

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

Silicon PNP epitaxial planer transistor

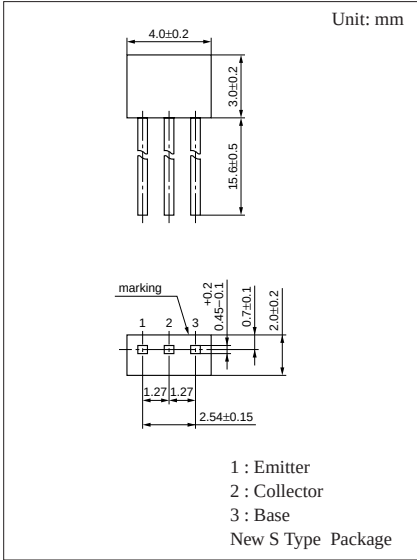
For digital circuits

■ Features

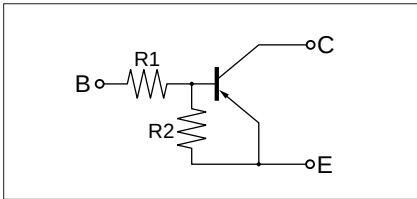
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- New S type package, allowing supply with the radial taping.

■ Resistance by Part Number

	(R ₁)	(R ₂)
• 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 (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	-50	V
Collector to emitter voltage	V _{CEO}	-50	V
Collector current	I _C	-100	mA
Total power dissipation	P _T	300	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

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

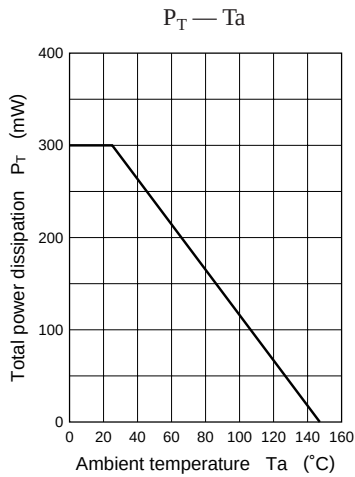
■ Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I _{CBO}	V _{CB} = −50V, I _E = 0			− 0.1	μA
		I _{CEO}	V _{CE} = −50V, I _B = 0			− 0.5	μA
Emitter cutoff current	UN4111	I _{EBO}	V _{EB} = −6V, I _C = 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 _{CBO}	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	UN4111	h _{FE}	V _{CE} = −10V, I _C = −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 _{CE(sat)}	I _C = −10mA, I _B = − 0.3mA			− 0.25	V
Output voltage high level		V _{OH}	V _{CC} = −5V, V _B = − 0.5V, R _L = 1kΩ	−4.9			V
Output voltage low level		V _{OL}	V _{CC} = −5V, V _B = −2.5V, R _L = 1kΩ			− 0.2	V
			V _{CC} = −5V, V _B = −3.5V, R _L = 1kΩ			− 0.2	
			V _{CC} = −5V, V _B = −10V, R _L = 1kΩ			− 0.2	
			V _{CC} = 5V, V _B = −6V, R _L = 1kΩ			− 0.2	
Transition frequency		f _T	V _{CB} = −10V, I _E = 1mA, f = 200MHz		80		MHz
Input resistance	UN4111/4114/4115	R ₁		(−30%)	10	(+30%)	kΩ
	UN4112/4117				22		
	UN4113/4110/411D/411E				47		
	UN4116/411F/411L				4.7		
	UN4118				0.51		
	UN4119				1		
	UN411H				2.2		
Resistance ratio	UN4111/4112/4113/411L	R ₁ /R ₂		0.8	1.0	1.2	
	UN4114			0.17	0.21	0.25	
	UN4118/4119			0.08	0.1	0.12	
	UN411D			3.7	4.7	5.7	
	UN411E			1.7	2.14	2.6	
	UN411F			0.37	0.47	0.57	
	UN411H			0.17	0.22	0.27	

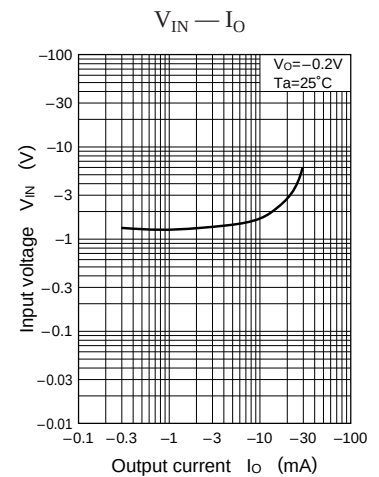
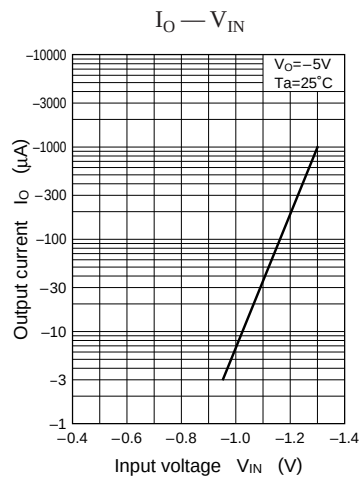
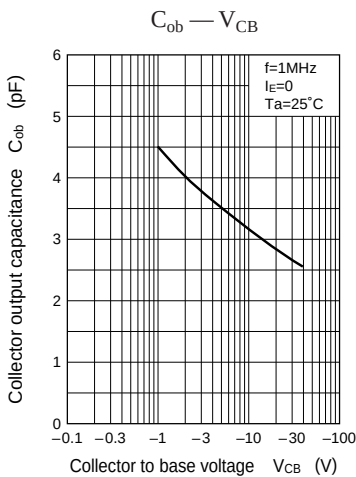
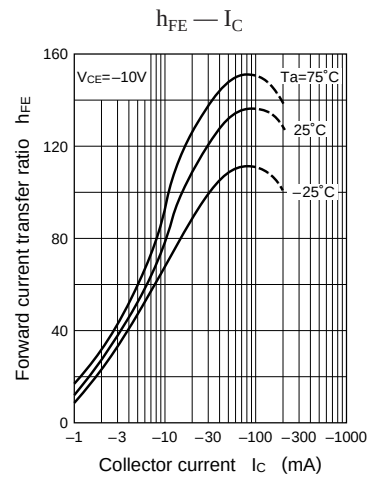
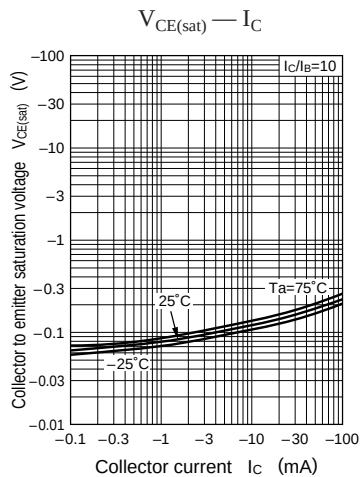
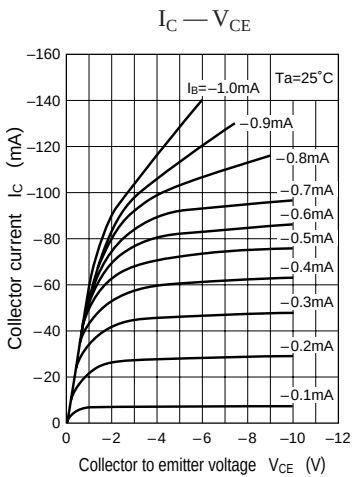
* h_{FE} rank classification (UN4115/4116/4117/4110)

Rank	Q	R	S
h _{FE}	160 to 260	210 to 340	290 to 460

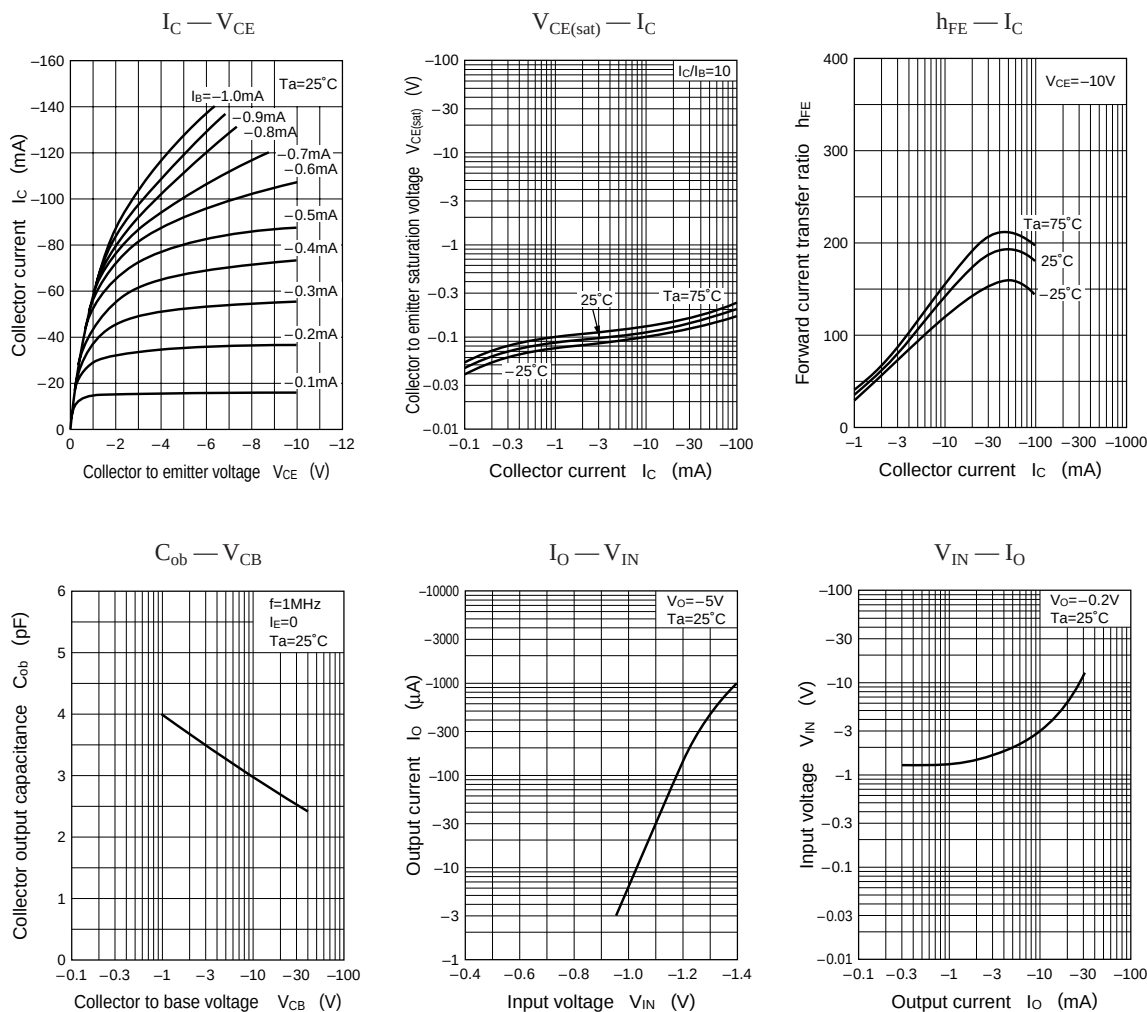
Common characteristics chart



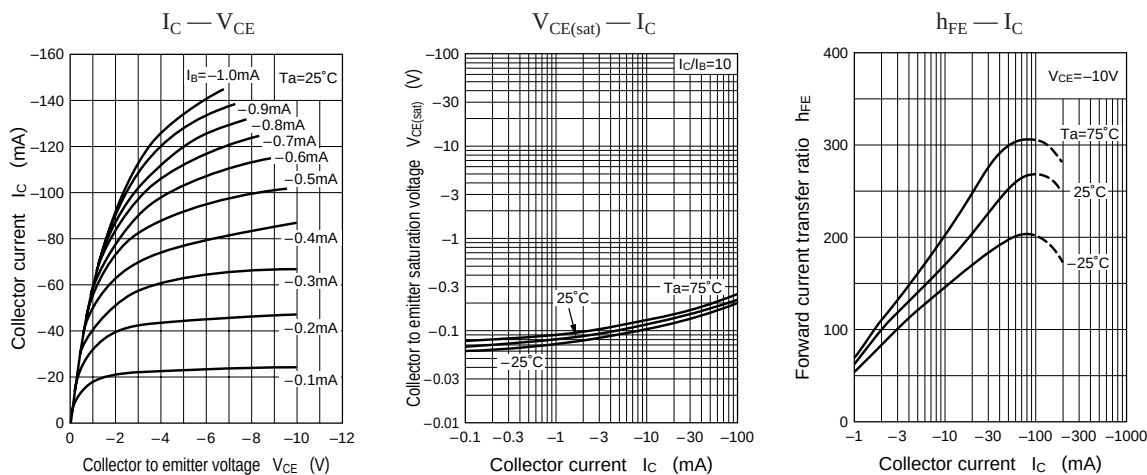
Characteristics charts of UN4111

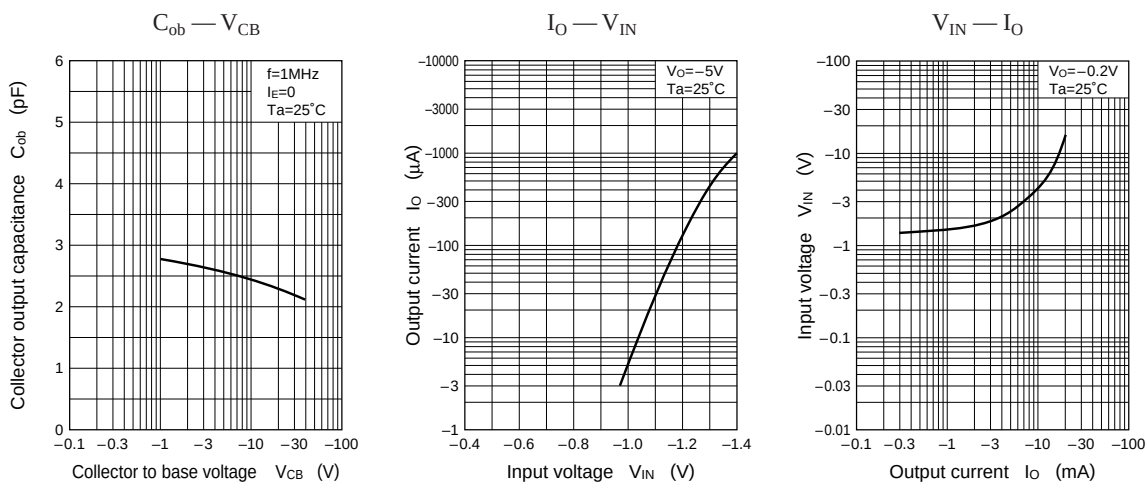


Characteristics charts of UN4112

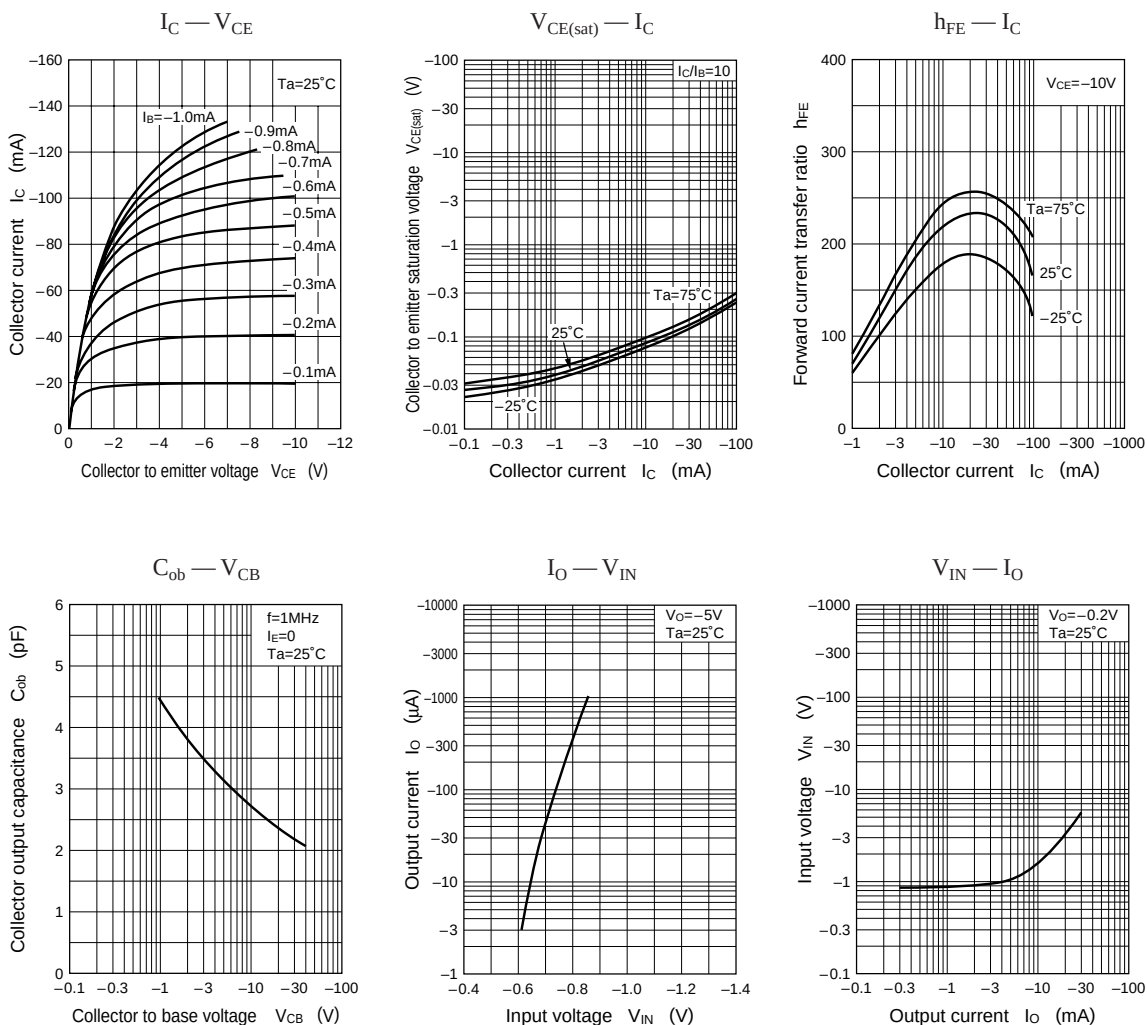


Characteristics charts of UN4113

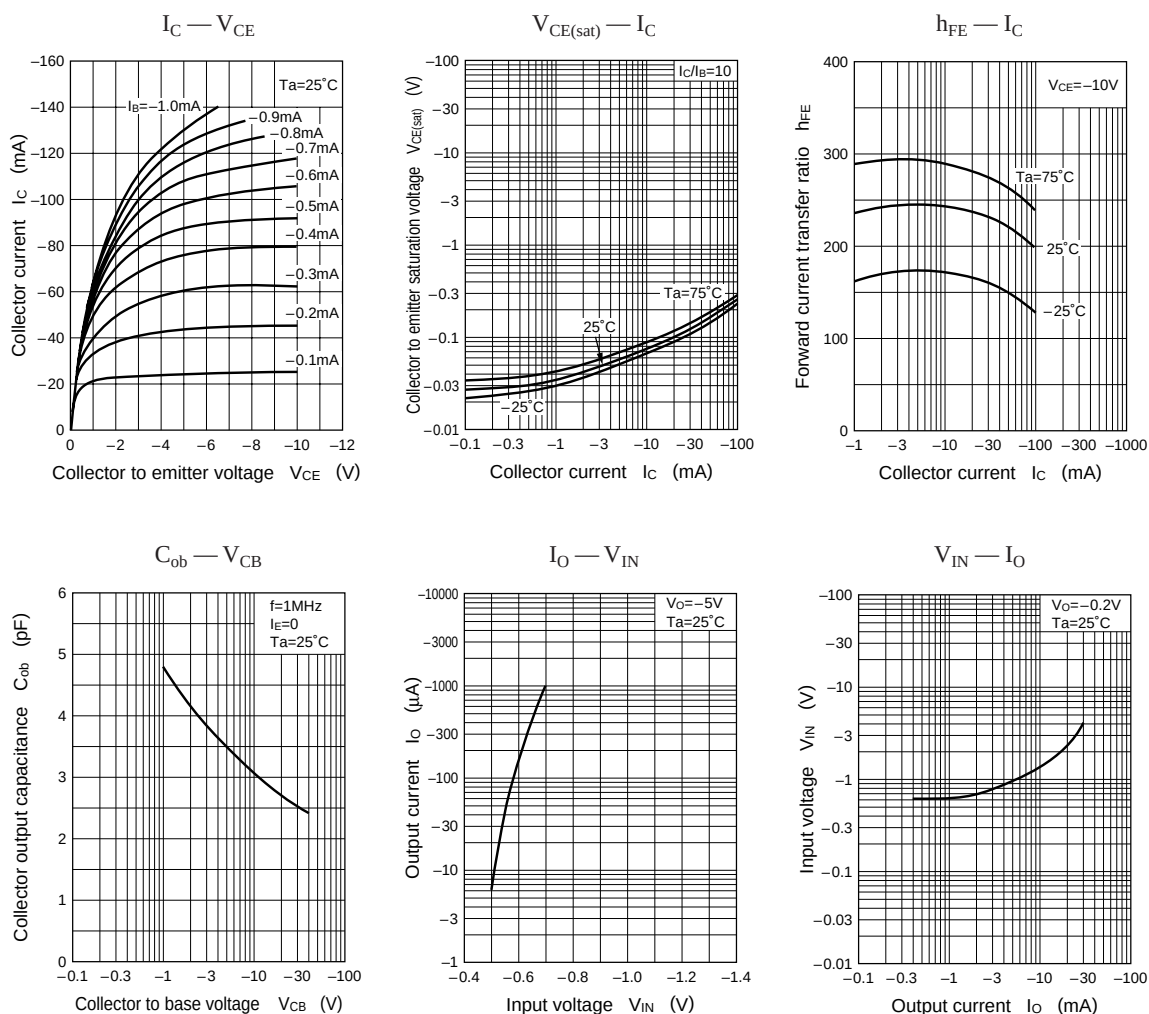




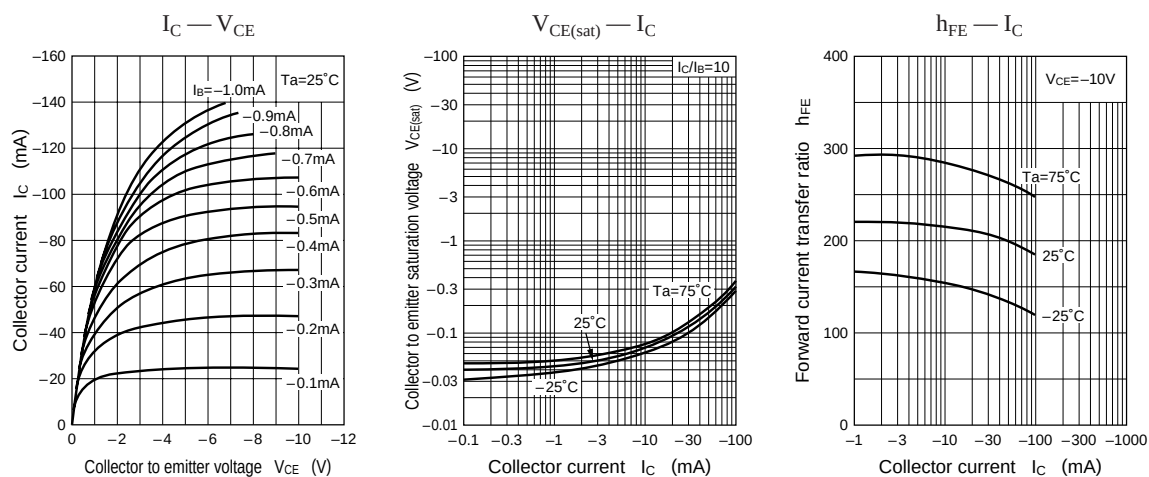
Characteristics charts of UN4114

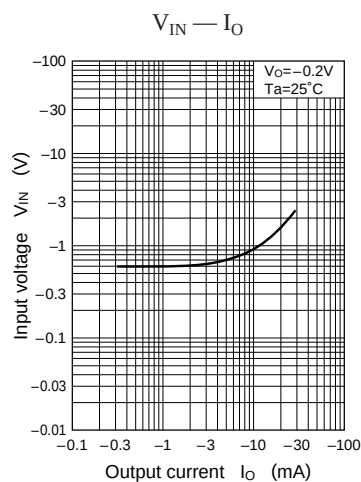
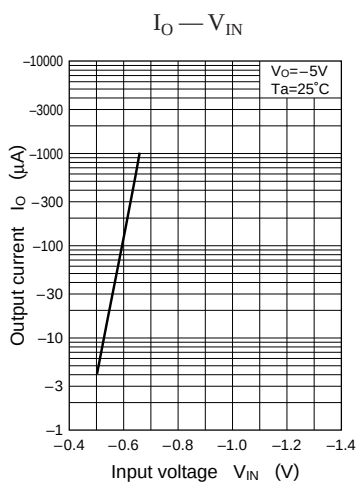
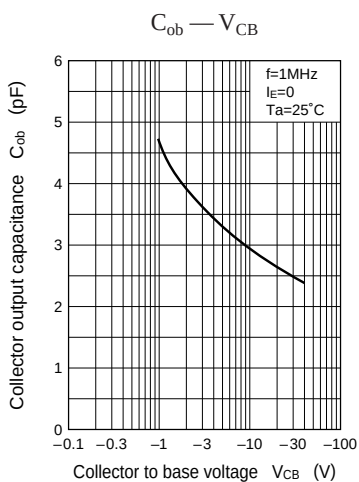


Characteristics charts of UN4115

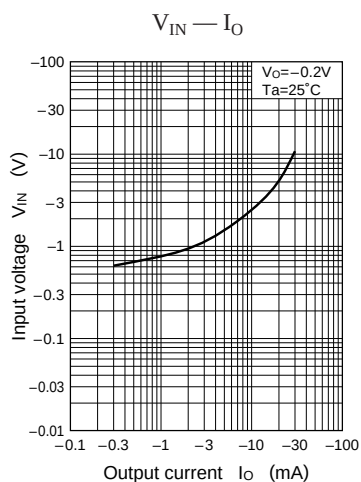
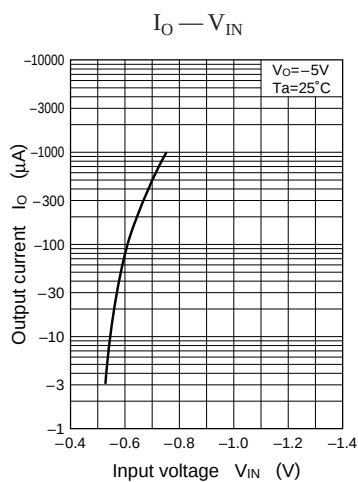
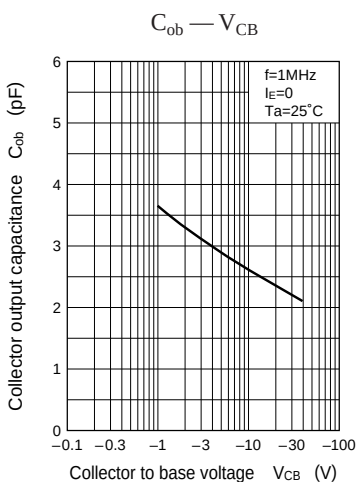
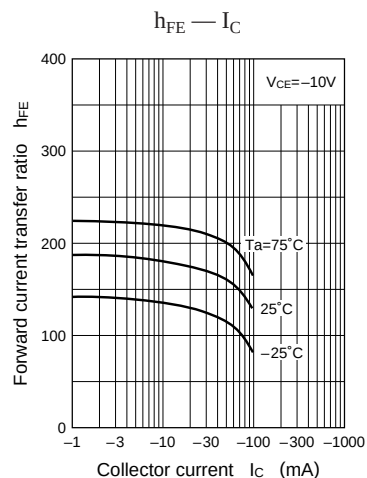
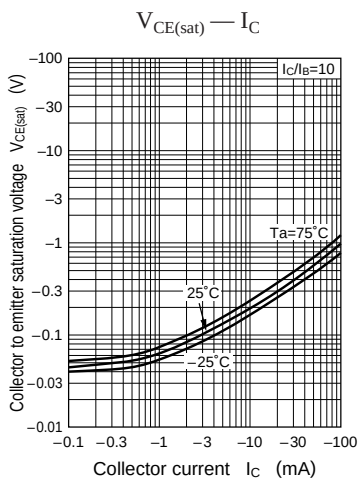
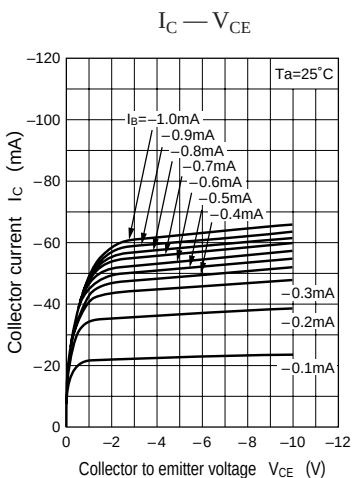


Characteristics charts of UN4116

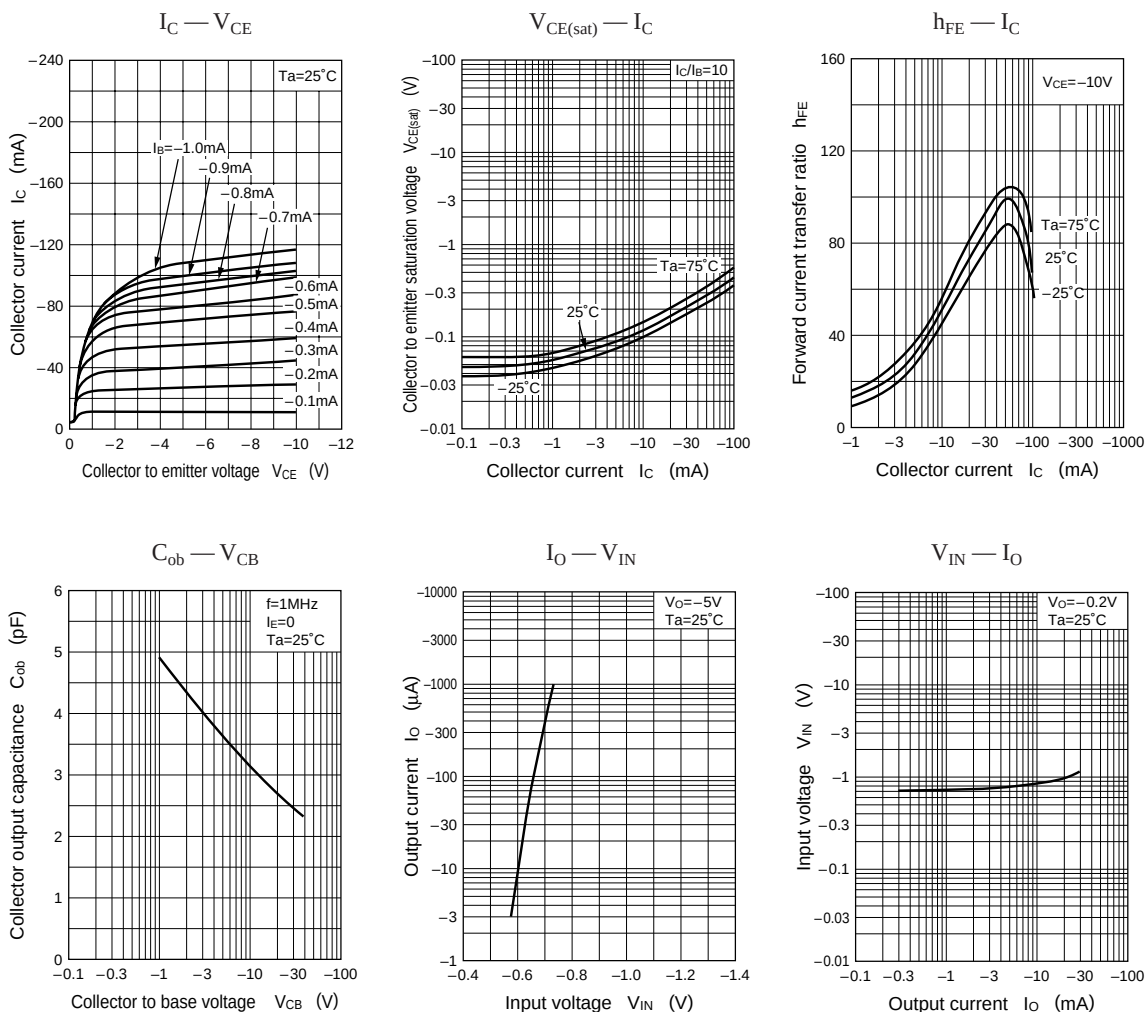




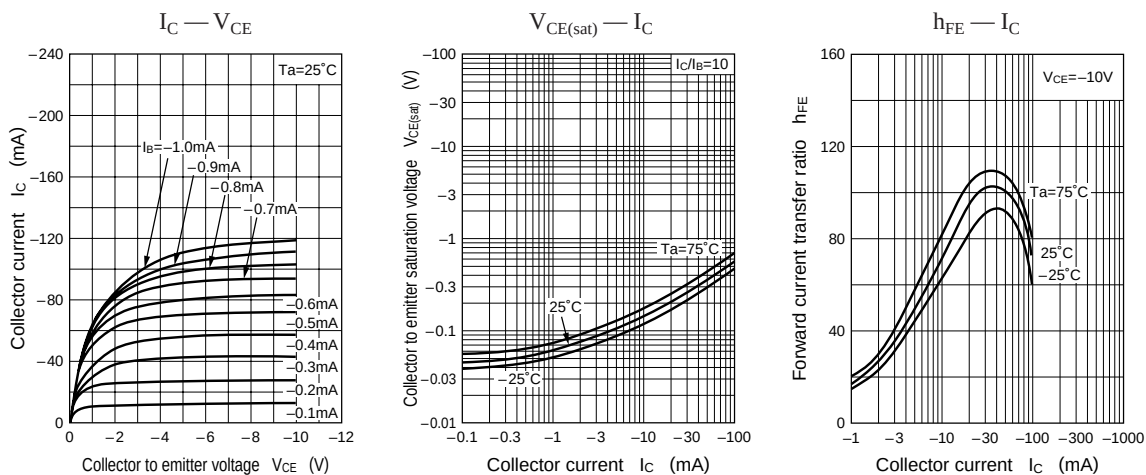
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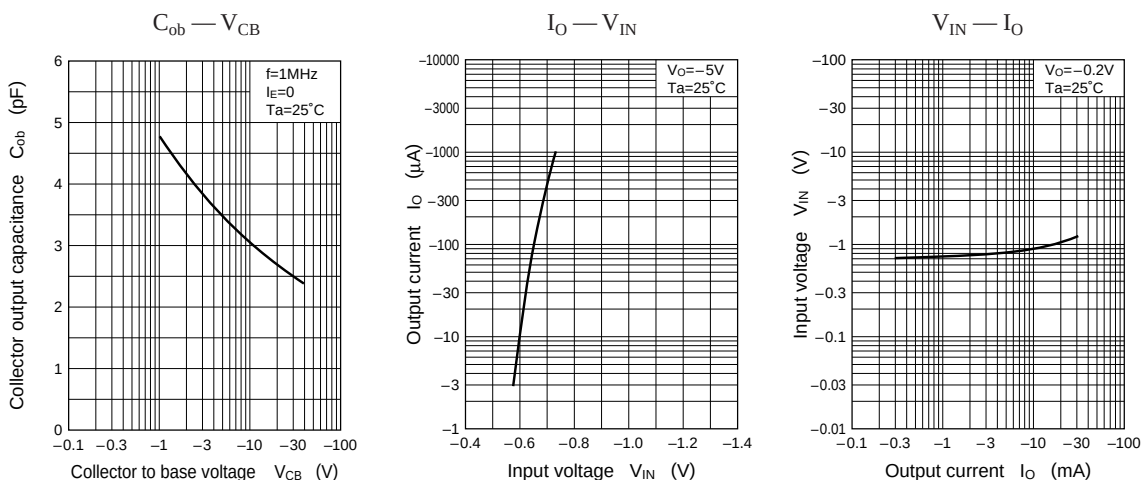


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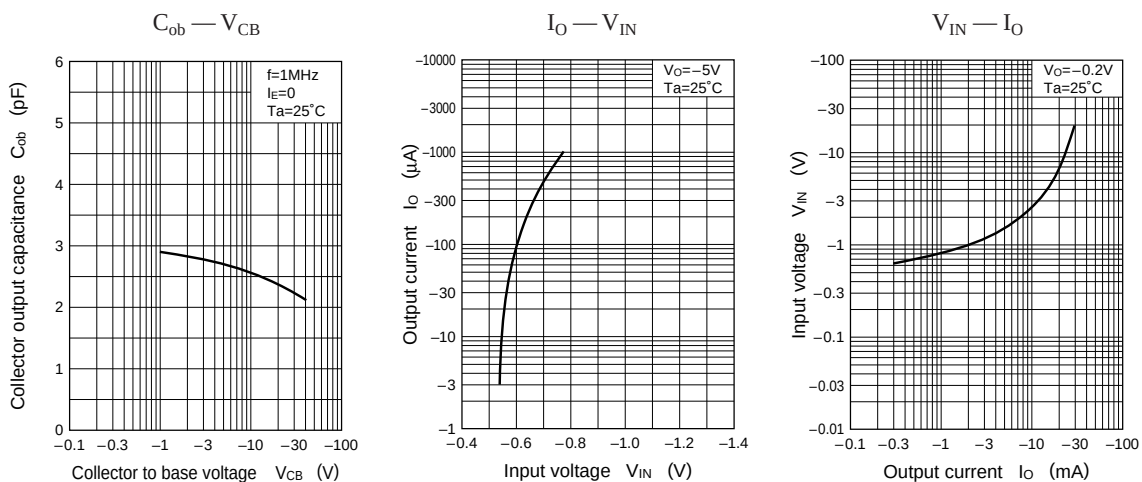
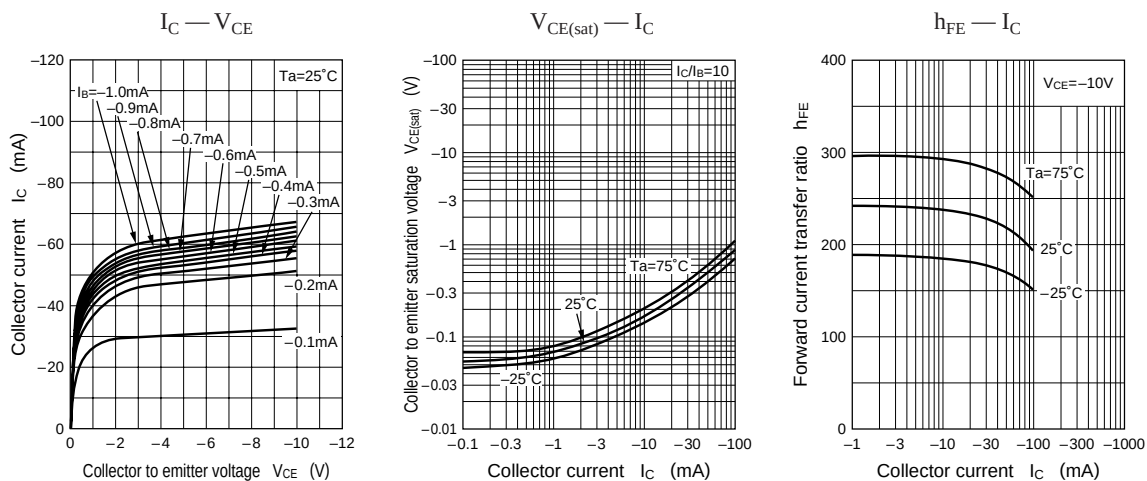


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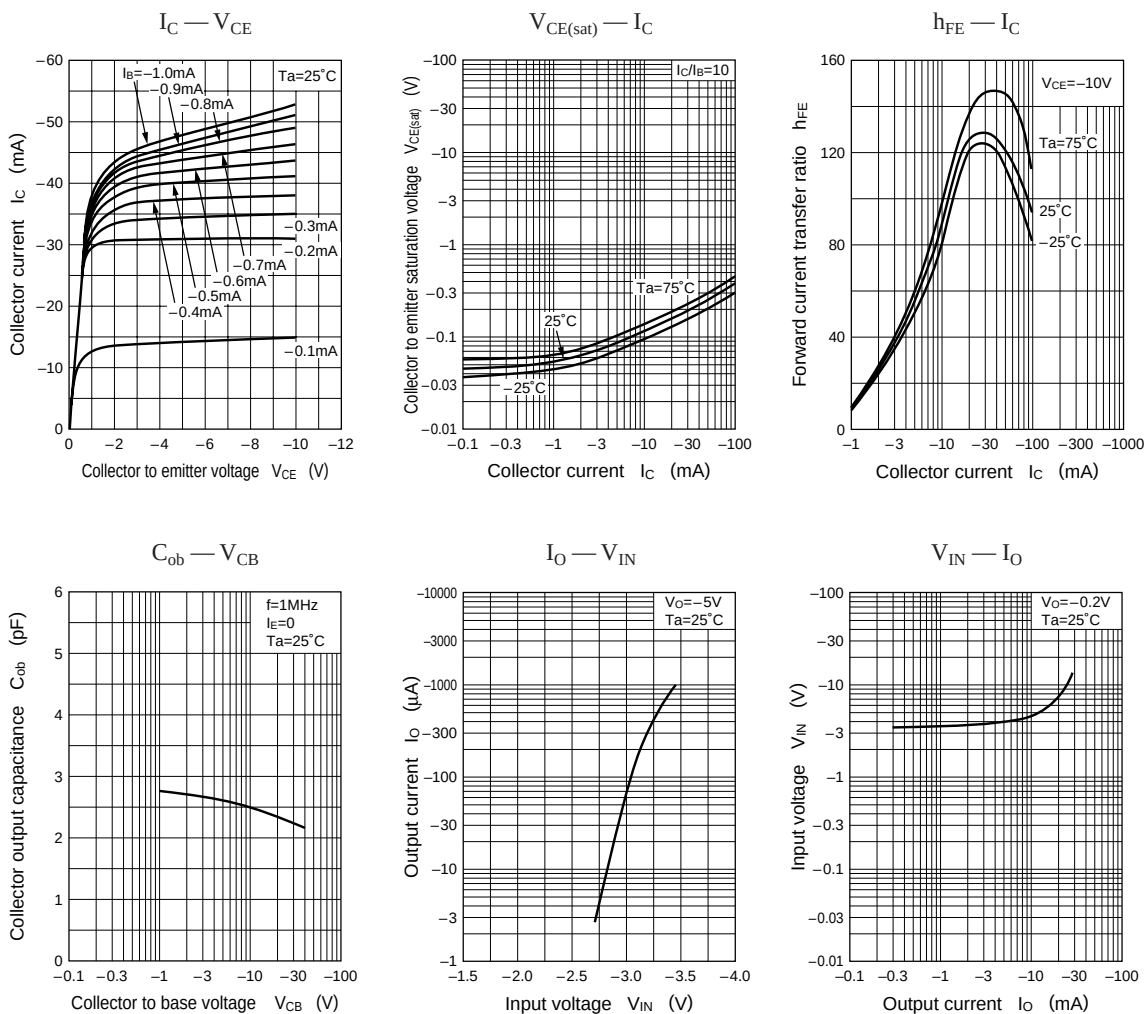




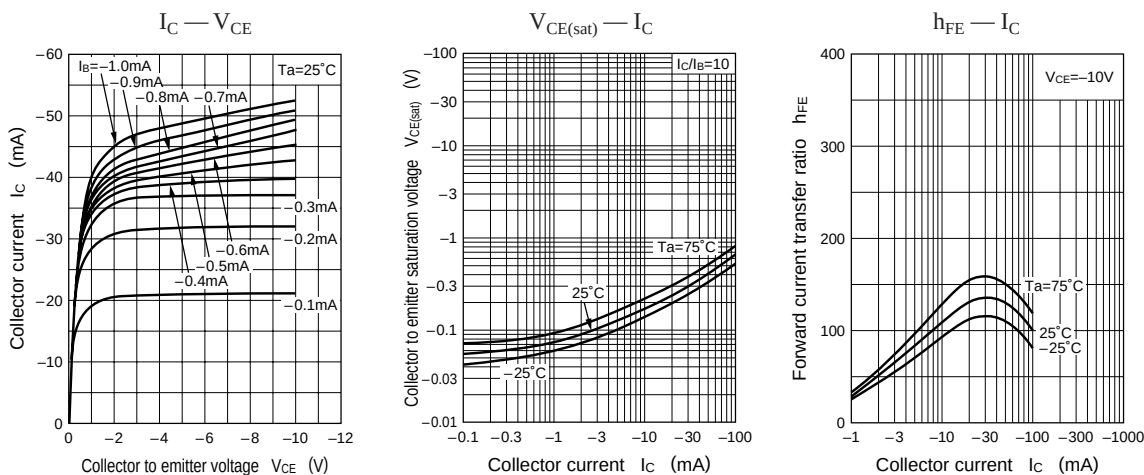
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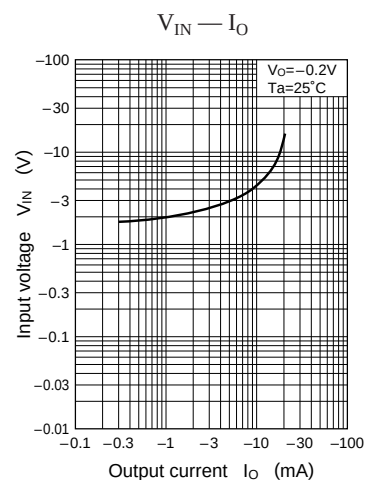
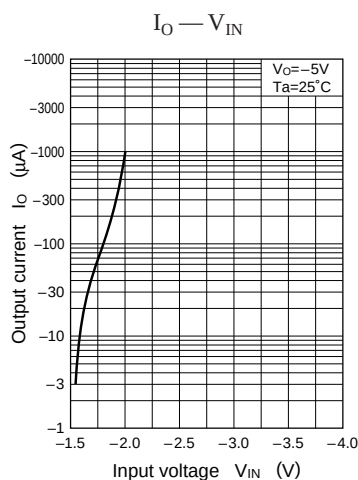
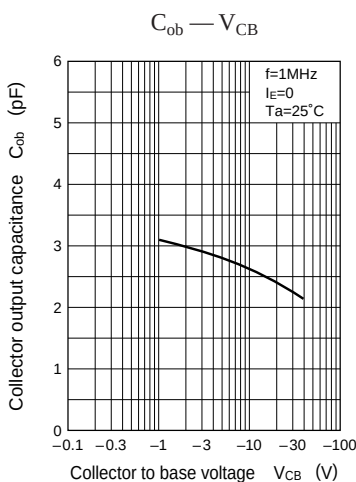


Characteristics charts of UN411D

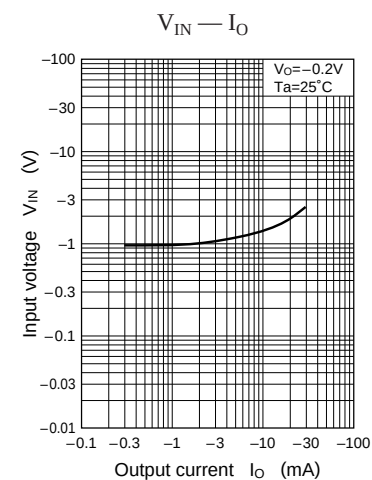
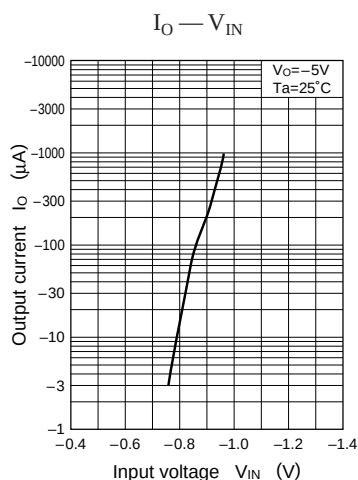
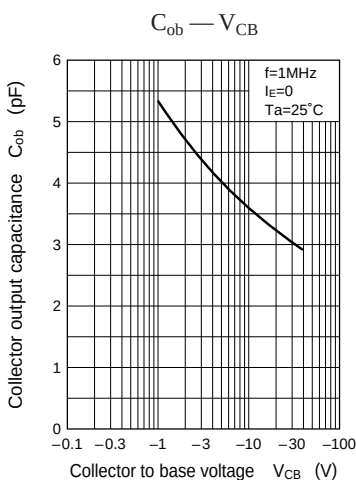
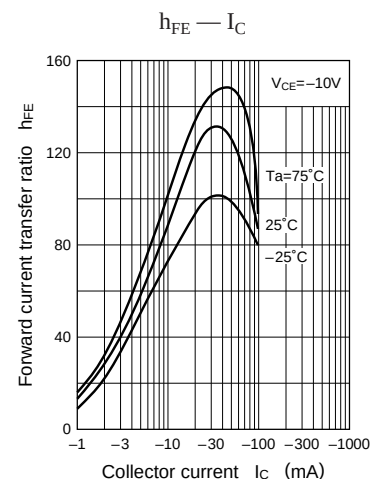
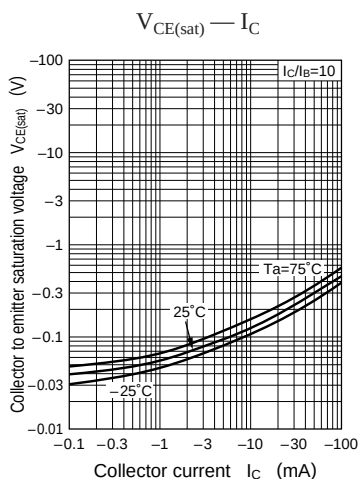
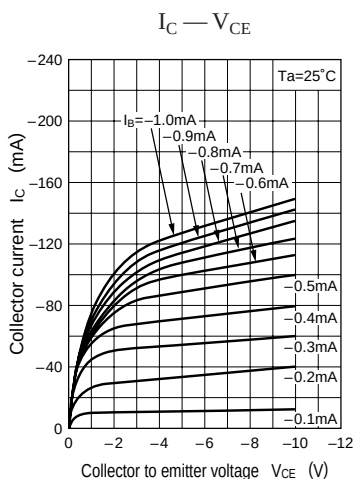


Characteristics charts of UN411E

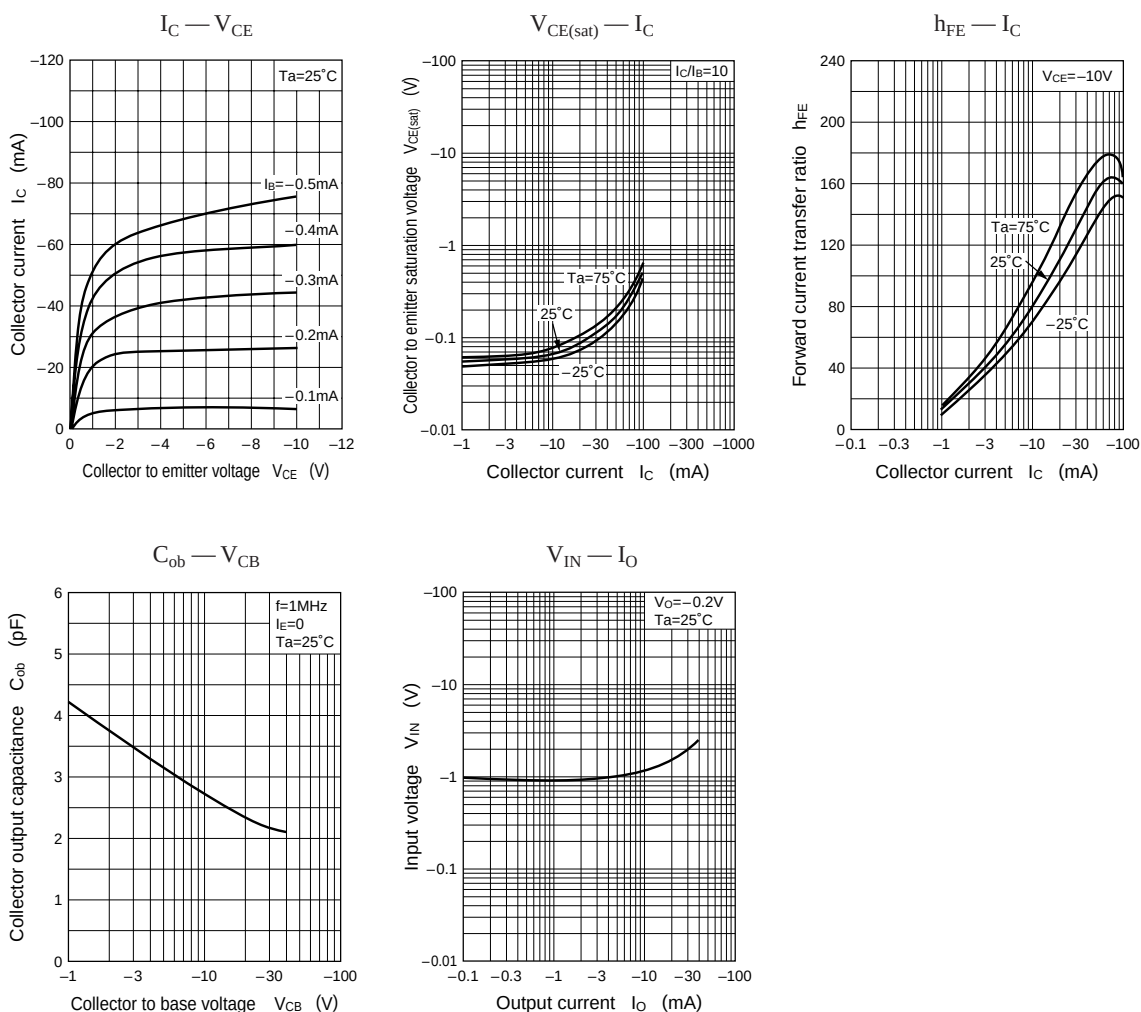




Characteristics charts of UN411F



Characteristics charts of UN411H



Characteristics charts of UN411L

