

# XN0121M (XN121M)

## NPN epitaxial planer transistor

For switching/digital circuits

### ■ Features

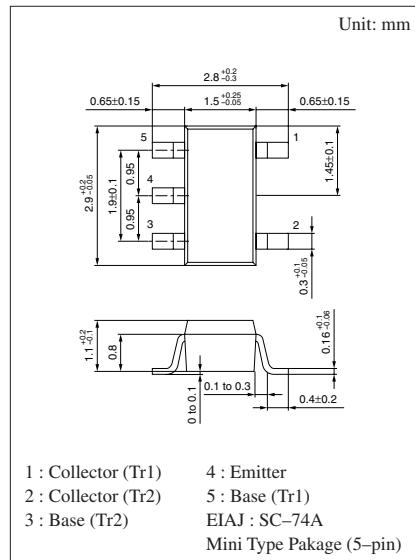
- Two elements incorporated into one package.  
(Emitter-coupled transistors with built-in resistor)
- Reduction of the mounting area and assembly cost by one half.

### ■ Basic Part Number of Element

- UNR221M(UN221M) × 2 elements

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

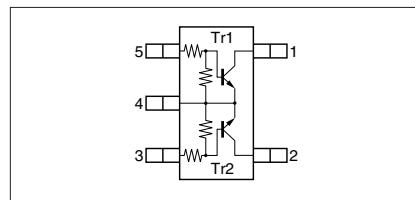
Parameter	Symbol	Ratings	Unit
Rating of element	V <sub>CBO</sub>	50	V
	V <sub>CEO</sub>	50	V
	I <sub>C</sub>	100	mA
Overall	P <sub>T</sub>	300	mW
	T <sub>j</sub>	150	°C
	T <sub>stg</sub>	-55 to +150	°C



1 : Collector (Tr1)  
2 : Collector (Tr2)  
3 : Base (Tr2)  
4 : Emitter  
5 : Base (Tr1)  
EIAJ : SC-74A  
Mini Type Pakage (5-pin)

Marking Symbol: EM

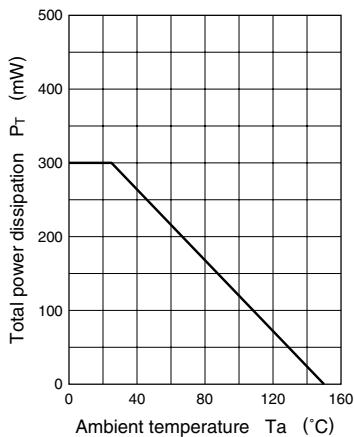
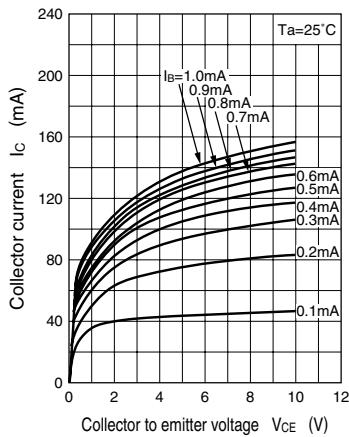
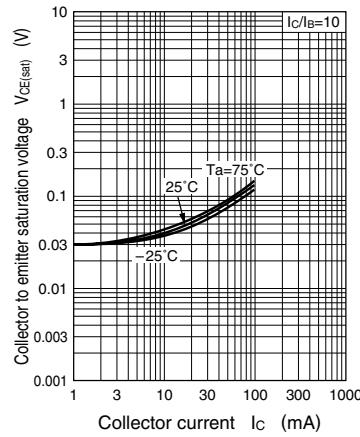
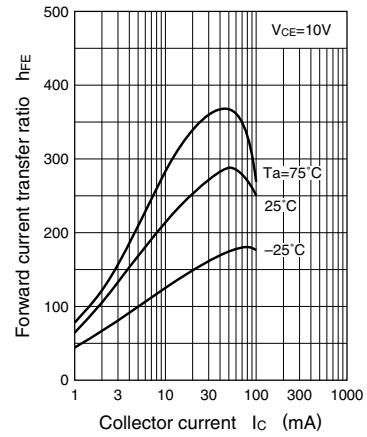
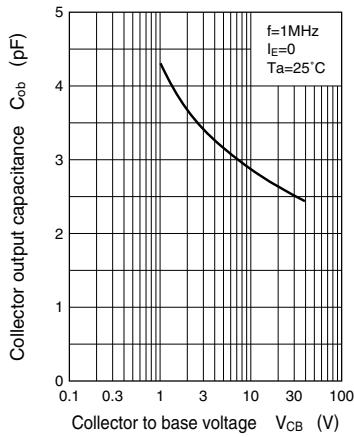
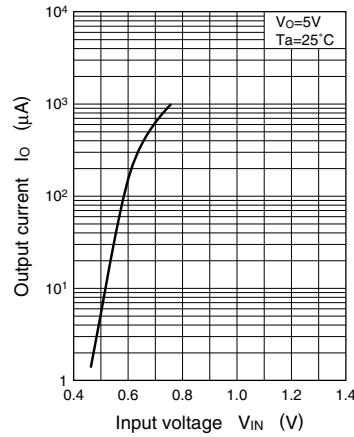
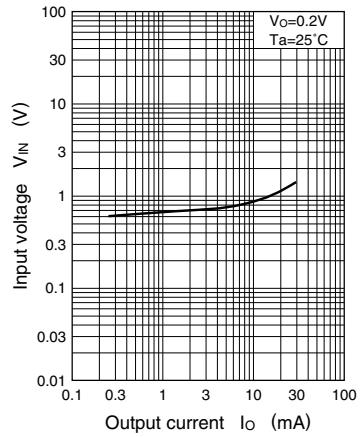
### Internal Connection



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

Parameter	Symbol	Conditions	min	typ	max	Unit
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
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0			0.1	µA
Collector cutoff current	I <sub>CEO</sub>	V <sub>CE</sub> = 50V, I <sub>B</sub> = 0			0.5	µA
Emitter cutoff current	I <sub>EBO</sub>	V <sub>EB</sub> = 6V, I <sub>C</sub> = 0			0.2	mA
Forward current transfer ratio	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA	80			
Forward current transfer h <sub>FE</sub> ratio	h <sub>FE</sub> (small/large)	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA	0.5	0.99		
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0.3mA		0.06	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> = 1kΩ	4.9			V
Output voltage low level	V <sub>OL</sub>	V <sub>CC</sub> = 5V, V <sub>B</sub> = 2.5V, R <sub>L</sub> = 1kΩ			0.2	V
Input resistance	R <sub>I</sub>		-30%	2.2	+30%	kΩ
Resistance ratio	R <sub>I</sub> /R <sub>2</sub>			0.047		
Transition frequency	f <sub>T</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = -2mA, f = 200MHz		150		MHz

Note.) The Part number in the Parenthesis shows conventional part number.

$P_T$  — Ta $I_C$  —  $V_{CE}$  $V_{CE(sat)}$  —  $I_C$  $h_{FE}$  —  $I_C$  $C_{ob}$  —  $V_{CB}$  $I_O$  —  $V_{IN}$  $V_{IN}$  —  $I_O$ 

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