

# 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

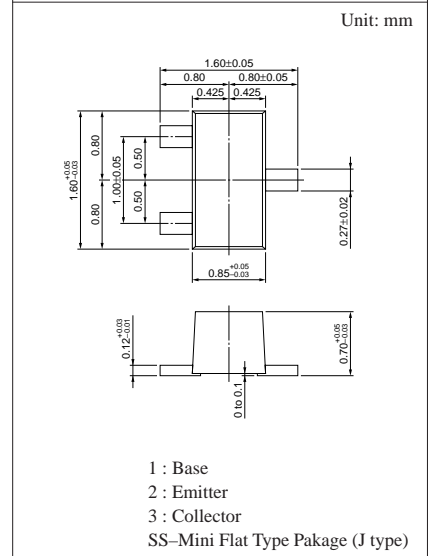
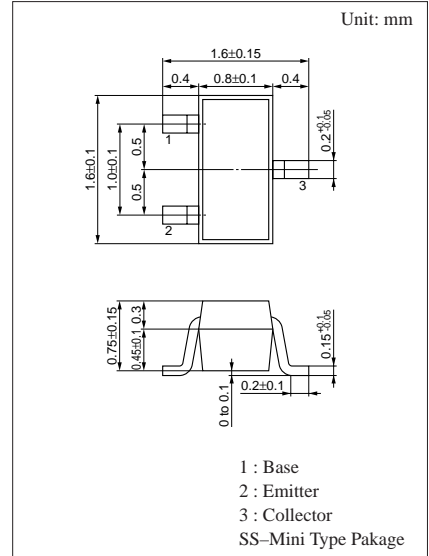
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-Mini type package, allowing automatic insertion through tape packing and magazine packing.

### Resistance by Part Number

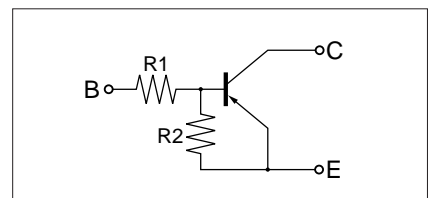
	Marking Symbol	(R <sub>1</sub> )	(R <sub>2</sub> )
• UN9111	6A	10kΩ	10kΩ
• UN9112	6B	22kΩ	22kΩ
• UN9113	6C	47kΩ	47kΩ
• UN9114	6D	10kΩ	47kΩ
• UN9115	6E	10kΩ	—
• UN9116	6F	4.7kΩ	—
• UN9117	6H	22kΩ	—
• UN9118	6I	0.51kΩ	5.1kΩ
• UN9119	6K	1kΩ	10kΩ
• UN9110	6L	47kΩ	—
• UN911D	6M	47kΩ	10kΩ
• UN911E	6N	47kΩ	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 <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>	125	mW
Junction temperature	T <sub>j</sub>	125	°C
Storage temperature	T <sub>stg</sub>	-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<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	UN9111	I <sub>EBO</sub>	V <sub>EB</sub> = -6V, I <sub>C</sub> = 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 <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	UN9111	h <sub>FE</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -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 <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> = -10V, R <sub>L</sub> = 1kΩ			-0.2	V	
				UN9113/UNR911BJ				-0.2
				UN911D				-0.2
				UN911E				-0.2
				UNR911AJ				-0.2
Transition frequency		f <sub>T</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 2mA, f = 200MHz		150		MHz	
				UNR911AJ		80		
Input resistance	UN9111/9114/9115	R <sub>i</sub>		(-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<sub>FE</sub> rank classification (UN9115/9116/9117/9110)

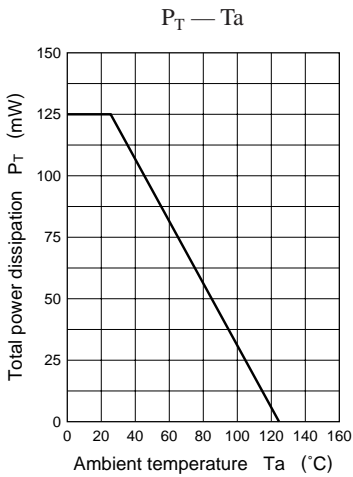
Rank	Q	R	S
h <sub>FE</sub>	160 to 260	210 to 340	290 to 460

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

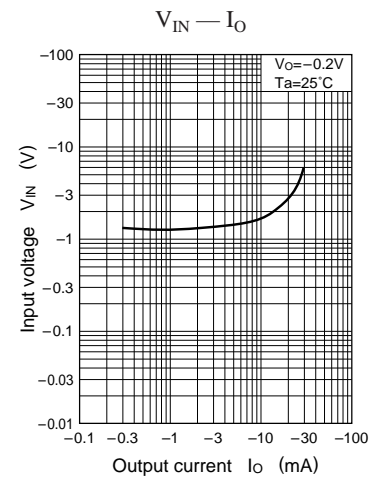
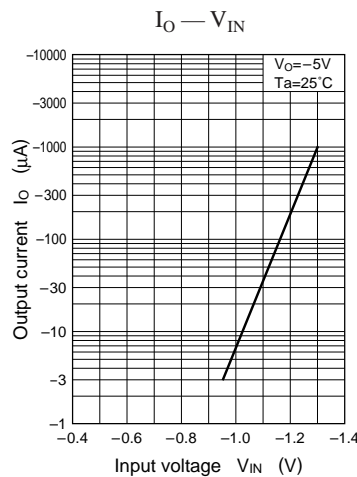
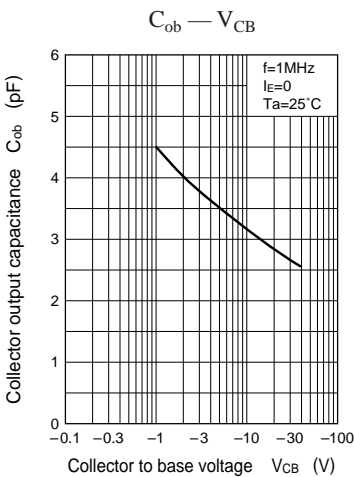
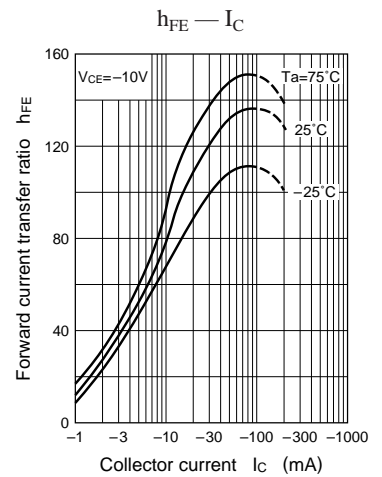
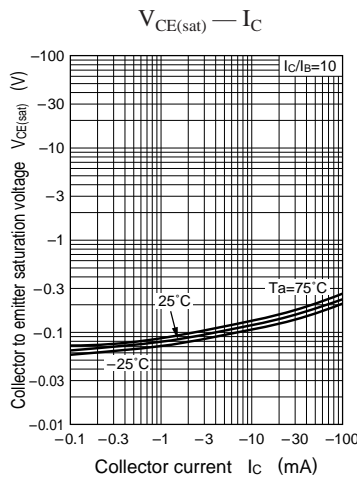
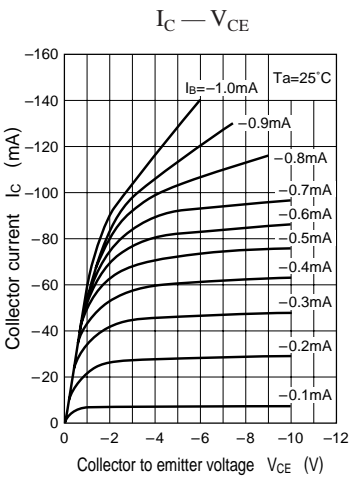
■ Electrical Characteristics (continued) (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Resistance 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%	

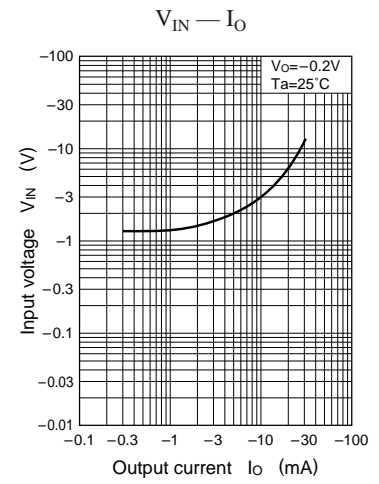
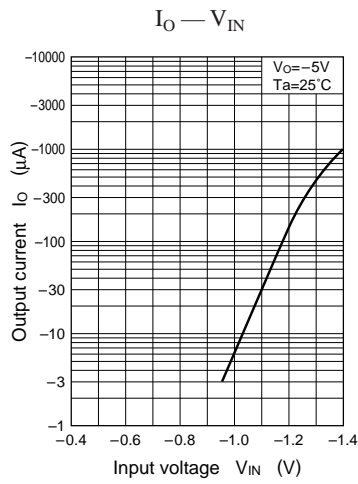
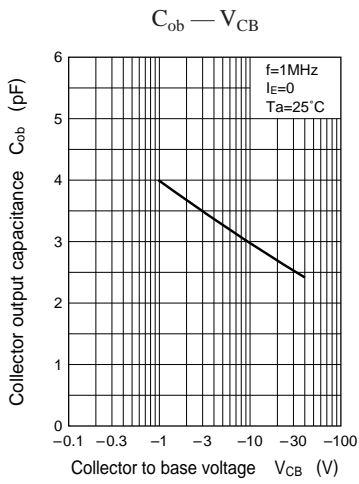
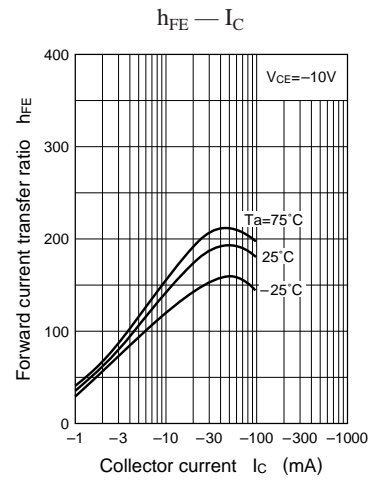
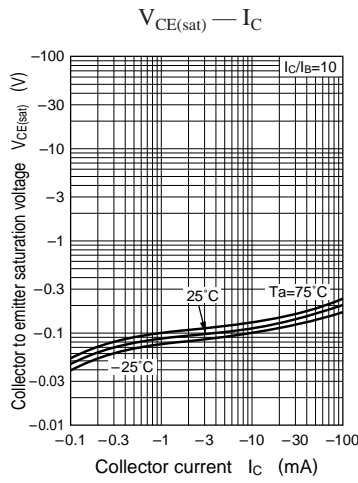
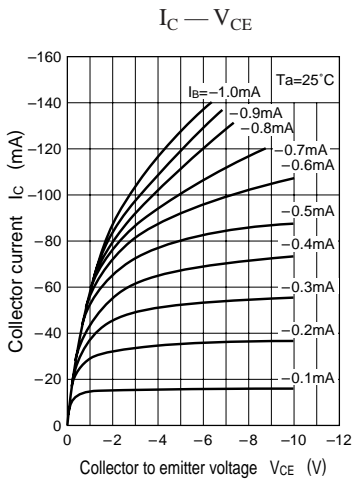
Common characteristics chart



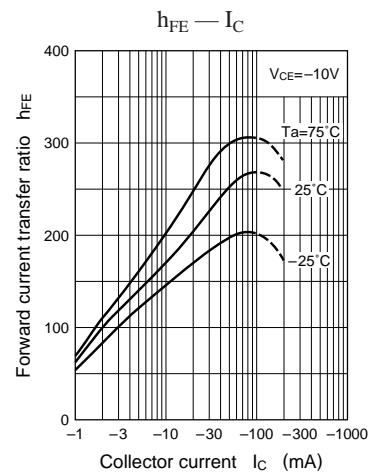
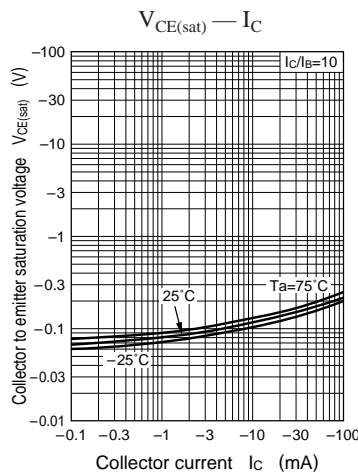
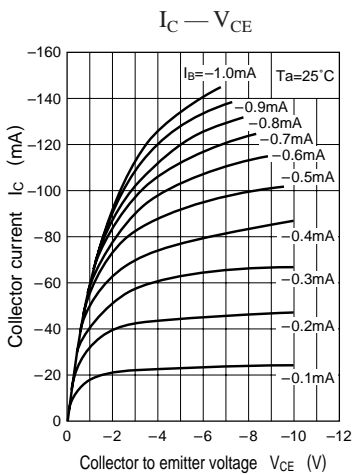
Characteristics charts of UN9111

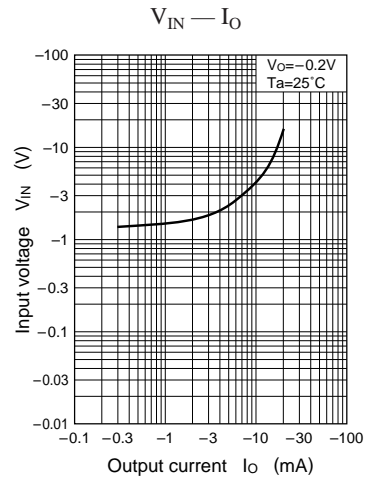
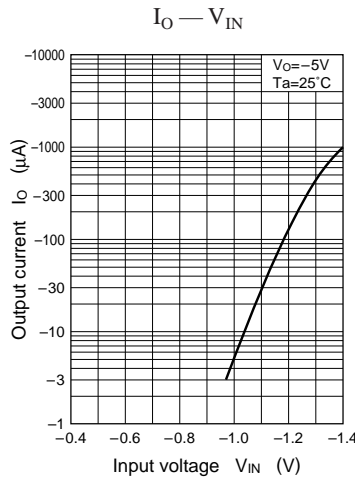
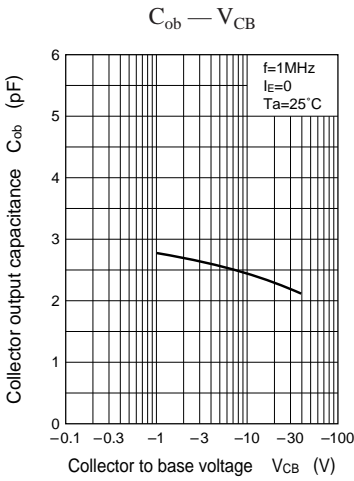


Characteristics charts of UN9112

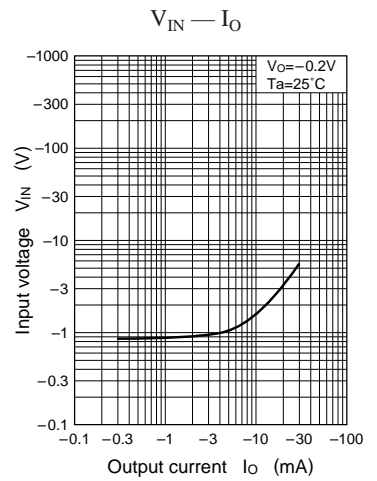
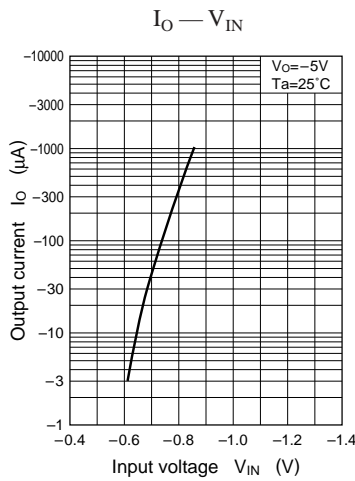
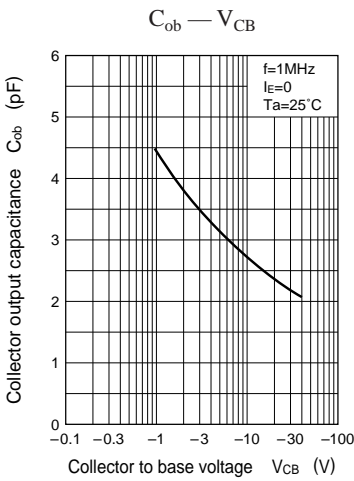
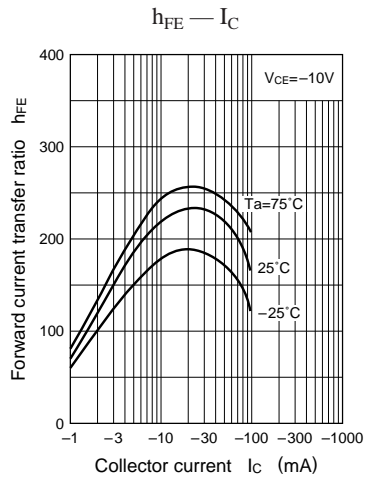
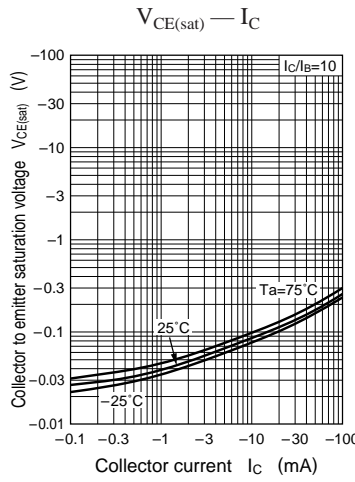
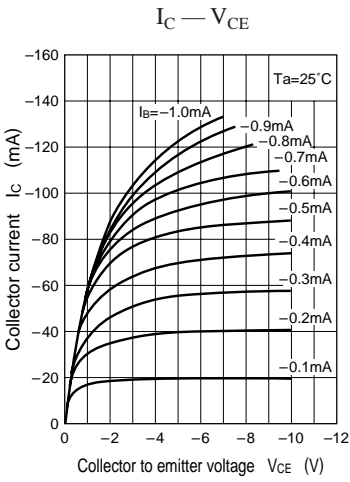


Characteristics charts of UN9113

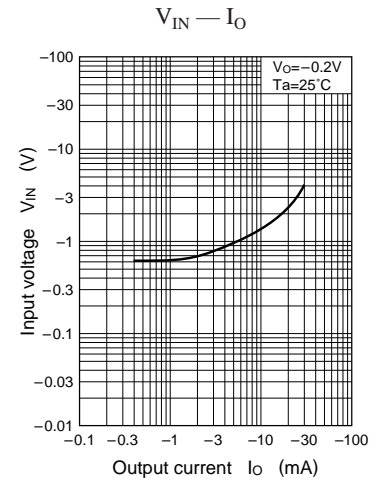
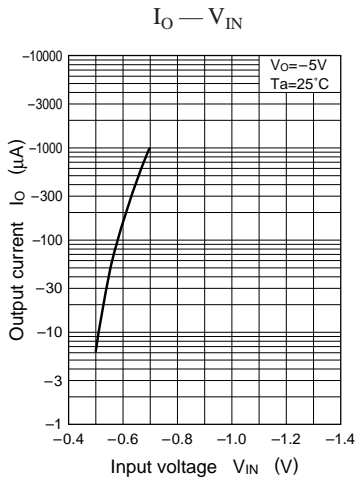
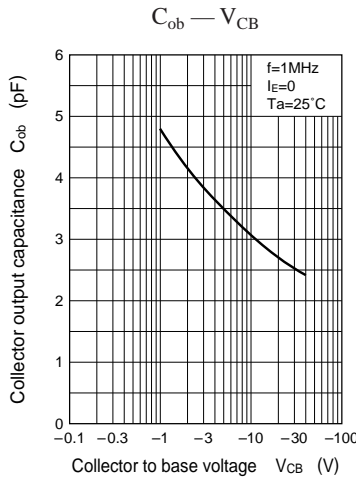
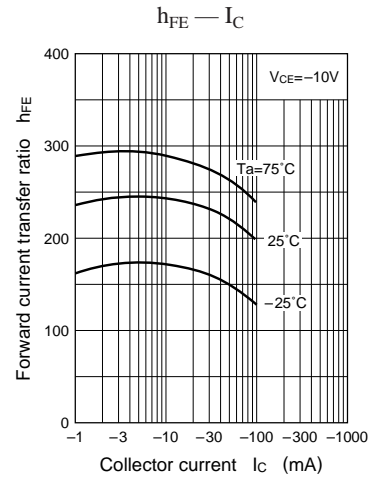
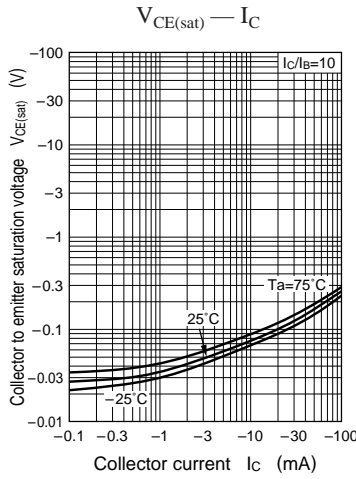
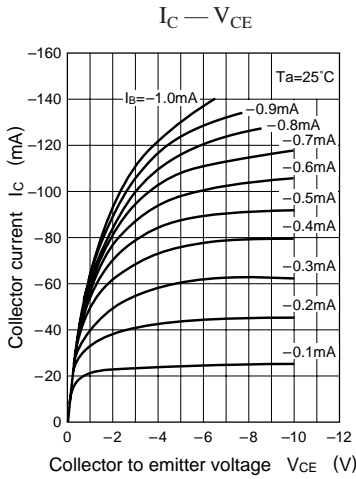




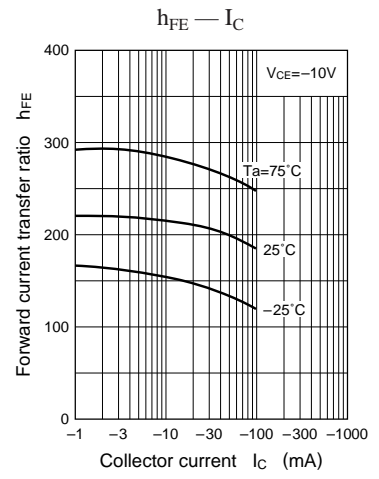
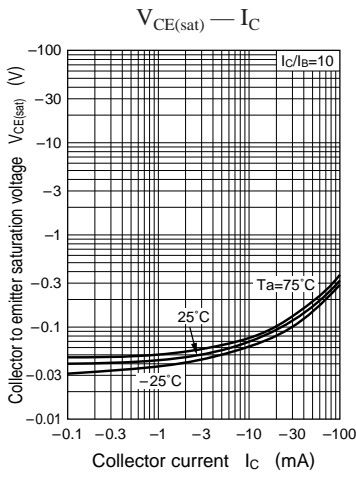
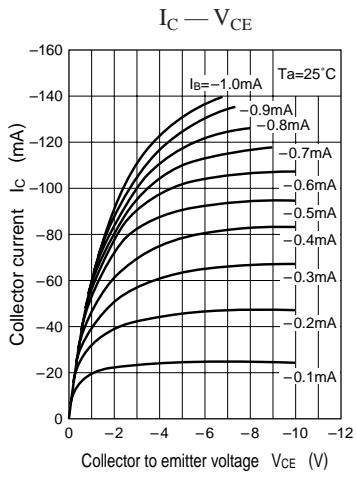
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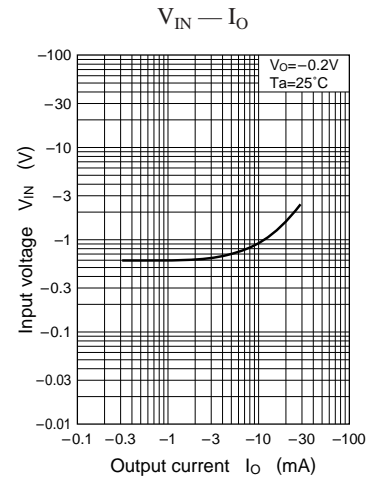
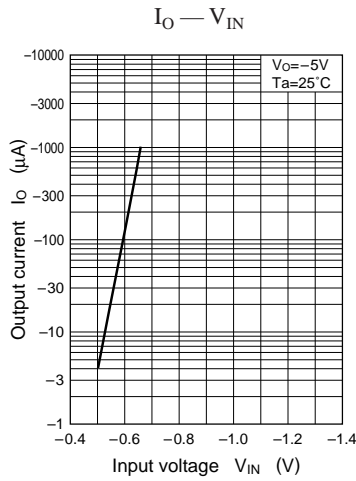
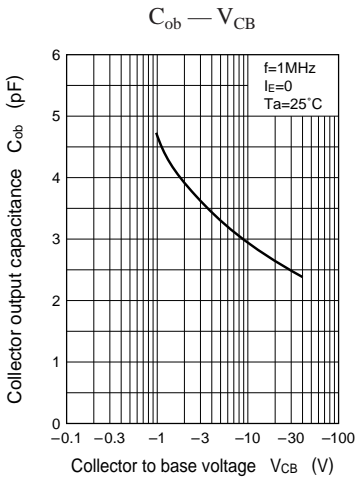


Characteristics charts of UN9115

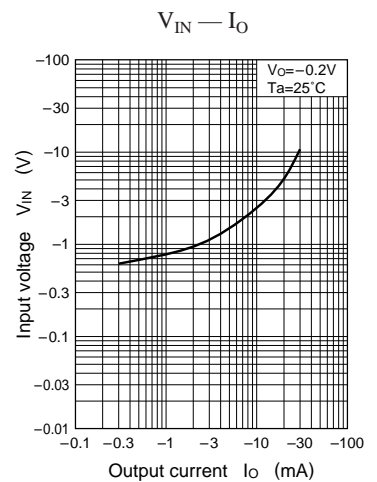
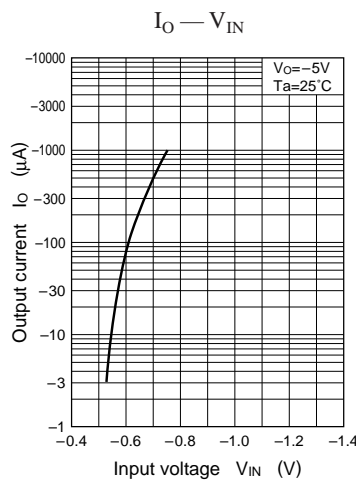
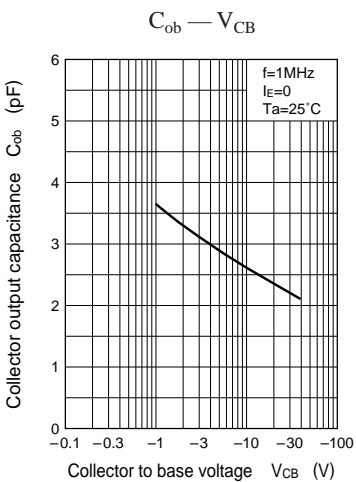
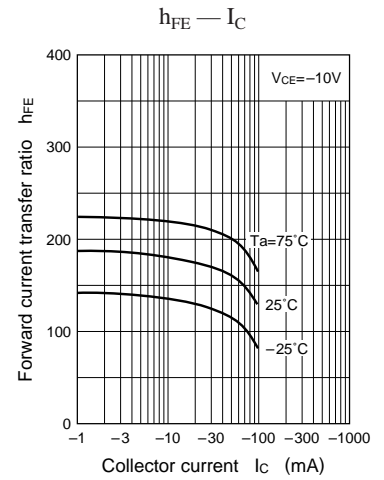
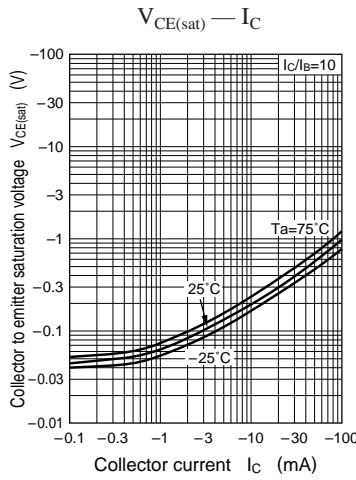
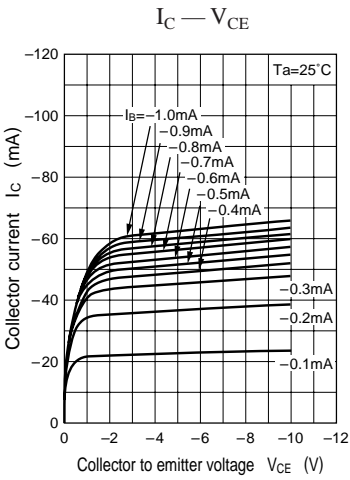


Characteristics charts of UN9116



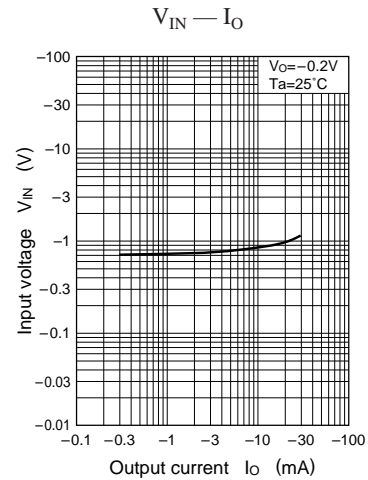
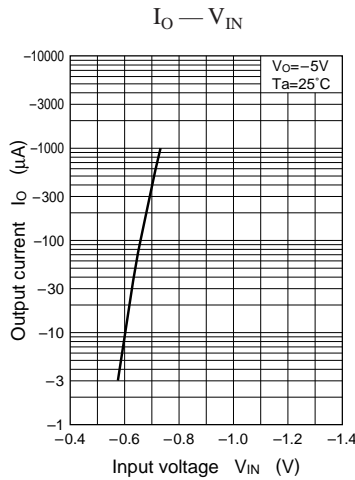
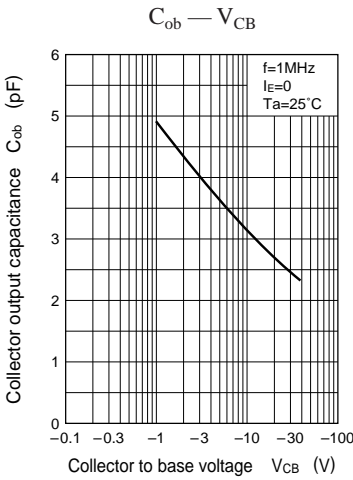
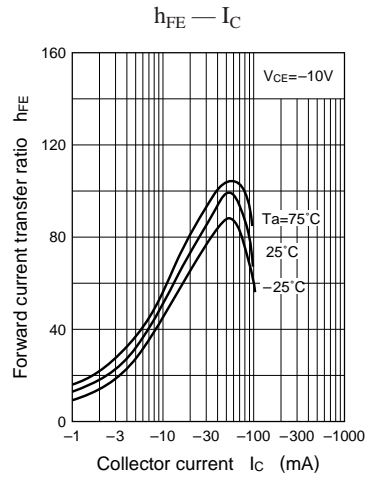
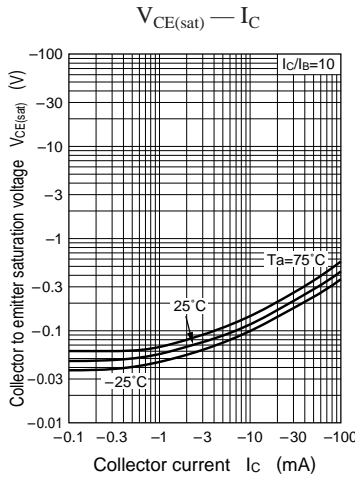
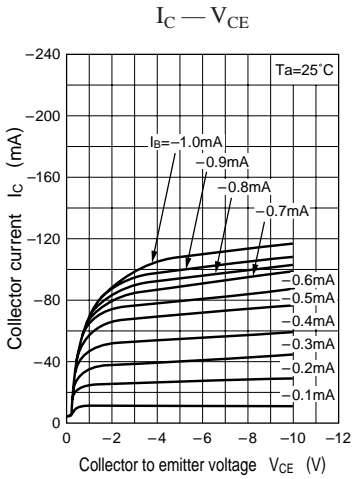


Characteristics charts of UN9117

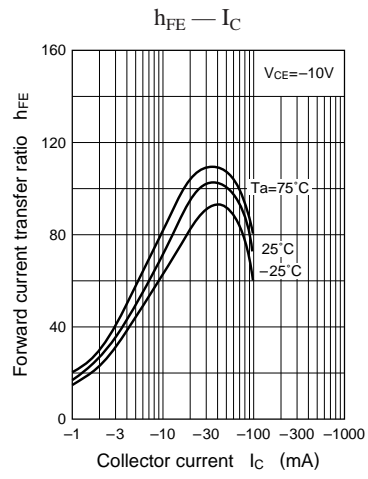
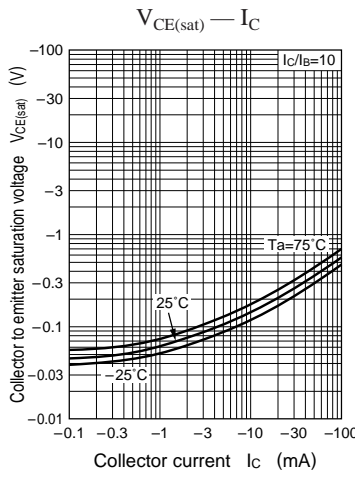
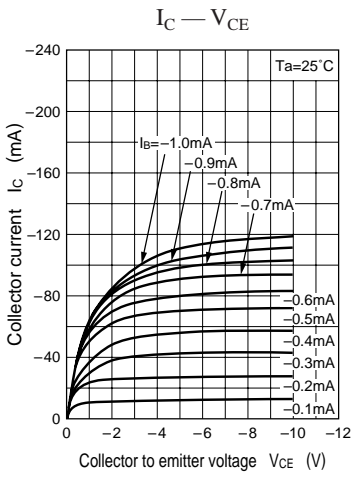


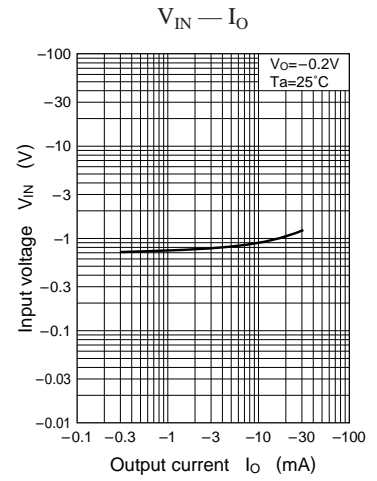
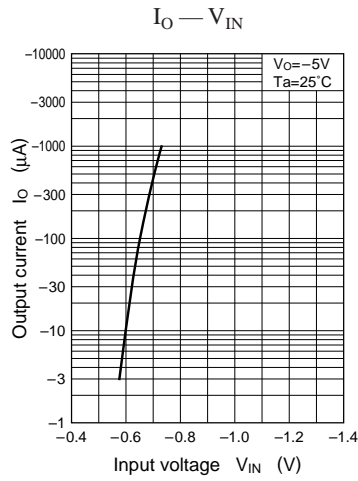
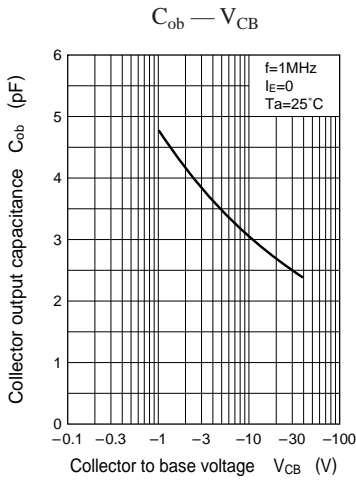


Characteristics charts of UN9118

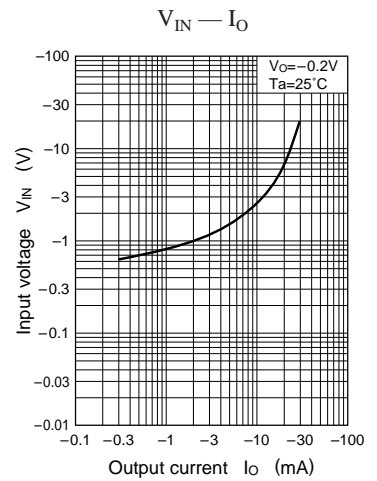
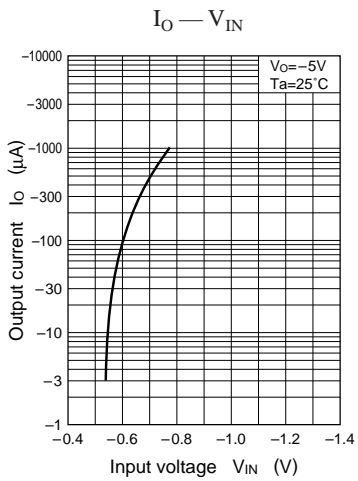
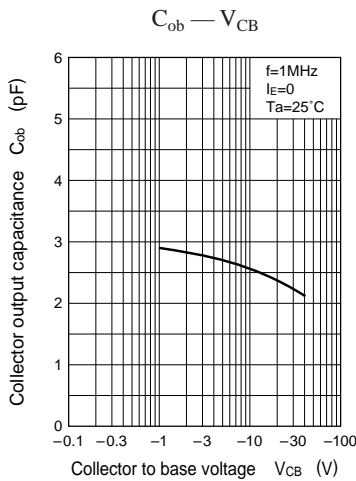
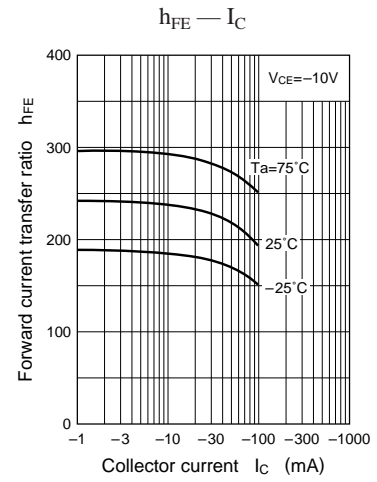
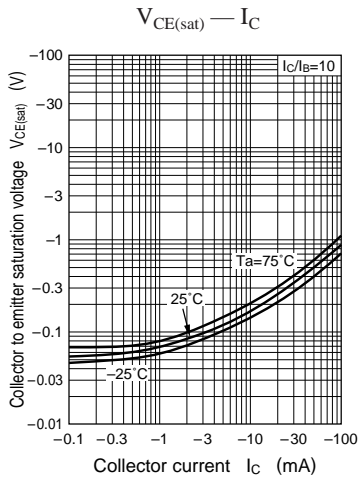
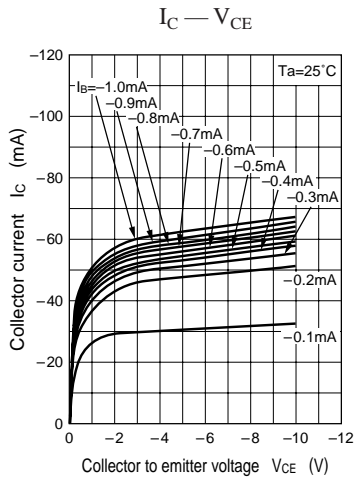


Characteristics charts of UN9119

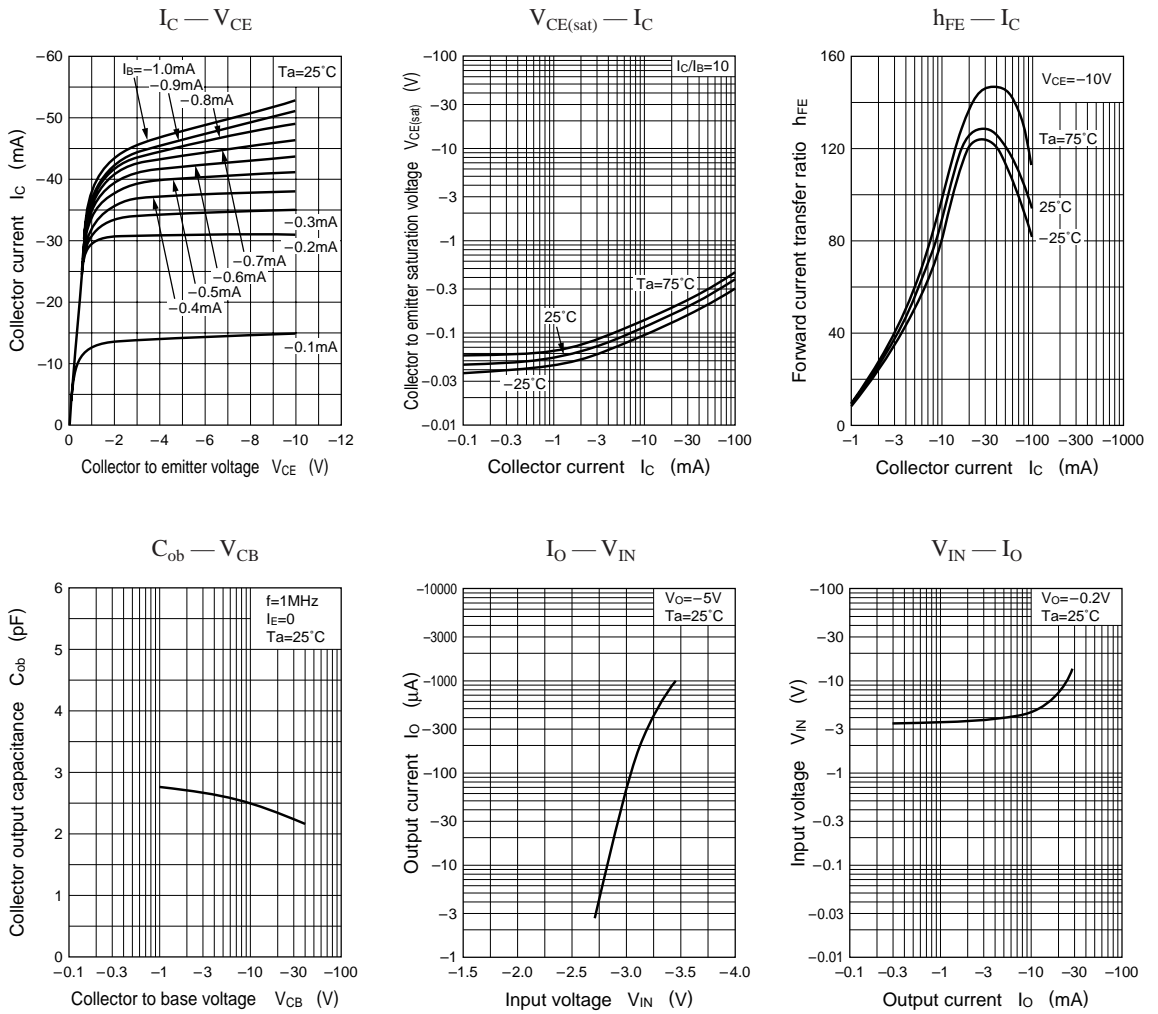




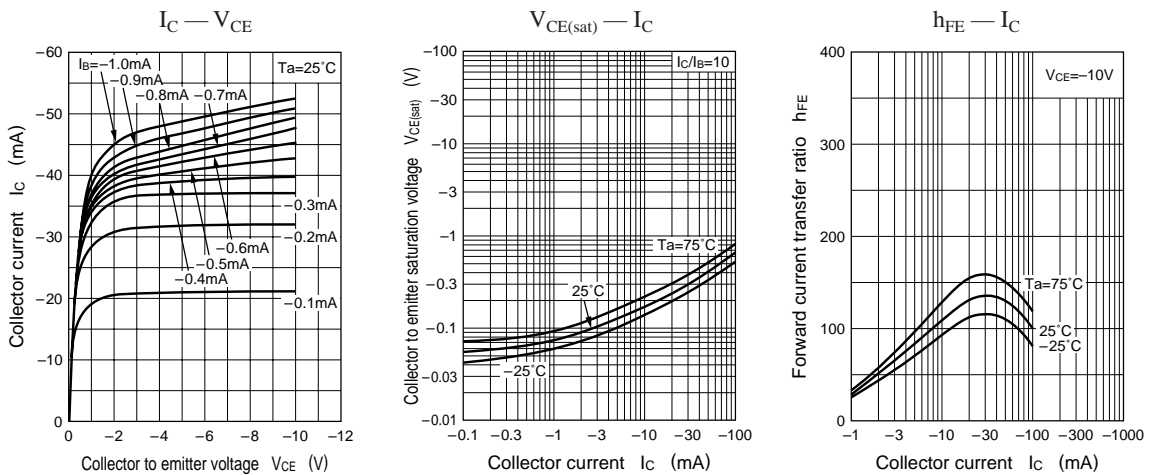
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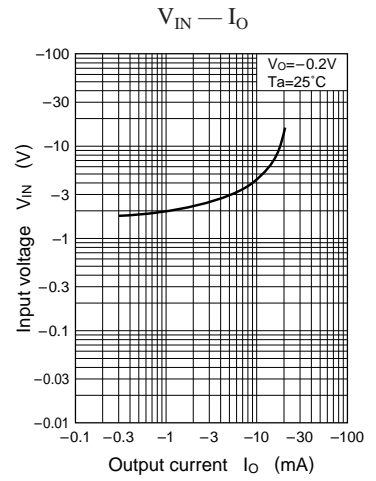
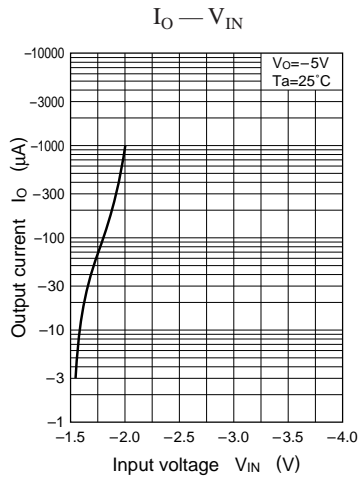
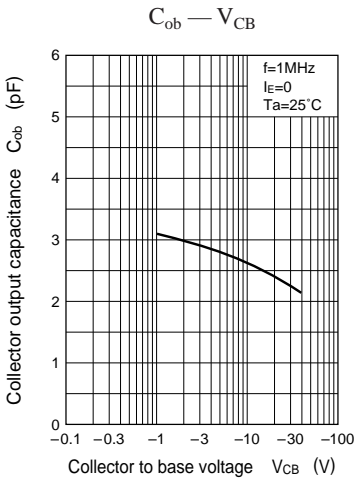


Characteristics charts of UN911D

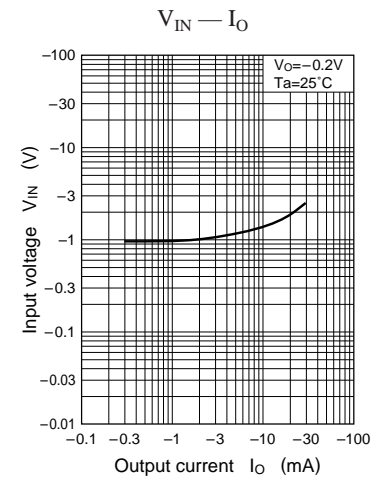
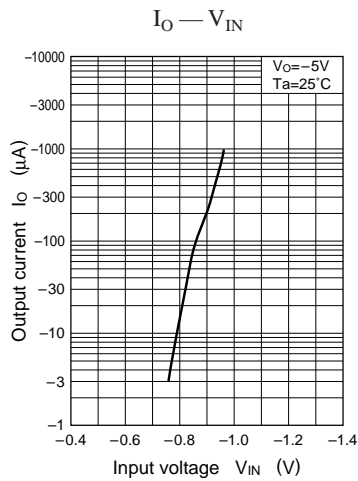
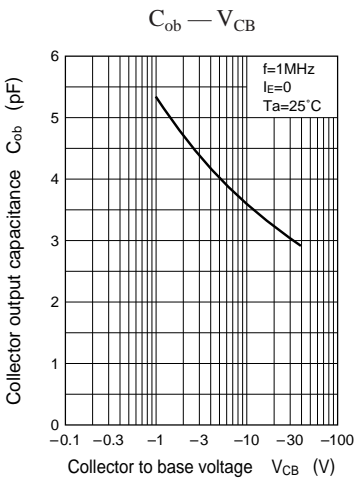
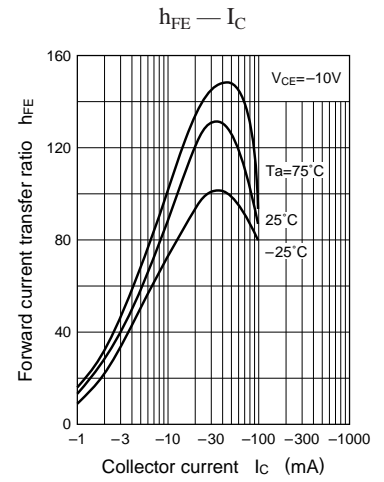
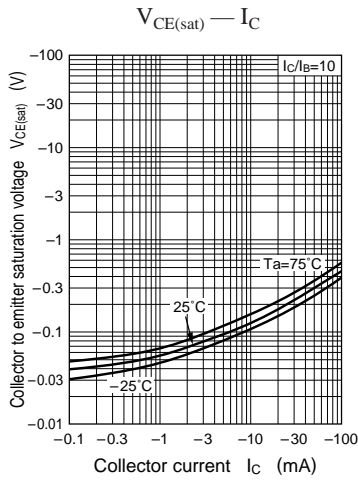
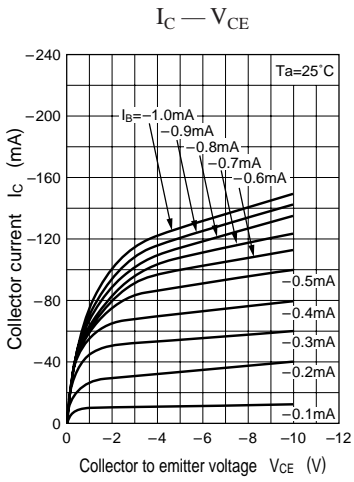


Characteristics charts of UN911E

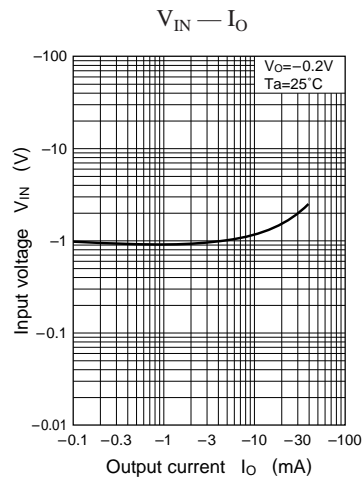
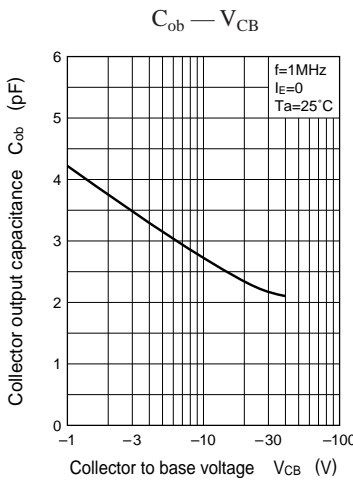
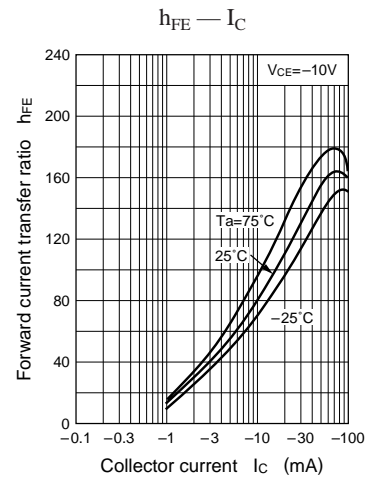
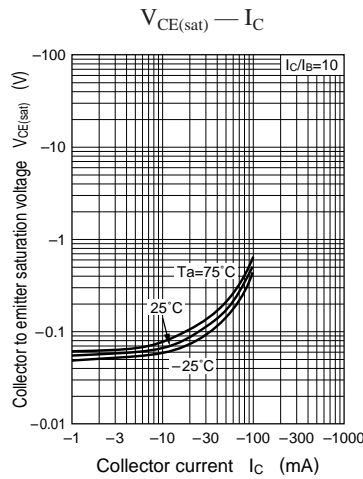
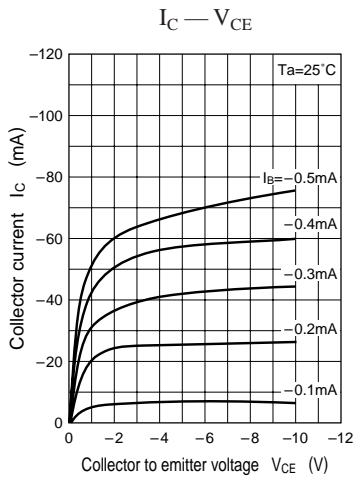




Characteristics charts of UN911F



Characteristics charts of UN911H



Characteristics charts of UN911L

