

XP0121M

Silicon NPN epitaxial planar transistor

For digital circuits/switching

■ Features

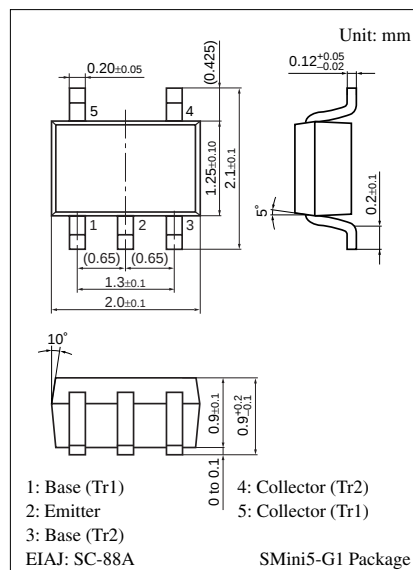
- Two elements incorporated into one package (Emitter-coupled transistors built-in resistor)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number of Element

- UNR121M (UN121M) × 2 elements

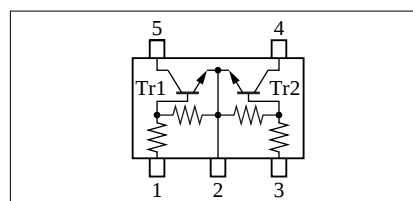
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Rating of element	Collector to base voltage	V_{CBO}	50	V
	Collector to emitter voltage	V_{CEO}	50	V
	Collector current	I_C	100	mA
Total	Total power dissipation	P_T	150	mW
	Junction temperature	T_j	150	$^\circ\text{C}$
	Storage temperature	T_{sig}	-55 to +150	$^\circ\text{C}$



Marking Symbol: EM

Internal Connection

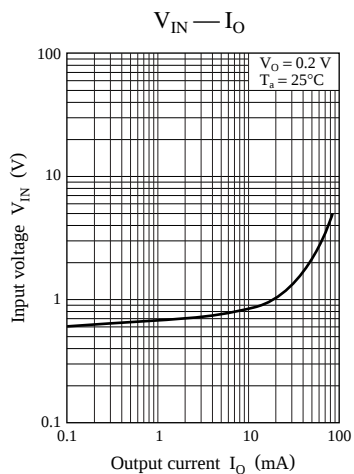
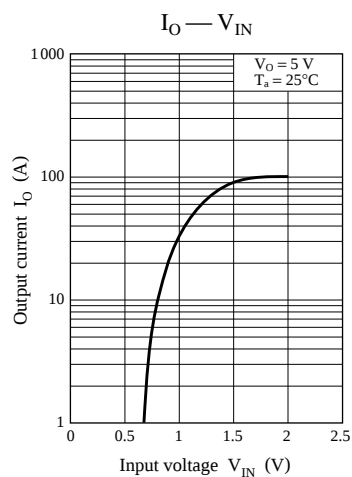
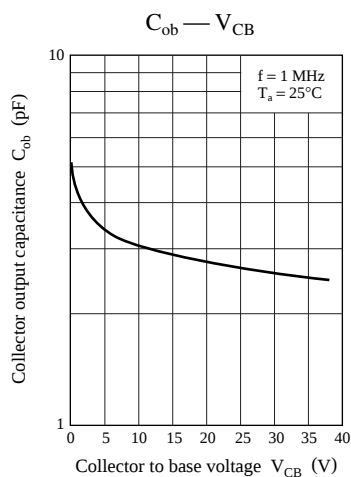
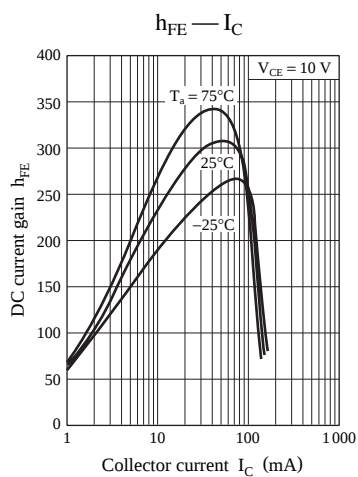
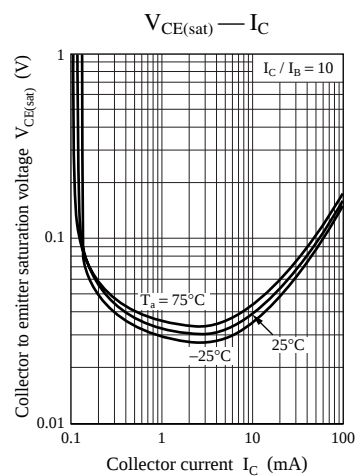
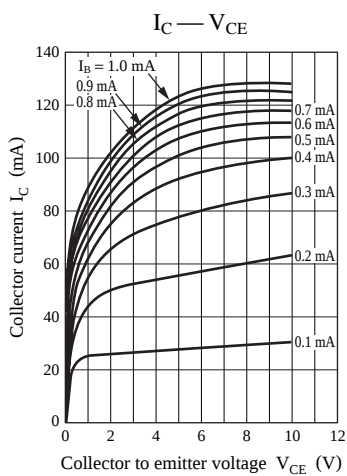
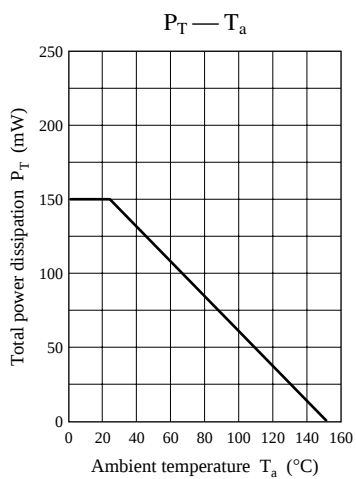


■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_C = 10 \mu\text{A}$, $I_E = 0$	50			V
Collector to emitter voltage	V_{CEO}	$I_C = 2 \text{ mA}$, $I_B = 0$	50			V
Collector cutoff current	I_{CBO}	$V_{CB} = 50 \text{ V}$, $I_E = 0$			0.1	μA
	I_{CEO}	$V_{CE} = 50 \text{ V}$, $I_B = 0$			0.5	
Emitter cutoff current	I_{EBO}	$V_{EB} = 6 \text{ V}$, $I_C = 0$			0.2	mA
DC current gain	h_{FE}	$V_{CE} = 10 \text{ V}$, $I_C = 5 \text{ mA}$	80			
DC current gain ratio *	$h_{FE(\text{Small/Large})}$	$V_{CE} = 10 \text{ V}$, $I_C = 5 \text{ mA}$	0.5	0.99		
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	$I_C = 10 \text{ mA}$, $I_B = 0.3 \text{ mA}$		0.06	0.25	V
High level output voltage	V_{OH}	$V_{CC} = 5 \text{ V}$, $V_B = 0.5 \text{ V}$, $R_L = 1 \text{ k}\Omega$	4.9			V
Low level output voltage	V_{OL}	$V_{CC} = 5 \text{ V}$, $V_B = 2.5 \text{ V}$, $R_L = 1 \text{ k}\Omega$			0.2	V
Input resistance	R_1		-30%	2.2	+30%	k Ω
Resistance ratio	R_1 / R_2			0.047		
Gain bandwidth product	f_T	$V_{CB} = 10 \text{ V}$, $I_E = -2 \text{ mA}$, $f = 200 \text{ MHz}$		150		MHz

Note) *: Ratio between one and another device

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



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