

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

Silicon PNP epitaxial planer transistor

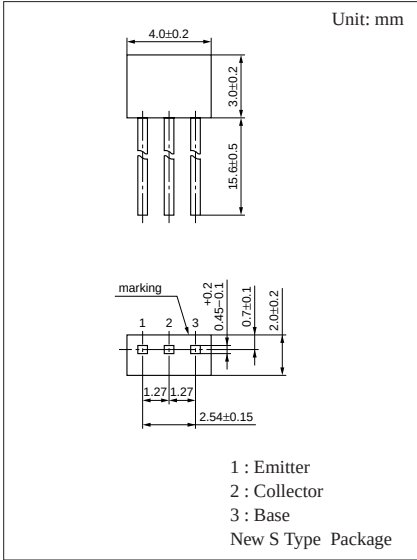
For digital circuits

■ Features

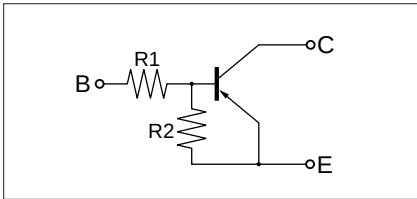
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- New S type package, allowing supply with the radial taping.

■ 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

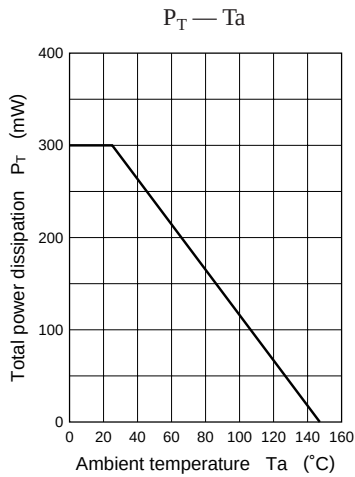
■ Electrical Characteristics (Ta=25°C)

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	

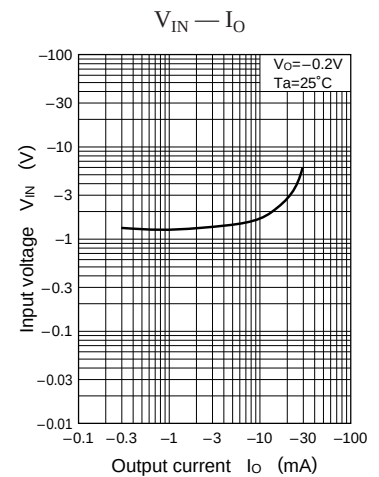
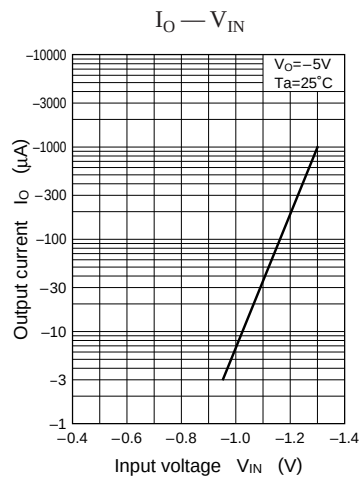
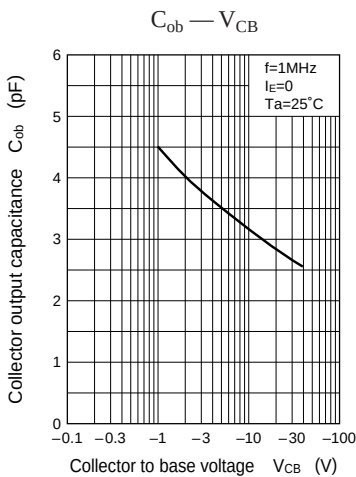
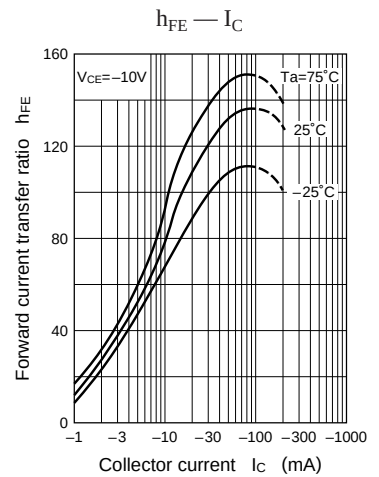
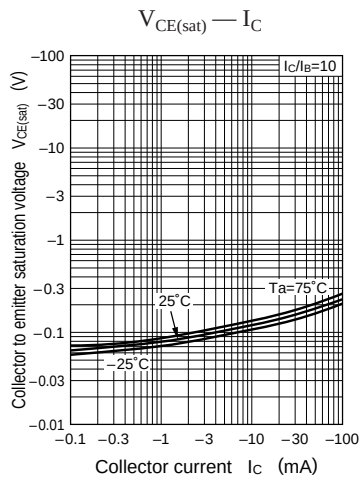
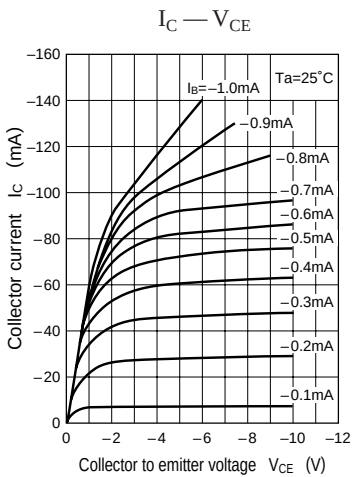
* h_{FE} rank classification (UN4115/4116/4117/4110)

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

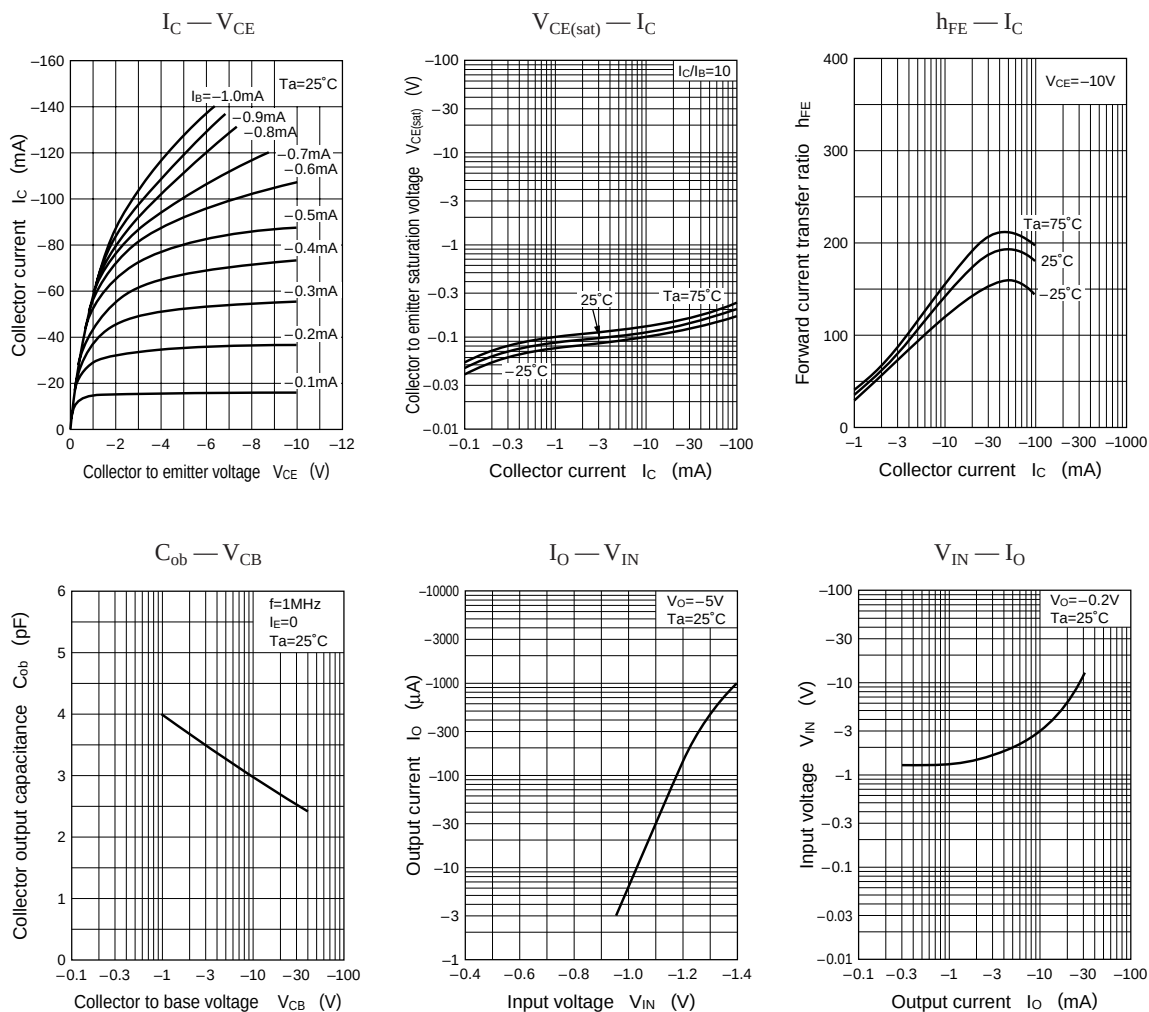
Common characteristics chart



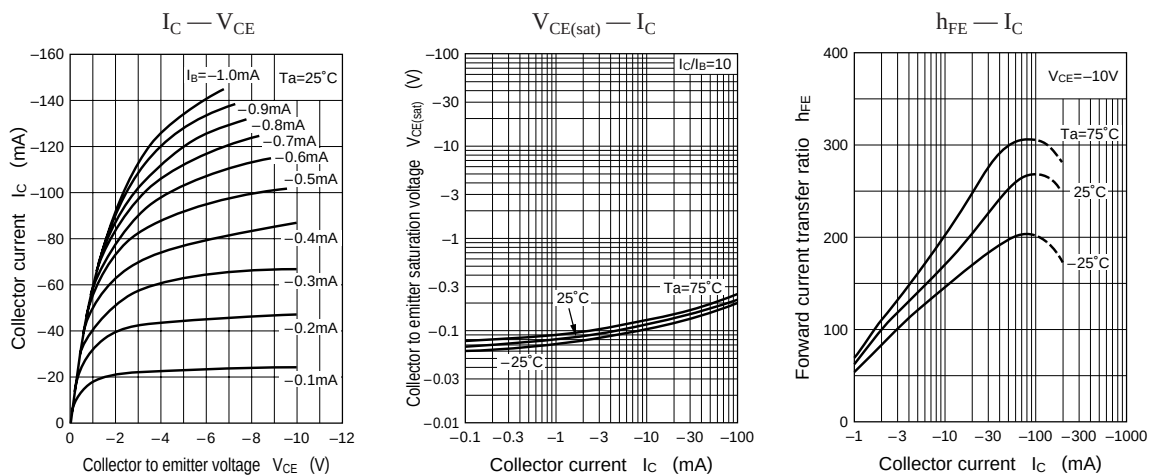
Characteristics charts of UN4111

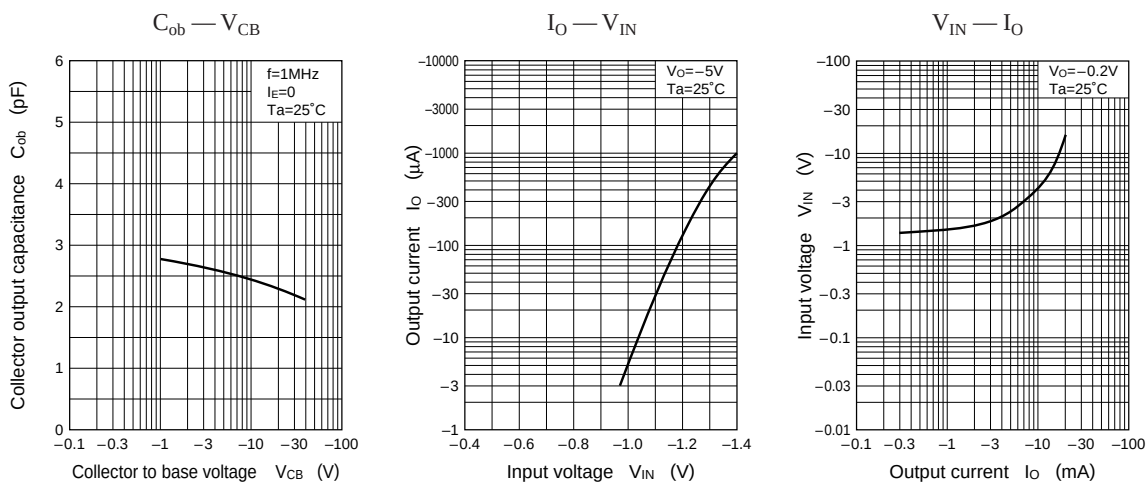


Characteristics charts of UN4112

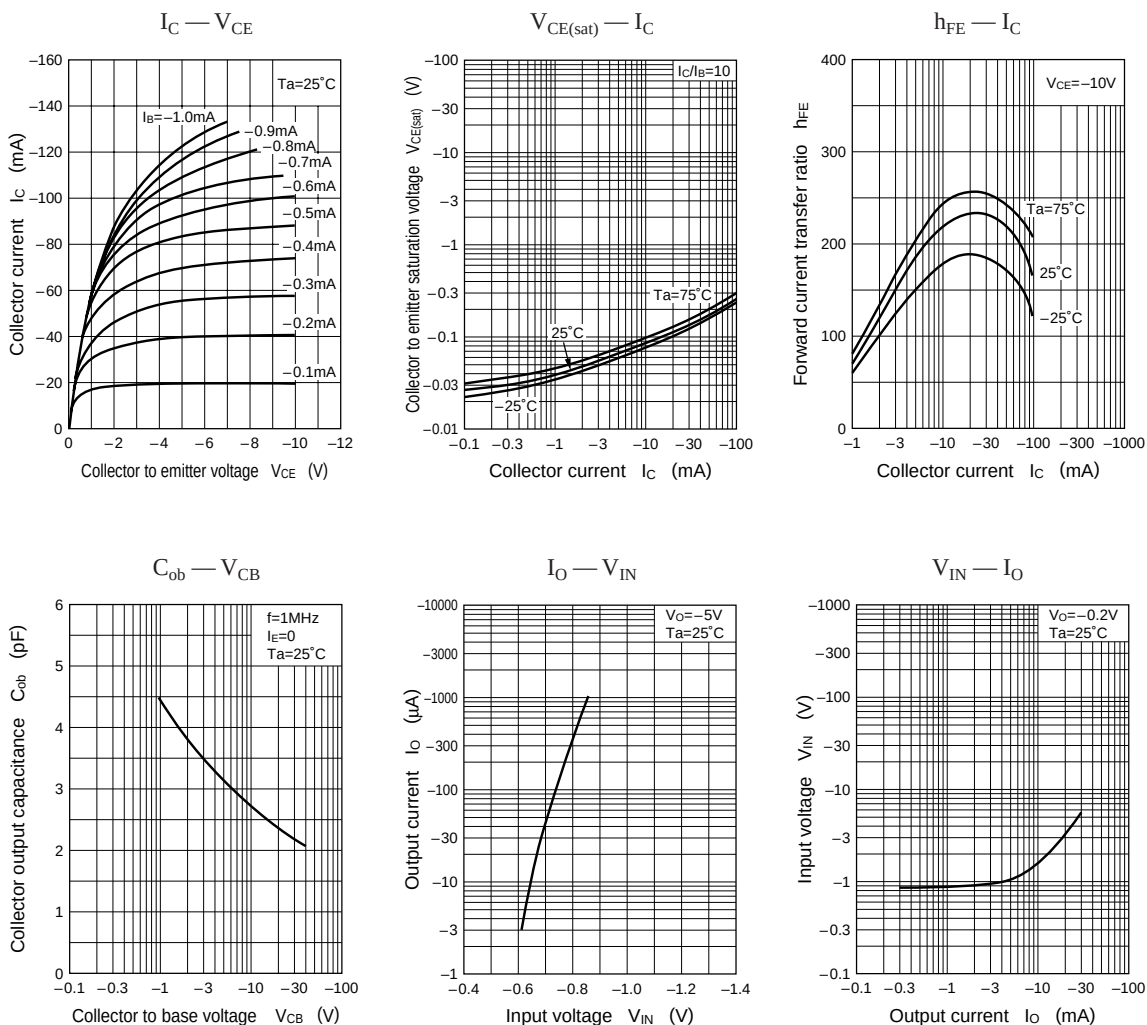


Characteristics charts of UN4113

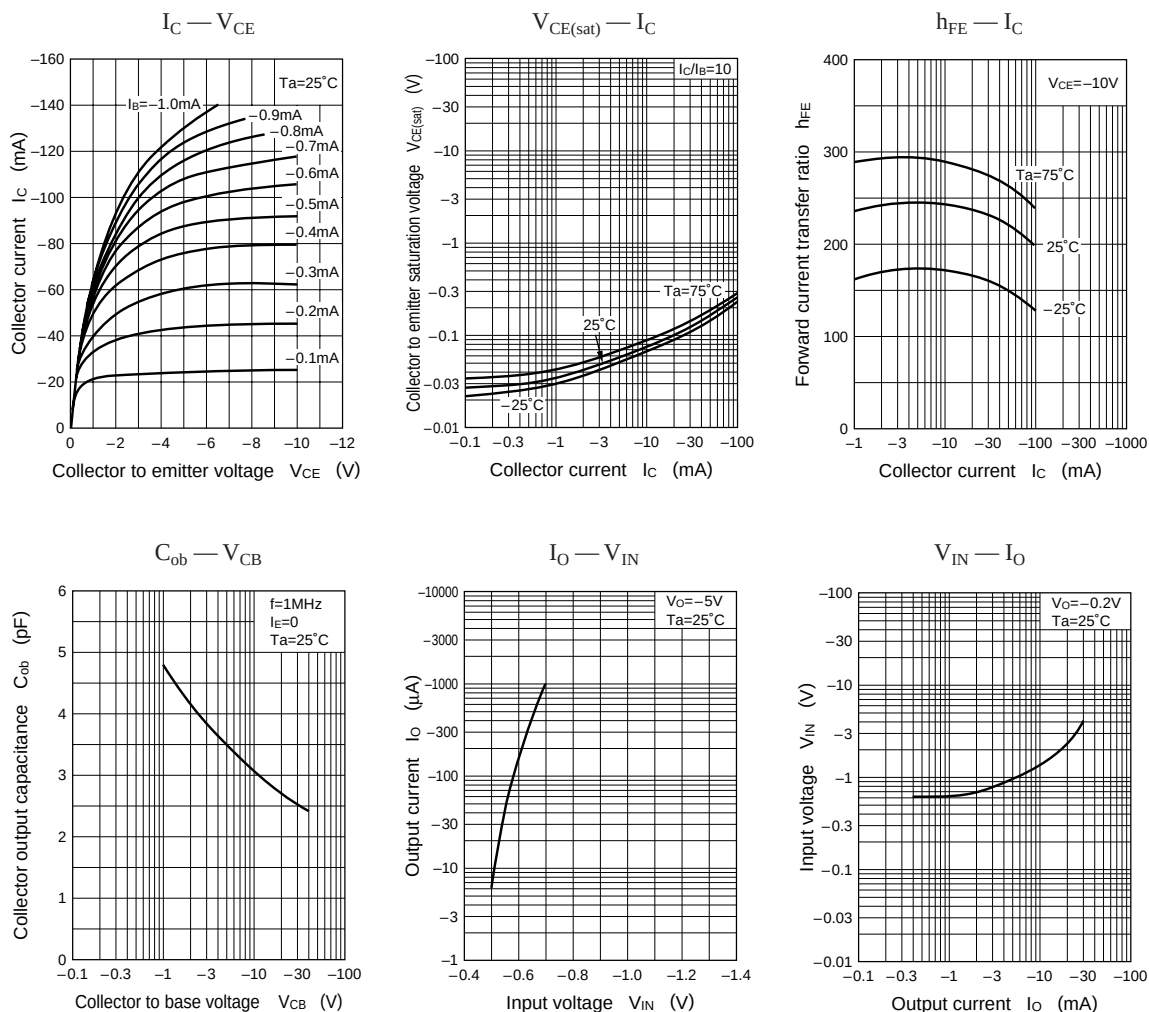




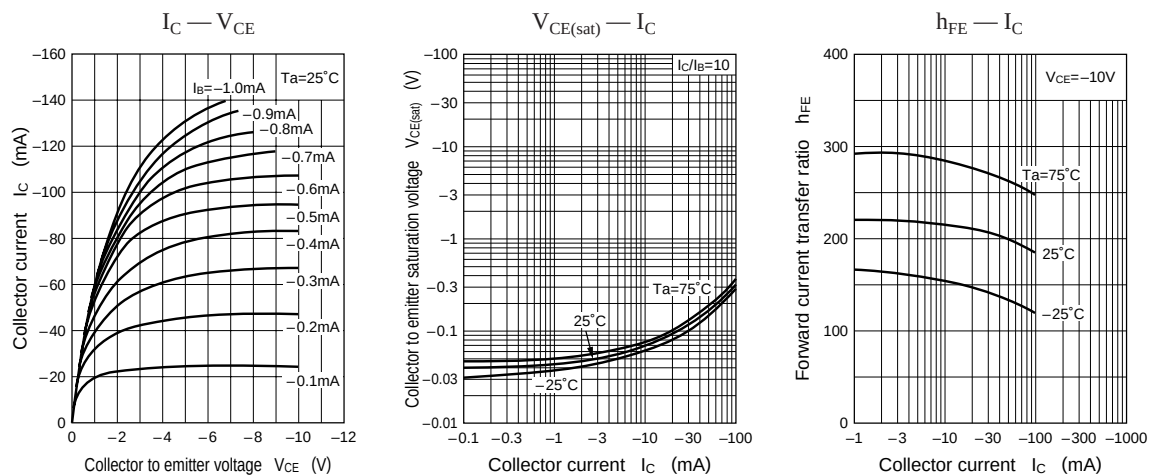
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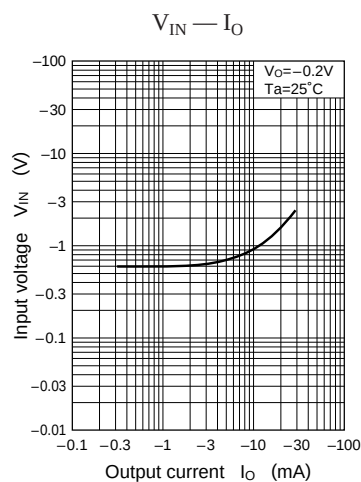
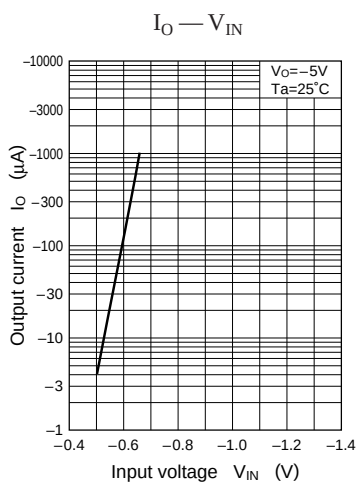
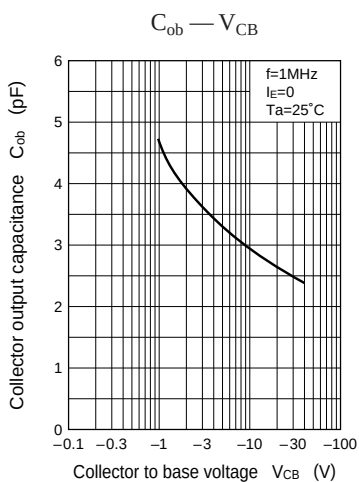


Characteristics charts of UN4115

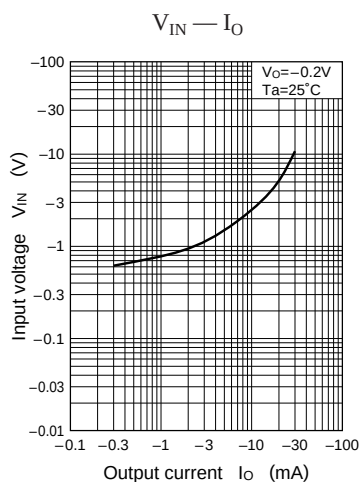
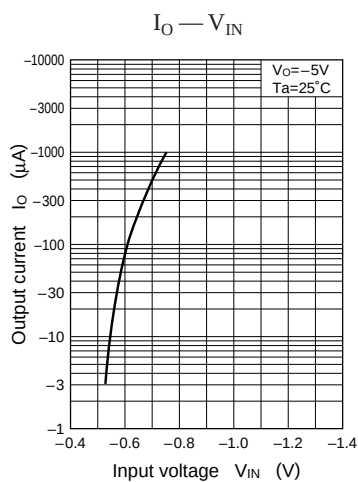
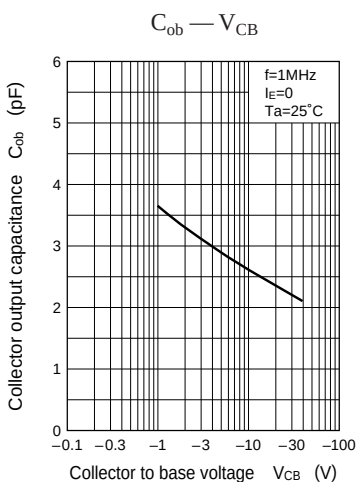
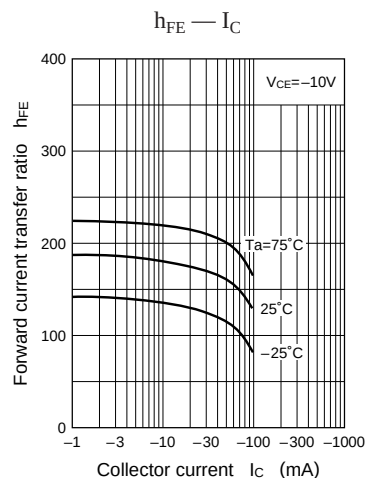
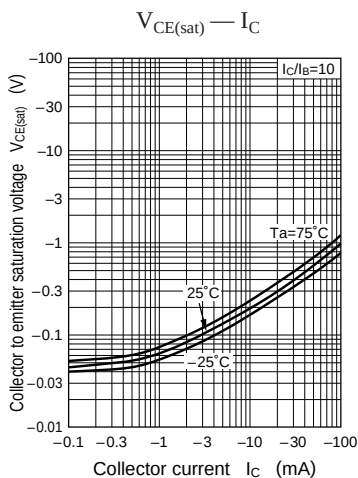
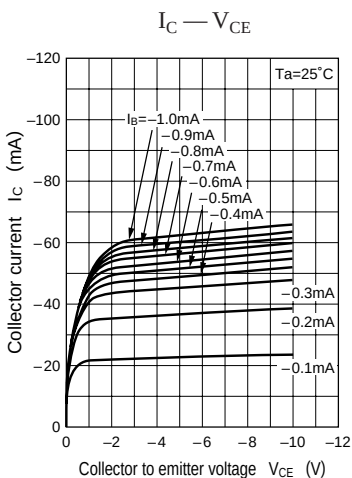


Characteristics charts of UN4116

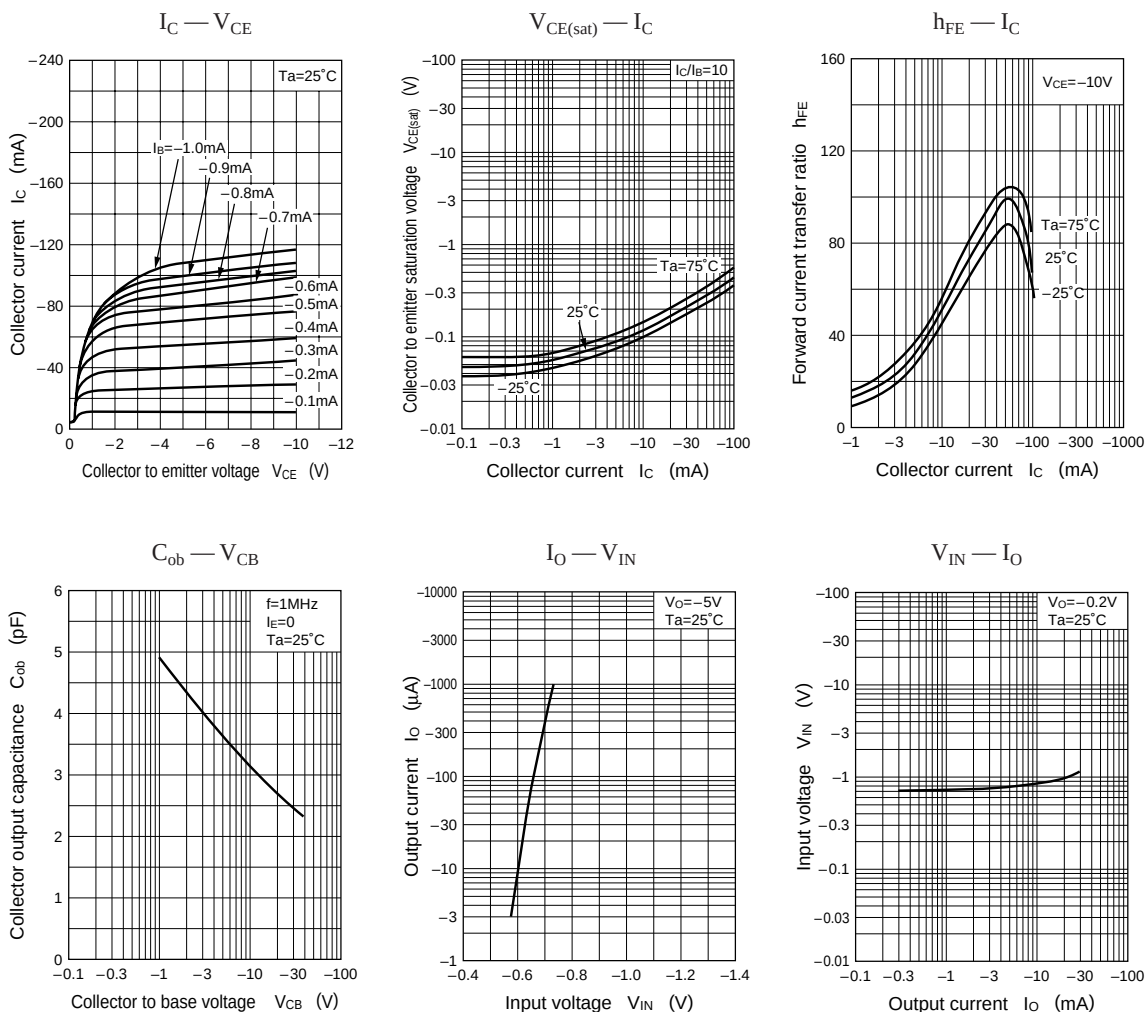




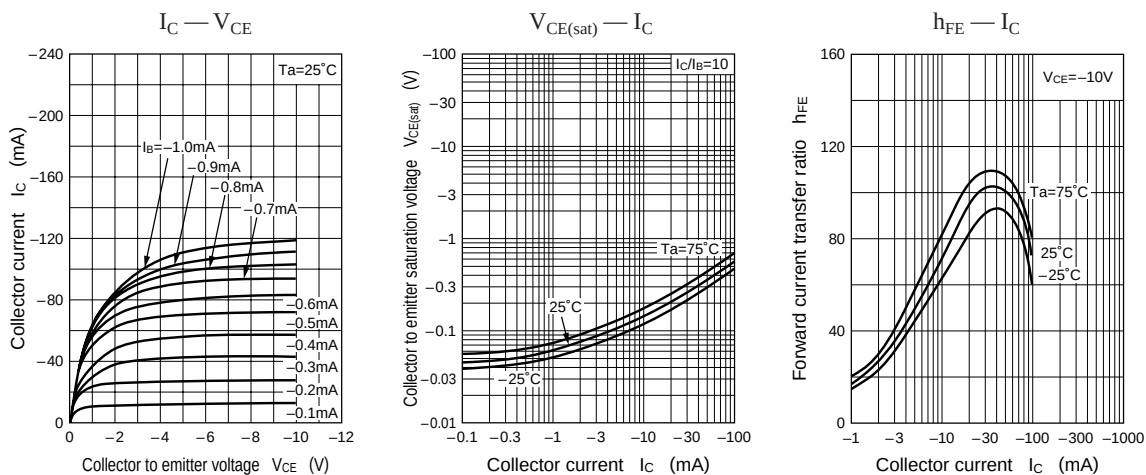
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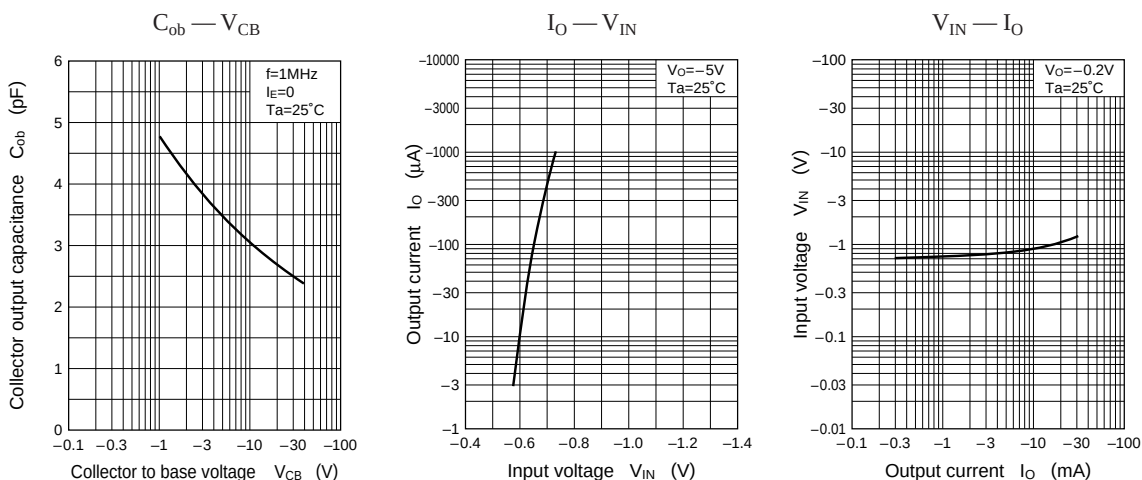


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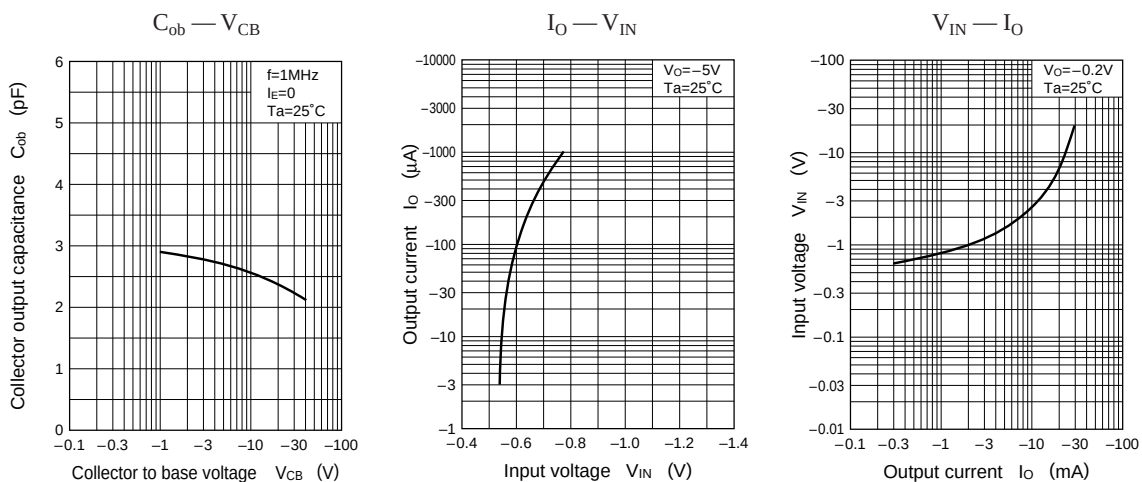
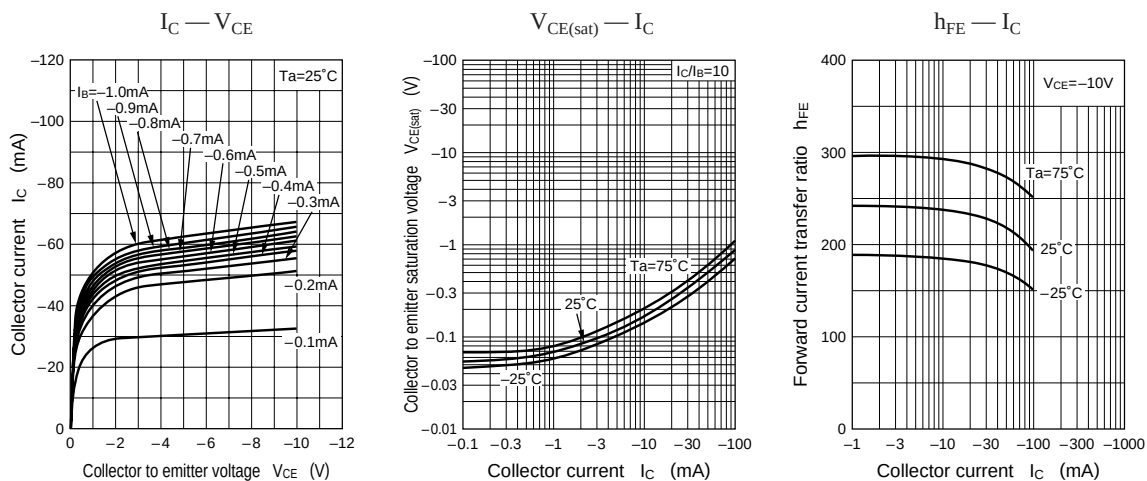


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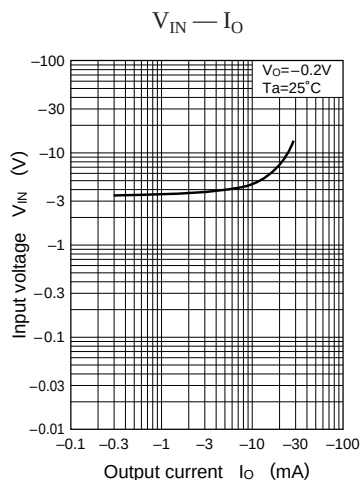
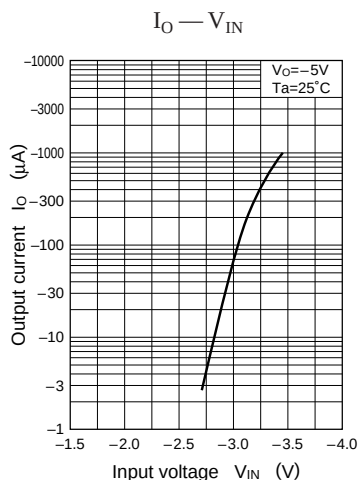
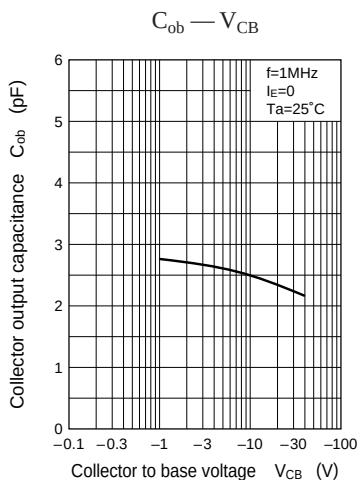
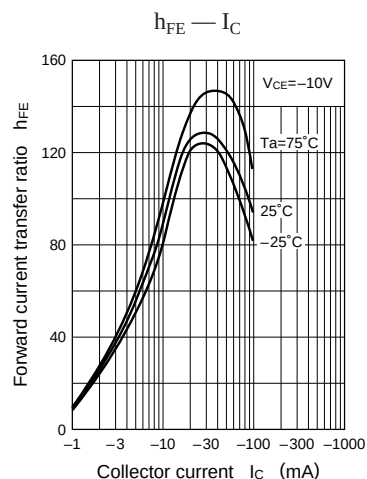
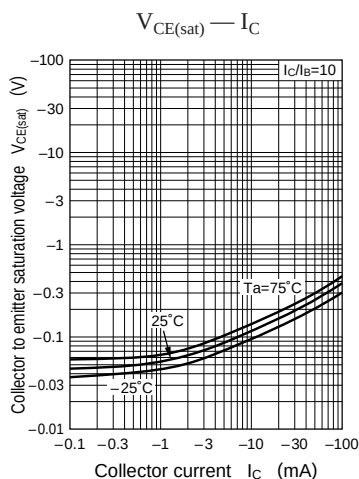
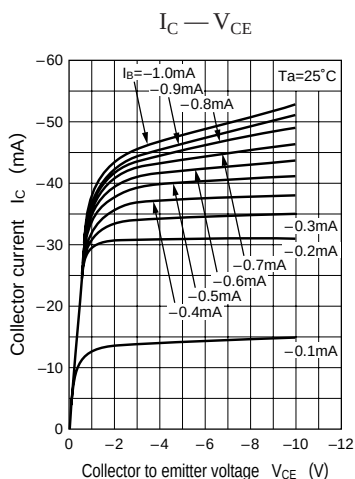




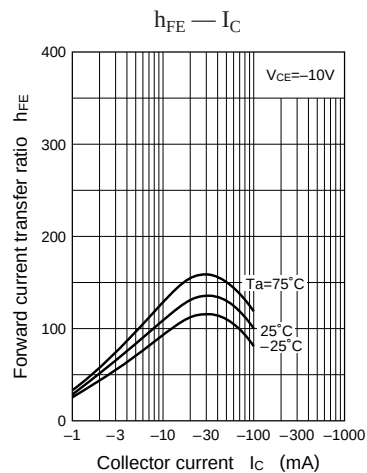
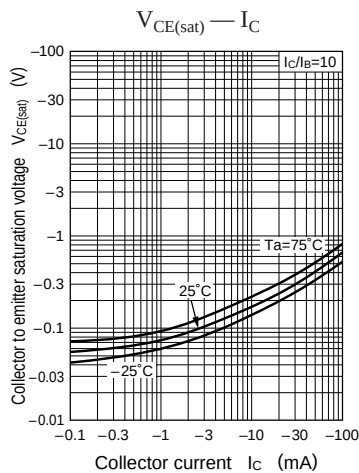
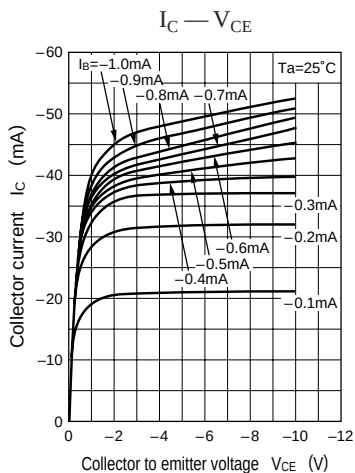
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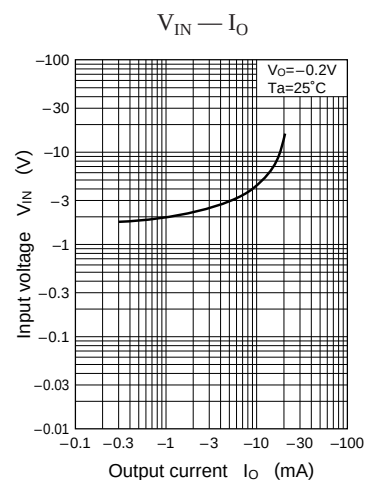
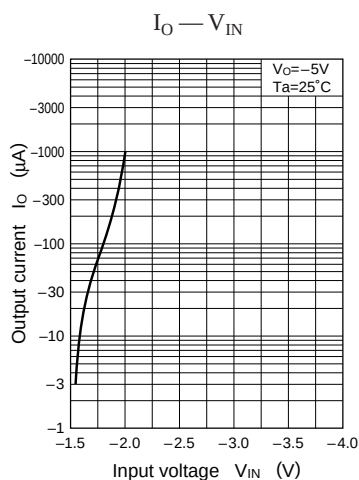
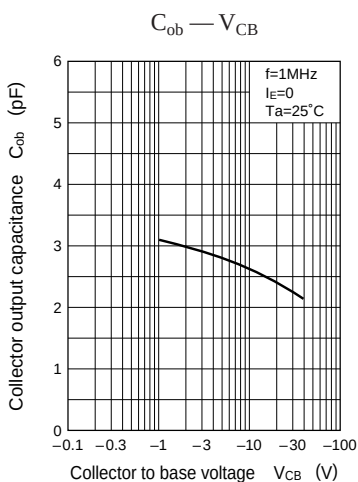


Characteristics charts of UN411D

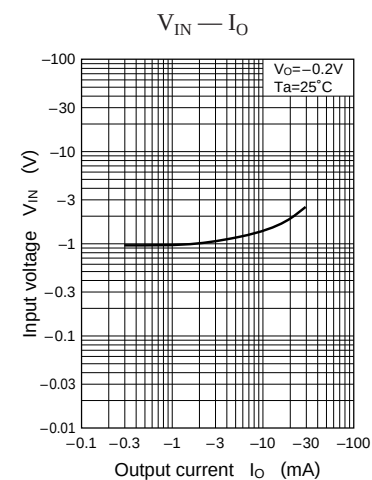
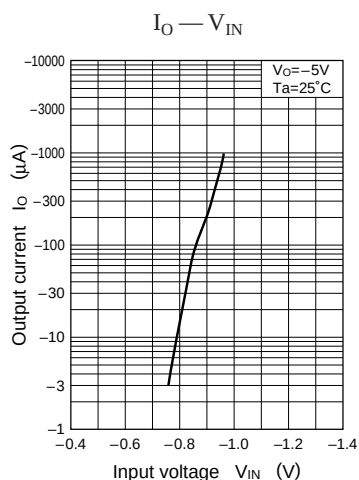
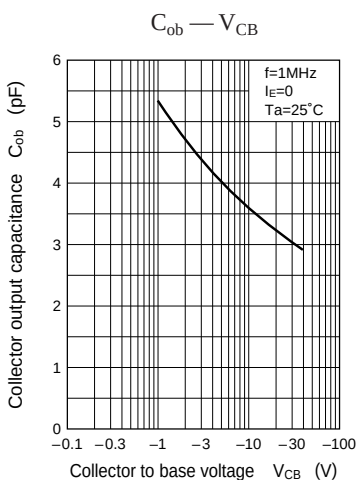
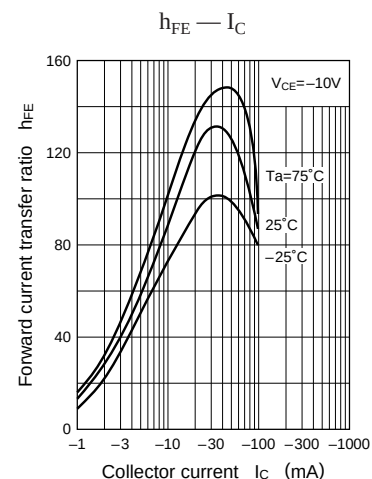
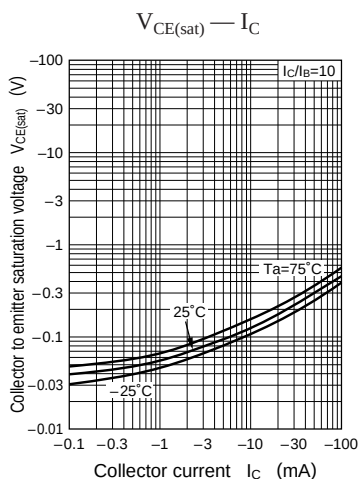
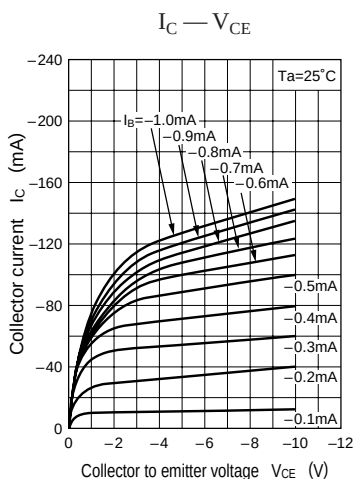


Characteristics charts of UN411E

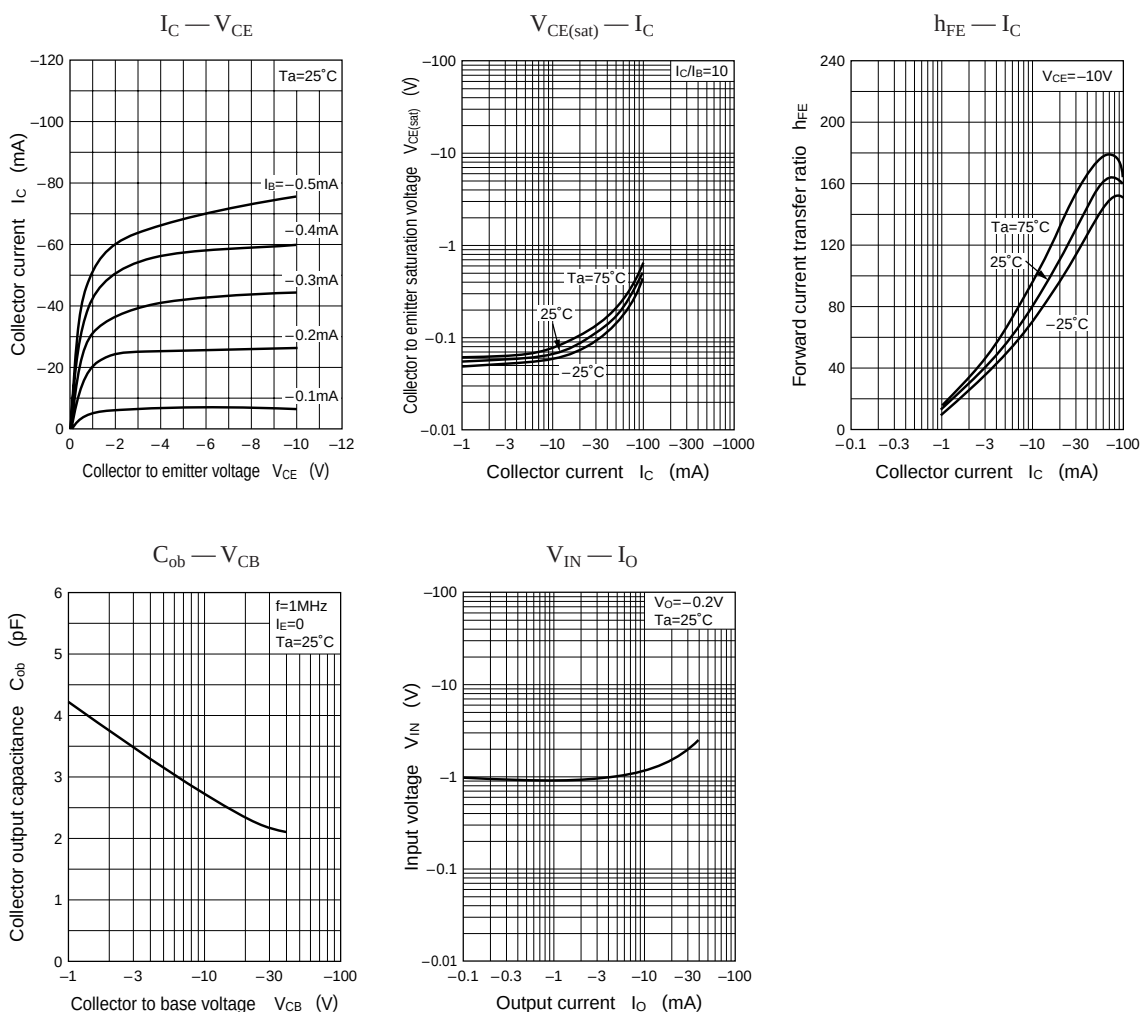




Characteristics charts of UN411F



Characteristics charts of UN411H



Characteristics charts of UN411L

