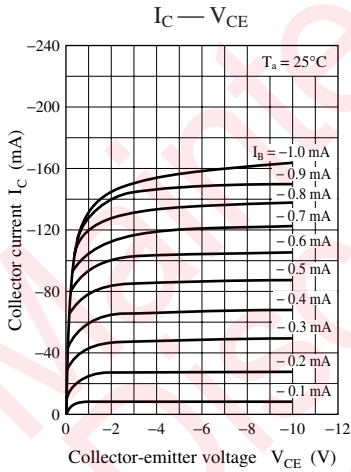


**Characteristics charts of UNR4122**

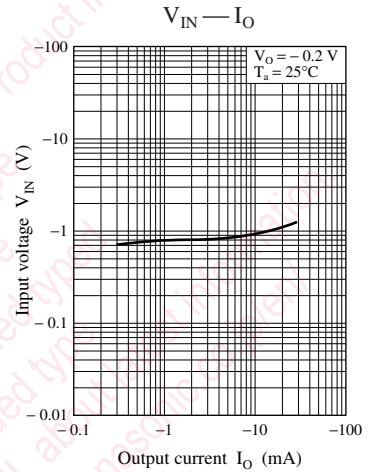
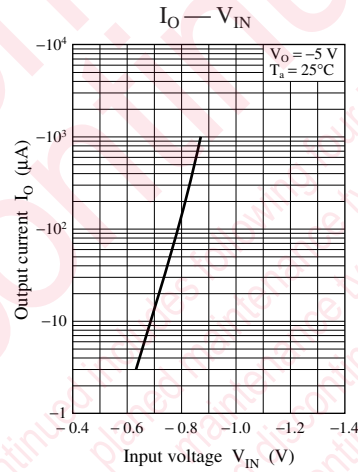
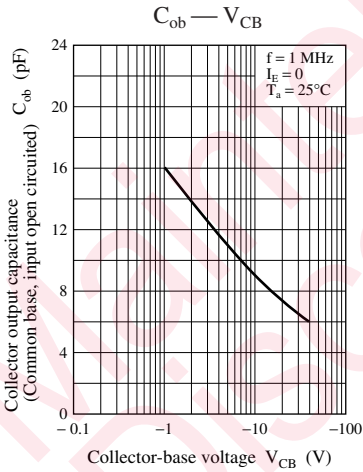
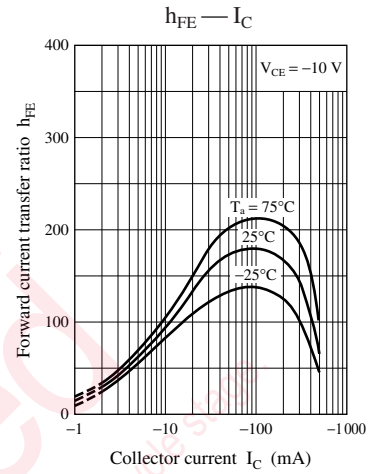
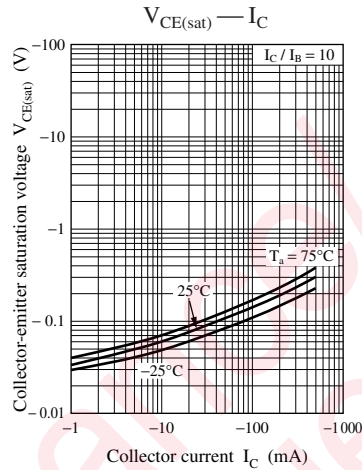
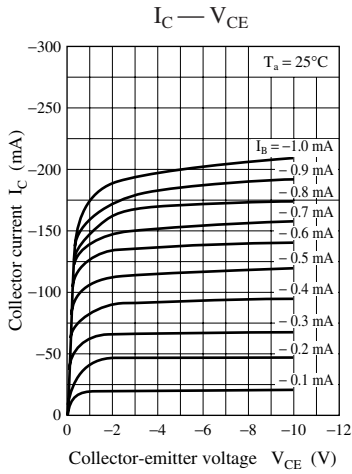




Characteristics charts of UNR4123

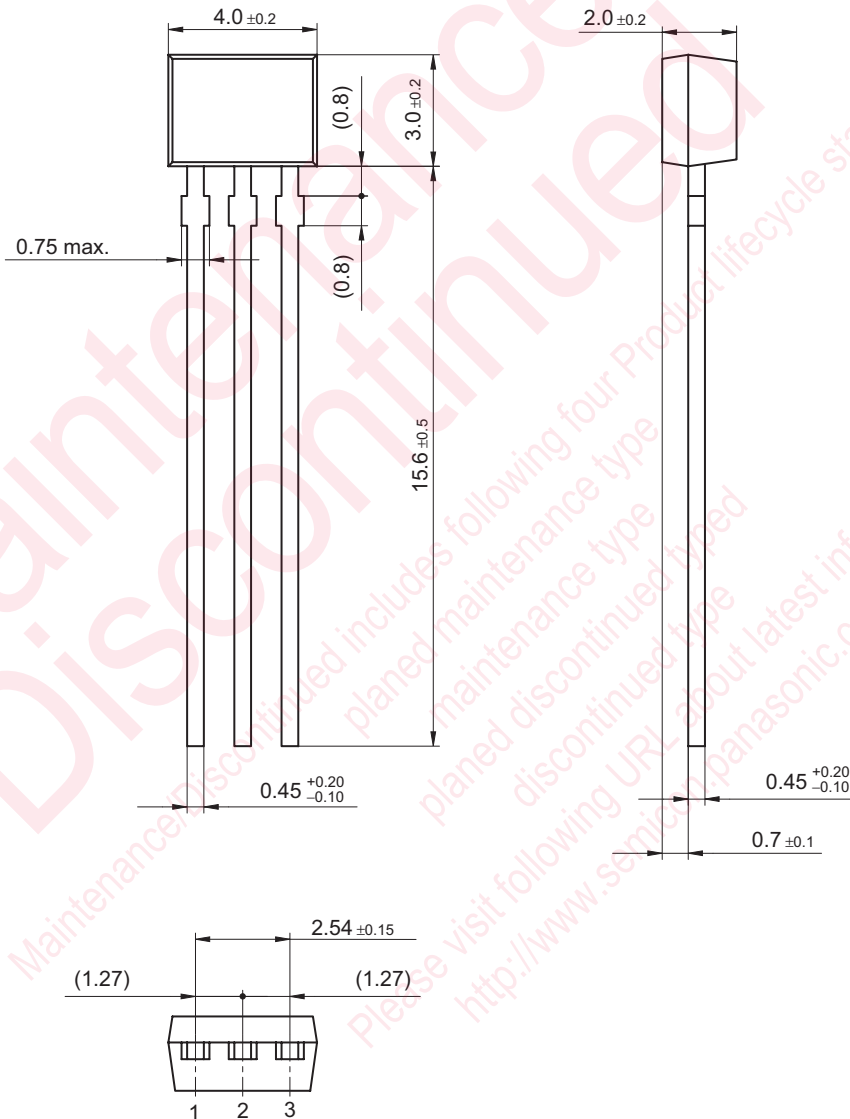


Characteristics charts of UNR4124



NS-A1

Unit: mm



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