

UN1221/1222/1223/1224

Silicon NPN epitaxial planer transistor

For digital circuits

■ Features

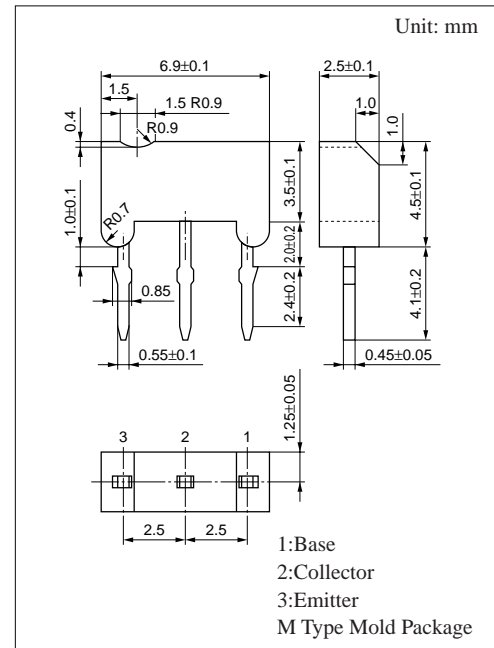
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

■ Resistance by Part Number

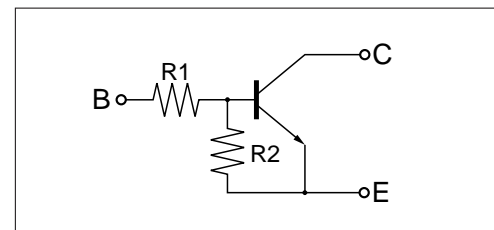
	(R ₁)	(R ₂)
• UN1221	2.2kΩ	2.2kΩ
• UN1222	4.7kΩ	4.7kΩ
• UN1223	10kΩ	10kΩ
• UN1224	2.2kΩ	10kΩ

■ Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CB0}	50	V
Collector to emitter voltage	V _{CEO}	50	V
Collector current	I _C	500	mA
Total power dissipation	P _T	600	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C



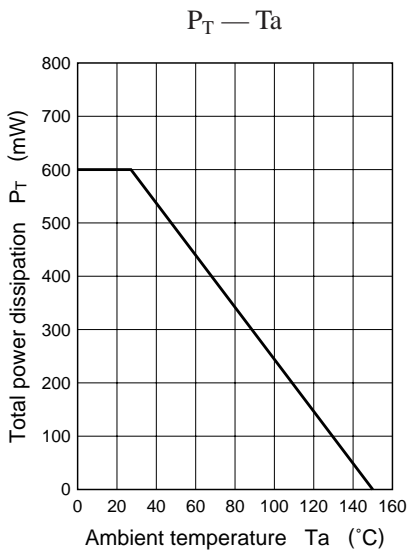
Internal Connection



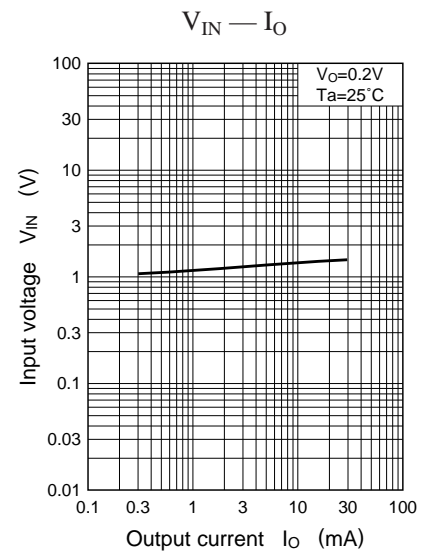
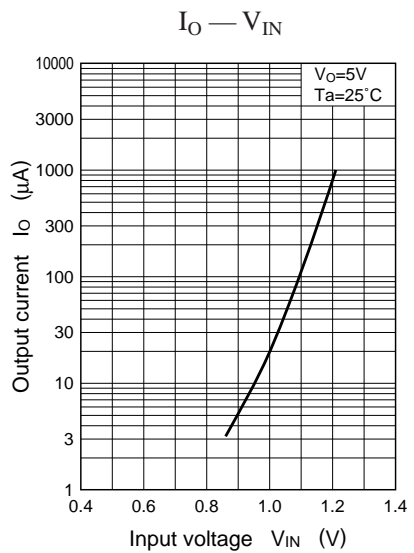
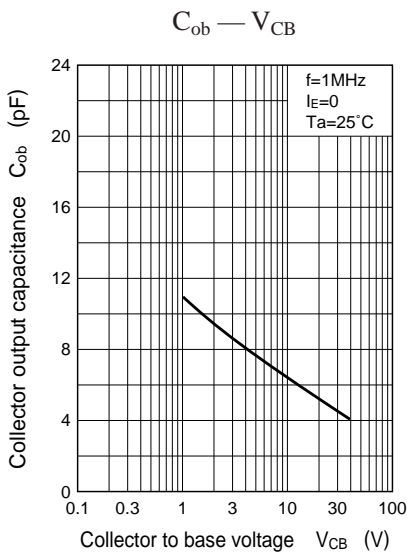
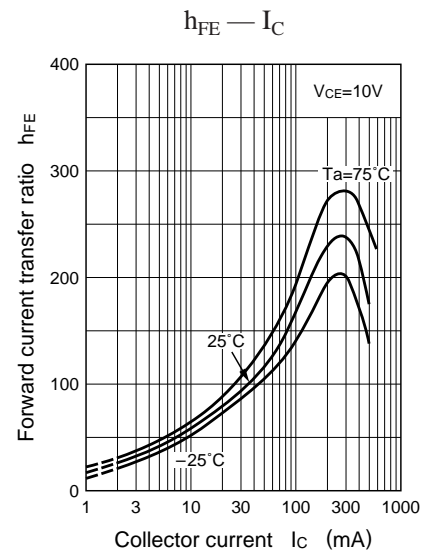
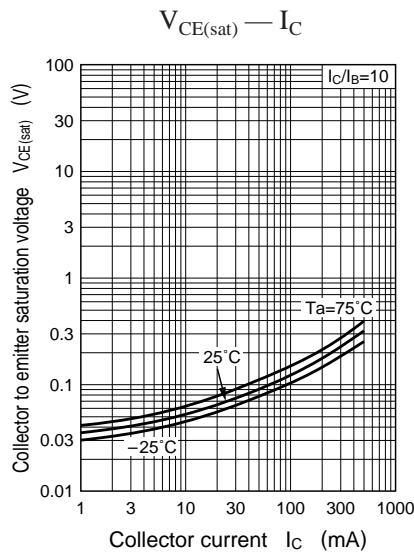
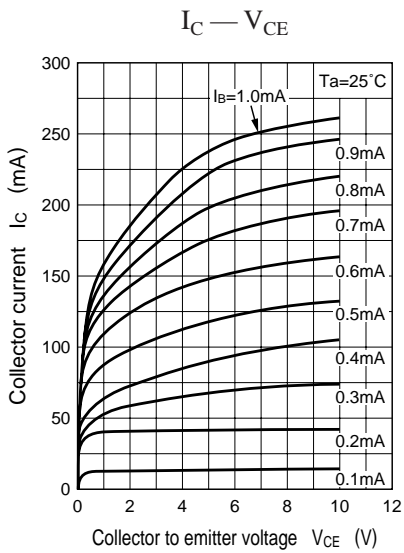
■ Electrical Characteristics (T_a=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I _{CB0}	V _{CB} = 50V, I _E = 0			1	μA
		I _{CEO}	V _{CE} = 50V, I _B = 0			1	μA
Emitter cutoff current	UN1221	I _{EB0}	V _{EB} = 6V, I _C = 0			5	mA
	UN1222					2	
	UN1223/1224					1	
Collector to base voltage		V _{CB0}	I _C = 10μA, I _E = 0	50			V
Collector to emitter voltage		V _{CEO}	I _C = 2mA, I _B = 0	50			V
Forward current transfer ratio	UN1221	h _{FE}	V _{CE} = 10V, I _C = 100mA	40			
	UN1222			50			
	UN1223/1224			60			
Collector to emitter saturation voltage		V _{CE(sat)}	I _C = 100mA, I _B = 5mA			0.25	V
Output voltage high level		V _{OH}	V _{CC} = 5V, V _B = 0.5V, R _L = 500Ω	4.9			V
Output voltage low level		V _{OL}	V _{CC} = 5V, V _B = 3.5V, R _L = 500Ω			0.2	V
Transition frequency		f _T	V _{CB} = 10V, I _E = -50mA, f = 200MHz		200		MHz
Input resistance	UN1221/1224	R ₁		(-30%)	2.2	(+30%)	kΩ
	UN1222				4.7		
	UN1223				10		
Resistance ratio		R ₁ /R ₂			0.8	1.0	1.2
UN1224					0.22		

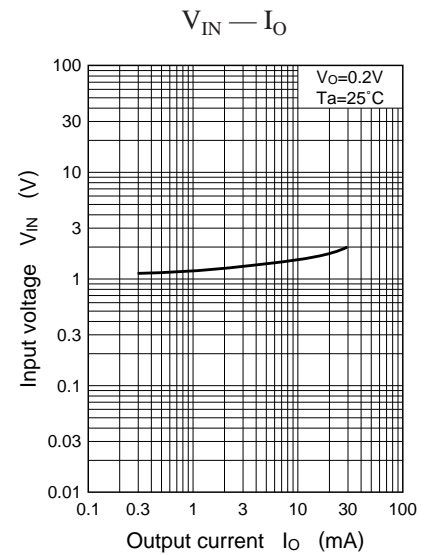
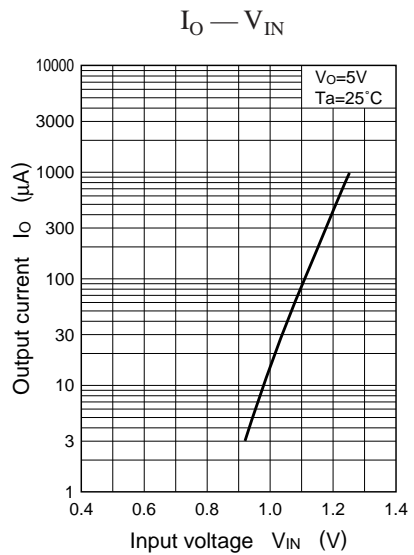
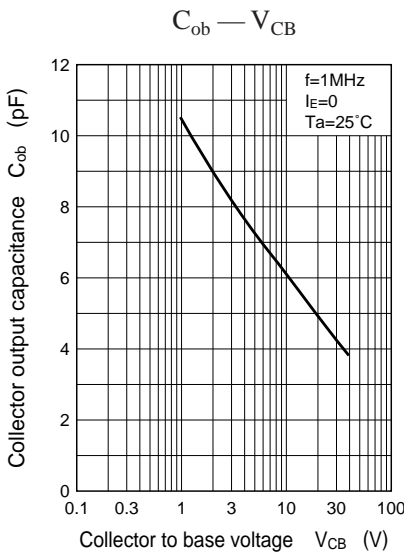
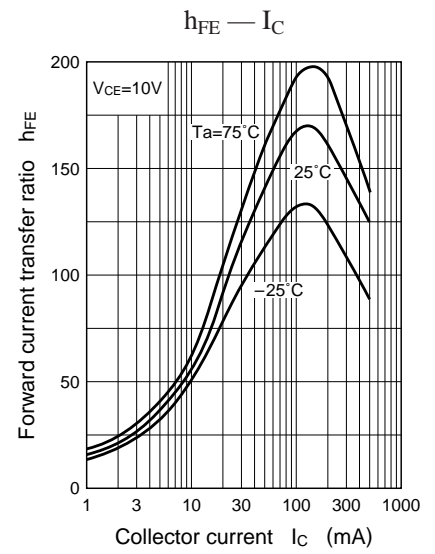
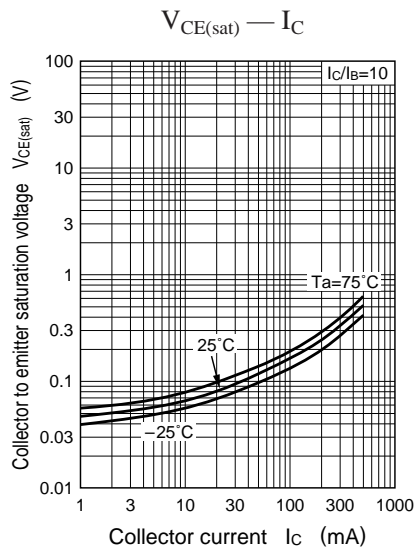
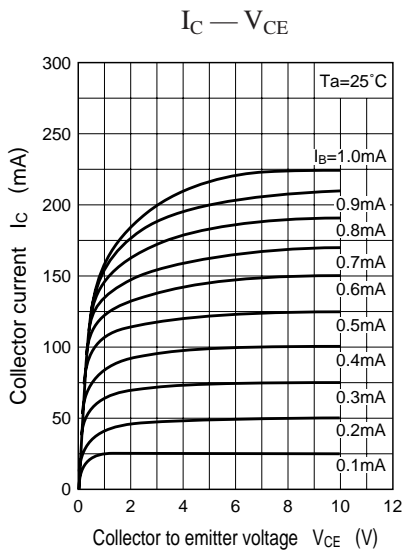
Common characteristics chart



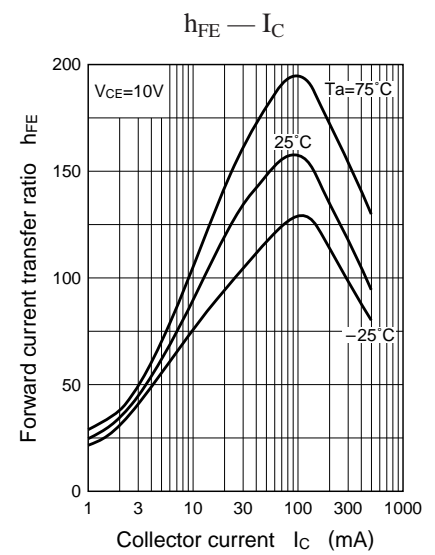
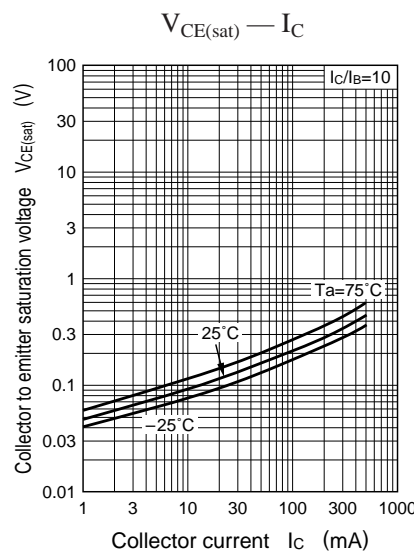
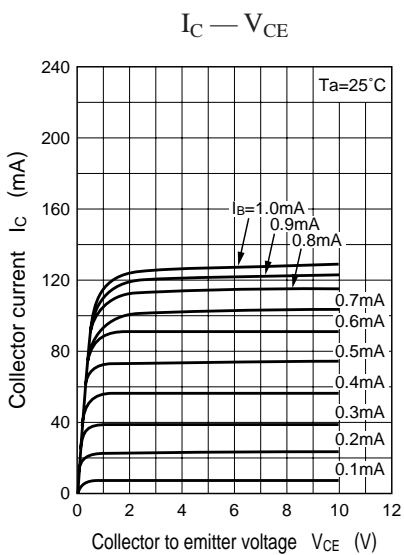
Characteristics charts of UN1221

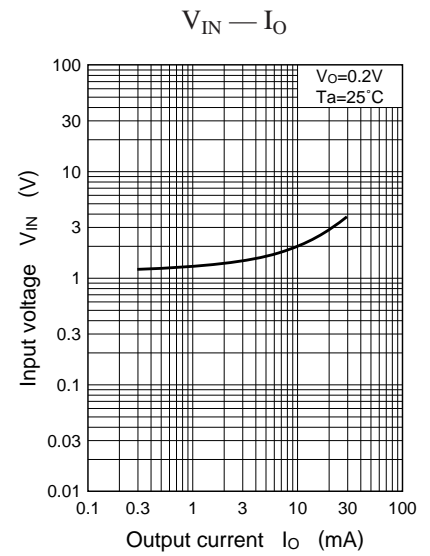
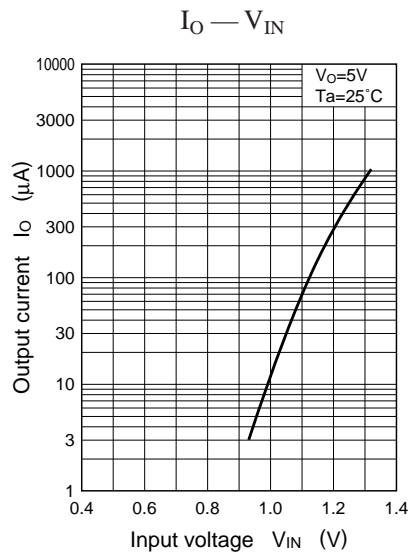
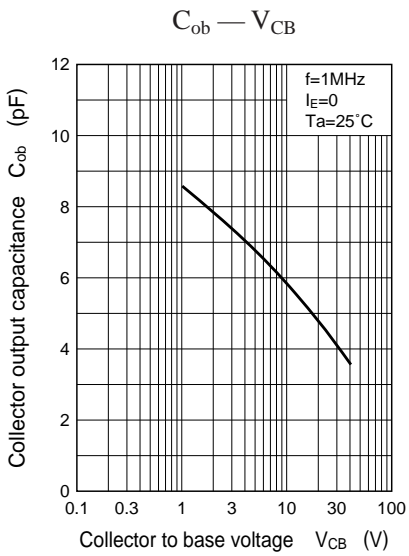


Characteristics charts of UN1222



Characteristics charts of UN1223





Characteristics charts of UN1224

