

UN9111/9112/9113/9114/9115/9116/9117/9118/9119/9110/ 911D/911E/911F/911H/911L/UNR911AJ/911BJ/911CJ

Silicon PNP epitaxial planer transistor

For digital circuits

Features

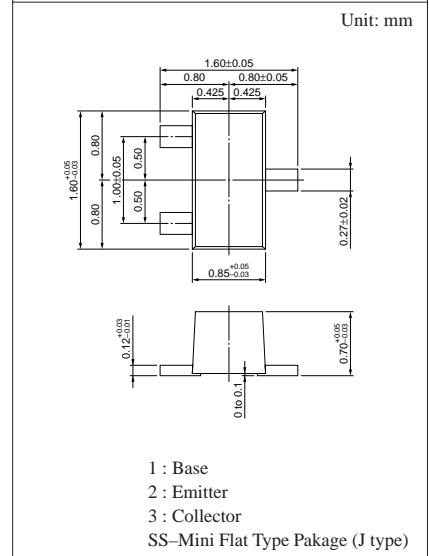
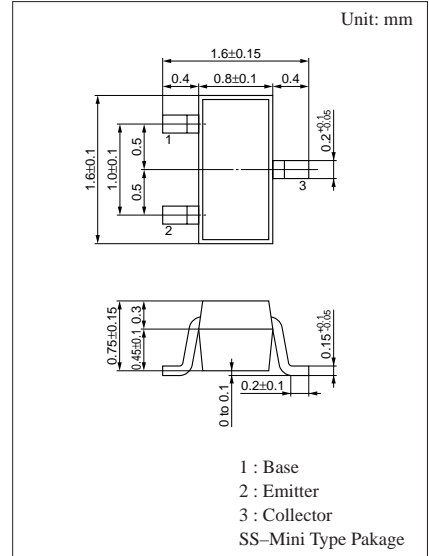
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-Mini type package, allowing automatic insertion through tape packing and magazine packing.

Resistance by Part Number

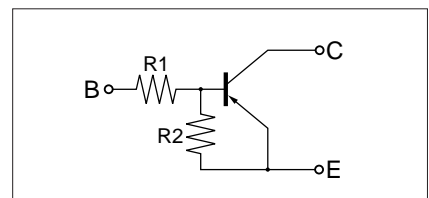
	Marking Symbol	(R ₁)	(R ₂)
• UN9111	6A	10kΩ	10kΩ
• UN9112	6B	22kΩ	22kΩ
• UN9113	6C	47kΩ	47kΩ
• UN9114	6D	10kΩ	47kΩ
• UN9115	6E	10kΩ	—
• UN9116	6F	4.7kΩ	—
• UN9117	6H	22kΩ	—
• UN9118	6I	0.51kΩ	5.1kΩ
• UN9119	6K	1kΩ	10kΩ
• UN9110	6L	47kΩ	—
• UN911D	6M	47kΩ	10kΩ
• UN911E	6N	47kΩ	22kΩ
• UN911F	6O	4.7kΩ	10kΩ
• UN911H	6P	2.2kΩ	10kΩ
• UN911L	6Q	4.7kΩ	4.7kΩ
• UNR911AJ	6X	100kΩ	100kΩ
• UNR911BJ	6Y	100kΩ	—
• UNR911CJ	6Z	—	47kΩ

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	125	mW
Junction temperature	T _j	125	°C
Storage temperature	T _{stg}	-55 to +125	°C



Internal Connection



UN9111/9112/9113/9114/9115/9116/9117/9118/9119/9110/
Transistors with built-in Resistor 911D/911E/911F/911H/911L/UNR911AJ/911BJ/911CJ

■ Electrical Characteristics (T_a=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	UN9111	I _{EBO}	V _{EB} = -6V, I _C = 0			-0.5	mA	
	UN9112/9114/911E/911D					-0.2		
	UN9113/UNR911AJ					-0.1		
	UN9115/9116/9117/9110/UNR911BJ					-0.01		
	UN911F/911H					-1.0		
	UN9119					-1.5		
	UN9118/911L/911CJ					-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	UN9111	h _{FE}	V _{CE} = -10V, I _C = -5mA	35				
	UN9112/911E			60				
	UN9113/9114/UNR911AJ/911CJ			80				
	UN9115*9116*/9117*/9110*UNR911BJ			160		460		
	UN911F/911D/9119/911H			30				
	UN9118/911L			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 = -10V, R _L = 1kΩ			-0.2	V	
				UN9113/UNR911BJ				-0.2
				UN911D				-0.2
				UN911E				-0.2
				UNR911AJ				-0.2
								-0.2
Transition frequency		f _T	V _{CB} = -10V, I _E = 2mA, f = 200MHz		150		MHz	
				UNR911AJ		80		
Input resistance	UN9111/9114/9115	R _i		(-30%)		10	(+30%)	kΩ
	UN9112/9117					22		
	UN9113/9110/911D/911E					47		
	UN9116/911F/911L					4.7		
	UN9118					0.51		
	UN9119					1		
	UN911H					2.2		
	UNR911AJ/911BJ					100		

* h_{FE} rank classification (UN9115/9116/9117/9110)

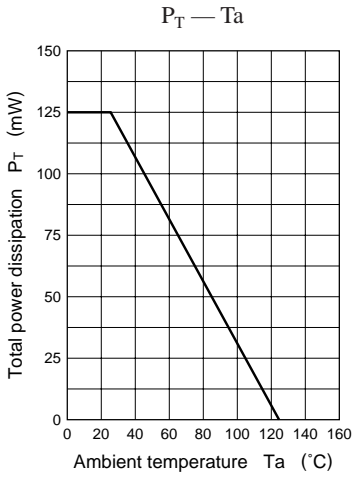
Rank	Q	R	S
h _{FE}	160 to 260	210 to 340	290 to 460

UN9111/9112/9113/9114/9115/9116/9117/9118/9119/9110/
 Transistors with built-in Resistor 911D/911E/911F/911H/911L/UNR911AJ/911BJ/911CJ

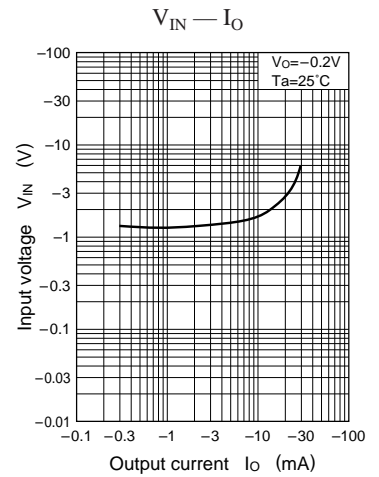
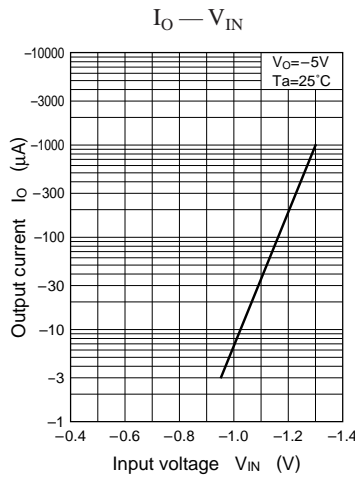
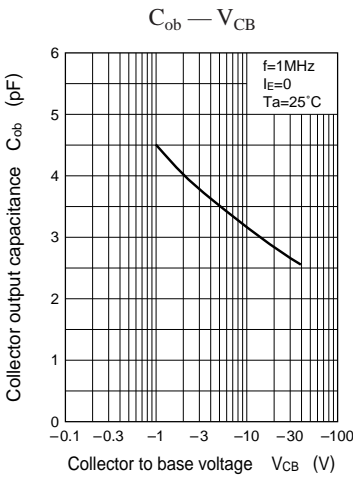
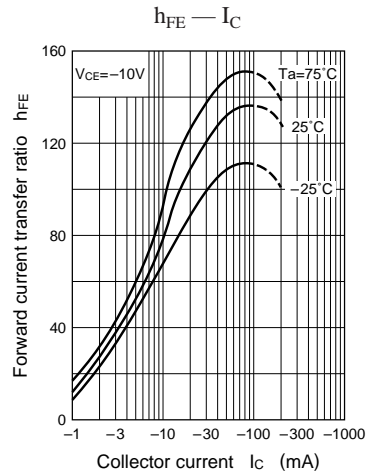
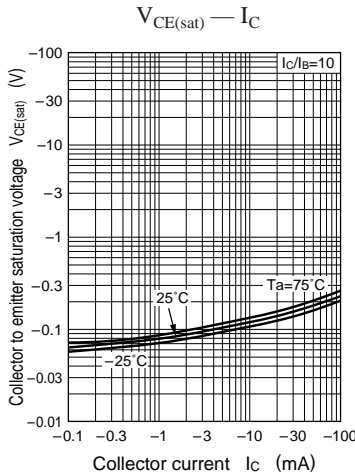
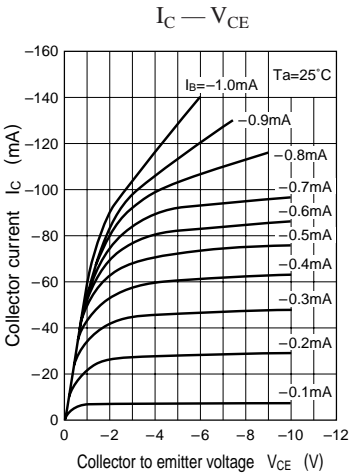
■ Electrical Characteristics (continued) (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Resis- tance ratio	UN9111/9112/9113/911L	R_1/R_2		0.8	1.0	1.2	
	UN9114			0.17	0.21	0.25	
	UN9118/9119			0.08	0.1	0.12	
	UN911D				4.7		
	UN911E				2.14		
	UN911F				0.47		
	UN911H			0.17	0.22	0.27	
	UNR911AJ				1.0		
Resistance between Emitter to Base	UNR911CJ	R_2		-30%	47	30%	

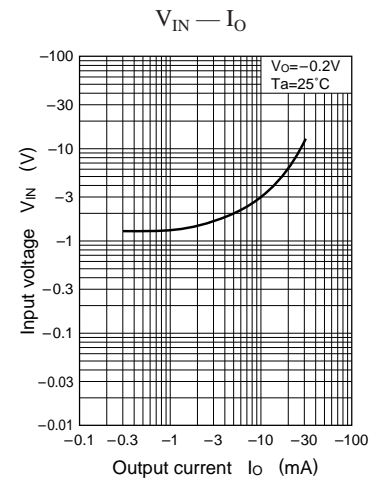
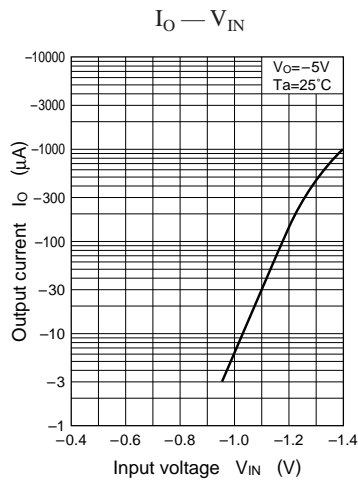
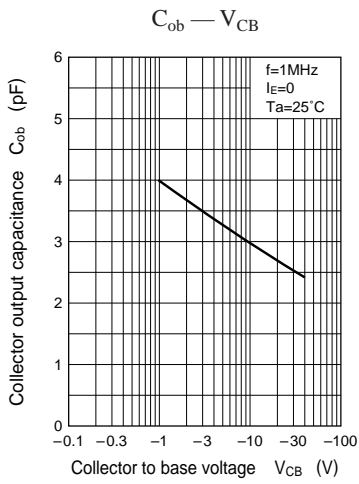
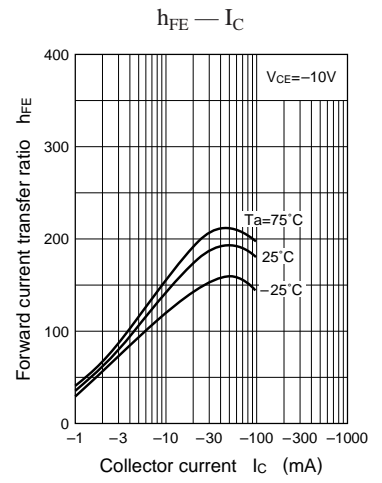
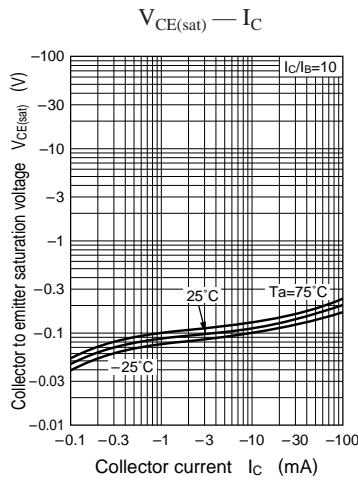
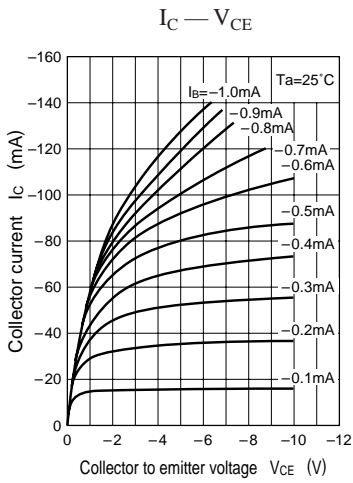
Common characteristics chart



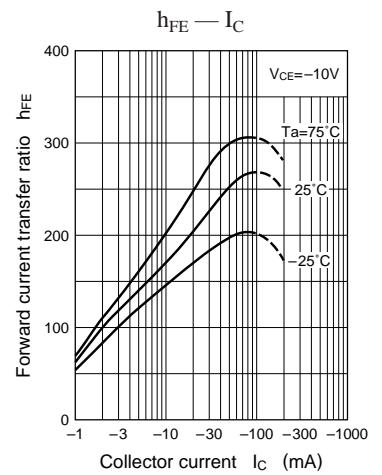
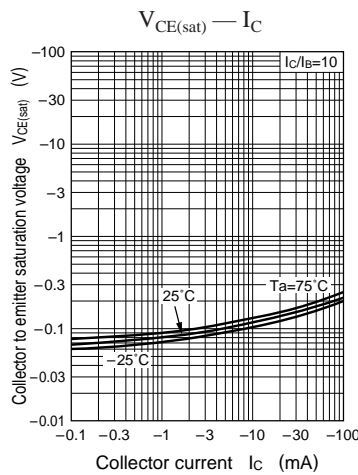
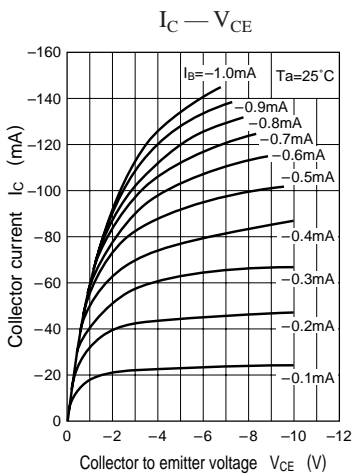
Characteristics charts of UN9111

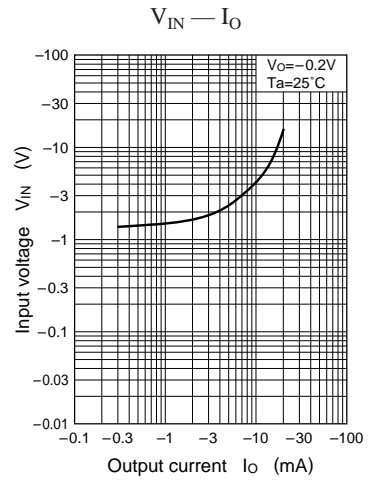
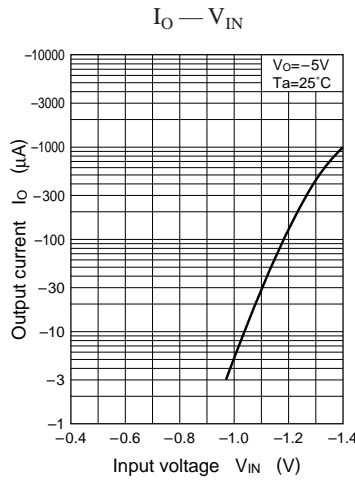
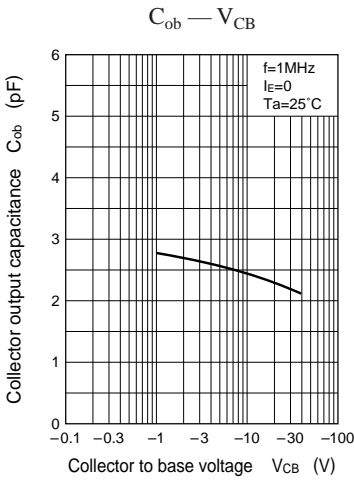


Characteristics charts of UN9112

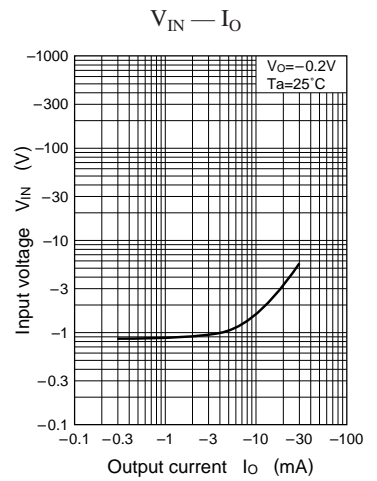
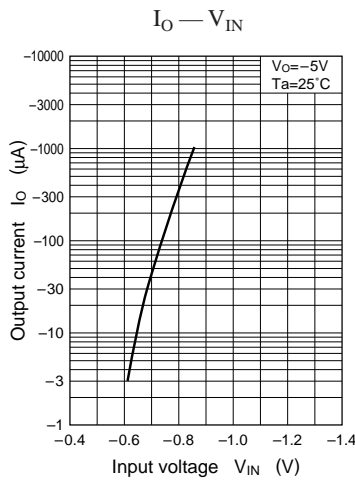
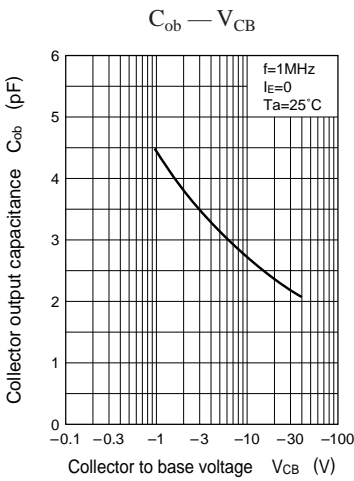
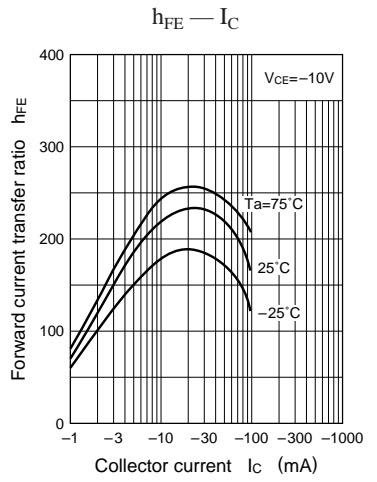
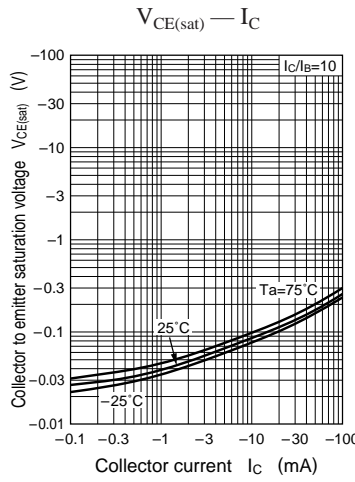
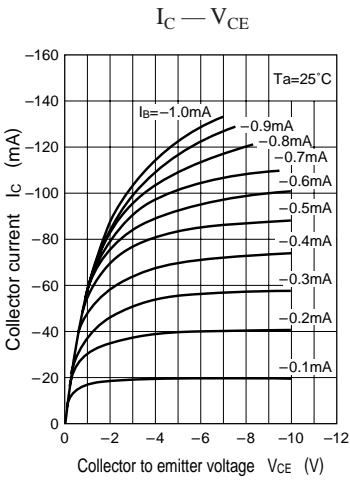


Characteristics charts of UN9113

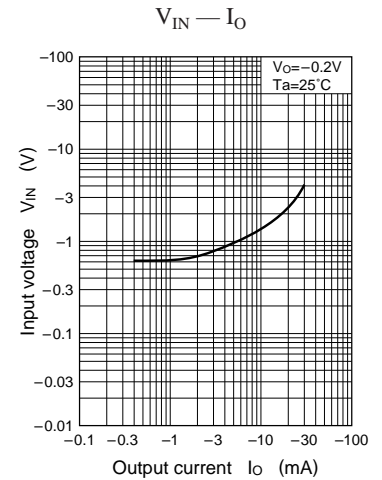
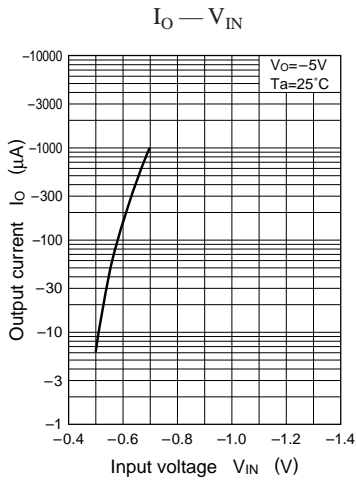
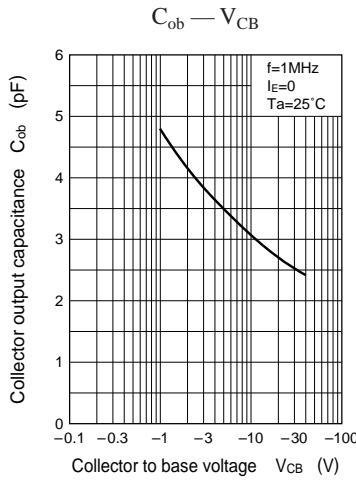
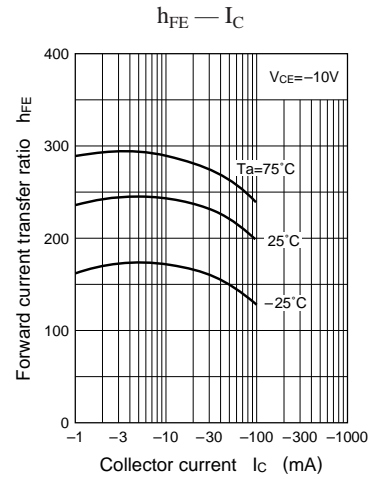
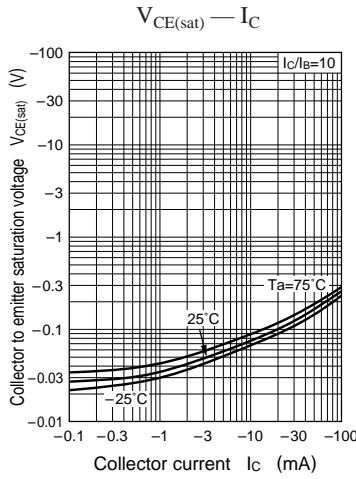
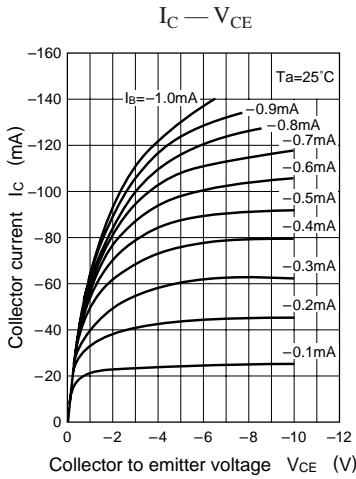




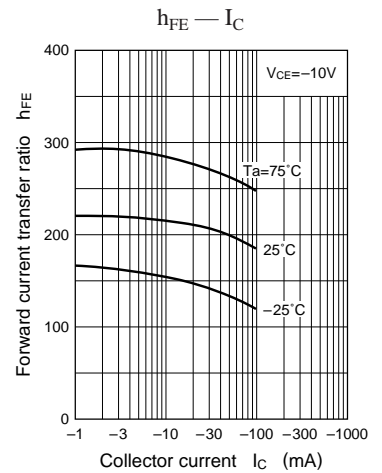
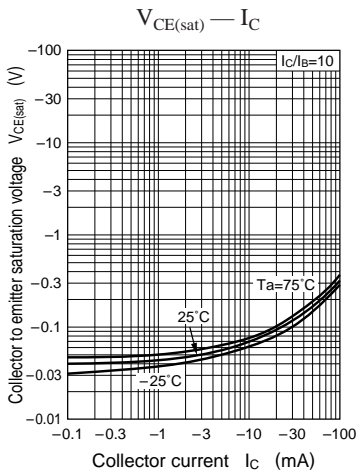
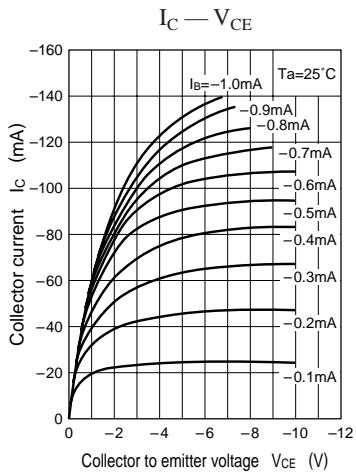
Characteristics charts of UN9114

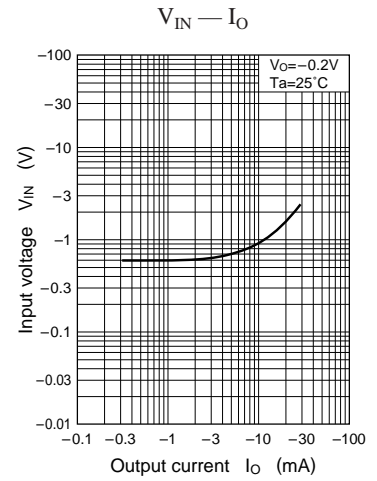
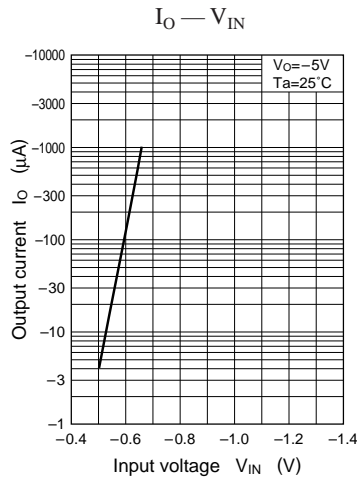
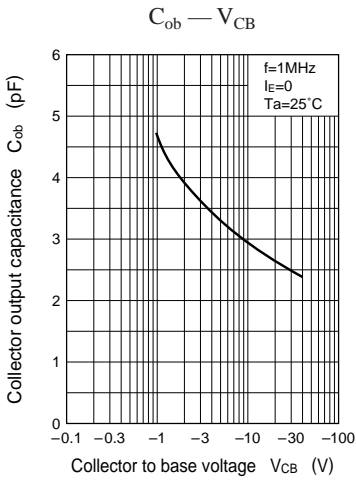


Characteristics charts of UN9115

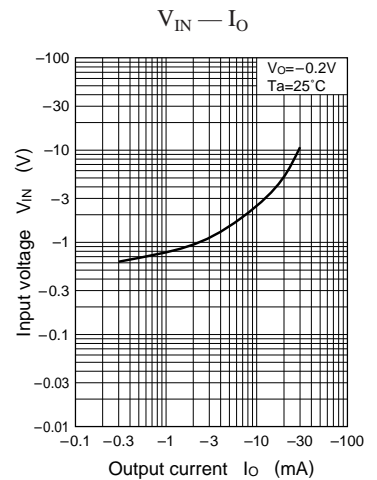
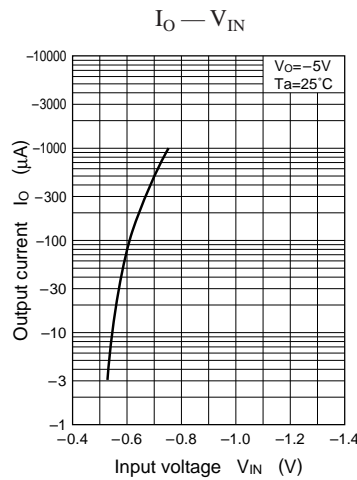
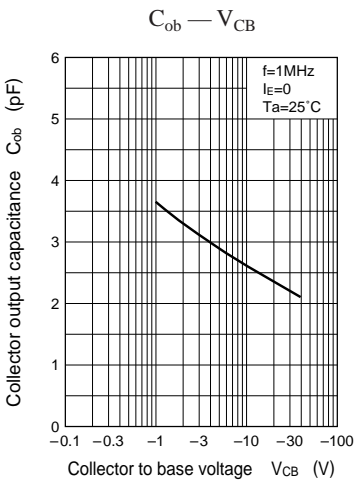
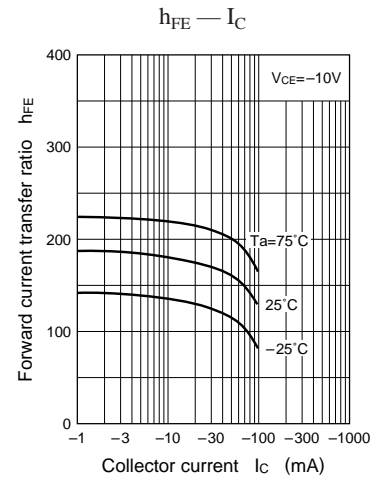
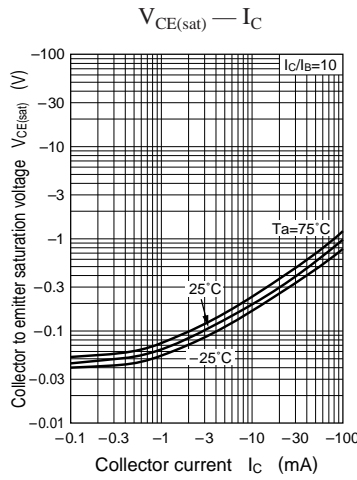
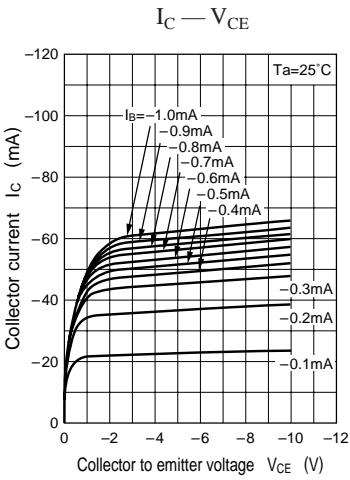


Characteristics charts of UN9116

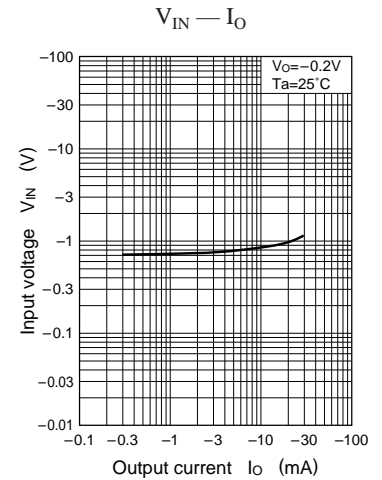
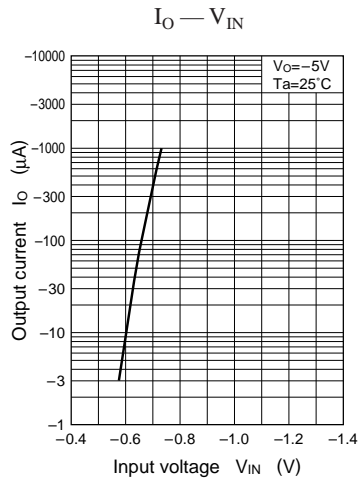
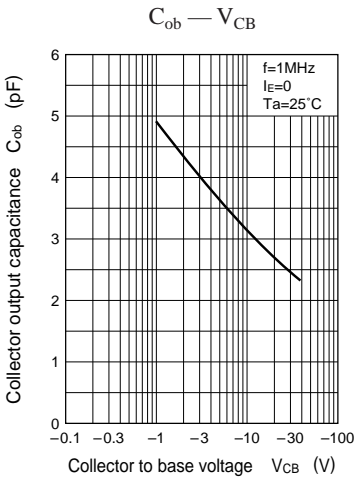
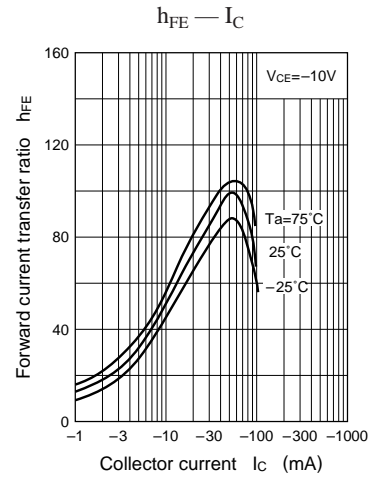
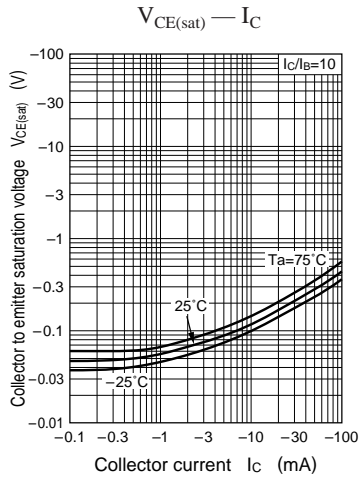
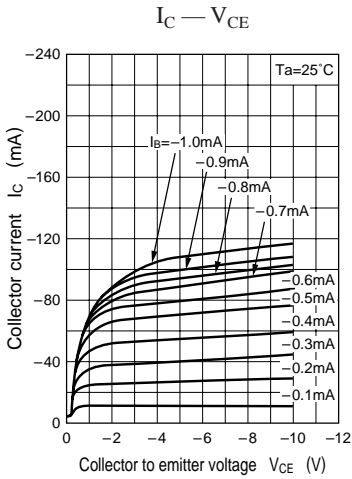




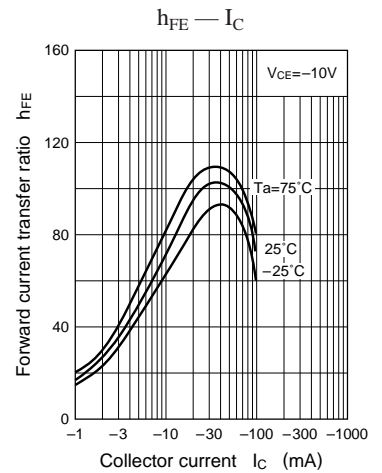
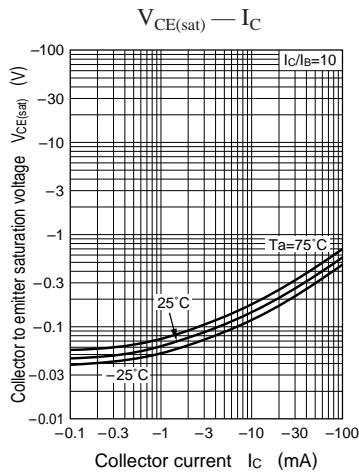
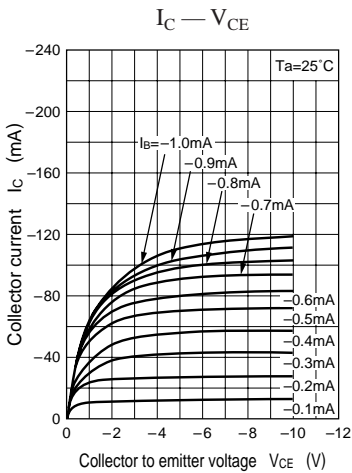
Characteristics charts of UN9117

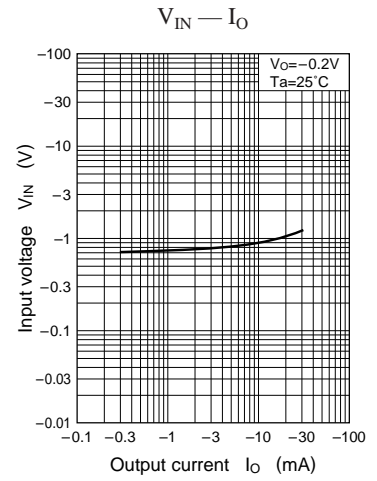
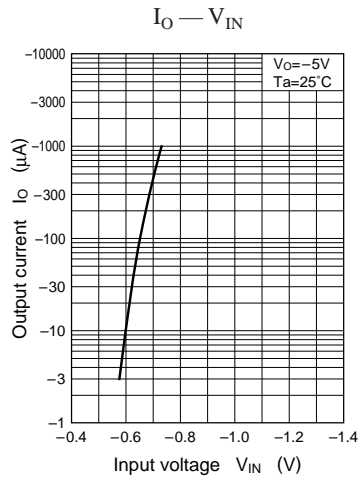
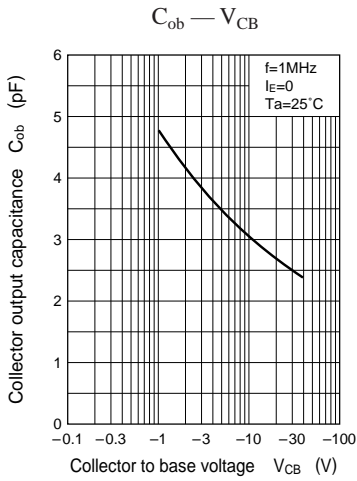


Characteristics charts of UN9118

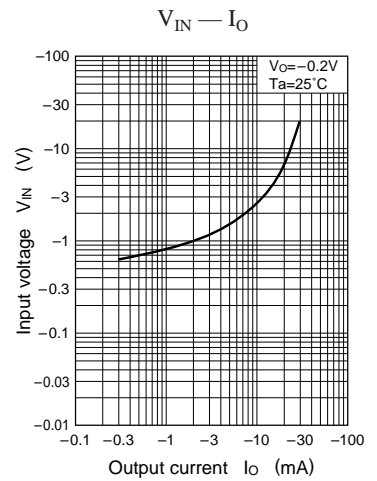
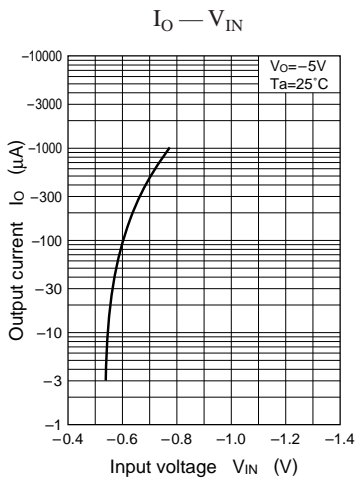
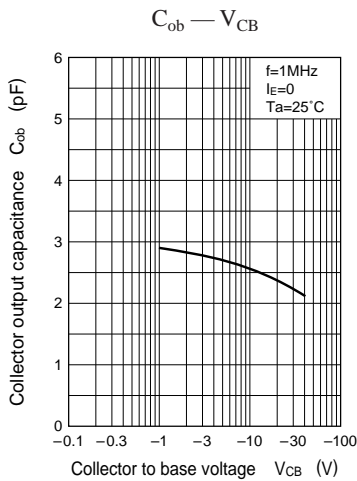
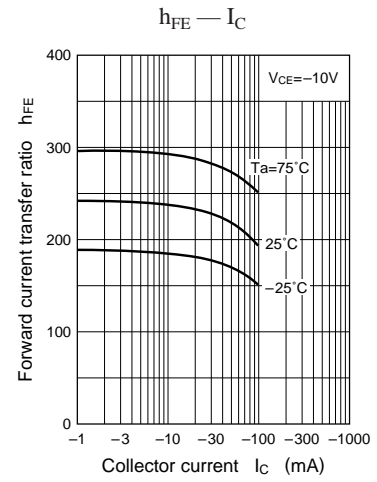
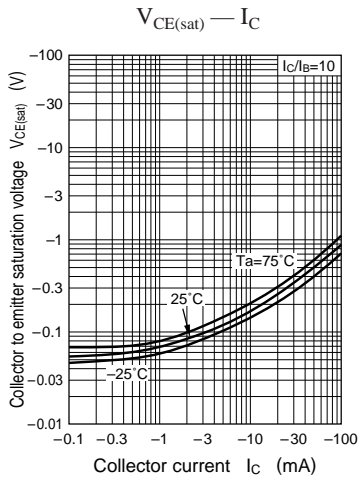
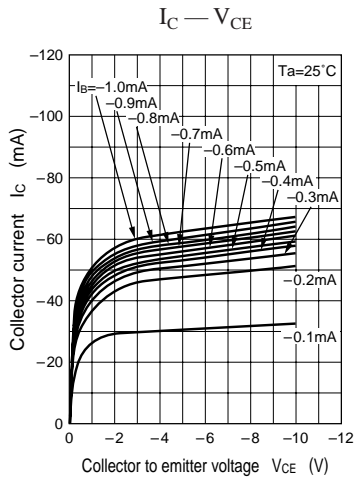


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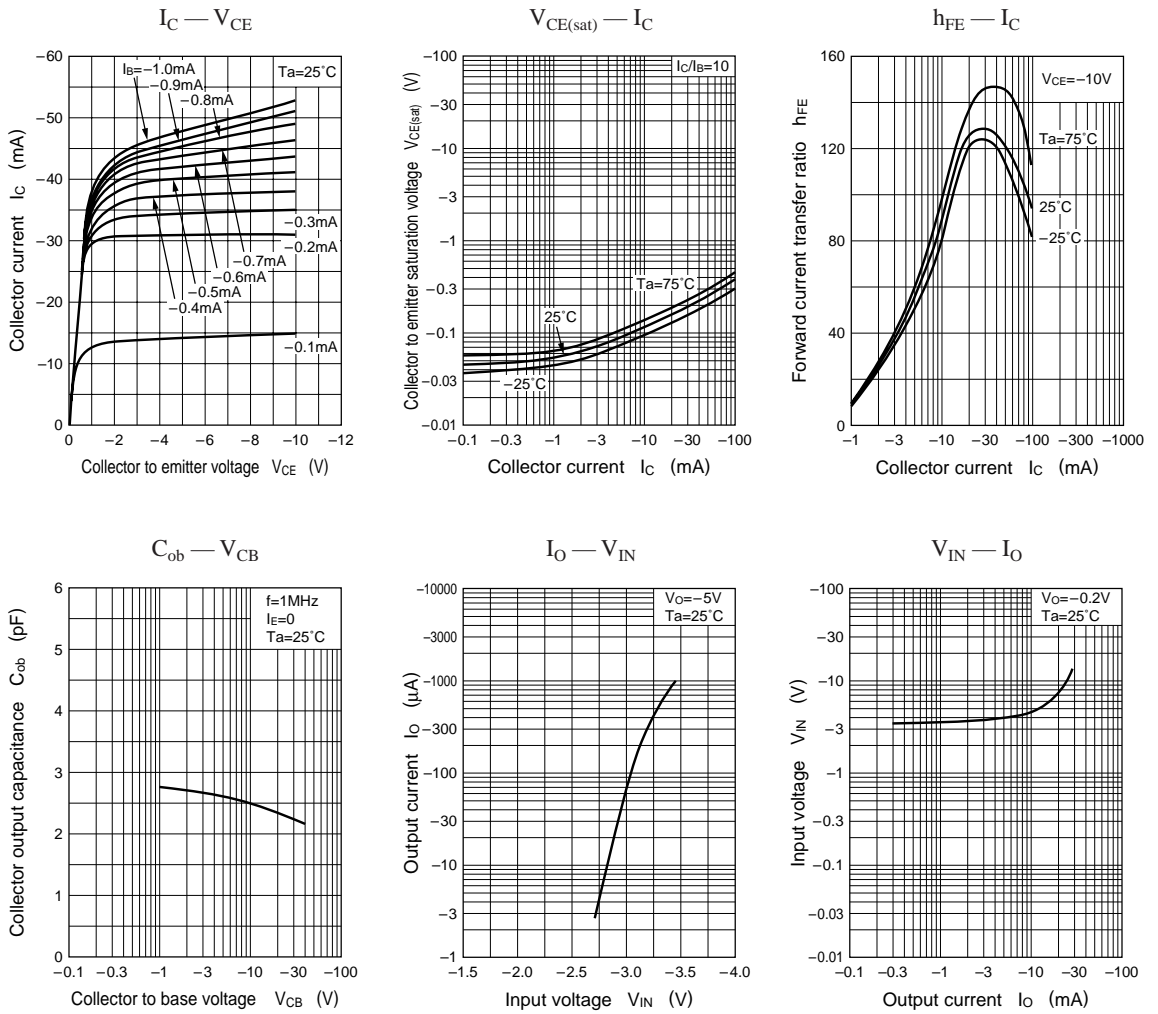




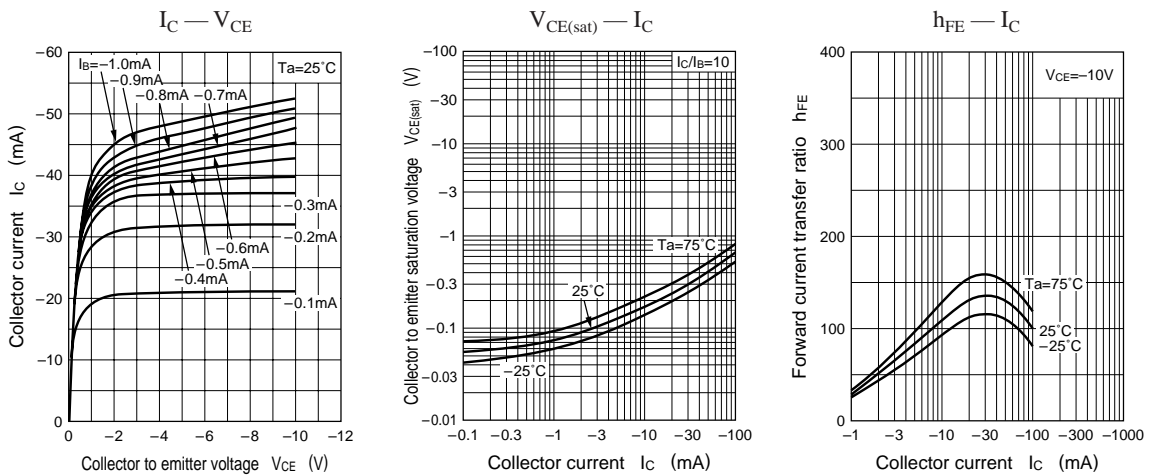
Characteristics charts of UN9110

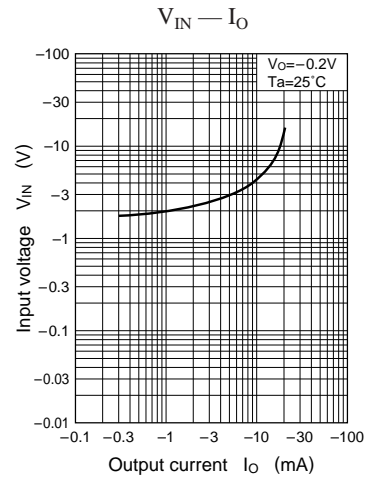
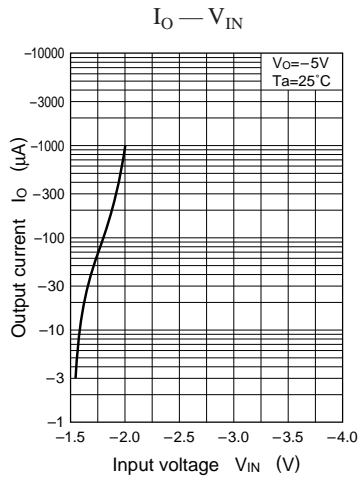
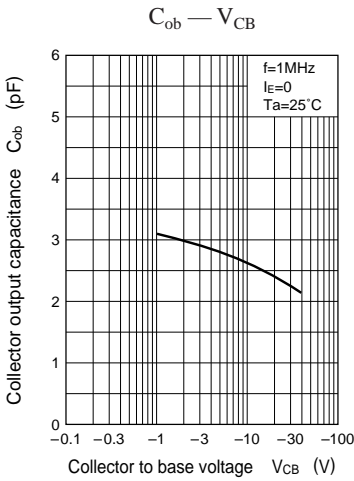


Characteristics charts of UN911D

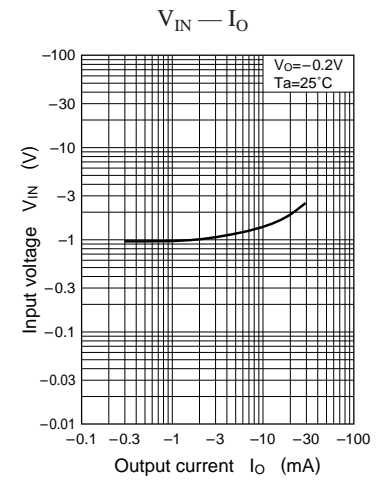
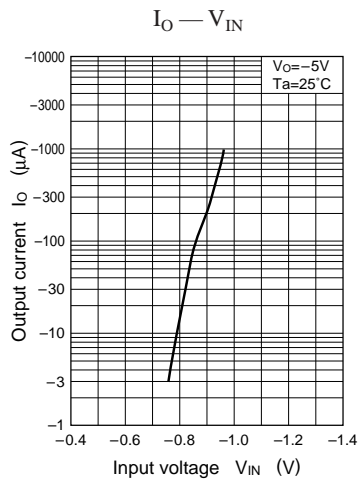
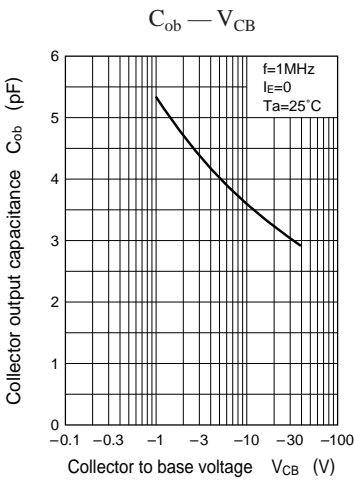
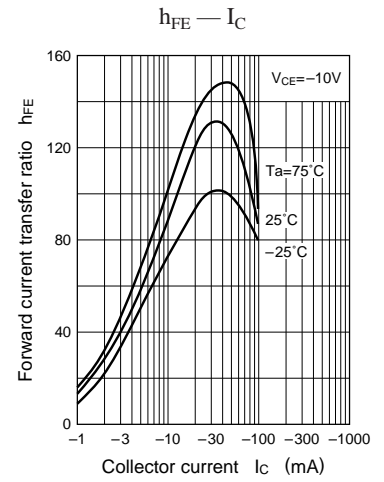
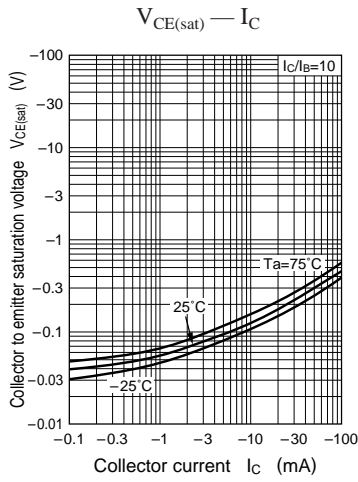
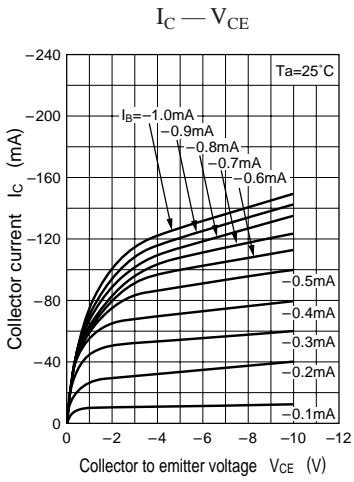


Characteristics charts of UN911E

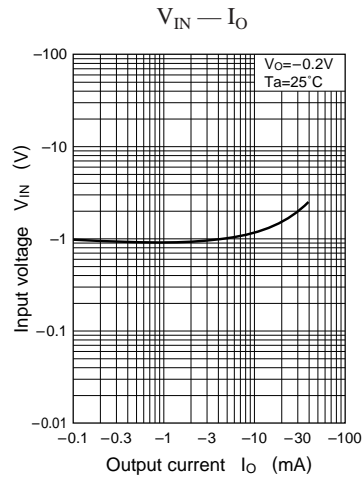
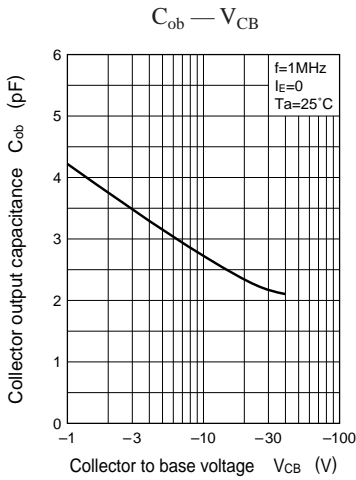
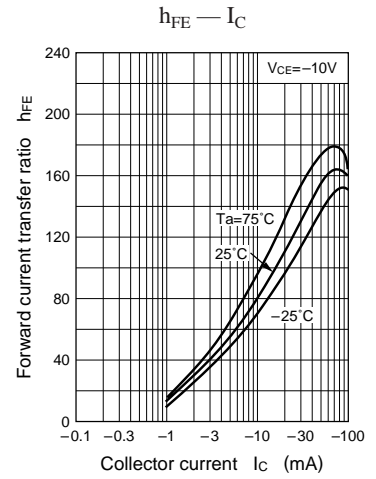
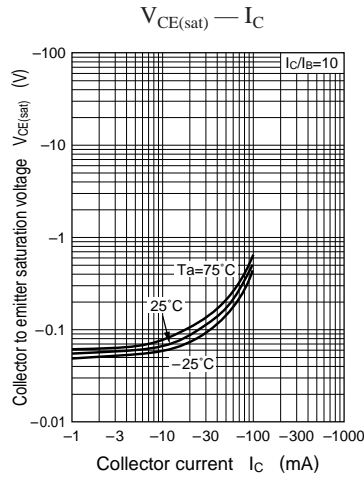
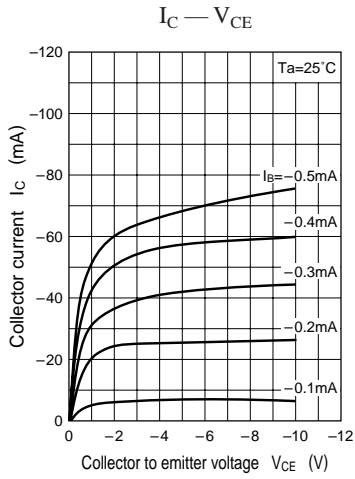




Characteristics charts of UN911F



Characteristics charts of UN911H



Characteristics charts of UN911L

