

UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/ 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

Silicon PNP epitaxial planer transistor

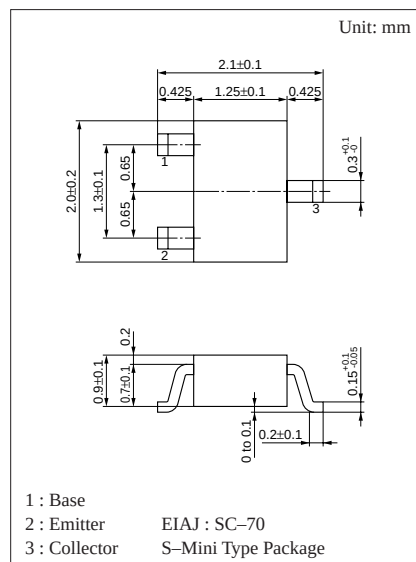
For digital circuits

Features

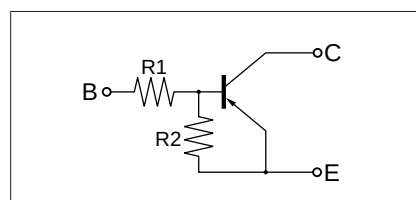
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- S-Mini type package, allowing automatic insertion through tape packing and magazine packing.

Resistance by Part Number

	Marking Symbol	(R ₁)	(R ₂)
• UN5111	6A	10kΩ	10kΩ
• UN5112	6B	22kΩ	22kΩ
• UN5113	6C	47kΩ	47kΩ
• UN5114	6D	10kΩ	47kΩ
• UN5115	6E	10kΩ	—
• UN5116	6F	4.7kΩ	—
• UN5117	6H	22kΩ	—
• UN5118	6I	0.51Ω	5.1kΩ
• UN5119	6K	1kΩ	10kΩ
• UN5110	6L	47kΩ	—
• UN511D	6M	47kΩ	10kΩ
• UN511E	6N	47kΩ	22kΩ
• UN511F	6O	4.7kΩ	10kΩ
• UN511H	6P	2.2kΩ	10kΩ
• UN511L	6Q	4.7kΩ	4.7kΩ
• UN511M	EI	2.2kΩ	47kΩ
• UN511N	EW	4.7kΩ	47kΩ
• UN511T	EY	22kΩ	47kΩ
• UN511V	FC	2.2kΩ	2.2kΩ
• UN511Z	FE	4.7kΩ	22kΩ



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	150	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{sig}	-55 to +150	°C

UN5111/5112/5113/5114/5115/5116/5117/5118/5119/5110/
Transistors with built-in Resistor 511D/511E/511F/511H/511L/511M/511N/511T/511V/511Z

■ 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	UN5111	I _{EBO}	V _{EB} = −6V, I _C = 0			− 0.5	mA
	UN5112/5114/511E/511D/511M/511N/511T					− 0.2	
	UN5113					− 0.1	
	UN5115/5116/5117/5110					− 0.01	
	UN511F/511H					−1.0	
	UN5119					−1.5	
	UN5118/511L/511V					−2.0	
	UN511Z					− 0.4	
Collector to base voltage		V _{CBO}	I _C = −10μA, I _E = 0	−50			V
UN511N/511T/511V/511Z				−50			
Collector to emitter voltage		V _{CEO}	I _C = −2mA, I _B = 0	−50			V
UN511N/511T				−50			
Forward current transfer ratio	UN5111	h _{FE}	V _{CE} = −10V, I _C = −5mA	35			
	UN5112/511E			60			
	UN5113/5114/511M			80			
	UN5115*/5116*/5117*/5110*			160		460	
	UN511F/511D/5119/511H			30			
	UN5118/511L			20			
	UN511N/511T			80		400	
	UN511V			6		20	
	UN511Z			60		200	
	Collector to emitter saturation voltage			V _{CE(sat)}	I _C = −10mA, I _B = − 0.3mA		
UN511V		I _C = −10mA, I _B = −1.5mA				− 0.25	
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
UN511Z			V _{CB} = −10V, I _E = 1mA, f = 200MHz		150		
Input resistance	UN5111/5114/5115	R ₁		(−30%)	10	(+30%)	kΩ
	UN5112/5117/511T				22		
	UN5113/5110/511D/511E				47		
	UN5116/511F/511L/511N/511Z				4.7		
	UN5118				0.51		
	UN5119				1		
	UN511H/511M/511V				2.2		

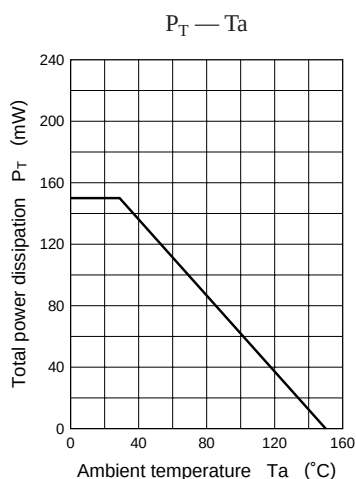
* h_{FE} rank classification (UN5115/5116/5117/5110)

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

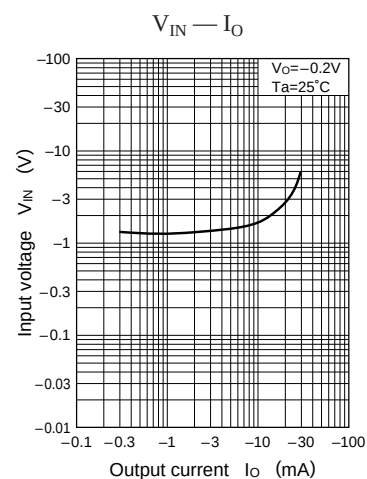
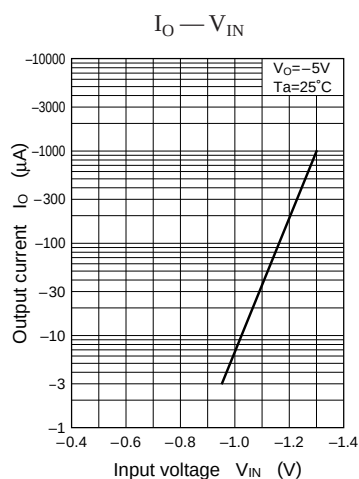
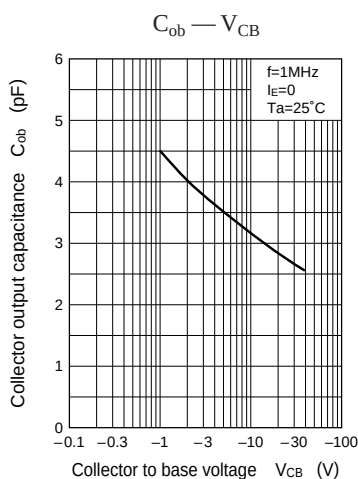
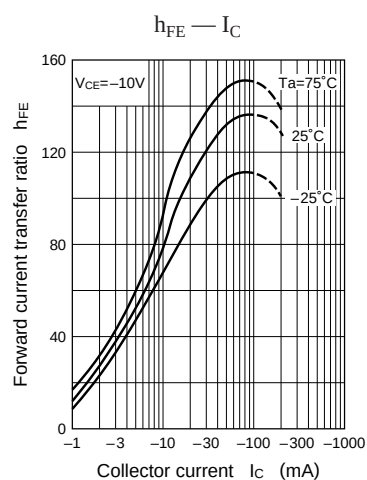
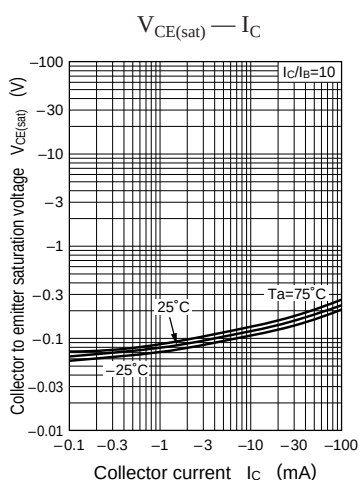
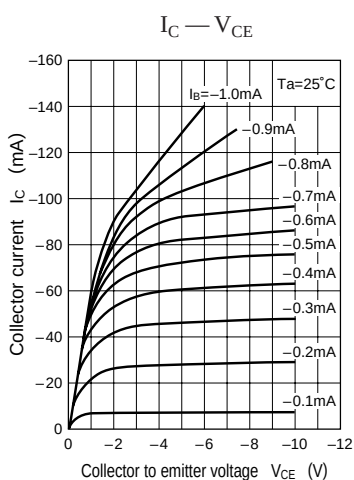
■ Electrical Characteristics (continued) (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Resis- tance ratio	UN5111/5112/5113/511L	R_1/R_2		0.8	1.0	1.2	
	UN5114			0.17	0.21	0.25	
	UN5118/5119			0.08	0.1	0.12	
	UN511D				4.7		
	UN511E				2.14		
	UN511F/511T				0.47		
	UN511H			0.17	0.22	0.27	
	UN511M				0.047		
	UN511N				0.1		
	UN511V				1.0		
	UN511Z				0.21		

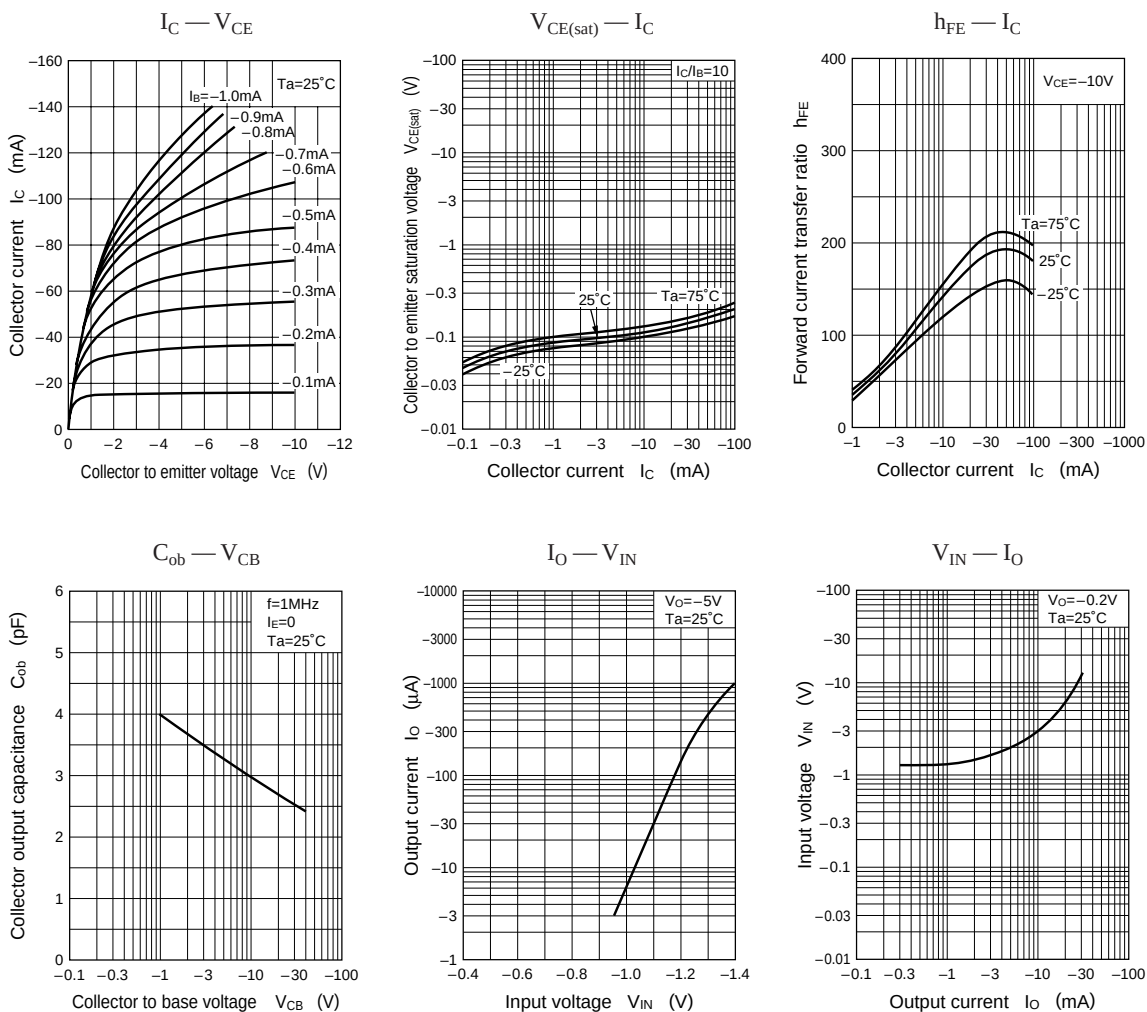
Common characteristics chart



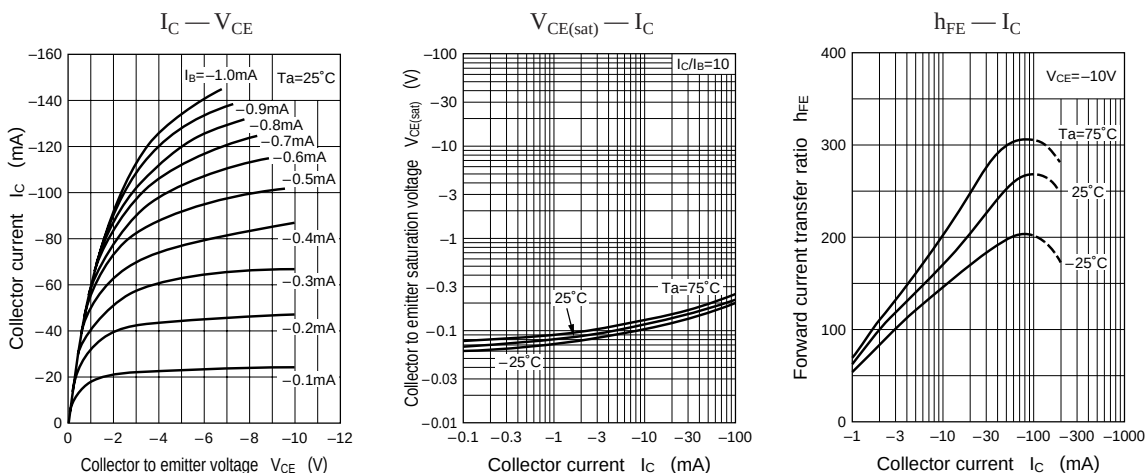
Characteristics charts of UN5111

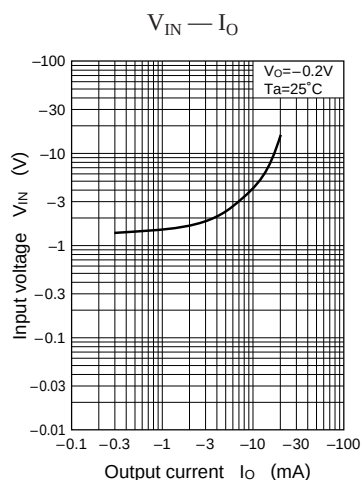
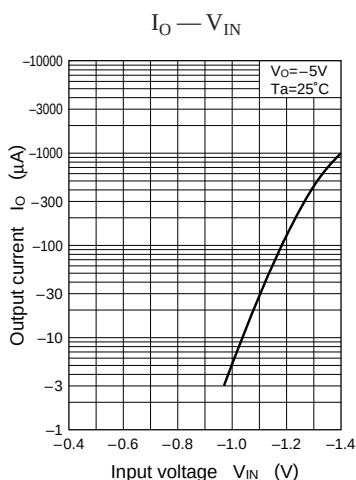
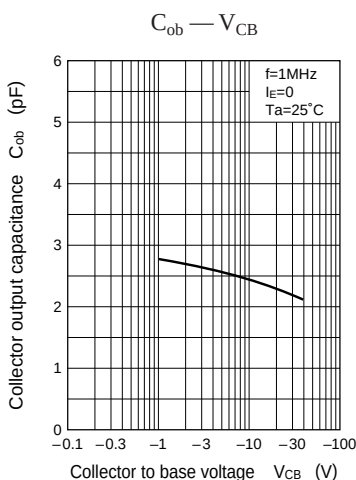


Characteristics charts of UN5112

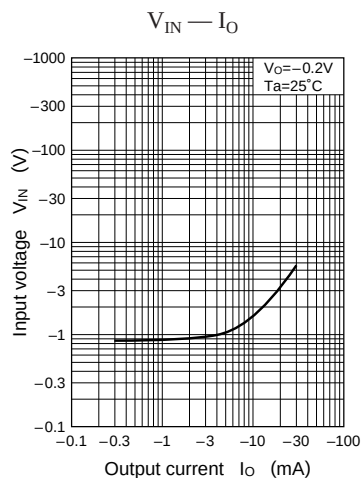
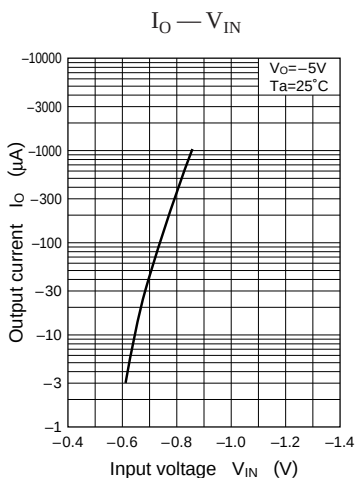
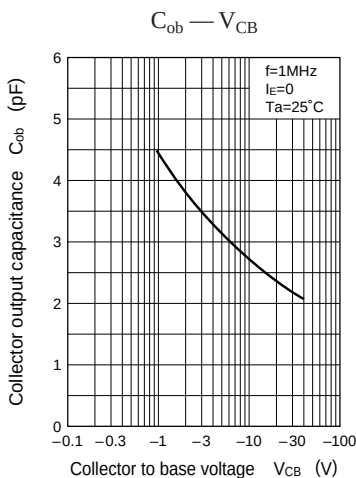
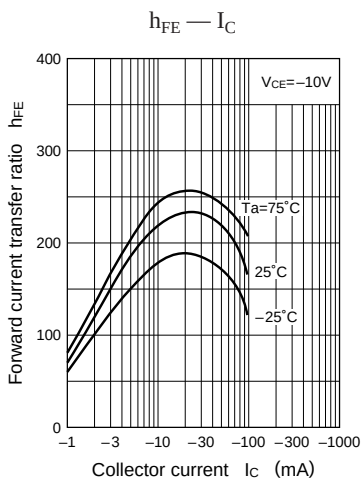
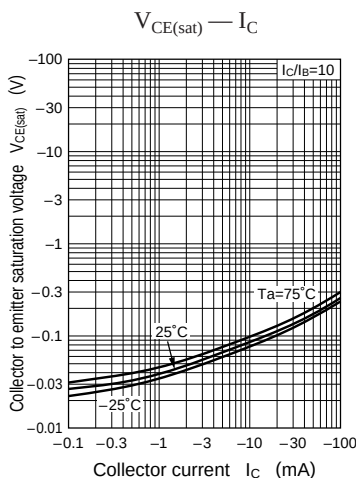
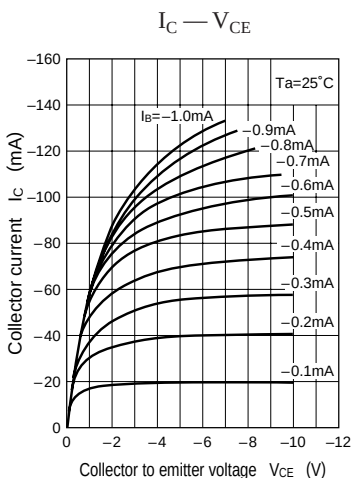


Characteristics charts of UN5113

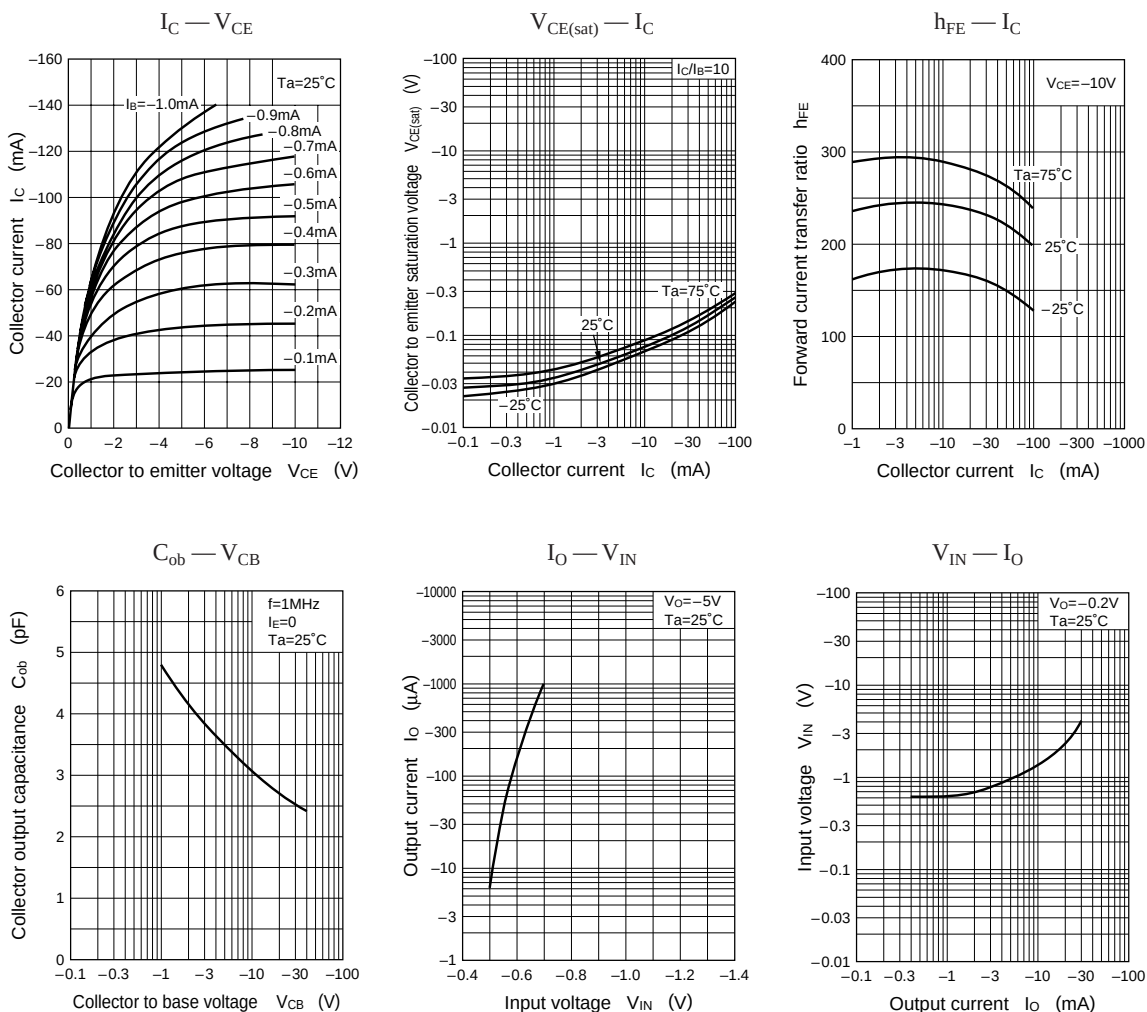




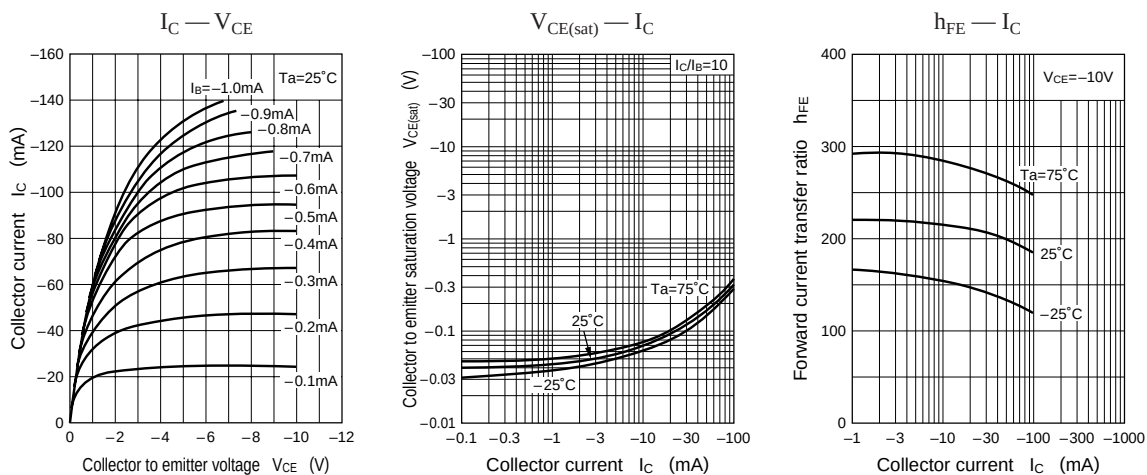
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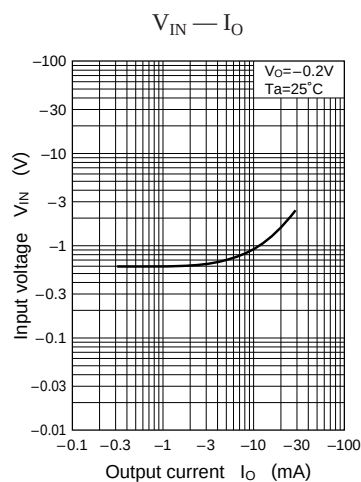
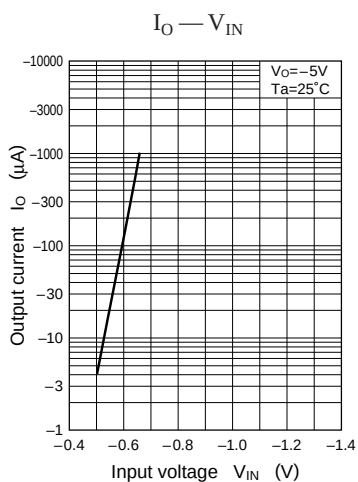
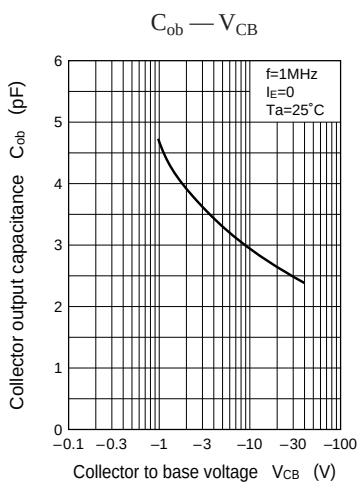


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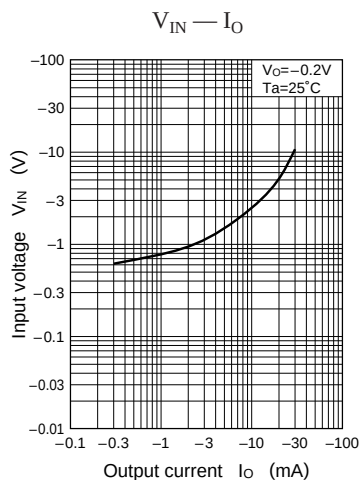
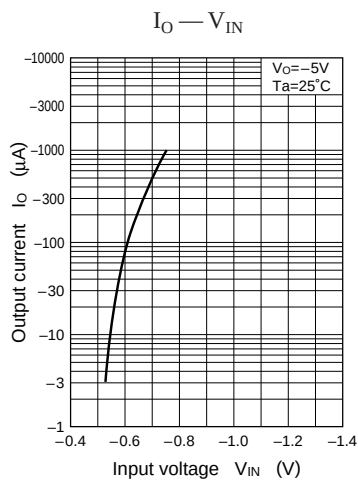
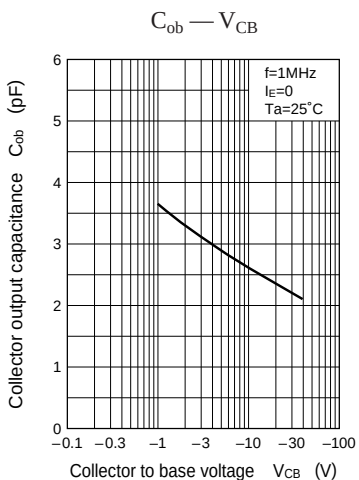
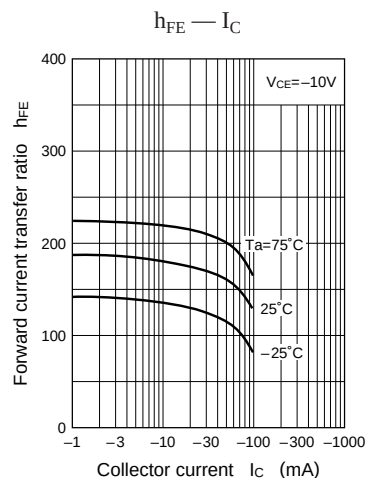
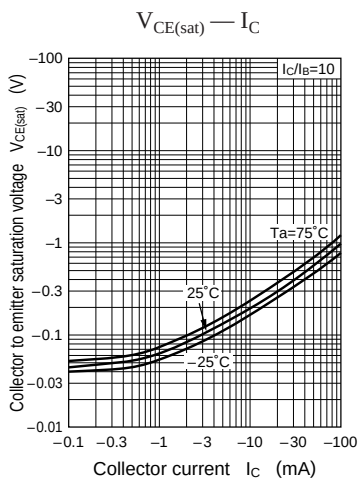
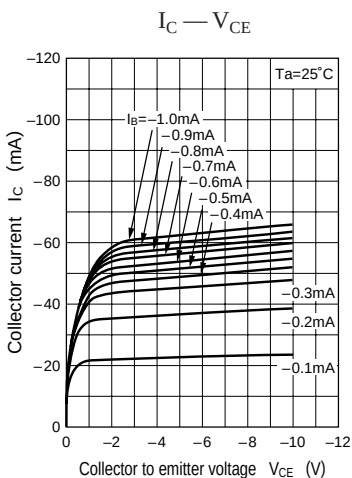


Characteristics charts of UN5116

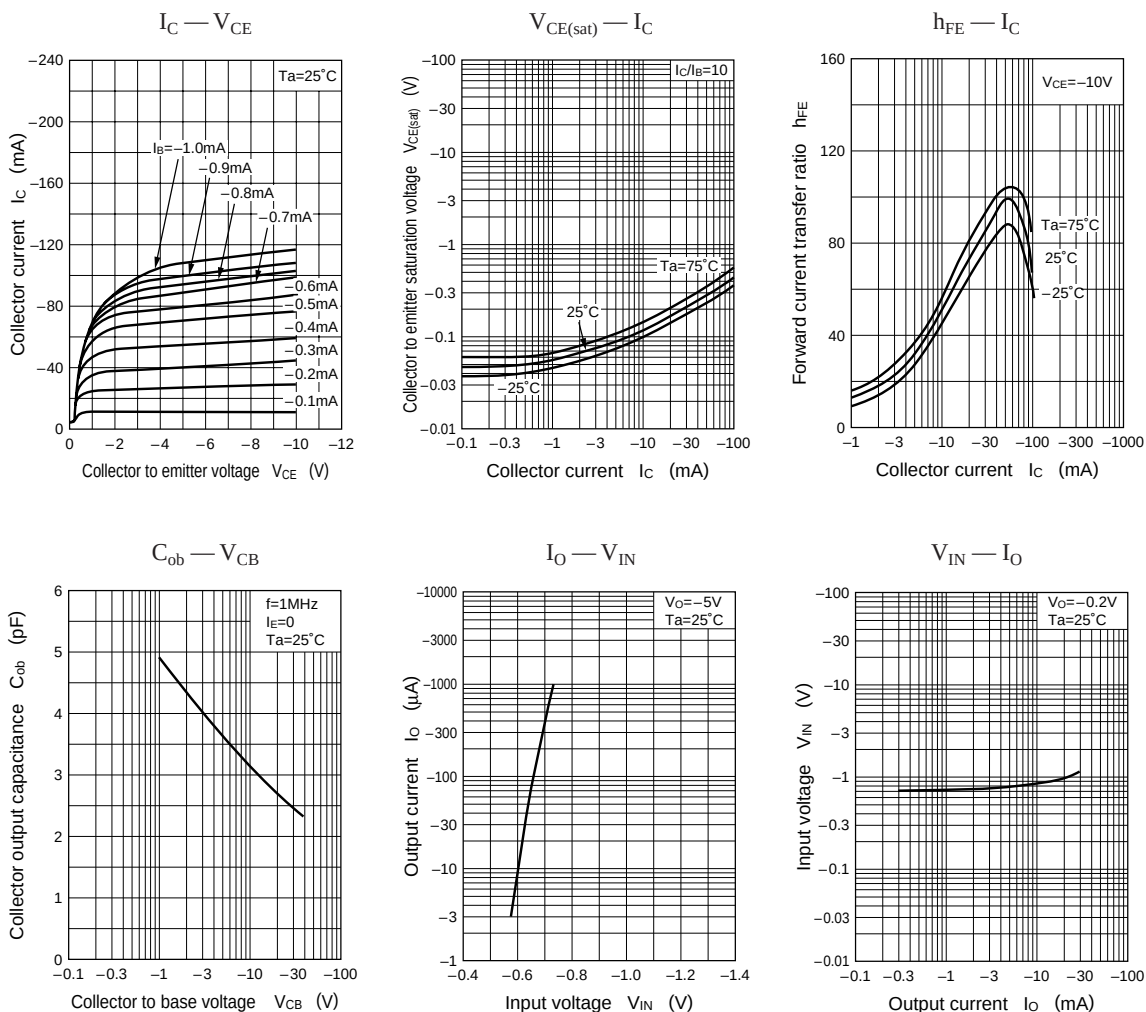




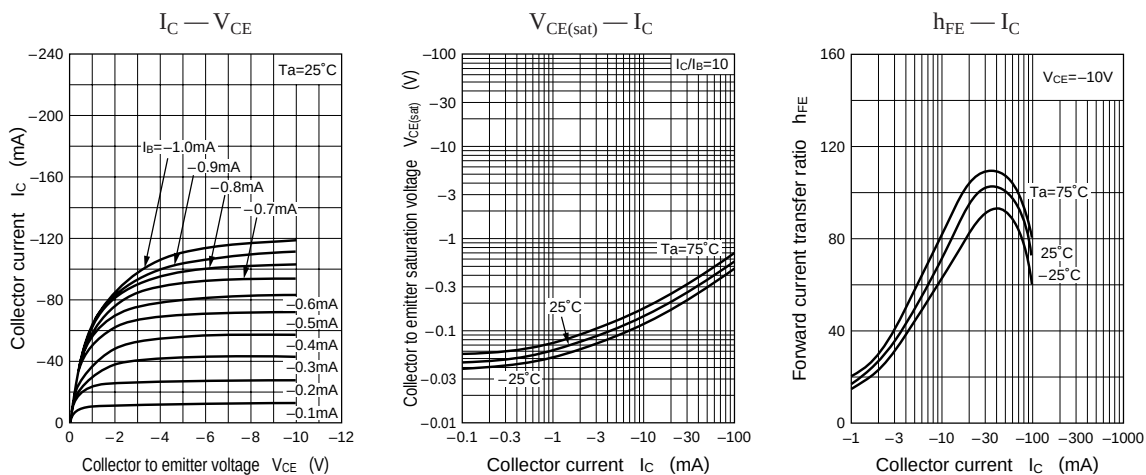
Characteristics charts of UN5117

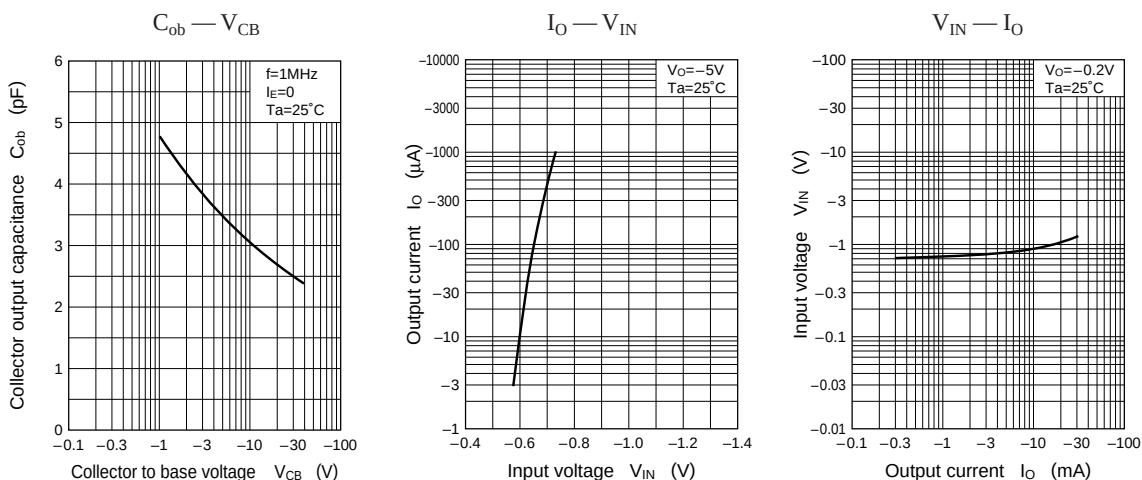


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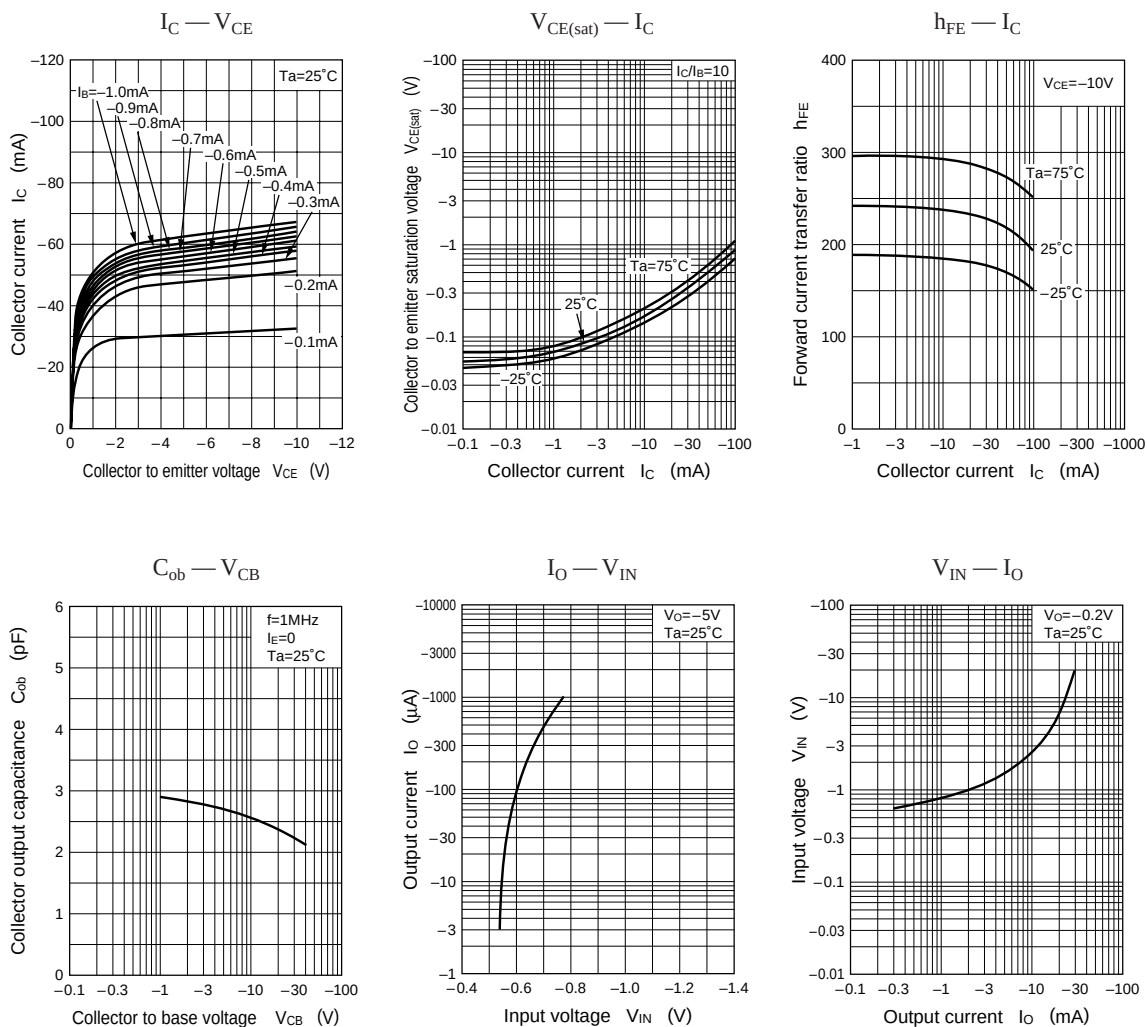


Characteristics charts of UN5119

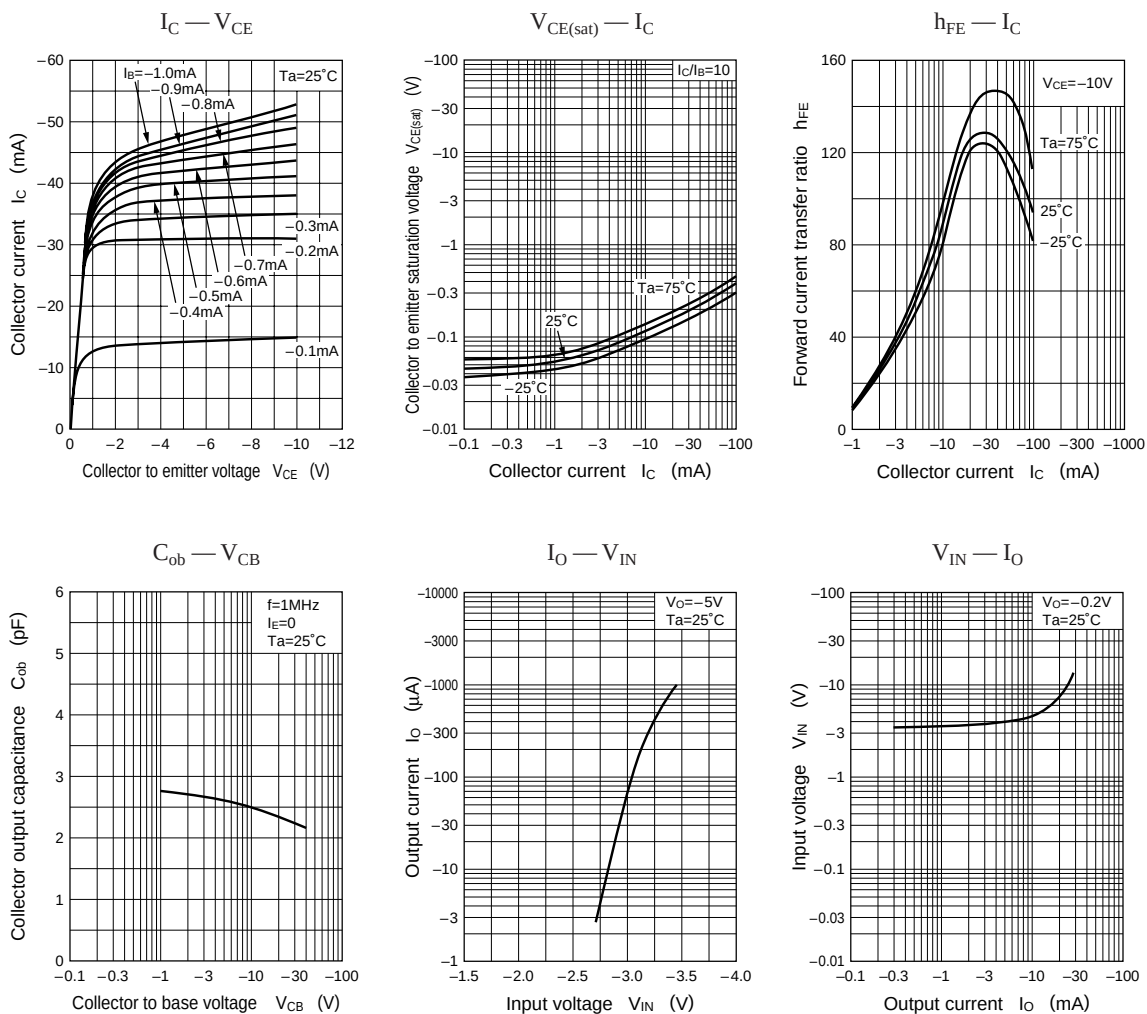




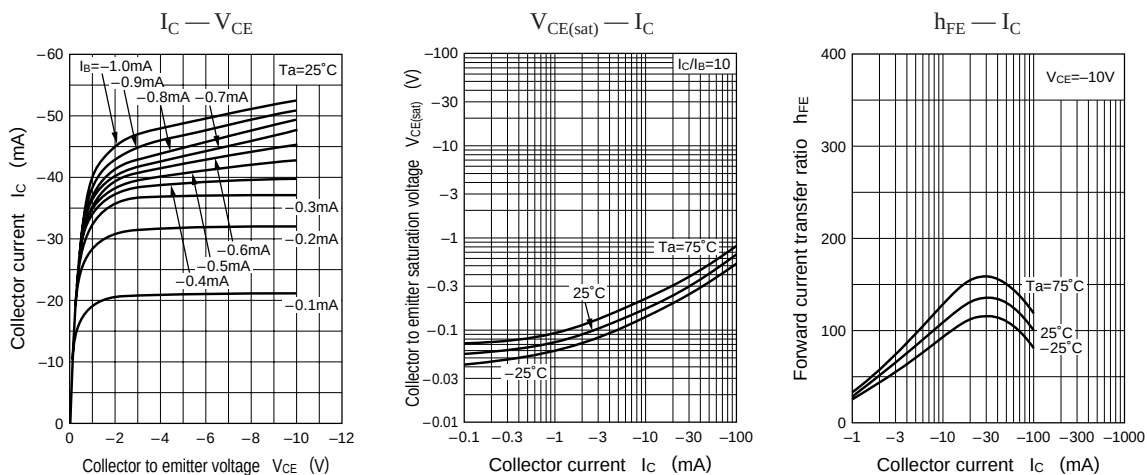
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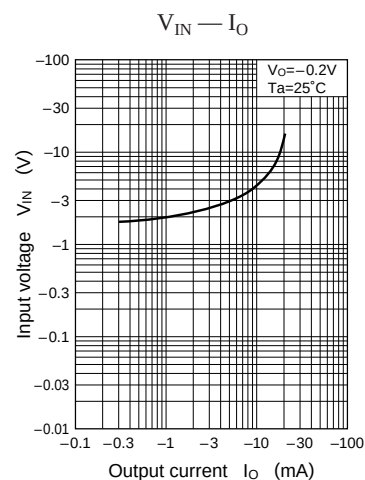
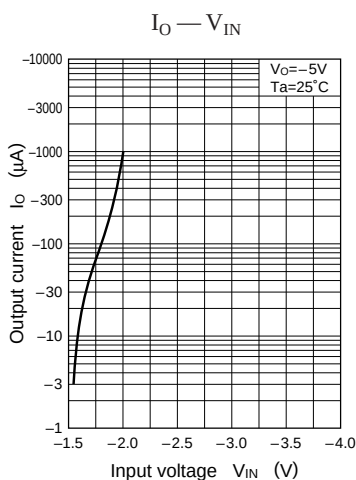
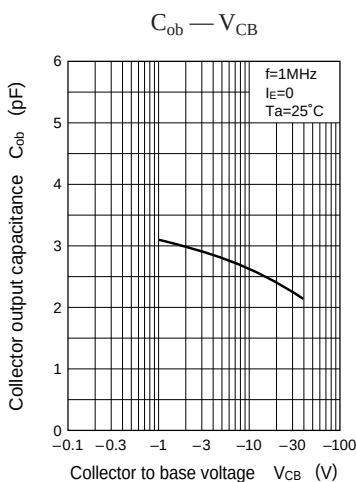


Characteristics charts of UN511D

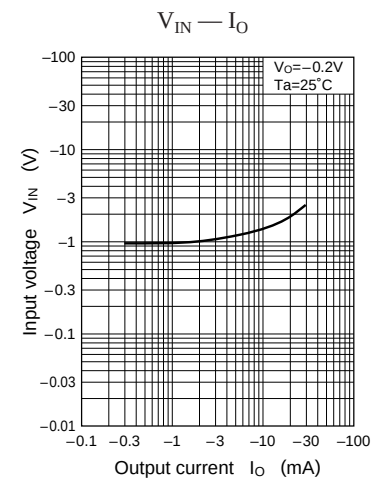
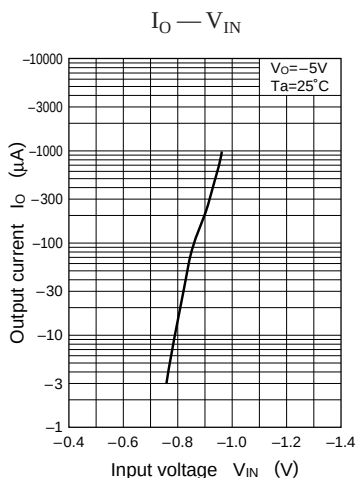
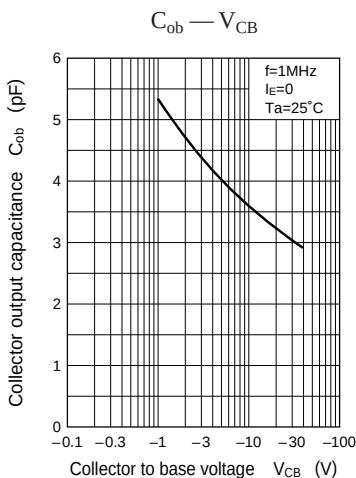
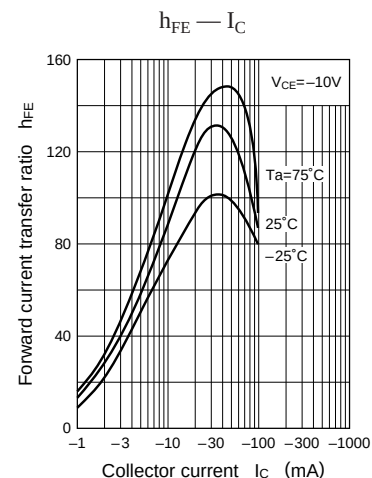
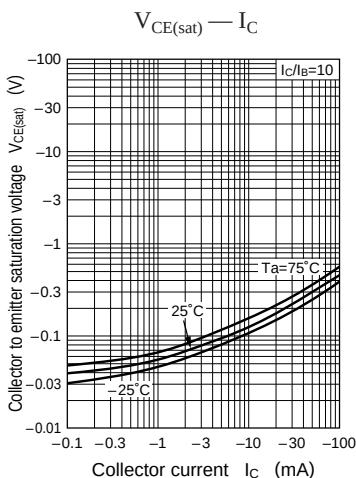
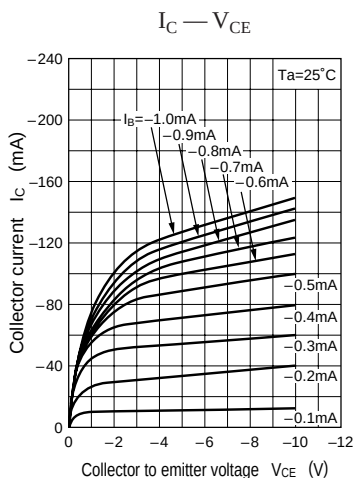


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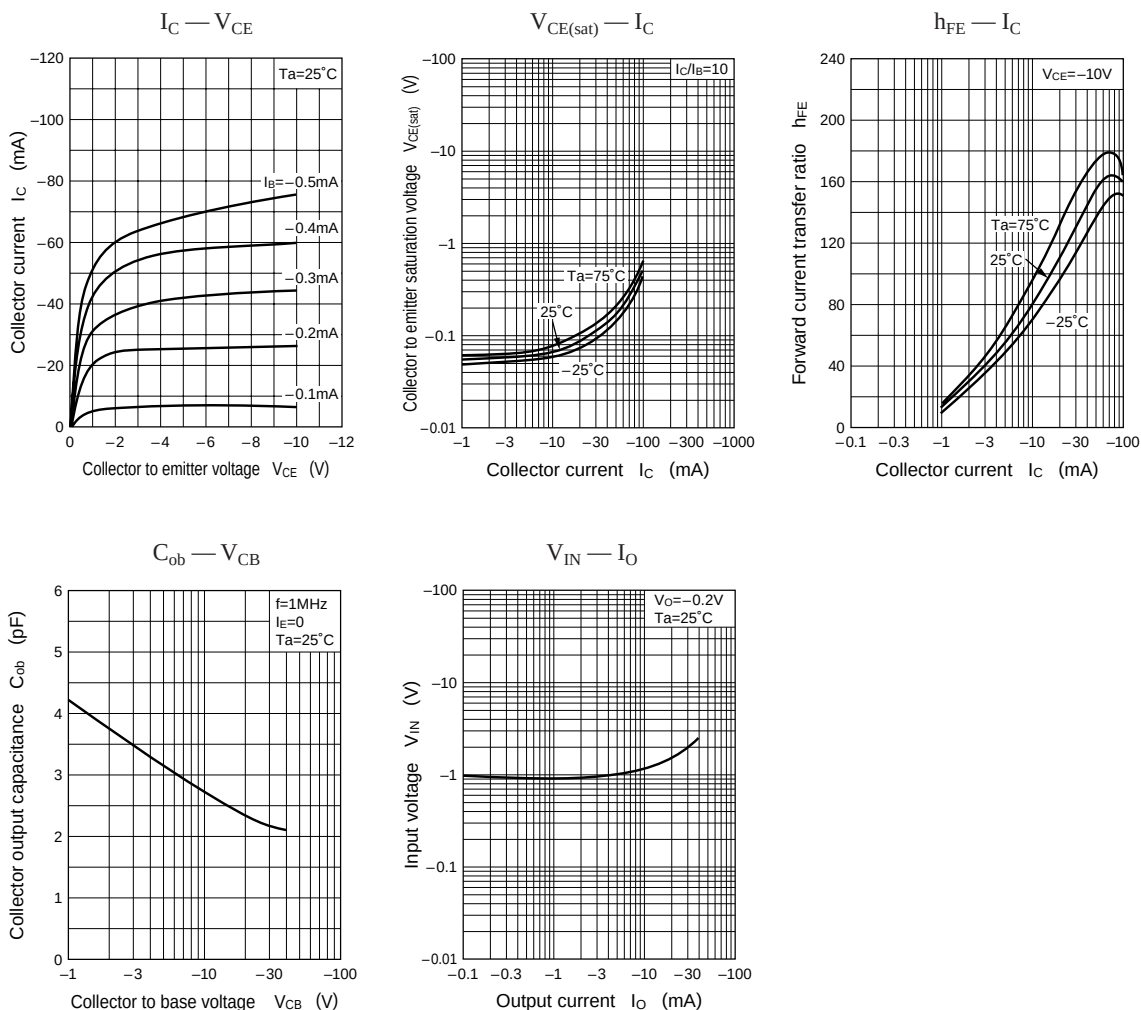




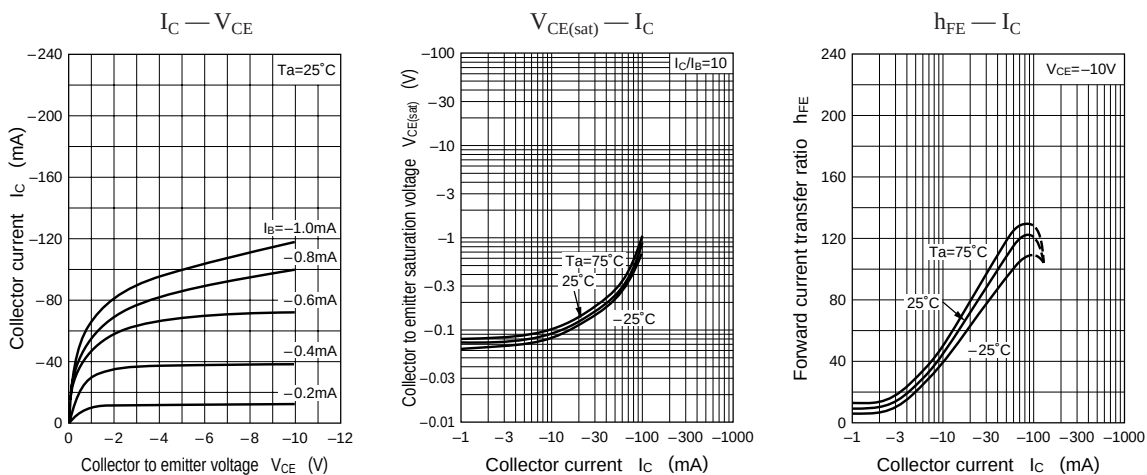
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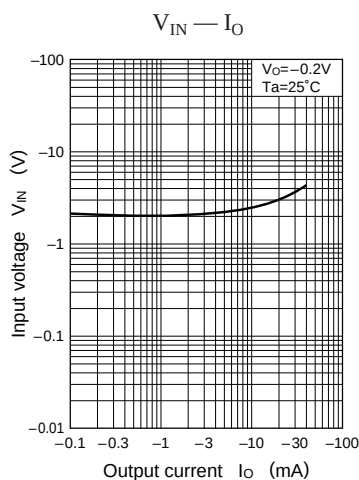
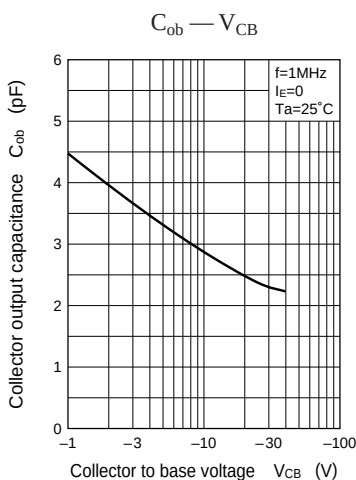


Characteristics charts of UN511H

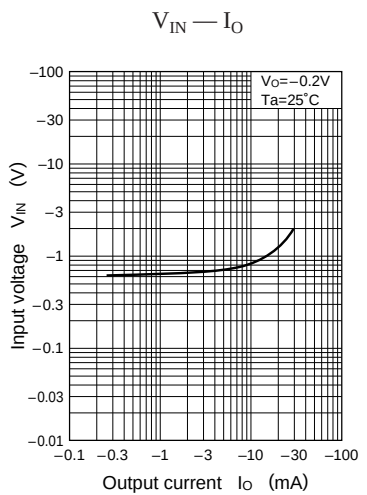
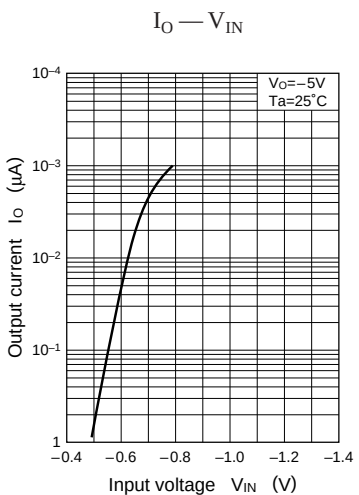
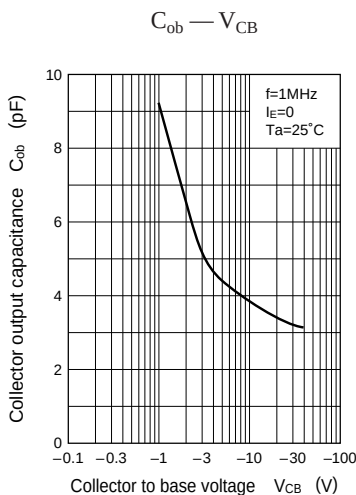
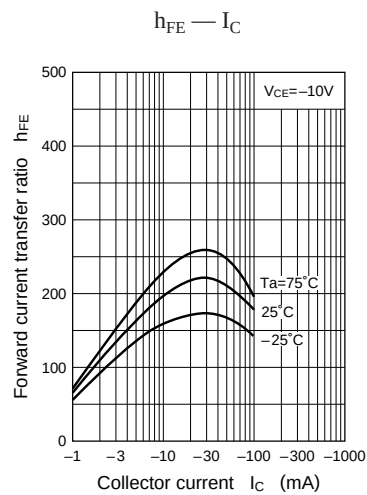
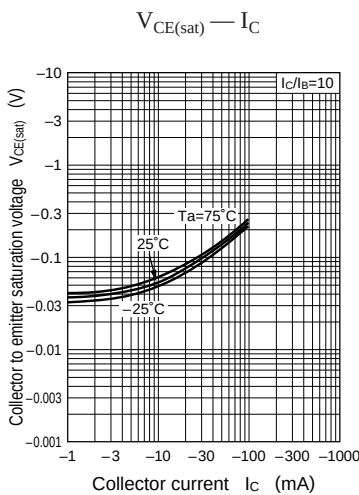
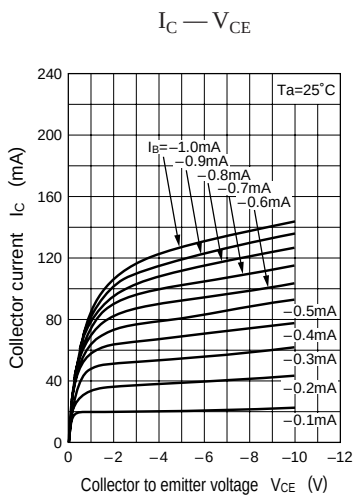


Characteristics charts of UN511L

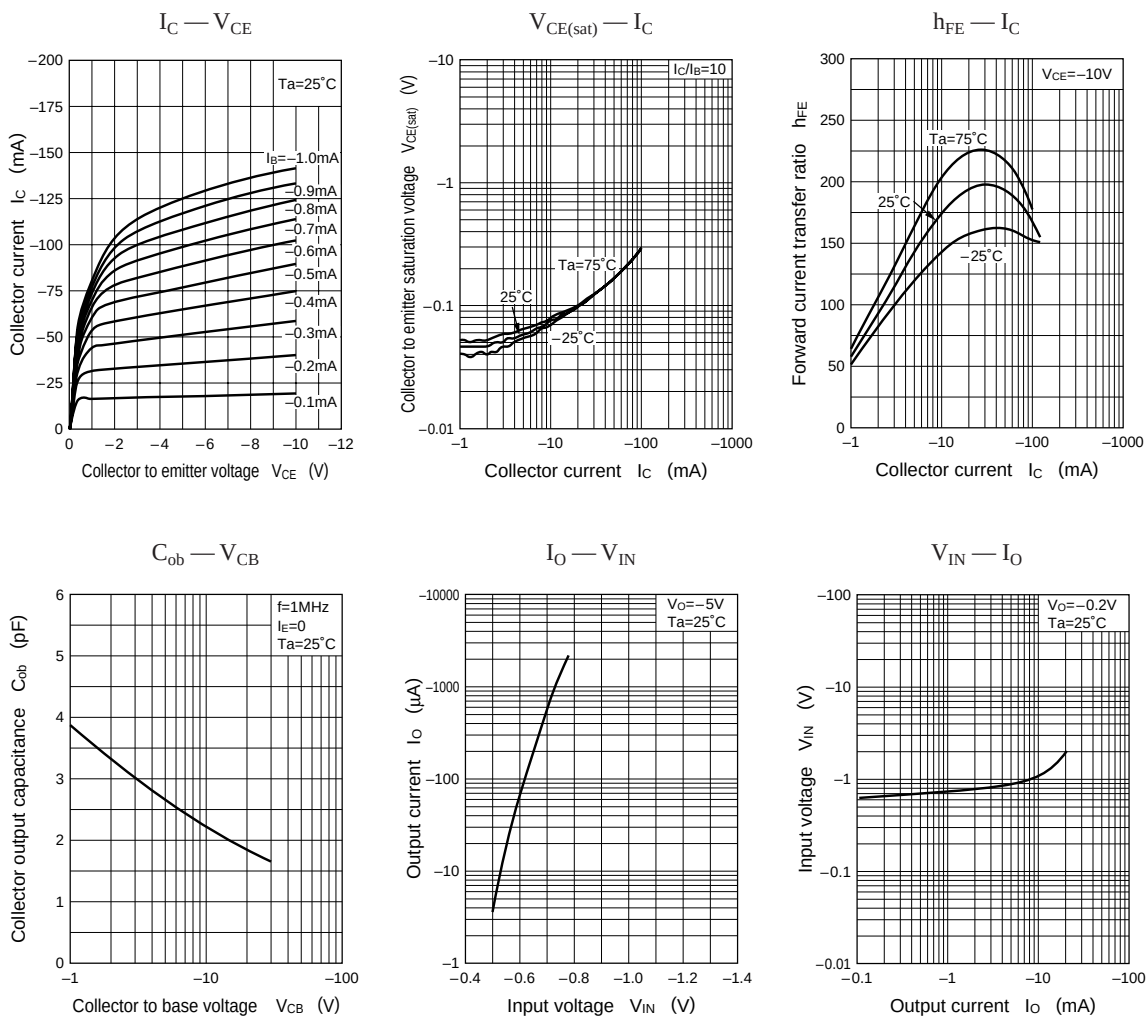




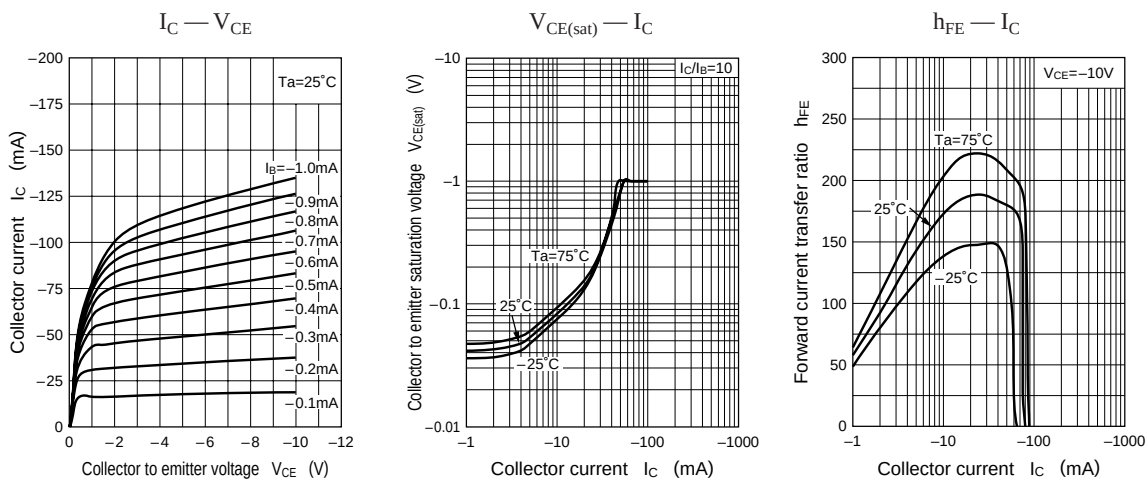
Characteristics charts of UN511M

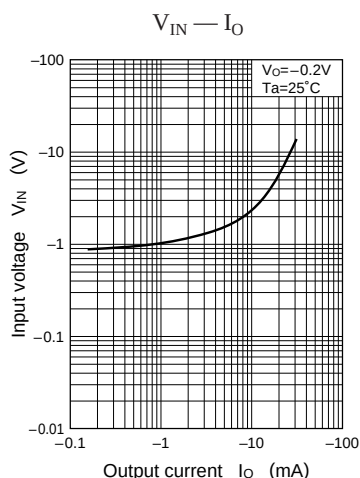
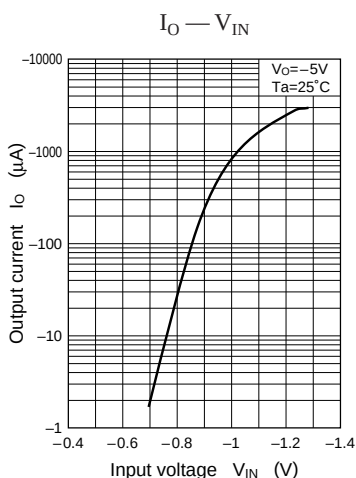


Characteristics charts of UN511N

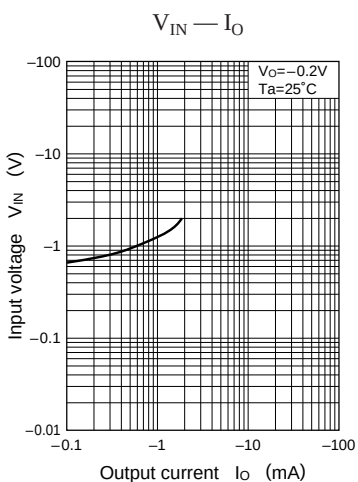
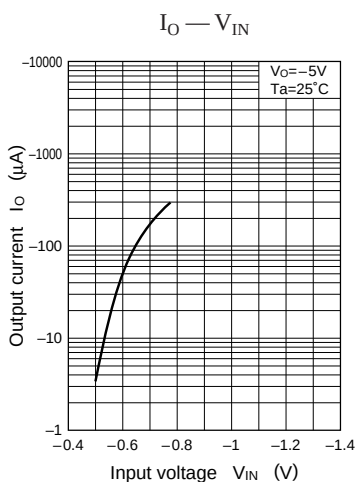
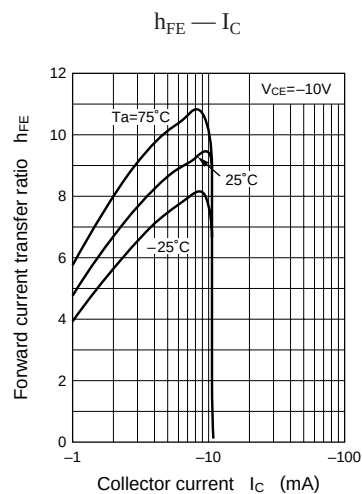
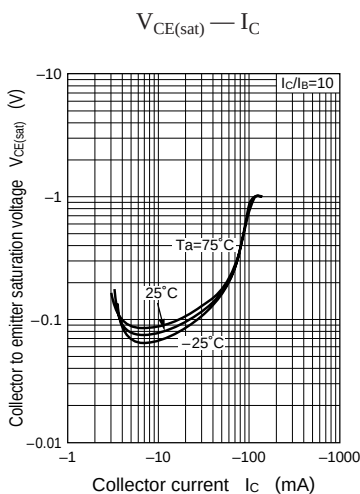
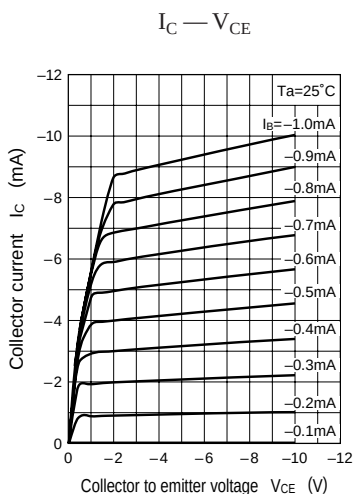


Characteristics charts of UN511T





Characteristics charts of UN511V



Characteristics charts of UN511Z

