

# UN6111/6112/6113/6114/6115/6116/6117/6118/ 6119/6110/611D/611E/611F/611H/611L

Silicon PNP epitaxial planer transistor

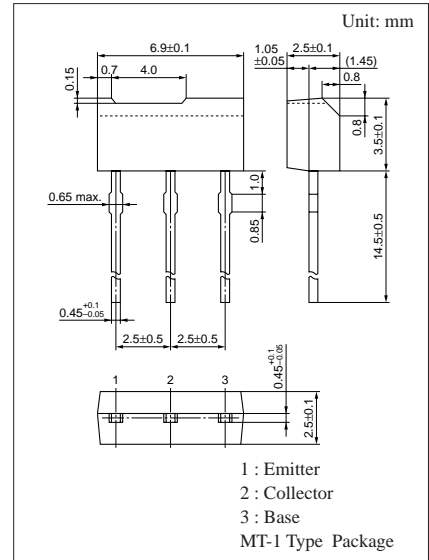
For digital circuits

## Features

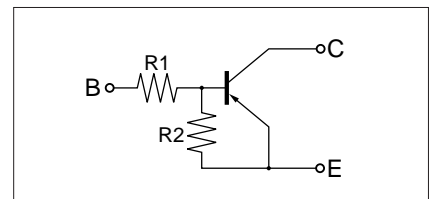
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- MT-1 type package, allowing supply with the radial taping.

## Resistance by Part Number

	(R <sub>1</sub> )	(R <sub>2</sub> )
• UN6111	10kΩ	10kΩ
• UN6112	22kΩ	22kΩ
• UN6113	47kΩ	47kΩ
• UN6114	10kΩ	47kΩ
• UN6115	10kΩ	—
• UN6116	4.7kΩ	—
• UN6117	22kΩ	—
• UN6118	0.51kΩ	5.1kΩ
• UN6119	1kΩ	10kΩ
• UN6110	47kΩ	—
• UN611D	47kΩ	10kΩ
• UN611E	47kΩ	22kΩ
• UN611F	4.7kΩ	10kΩ
• UN611H	2.2kΩ	10kΩ
• UN611L	4.7kΩ	4.7kΩ



Internal Connection



## Absolute Maximum Ratings (T<sub>a</sub>=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>	400	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

UN6111/6112/6113/6114/6115/6116/6117/  
Transistors with built-in Resistor 6118/6119/6110/611D/611E/611F/611H/611L

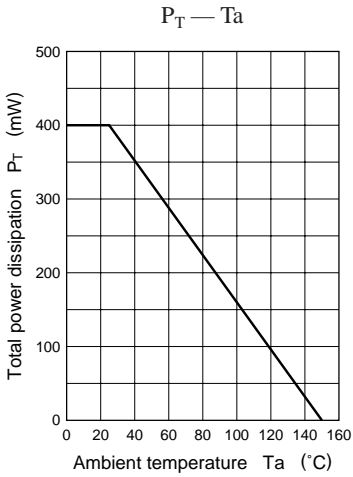
■ Electrical Characteristics (T<sub>a</sub>=25°C)

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	UN6111	I <sub>EBO</sub>	V <sub>EB</sub> = -6V, I <sub>C</sub> = 0			-0.5	mA	
	UN6112/6114/611E/611D					-0.2		
	UN6113					-0.1		
	UN6115/6116/6117/6110					-0.01		
	UN611F/611H					-1.0		
	UN6119					-1.5		
	UN6118/611L					-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	UN6111	h <sub>FE</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -5mA	35			V	
	UN6112/611E			60				
	UN6113/6114			80				
	UN6115*/6116*/6117*/6110*			160		460		
	UN611F/611D/6119/611H			30				
	UN6118/611L			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> = -2.5V, R <sub>L</sub> = 1kΩ			-0.2	V	
			V <sub>CC</sub> = -5V, V <sub>B</sub> = -3.5V, R <sub>L</sub> = 1kΩ			-0.2		
			V <sub>CC</sub> = -5V, V <sub>B</sub> = -10V, R <sub>L</sub> = 1kΩ			-0.2		
			V <sub>CC</sub> = -5V, V <sub>B</sub> = -6V, R <sub>L</sub> = 1kΩ			-0.2		
Transition frequency		f <sub>T</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 1mA, f = 200MHz		80		MHz	
Input resistance	UN6111/6114/6115	R <sub>i</sub>		(-30%)	10	(±30%)	kΩ	
	UN6112/6117							22
	UN6113/6110/611D/611E							47
	UN6116/611F/611L							4.7
	UN6118							0.51
	UN6119							1
	UN611H							2.2
Resistance ratio	UN6111/6112/6113/611L	R <sub>i</sub> /R <sub>2</sub>			0.8	1.0	1.2	
	UN6114				0.17	0.21	0.25	
	UN6118/6119				0.08	0.1	0.12	
	UN611D				3.7	4.7	5.7	
	UN611E				1.7	2.14	2.6	
	UN611F				0.37	0.47	0.57	
	UN611H				0.17	0.22	0.27	

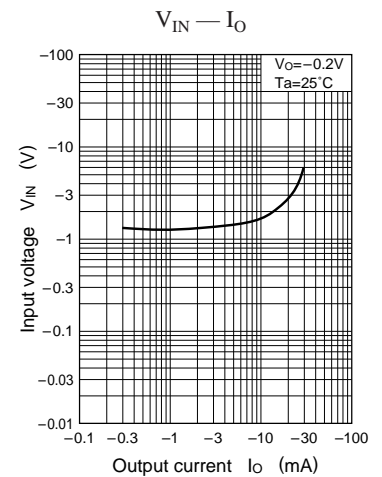
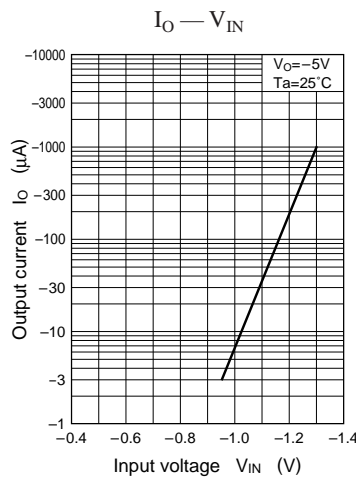
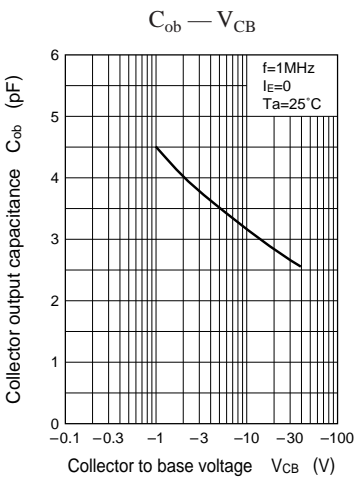
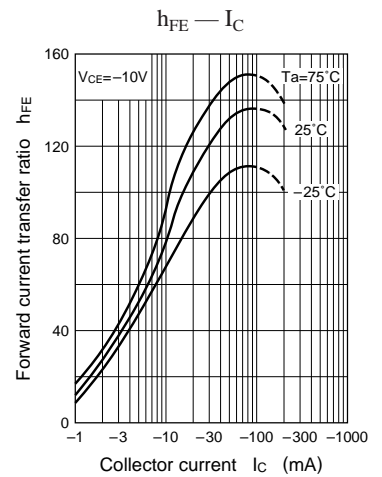
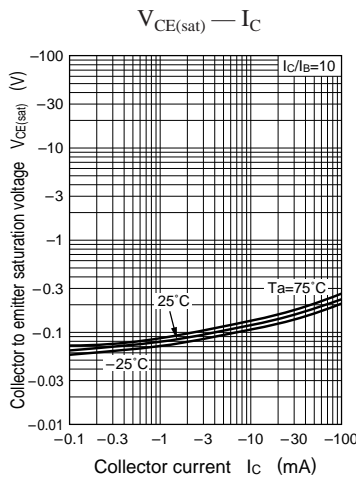
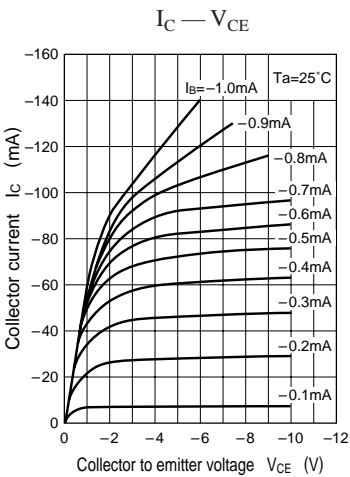
\* h<sub>FE</sub> rank classification (UN6115/6116/6117/6110)

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

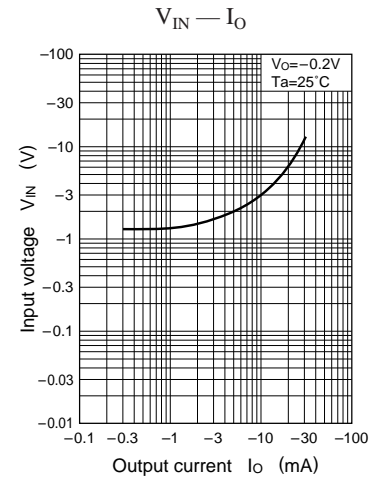
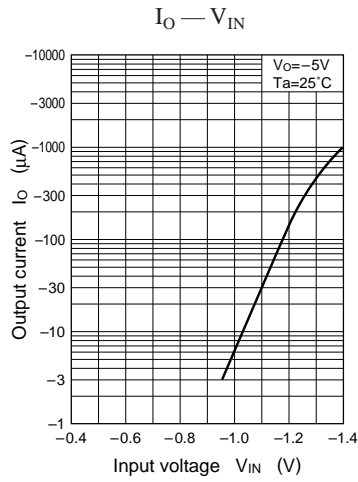
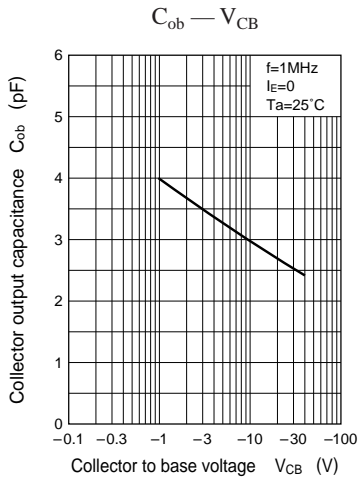
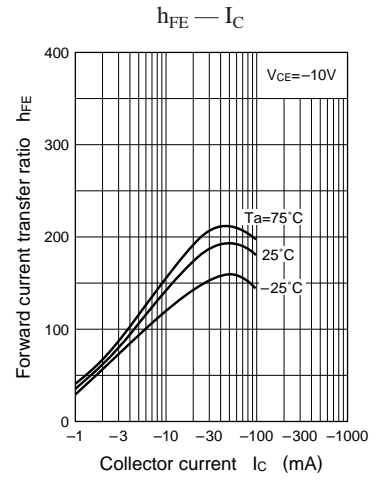
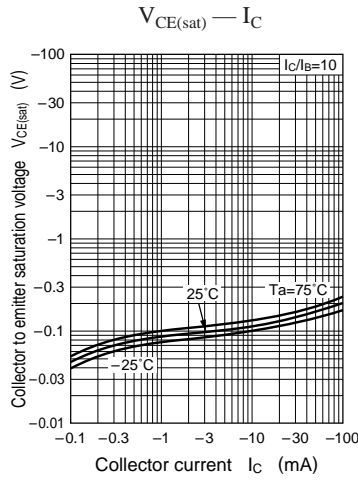
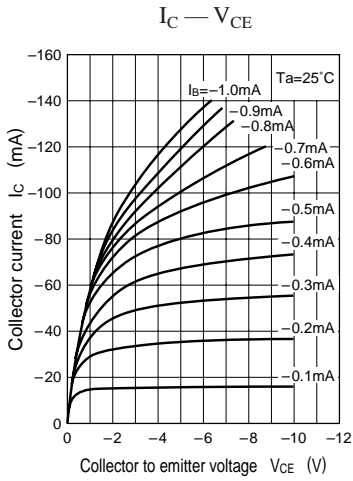
Common characteristics chart



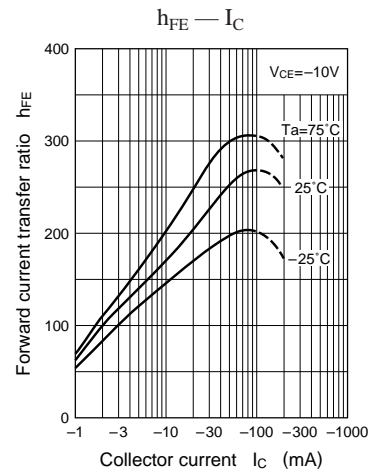
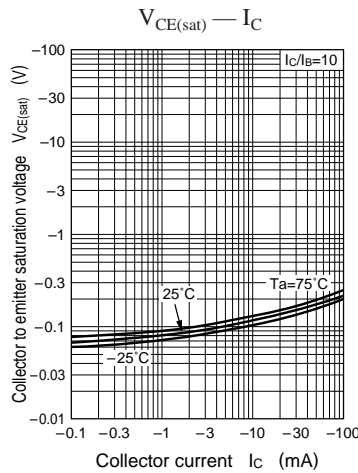
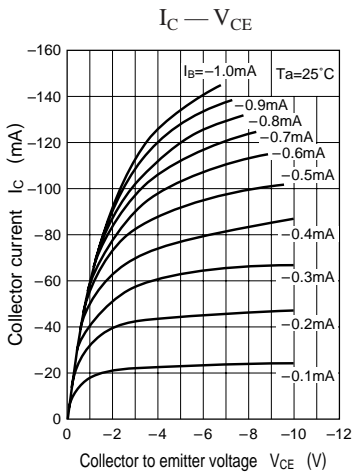
Characteristics charts of UN6111

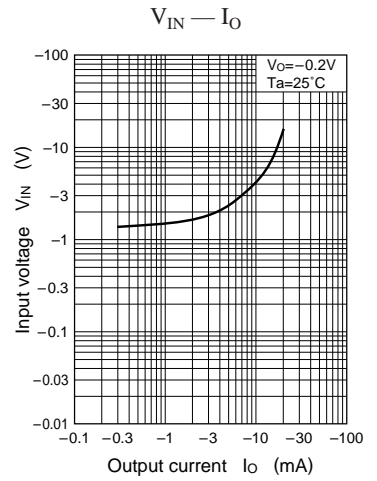
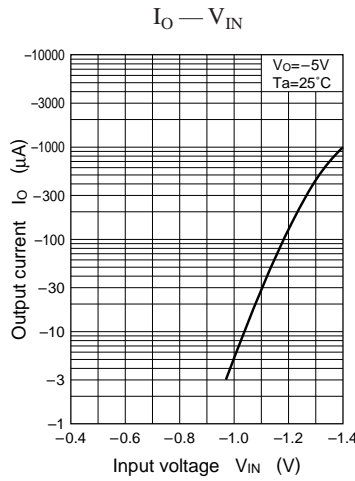
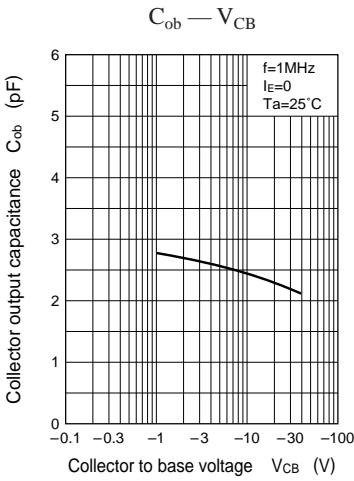


Characteristics charts of UN6112

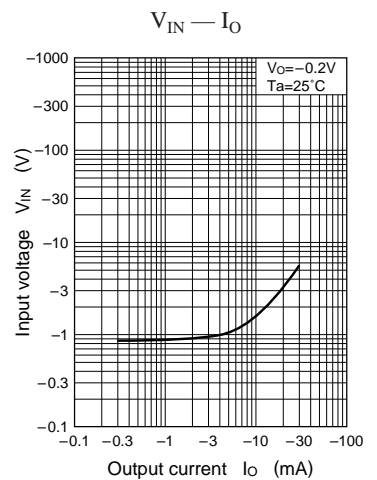
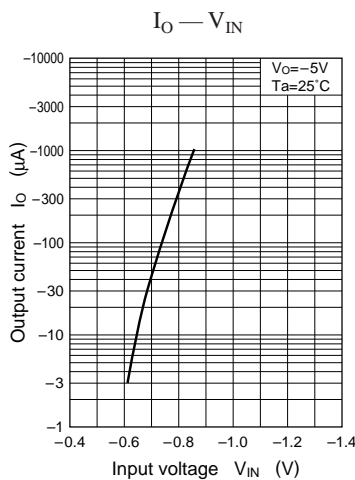
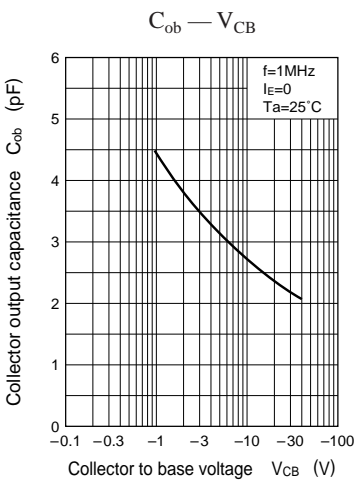
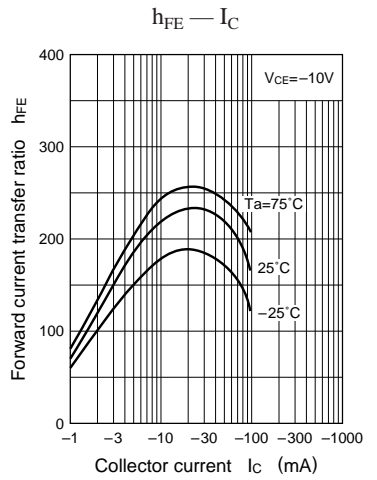
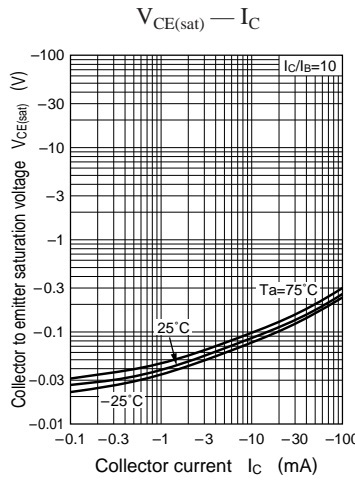
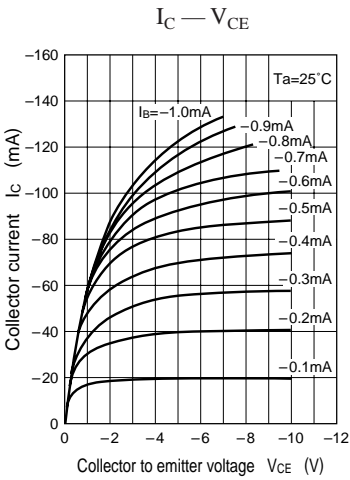


Characteristics charts of UN6113

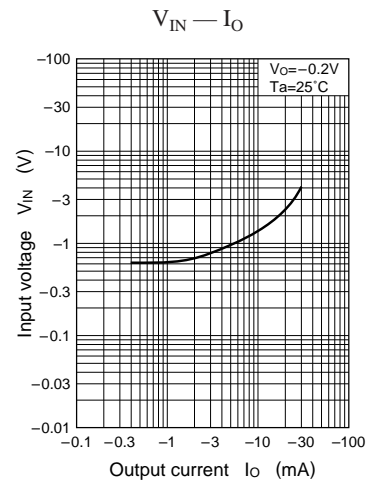
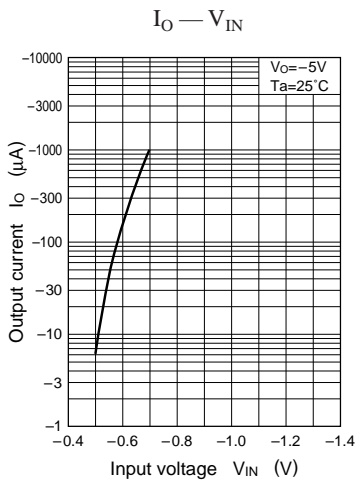
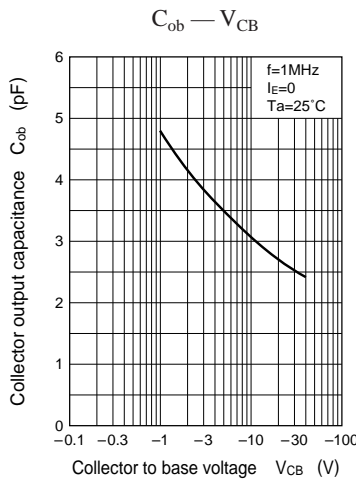
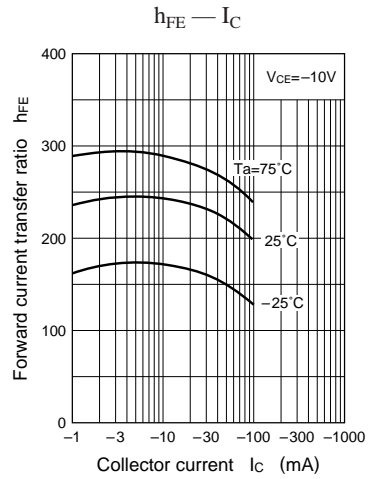
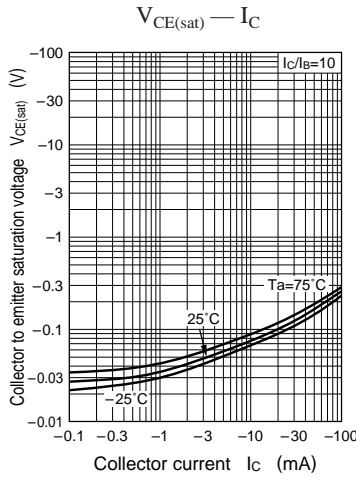
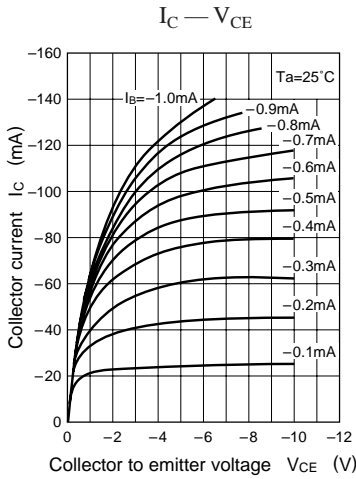




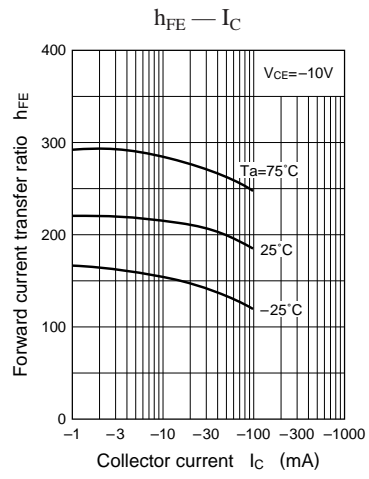
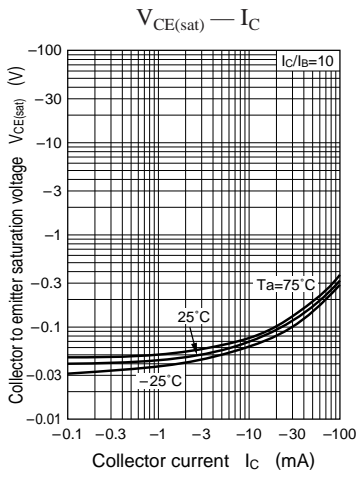
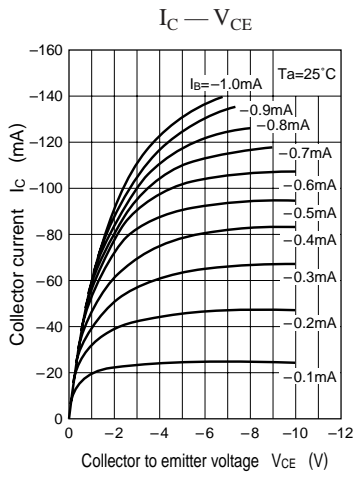
Characteristics charts of UN6114

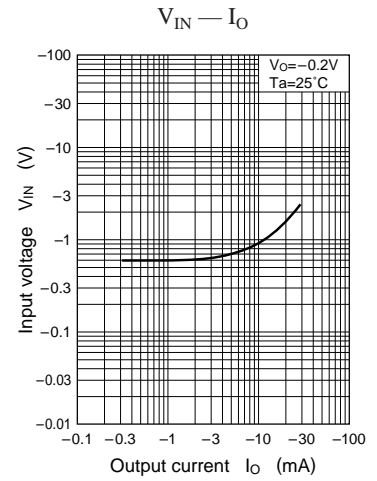
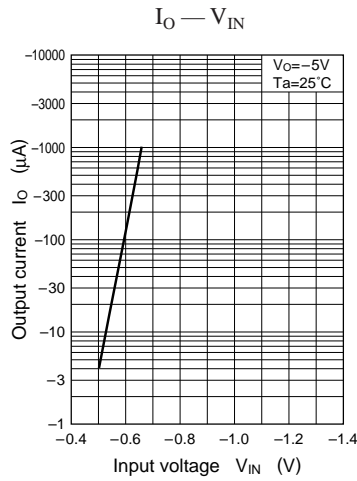
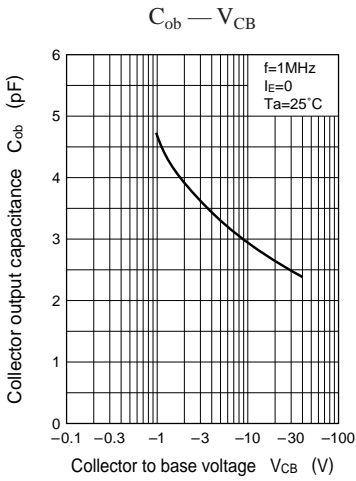


Characteristics charts of UN6115

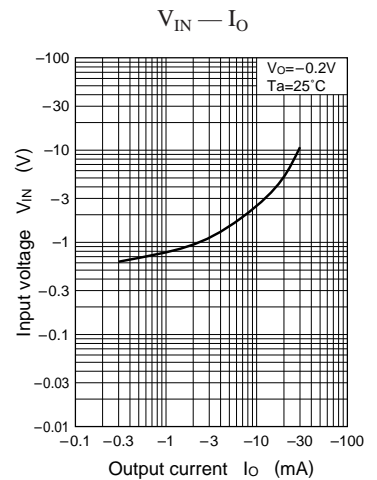
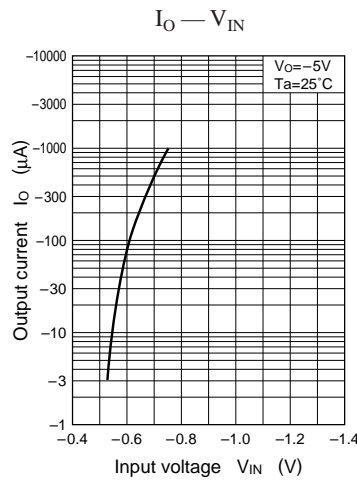
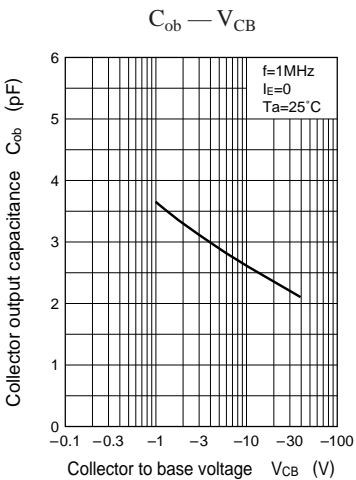
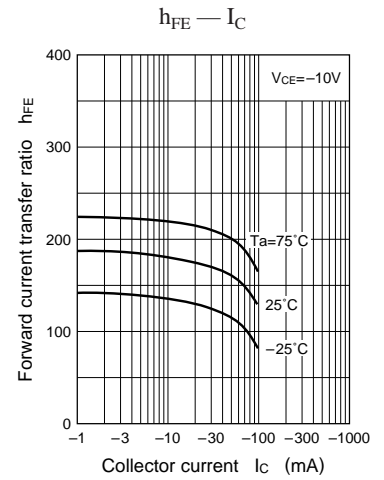
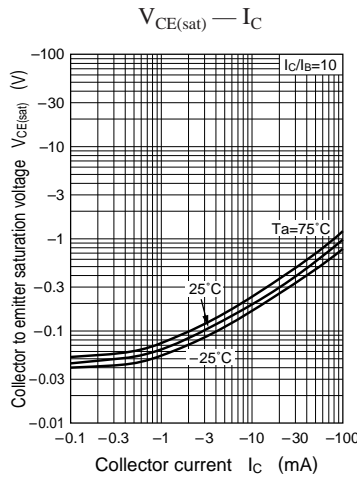
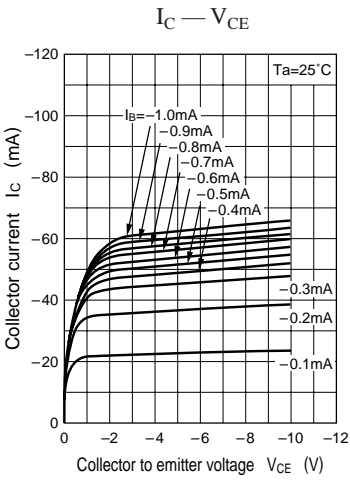


Characteristics charts of UN6116

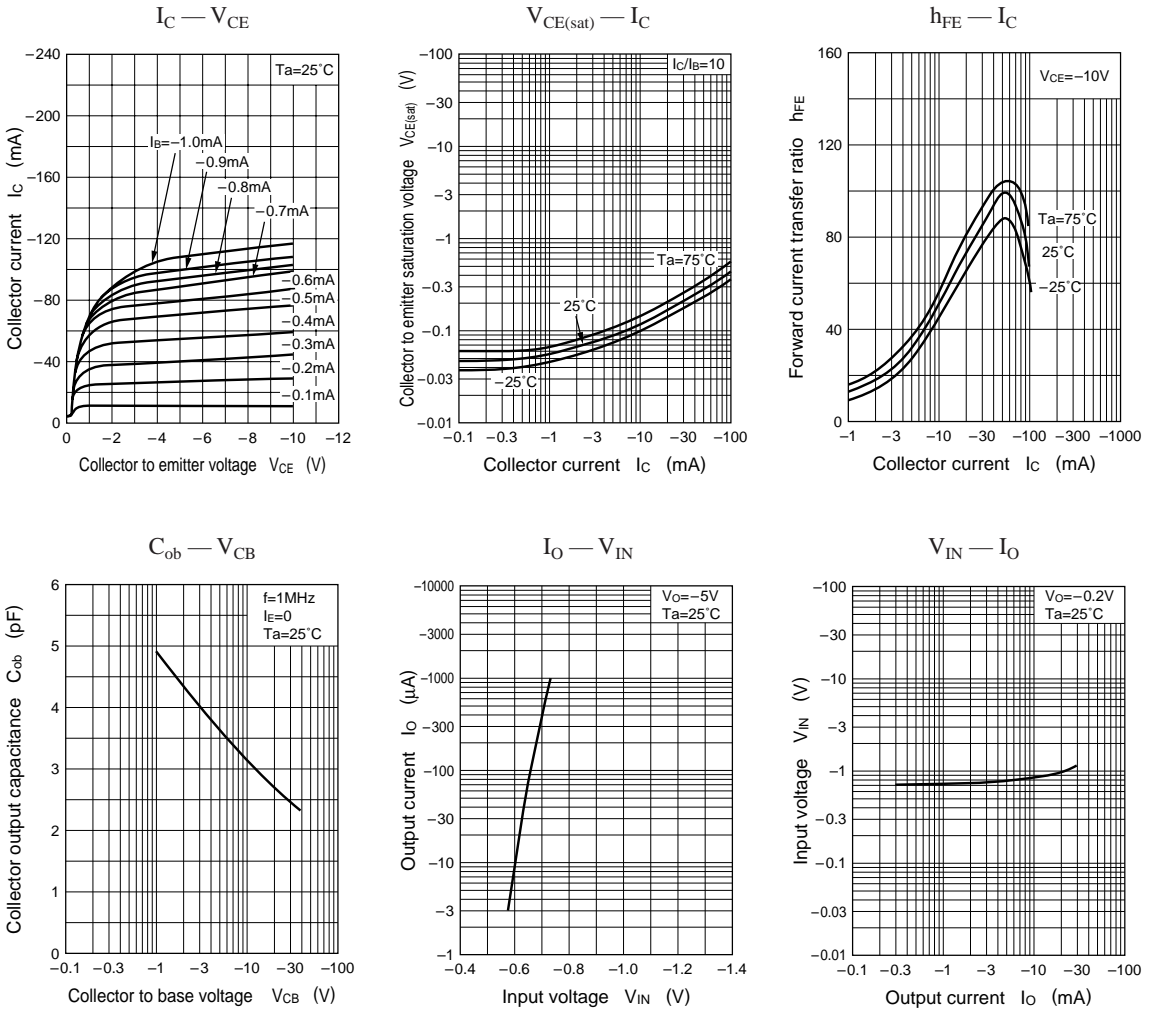




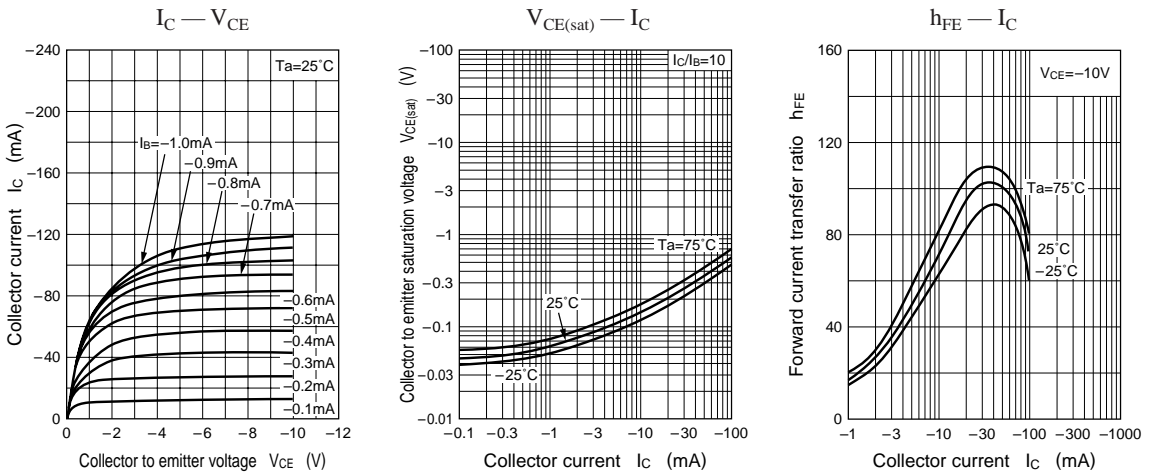
Characteristics charts of UN6117



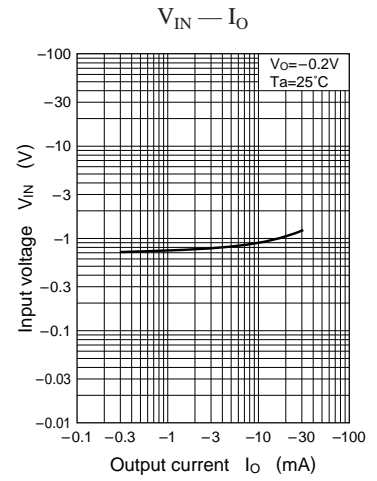
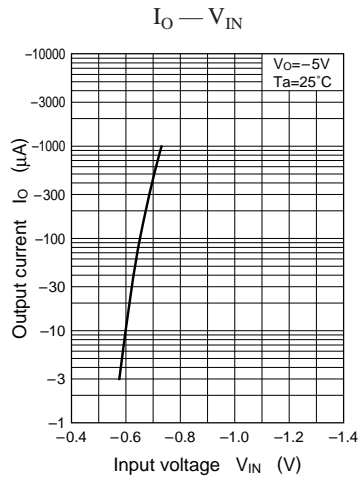
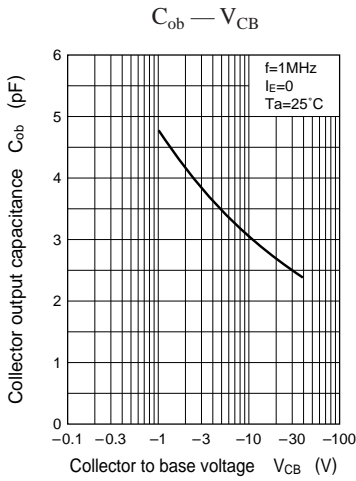
Characteristics charts of UN6118



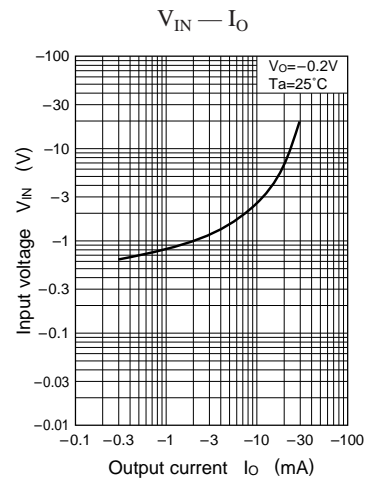
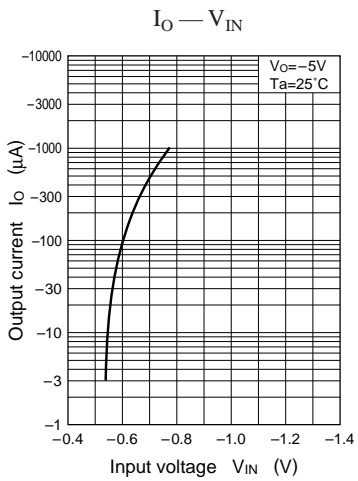
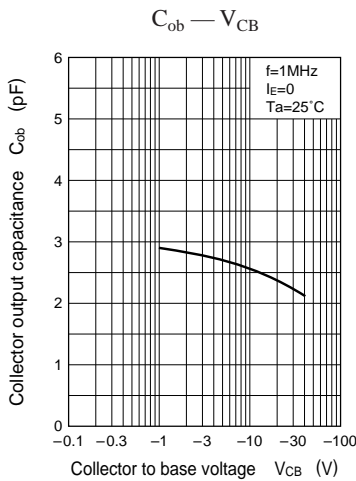
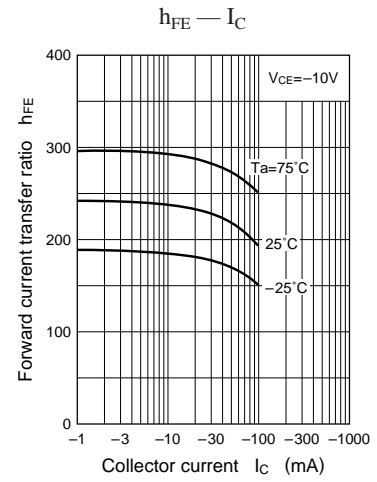
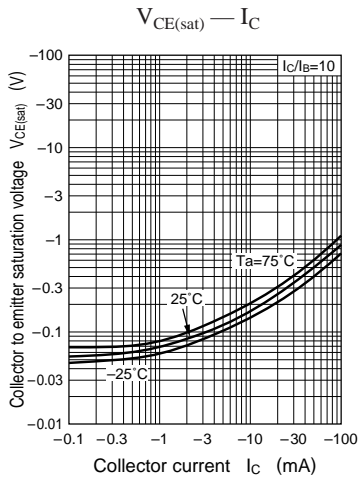
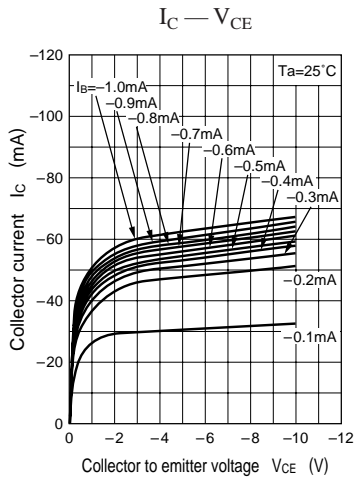
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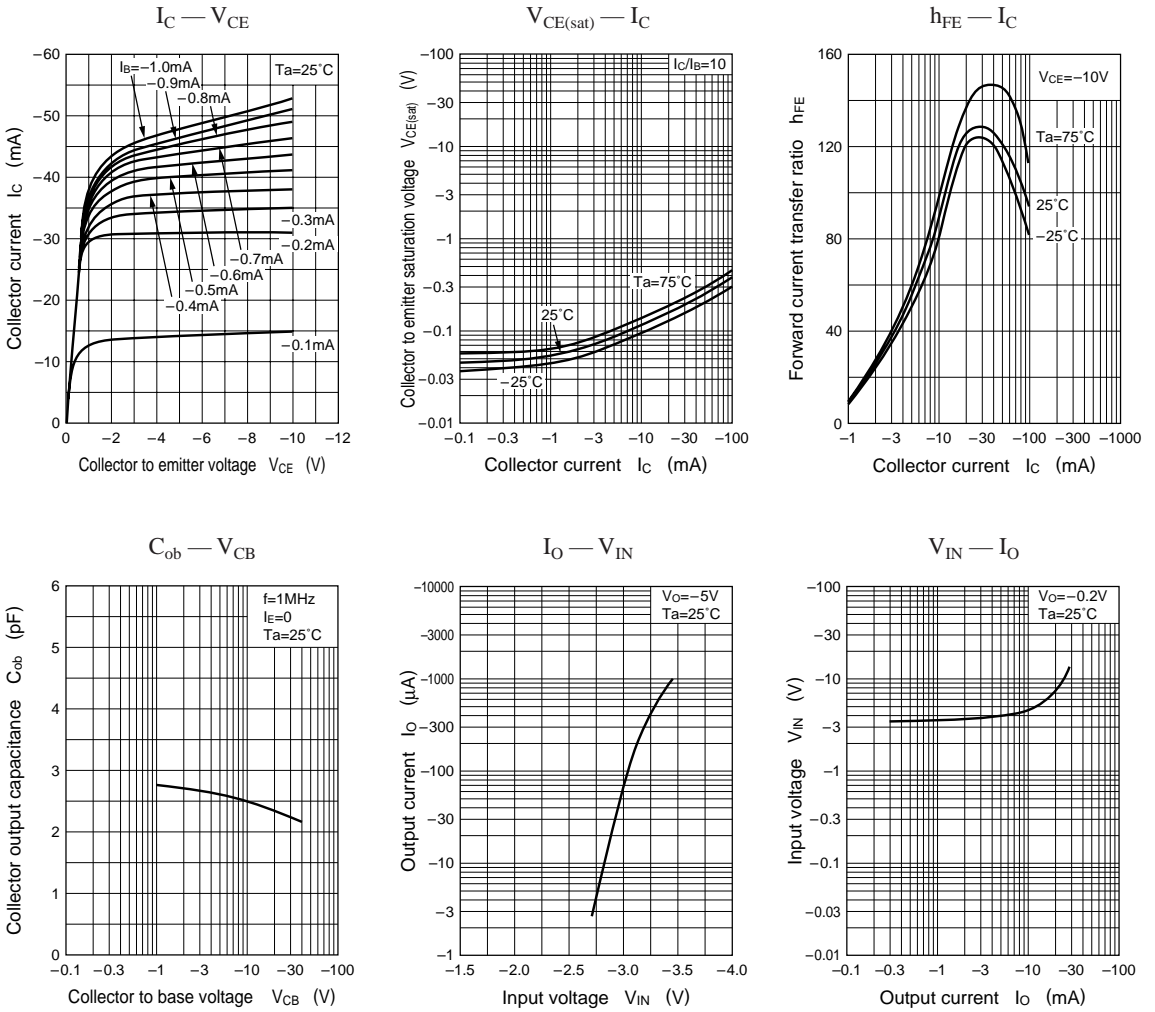




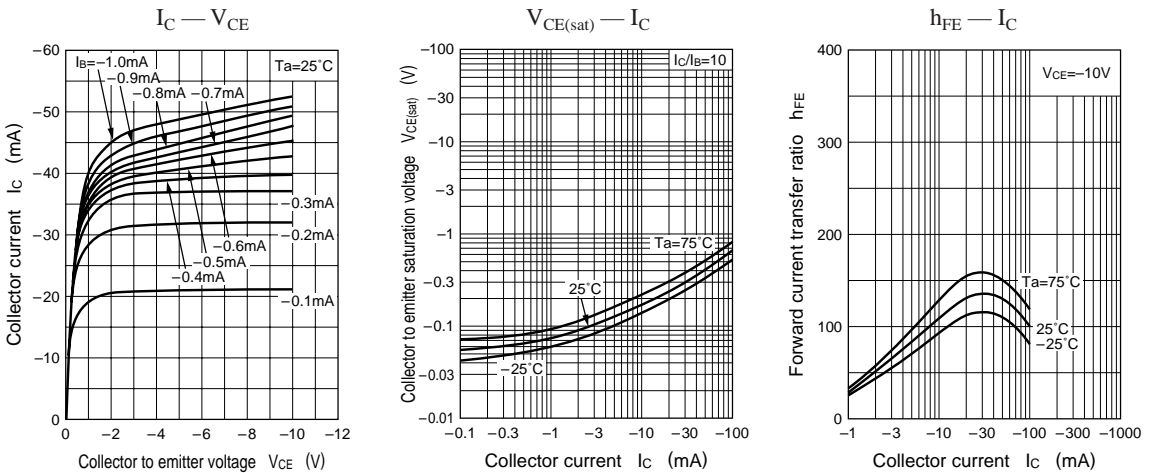
Characteristics charts of UN6110

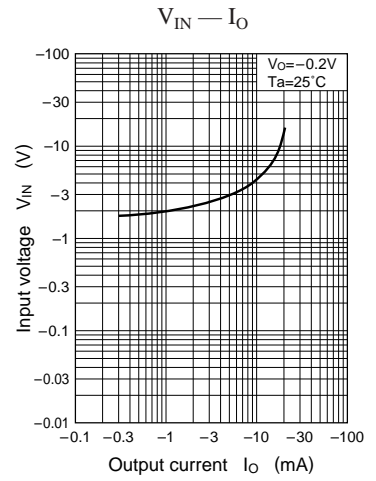
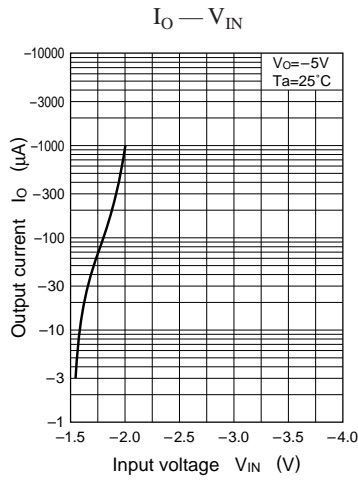
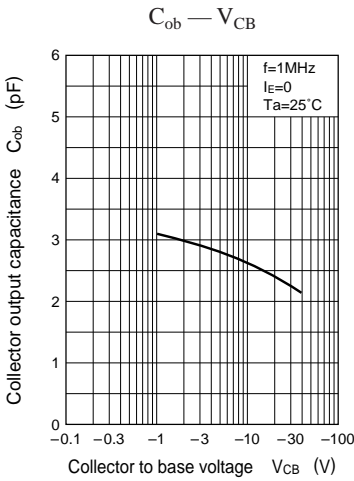


Characteristics charts of UN611D

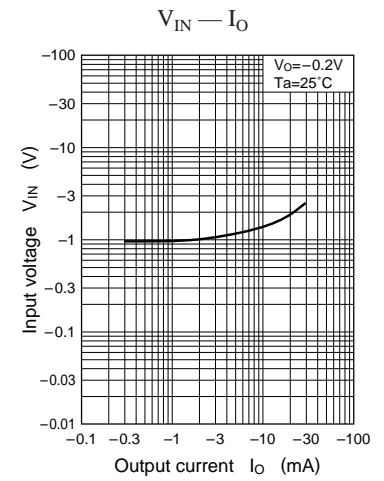
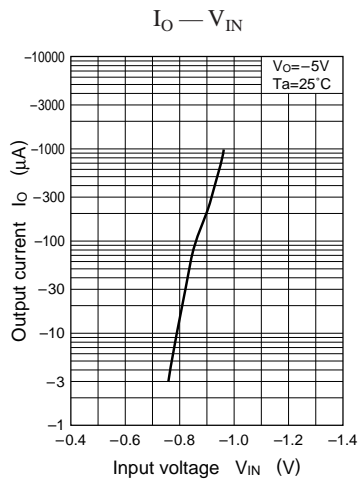
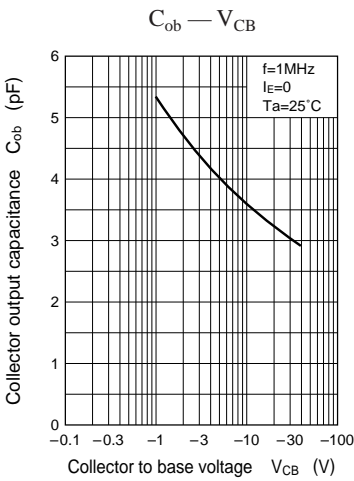
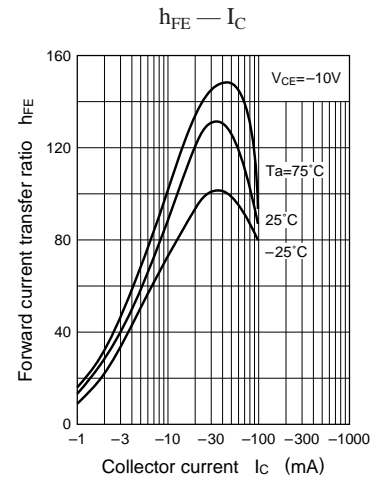
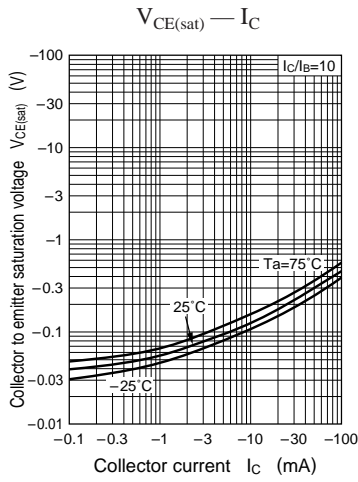
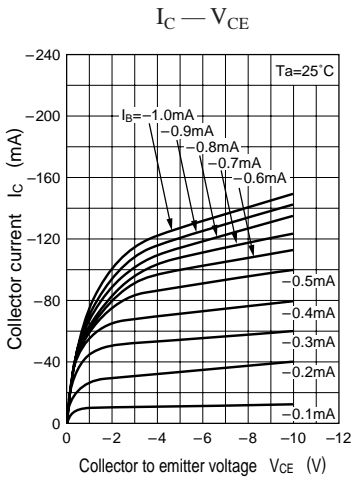


Characteristics charts of UN611E

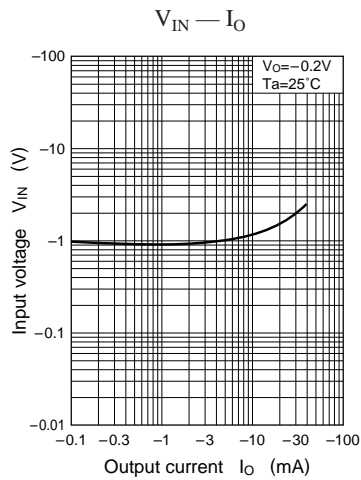
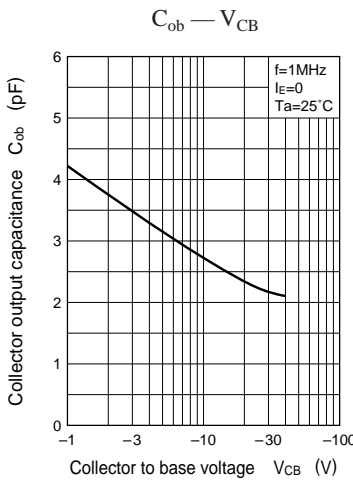
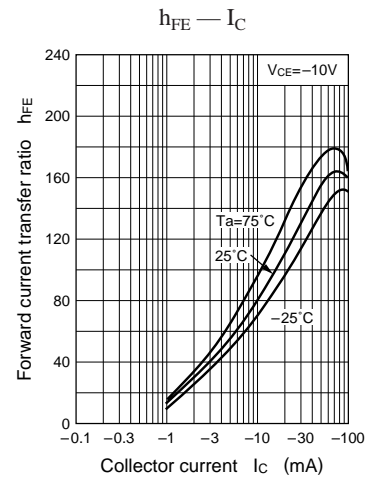
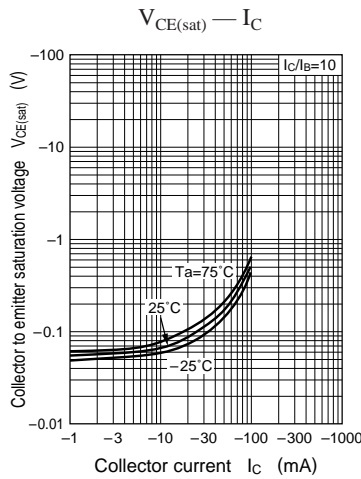
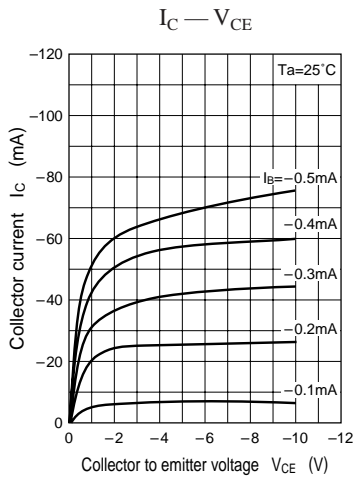




Characteristics charts of UN611F



Characteristics charts of UN611H



Characteristics charts of UN611L

