

# UN4111/4112/4113/4114/4115/4116/4117/4118/ 4119/4110/411D/411E/411F/411H/411L

Silicon PNP epitaxial planer transistor

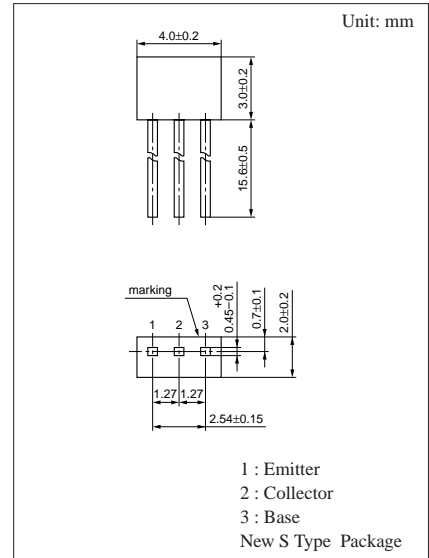
For digital circuits

## Features

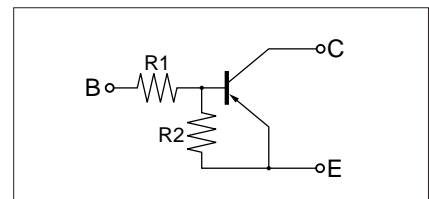
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- New S type package, allowing supply with the radial taping.

## Resistance by Part Number

	(R <sub>1</sub> )	(R <sub>2</sub> )
• UN4111	10kΩ	10kΩ
• UN4112	22kΩ	22kΩ
• UN4113	47kΩ	47kΩ
• UN4114	10kΩ	47kΩ
• UN4115	10kΩ	—
• UN4116	4.7kΩ	—
• UN4117	22kΩ	—
• UN4118	0.51kΩ	5.1kΩ
• UN4119	1kΩ	10kΩ
• UN4110	47kΩ	—
• UN411D	47kΩ	10kΩ
• UN411E	47kΩ	22kΩ
• UN411F	4.7kΩ	10kΩ
• UN411H	2.2kΩ	10kΩ
• UN411L	4.7kΩ	4.7kΩ



## Internal Connection



## Absolute Maximum Ratings (T<sub>a</sub>=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>	-100	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

UN4111/4112/4113/4114/4115/4116/4117/4118/  
Transistors with built-in Resistor 4119/4110/411D/411E/411F/411H/411L

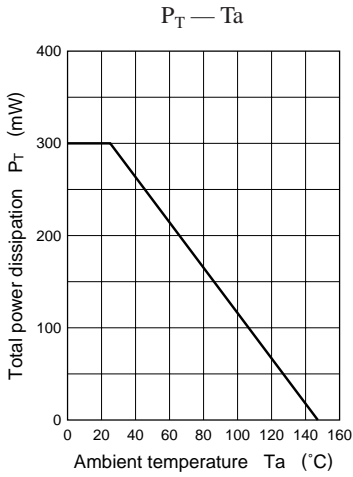
■ Electrical Characteristics (T<sub>a</sub>=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit		
Collector cutoff current		I <sub>CBO</sub>	V <sub>CB</sub> = -50V, I <sub>E</sub> = 0			-0.1	μA		
		I <sub>CEO</sub>	V <sub>CE</sub> = -50V, I <sub>B</sub> = 0			-0.5	μA		
Emitter cutoff current	UN4111	I <sub>EBO</sub>	V <sub>EB</sub> = -6V, I <sub>C</sub> = 0			-0.5	mA		
	UN4112/4114/411E/411D					-0.2			
	UN4113					-0.1			
	UN4115/4116/4117/4110					-0.01			
	UN411F/411H					-1.0			
	UN4119					-1.5			
	UN4118/411L					-2.0			
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	UN4111	h <sub>FE</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -5mA	35					
	UN4112/411E			60					
	UN4113/4114			80					
	UN4115*/4116*/4117*/4110*			160		460			
	UN411F/411D/4119/411H			30					
	UN4118/411L			20					
Collector to emitter saturation voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> = -10mA, I <sub>B</sub> = -0.3mA			-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		
			V <sub>CC</sub> = -5V, V <sub>B</sub> = -3.5V, R <sub>L</sub> = 1kΩ			-0.2			
			V <sub>CC</sub> = -5V, V <sub>B</sub> = -10V, R <sub>L</sub> = 1kΩ			-0.2			
			V <sub>CC</sub> = 5V, V <sub>B</sub> = -6V, R <sub>L</sub> = 1kΩ			-0.2			
Transition frequency		f <sub>T</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 1mA, f = 200MHz		80		MHz		
Input resistance	UN4111/4114/4115	R <sub>i</sub>		(-30%)		(±30%)	kΩ		
	UN4112/4117							10	
	UN4113/4110/411D/411E							22	
	UN4116/411F/411L							47	
	UN4118							4.7	
	UN4119							0.51	
	UN411H							1	
Resistance ratio	UN4111/4112/4113/411L	R <sub>1</sub> /R <sub>2</sub>					0.8		
	UN4114						1.0	1.2	
	UN4118/4119						0.17	0.21	0.25
	UN411D						0.08	0.1	0.12
	UN411E						3.7	4.7	5.7
	UN411F						1.7	2.14	2.6
	UN411H						0.37	0.47	0.57
							0.17	0.22	0.27

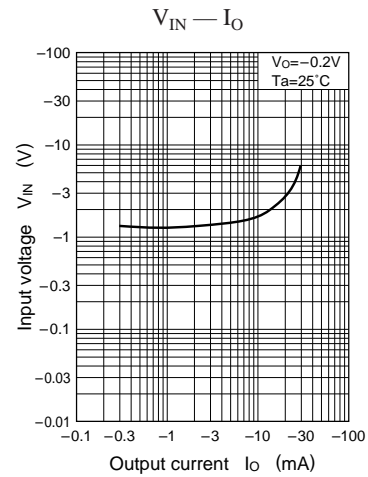
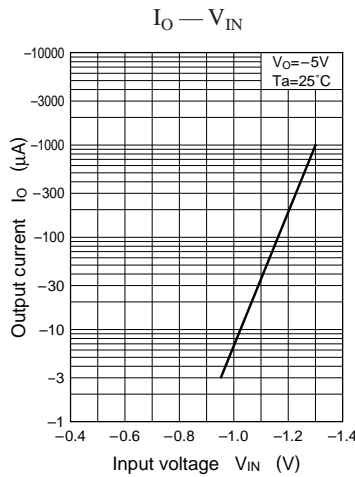
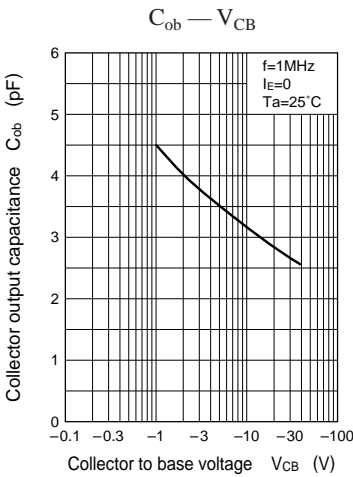
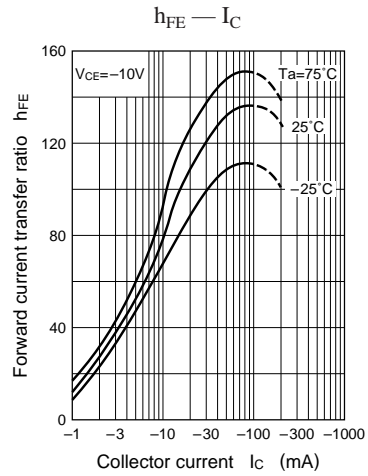
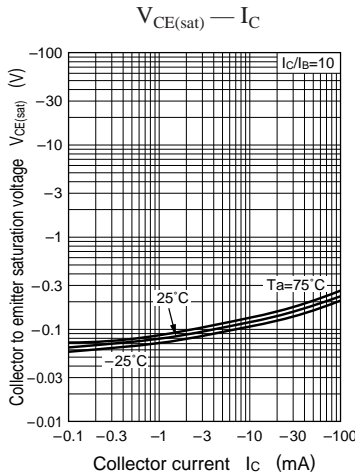
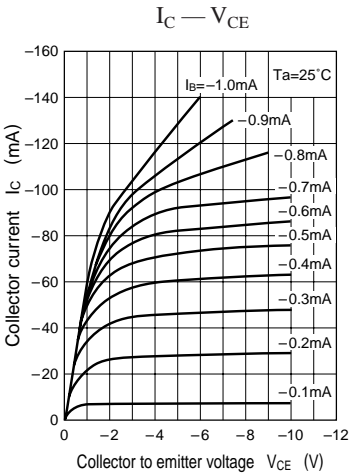
\* h<sub>FE</sub> rank classification (UN4115/4116/4117/4110)

Rank	Q	R	S
h <sub>FE</sub>	160 to 260	210 to 340	290 to 460

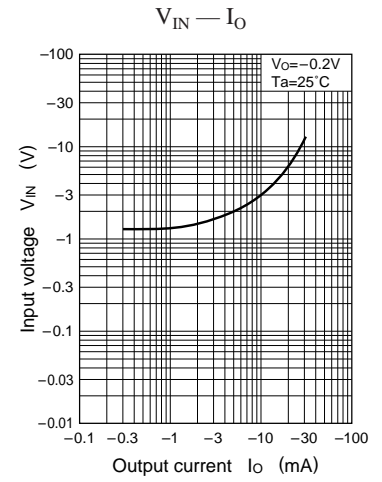
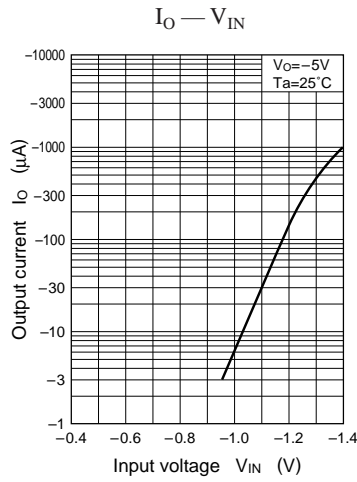
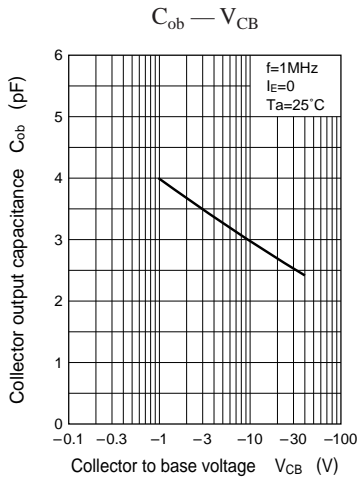
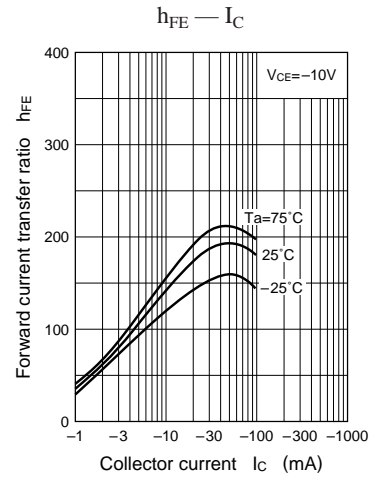
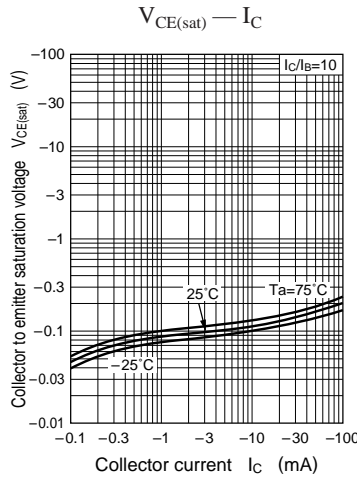
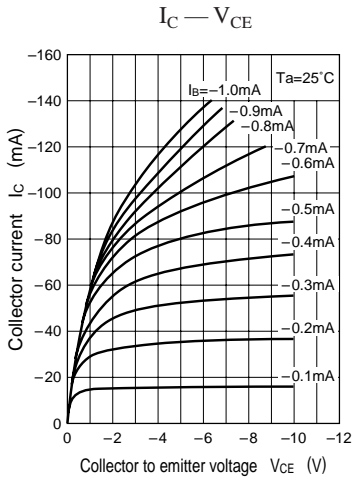
Common characteristics chart



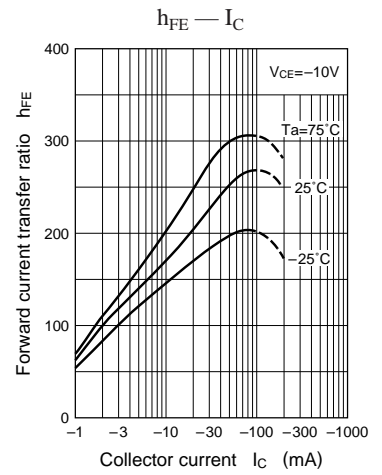
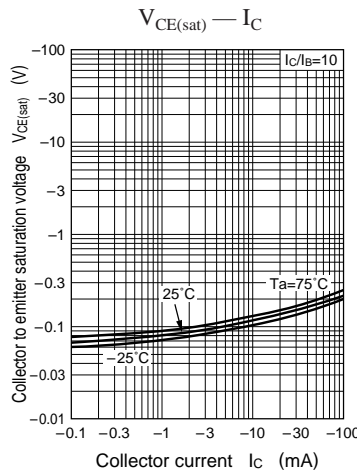
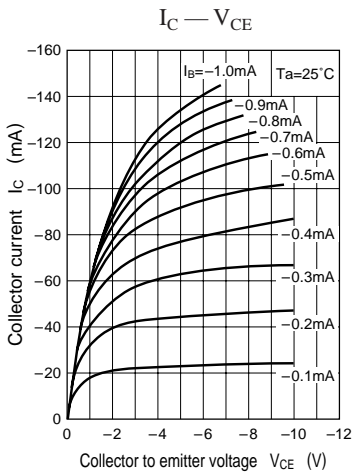
Characteristics charts of UN4111

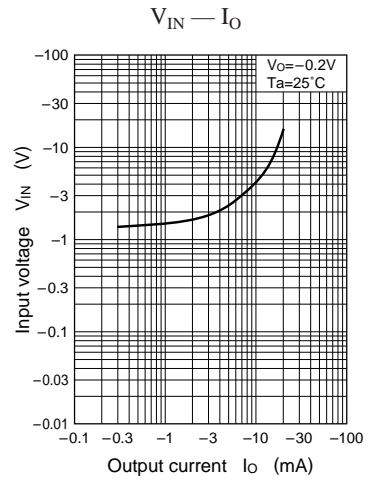
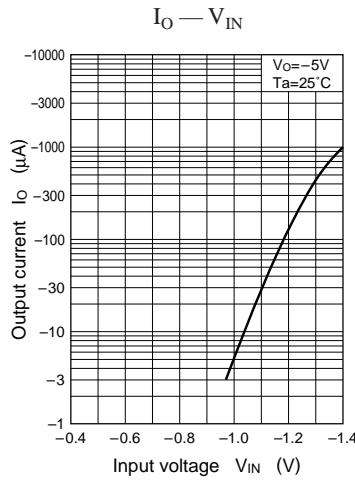
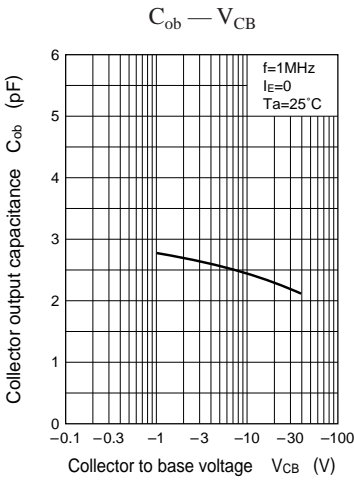


Characteristics charts of UN4112

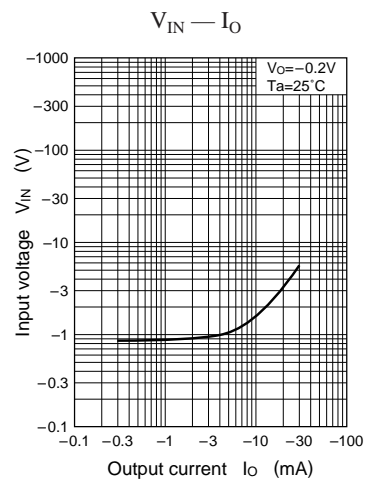
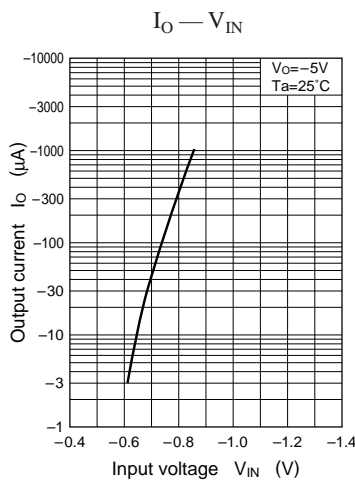
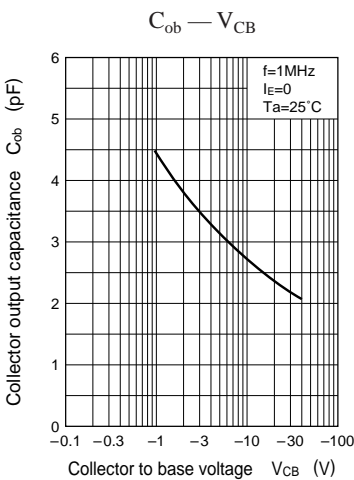
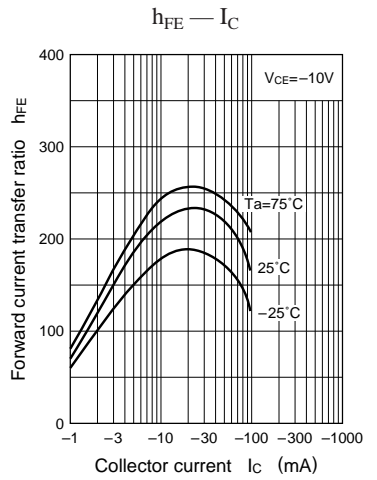
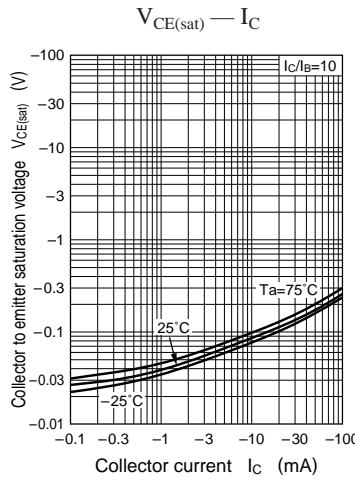
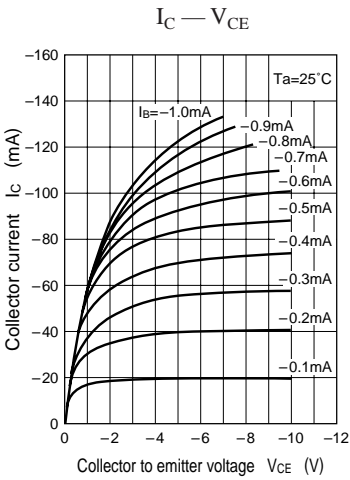


Characteristics charts of UN4113

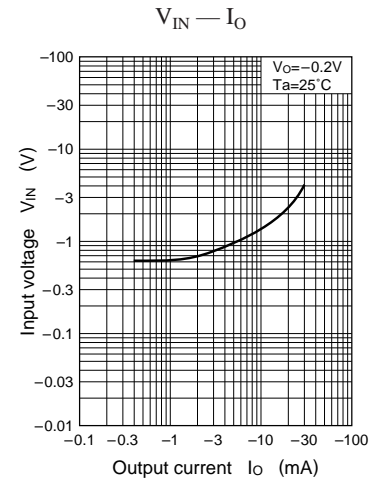
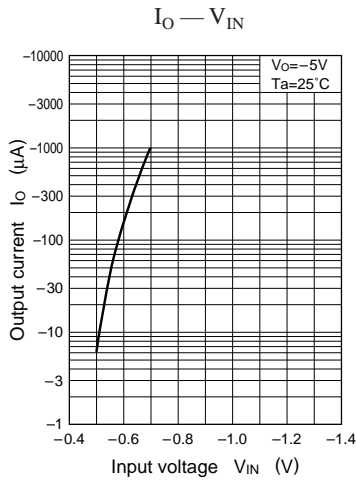
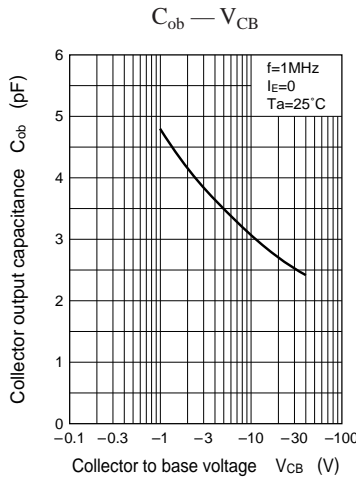
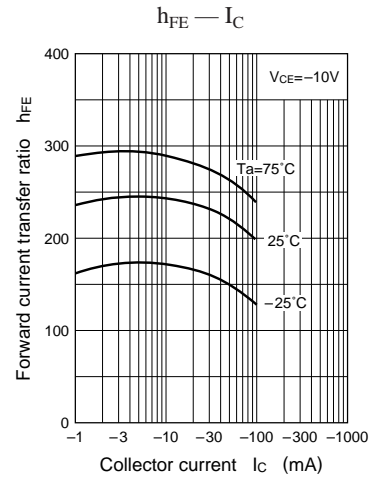
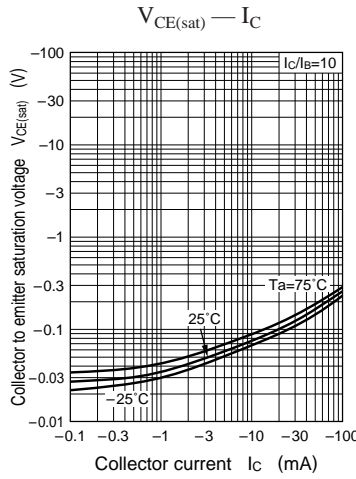
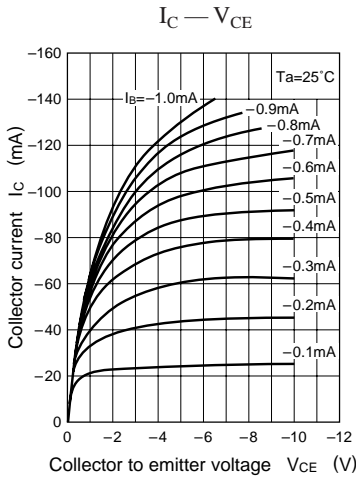




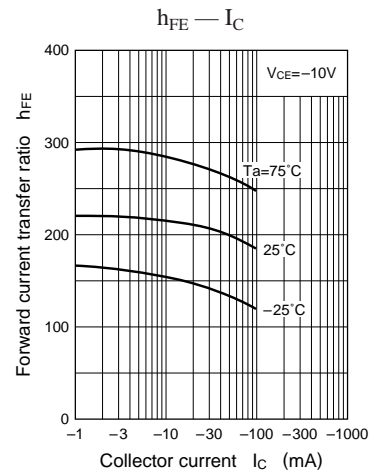
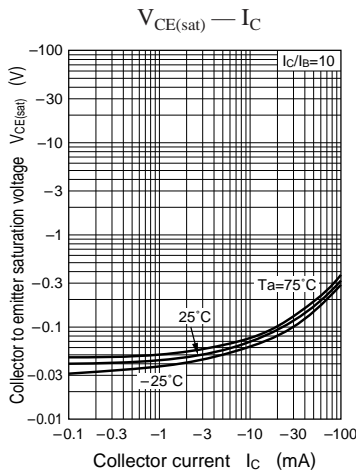
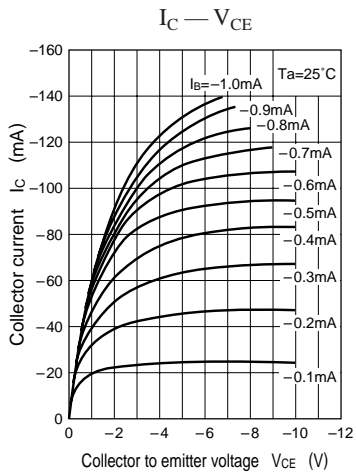
Characteristics charts of UN4114

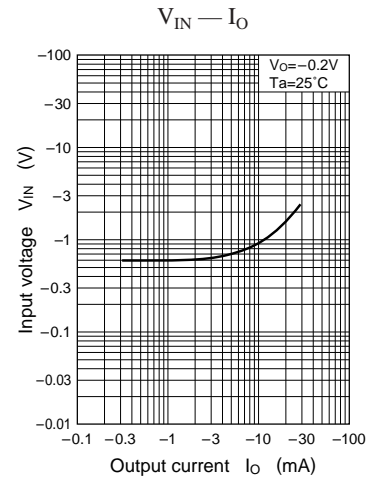
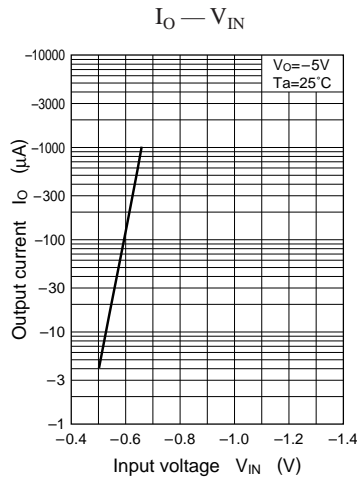
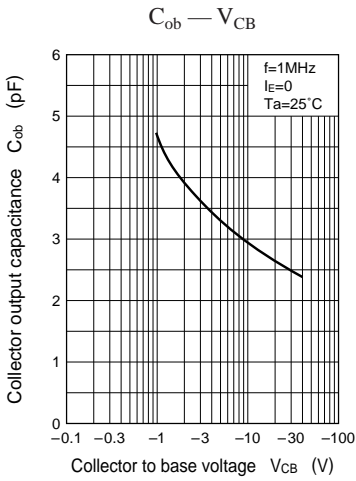


Characteristics charts of UN4115

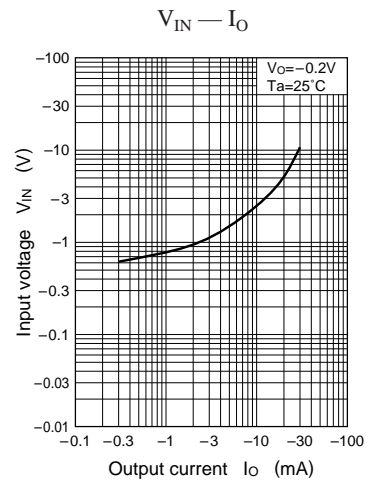
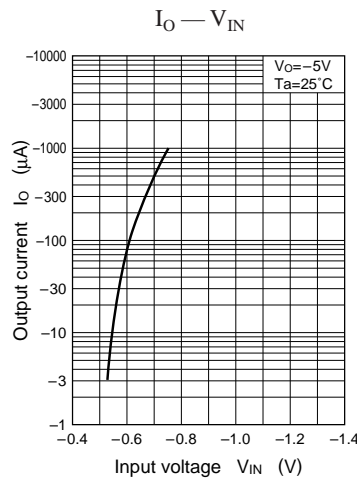
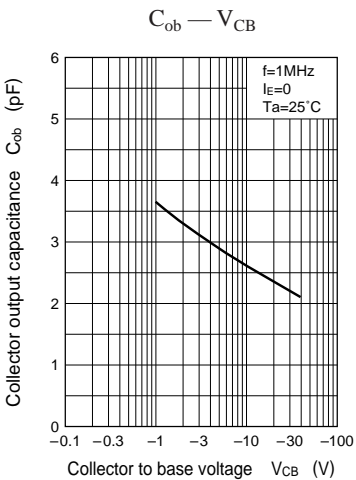
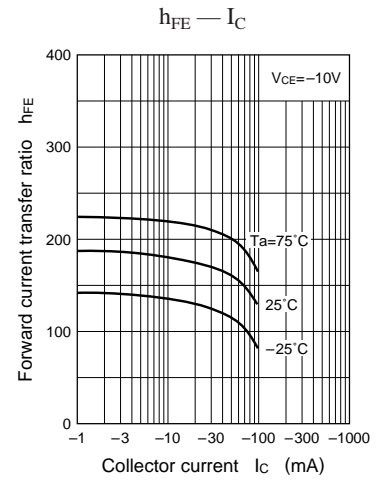
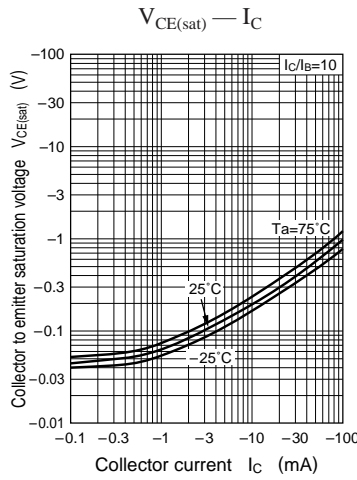
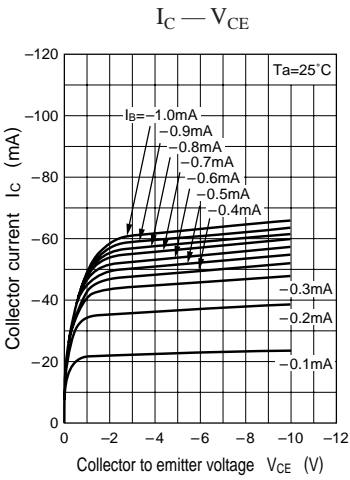


Characteristics charts of UN4116

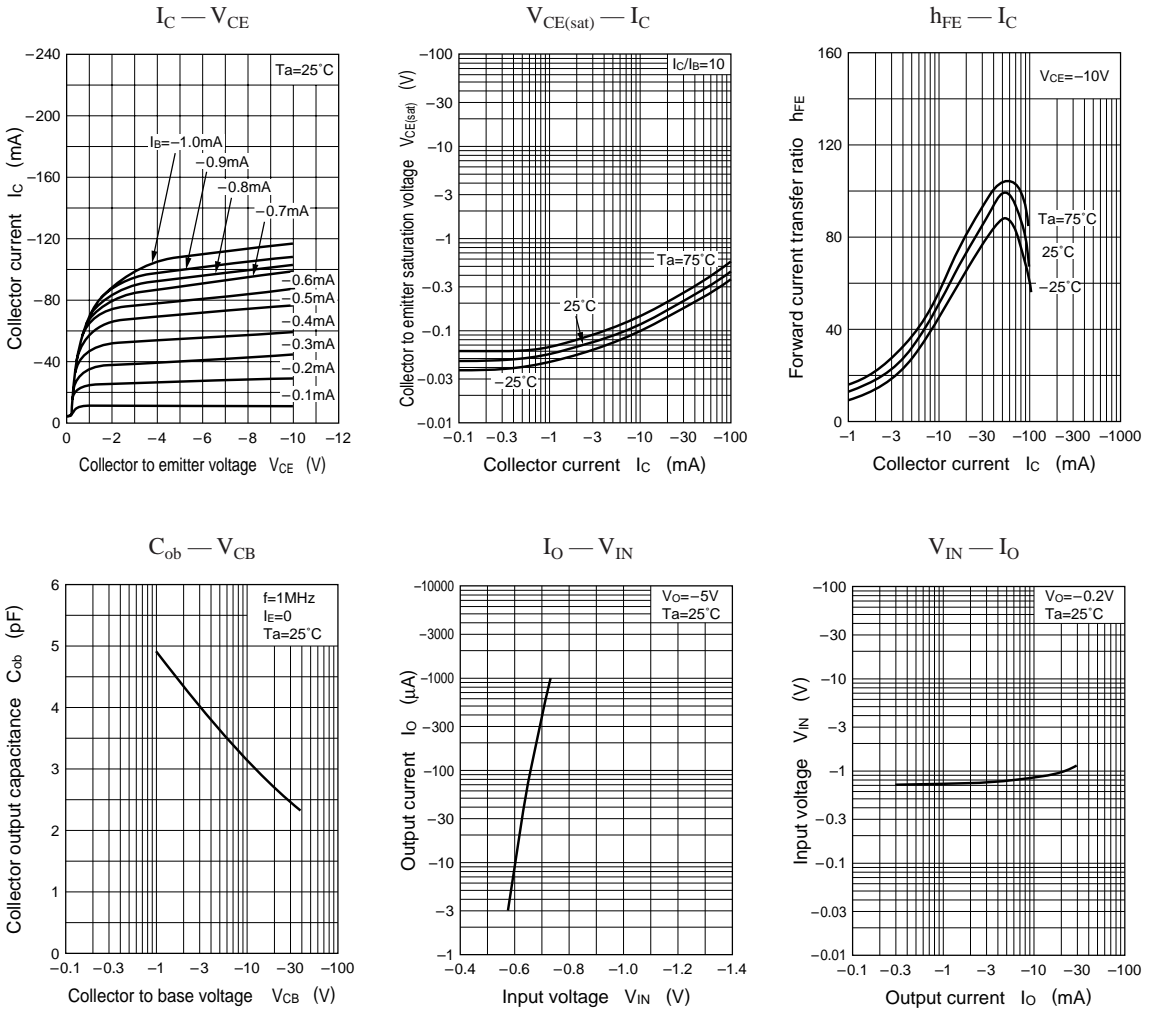




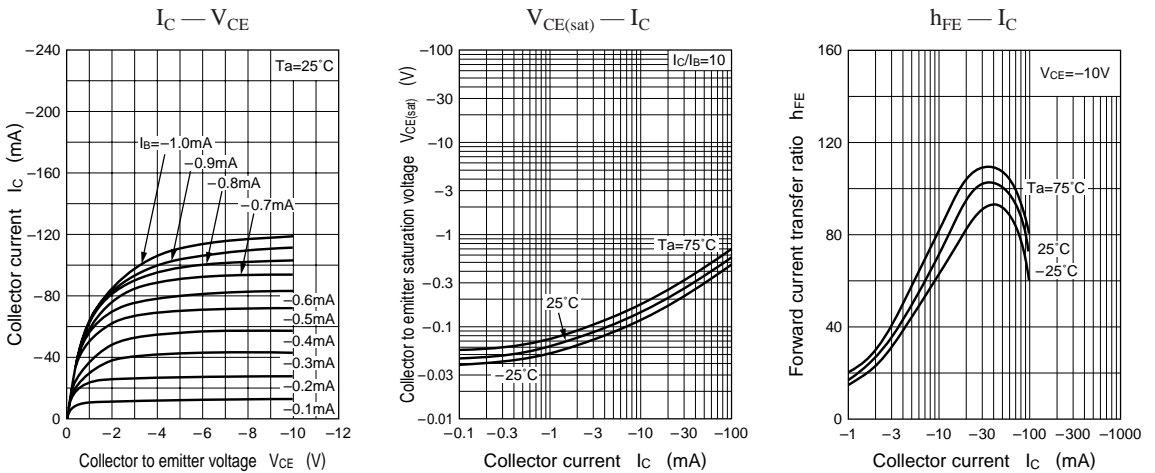
Characteristics charts of UN4117



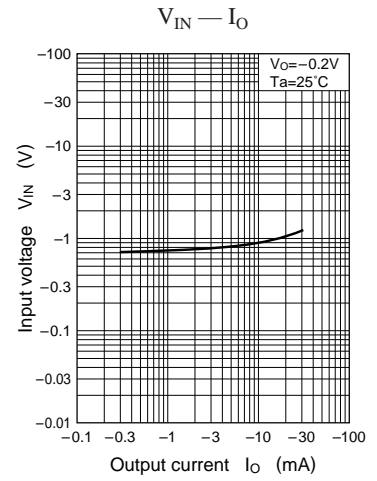
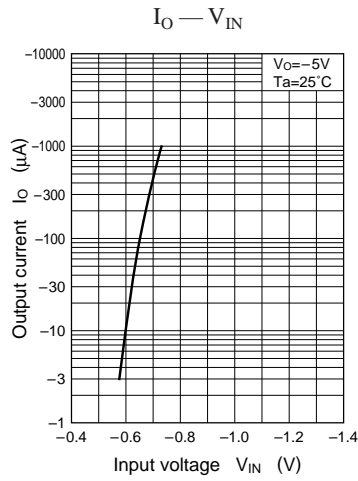
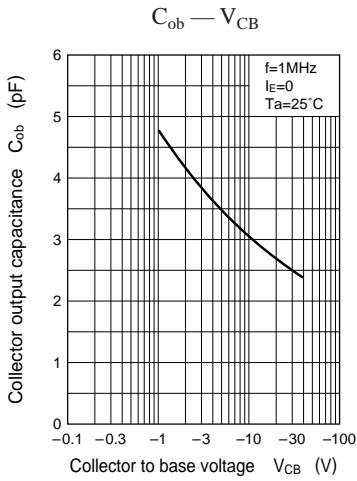
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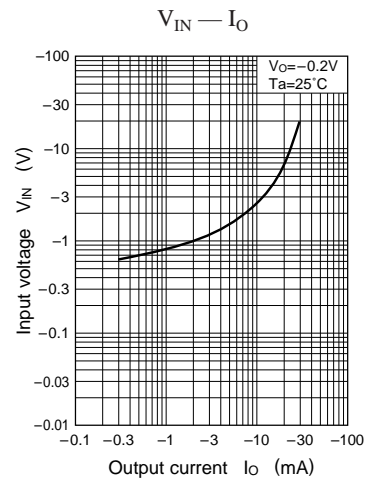
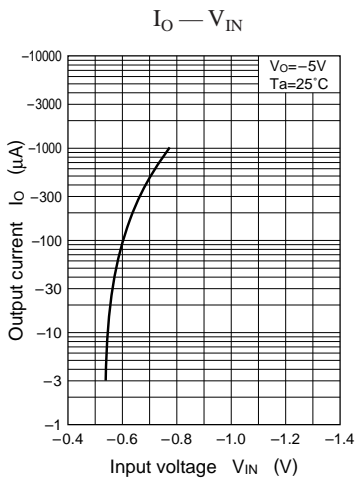
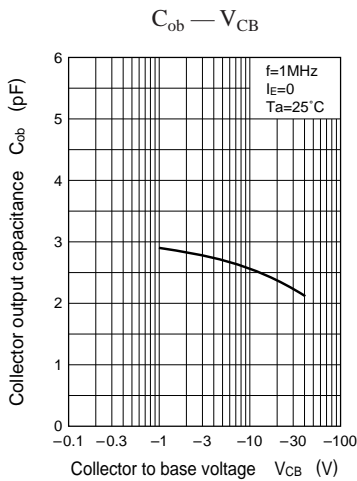
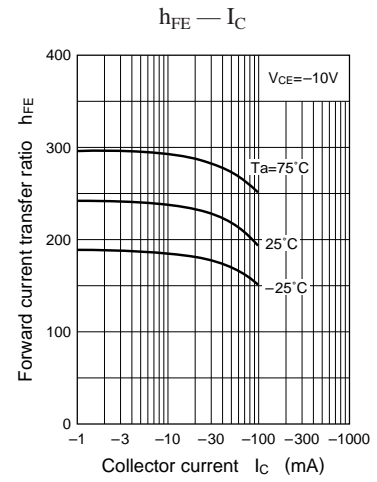
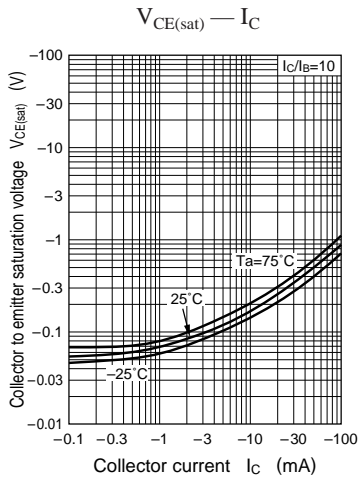
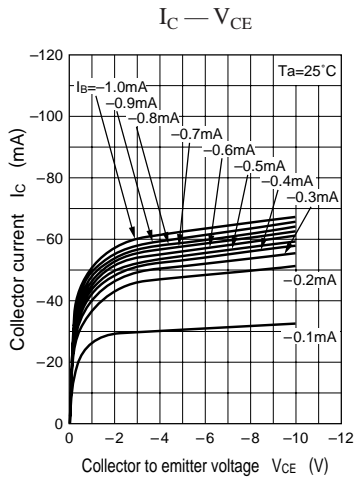
Characteristics charts of UN4119



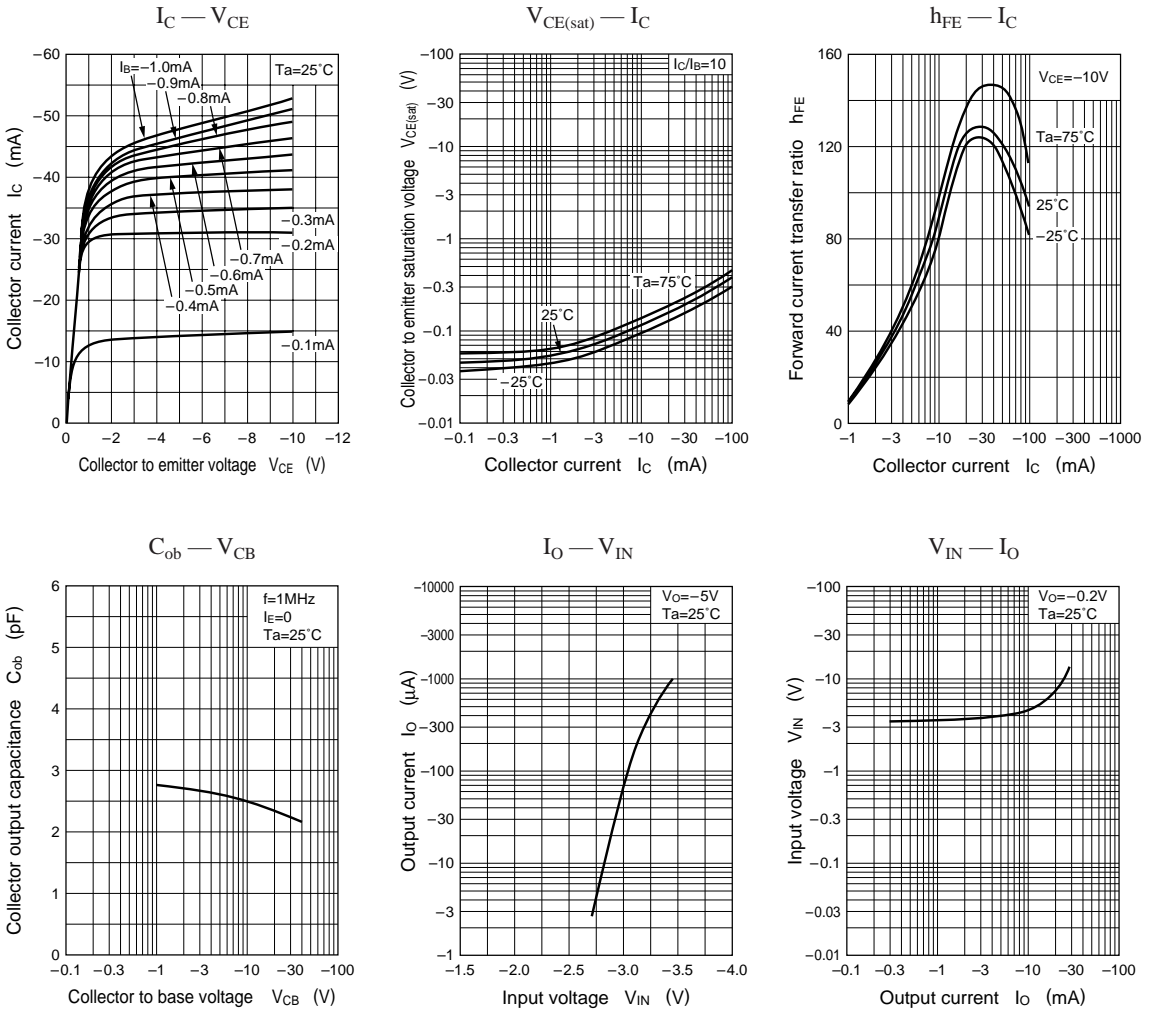




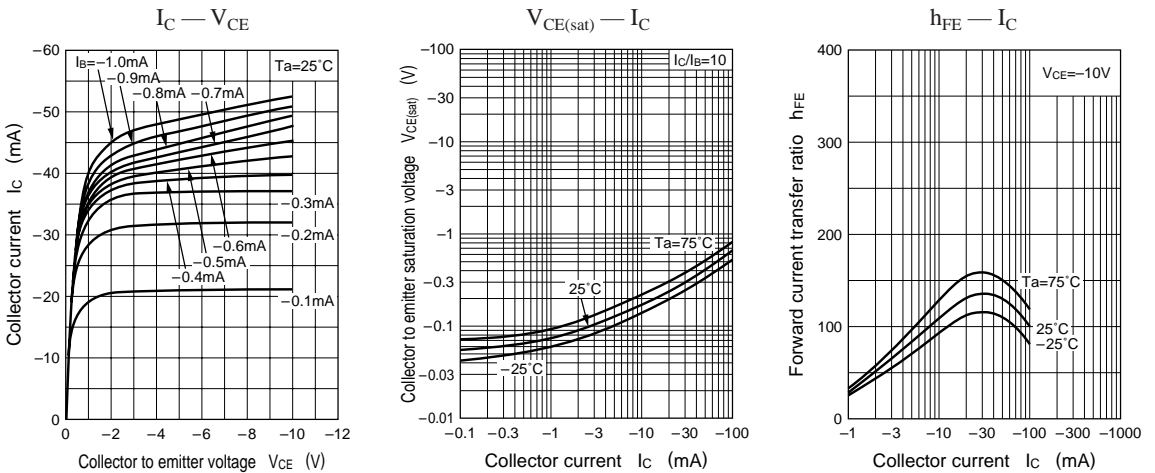
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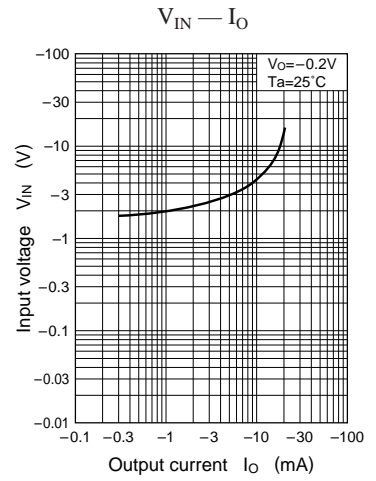
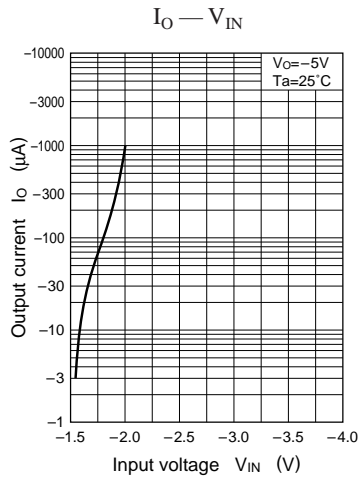
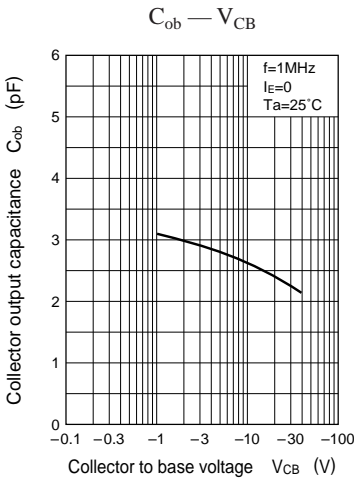


Characteristics charts of UN411D

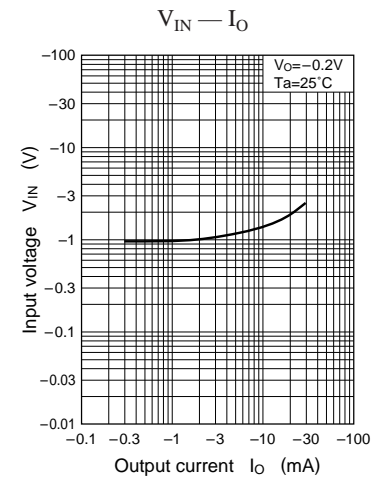
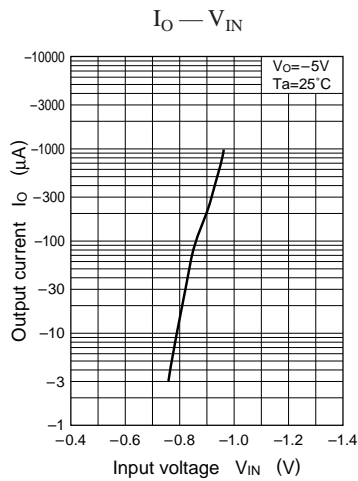
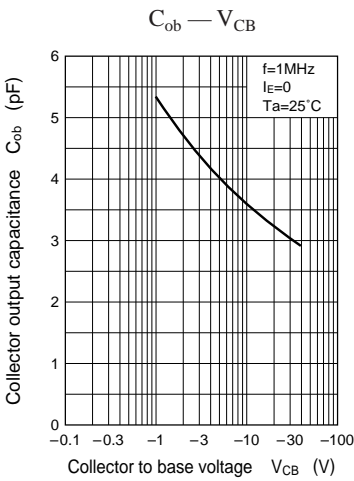
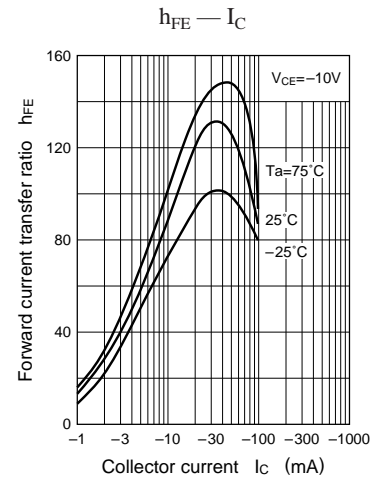
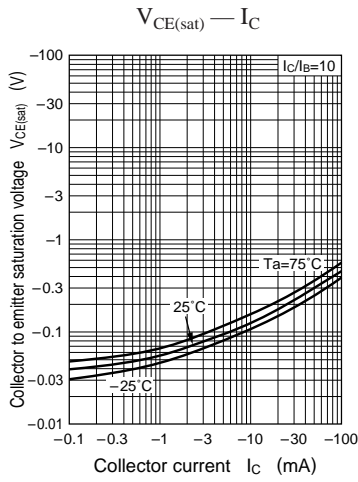
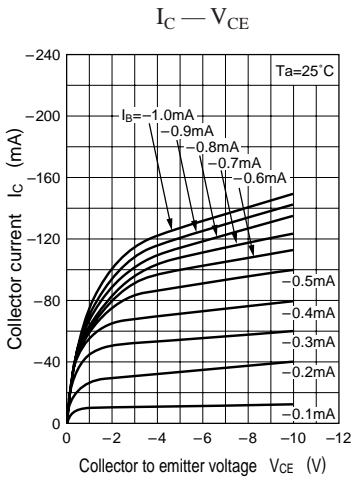


Characteristics charts of UN411E

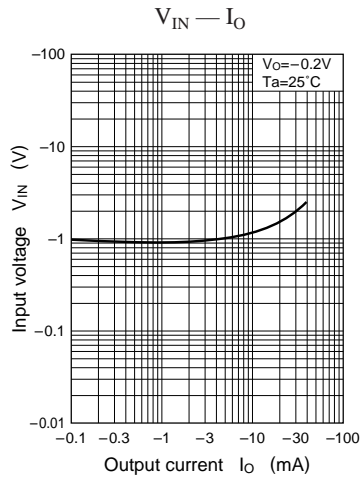
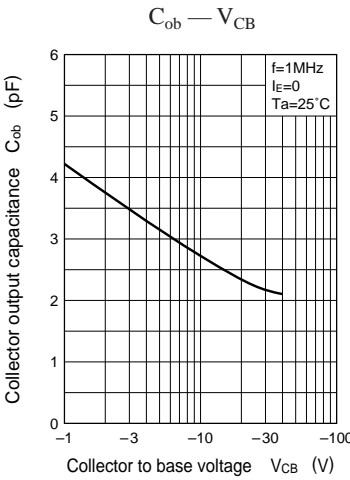
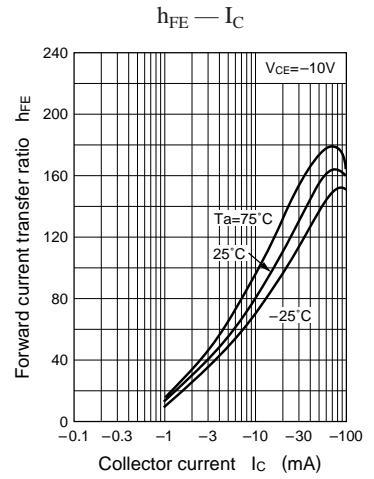
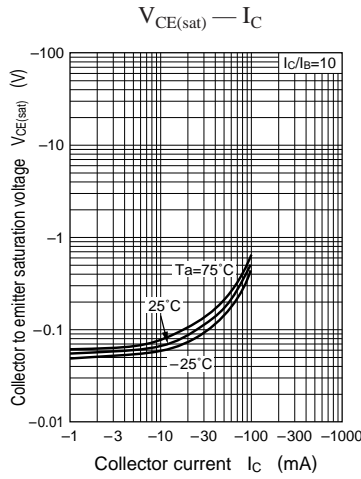
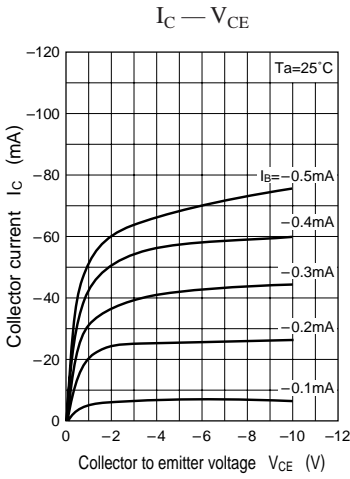




Characteristics charts of UN411F



Characteristics charts of UN411H



Characteristics charts of UN411L

