

# UNR6111/6112/6113/6114/6115/6116/6117/ 6118/6119/6110/611D/611E/611F/611H/611L (UN6111/6112/6113/6114/6115/6116/6117/6118/6119/ 6110/611D/611E/611F/611H/611L)

Silicon PNP epitaxial planer transistor

For digital circuits

## Features

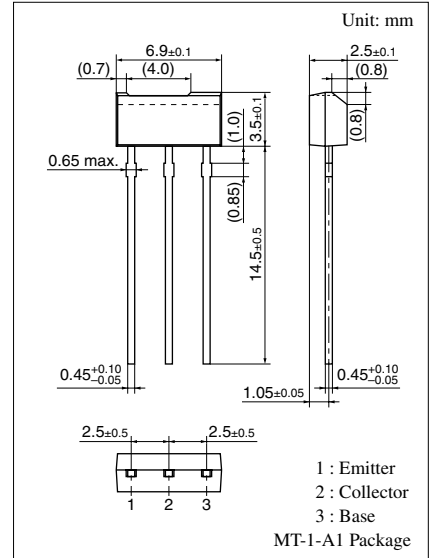
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- MT-1 type package, allowing supply with the radial taping.

## Resistance by Part Number

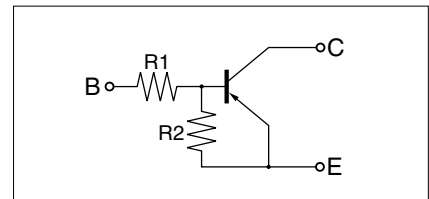
	(R <sub>1</sub> )	(R <sub>2</sub> )
● UNR6111	10kΩ	10kΩ
● UNR6112	22kΩ	22kΩ
● UNR6113	47kΩ	47kΩ
● UNR6114	10kΩ	47kΩ
● UNR6115	10kΩ	—
● UNR6116	4.7kΩ	—
● UNR6117	22kΩ	—
● UNR6118	0.51kΩ	5.1kΩ
● UNR6119	1kΩ	10kΩ
● UNR6110	47kΩ	—
● UNR611D	47kΩ	10kΩ
● UNR611E	47kΩ	22kΩ
● UNR611F	4.7kΩ	10kΩ
● UNR611H	2.2kΩ	10kΩ
● UNR611L	4.7kΩ	4.7kΩ

## 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



## Internal Connection



Note) The Part numbers in the Parenthesis show conventional part number.

UNR6111/6112/6113/6114/6115/6116/6117/  
Transistors with built-in Resistor 6118/6119/6110/611D/611E/611F/611H/611L

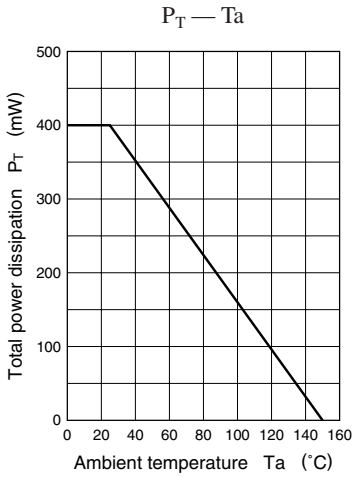
■ Electrical Characteristics (T<sub>a</sub>=25°C)

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	UNR6111	I <sub>EBO</sub>	V <sub>EB</sub> = -6V, I <sub>C</sub> = 0			-0.5	mA		
	UNR6112/6114/611E/611D					-0.2			
	UNR6113					-0.1			
	UNR6115/6116/6117/6110					-0.01			
	UNR611F/611H					-1.0			
	UNR6119					-1.5			
	UNR6118/611L					-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	UNR6111	h <sub>FE</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -5mA	35			V		
	UNR6112/611E			60					
	UNR6113/6114			80					
	UNR6115*/6116*/6117*/6110*			160		460			
	UNR611F/611D/6119/611H			30					
	UNR6118/611L			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	UNR6111/6114/6115	R <sub>i</sub>		(-30%)		(±30%)	kΩ		
	UNR6112/6117							10	
	UNR6113/6110/611D/611E							22	
	UNR6116/611F/611L							47	
	UNR6118							4.7	
	UNR6119							0.51	
	UNR611H							1	
Resistance ratio	UNR6111/6112/6113/611L	R <sub>1</sub> /R <sub>2</sub>					0.8		
	UNR6114						0.17	0.21	0.25
	UNR6118/6119						0.08	0.1	0.12
	UNR611D						3.7	4.7	5.7
	UNR611E						1.7	2.14	2.6
	UNR611F						0.37	0.47	0.57
	UNR611H						0.17	0.22	0.27

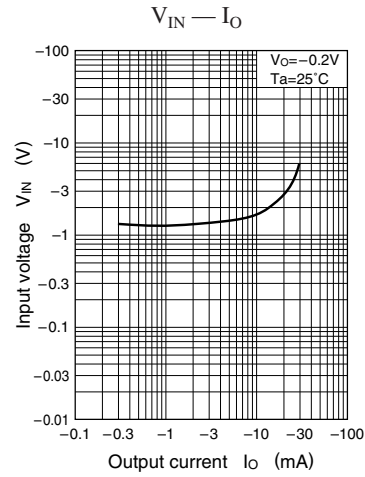
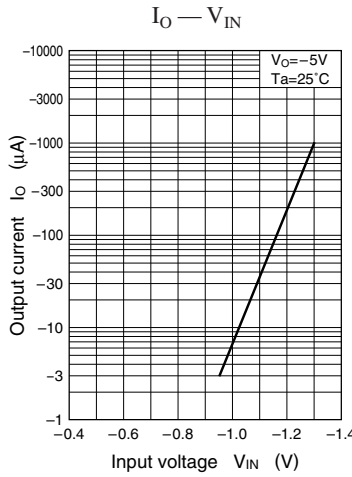
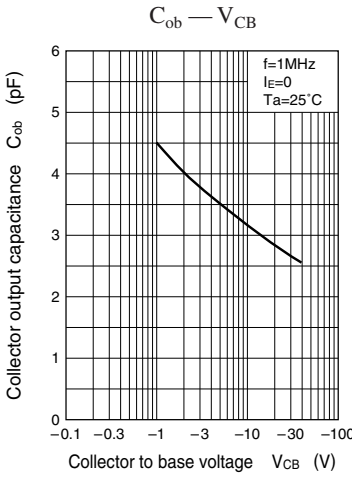
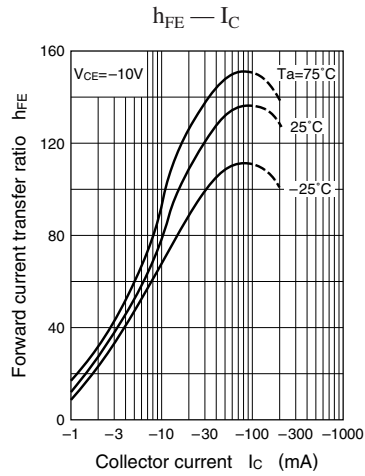
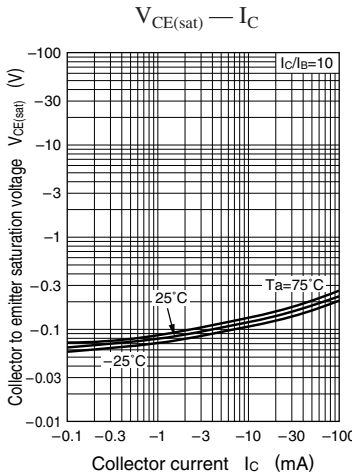
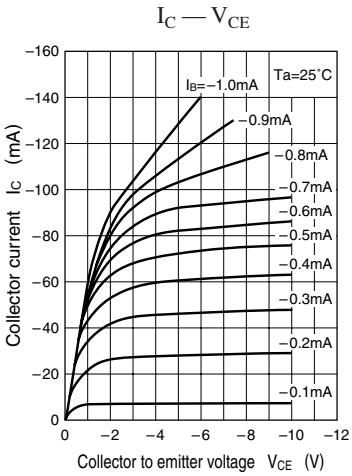
\* h<sub>FE</sub> rank classification (UNR6115/6116/6117/6110)

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

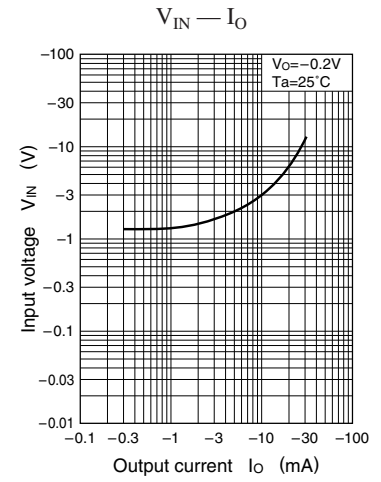
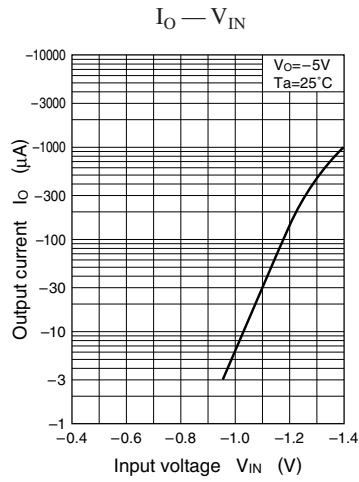
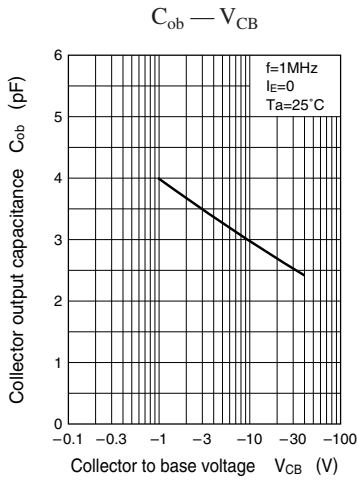
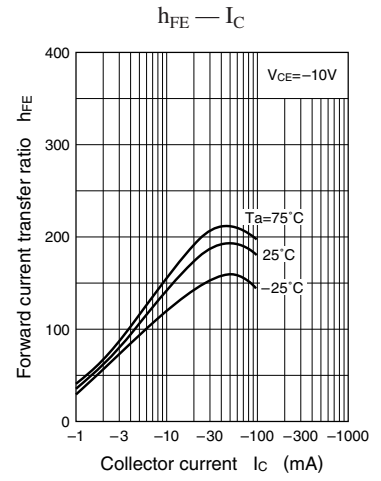
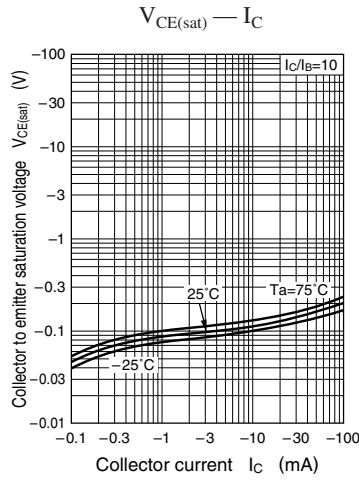
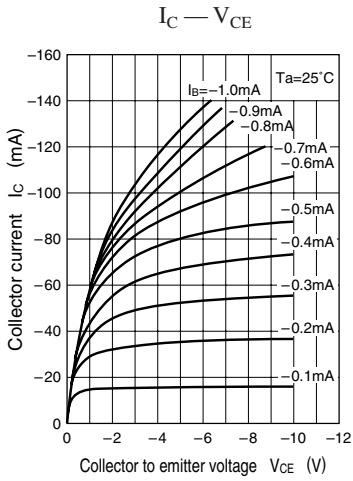
Common characteristics chart



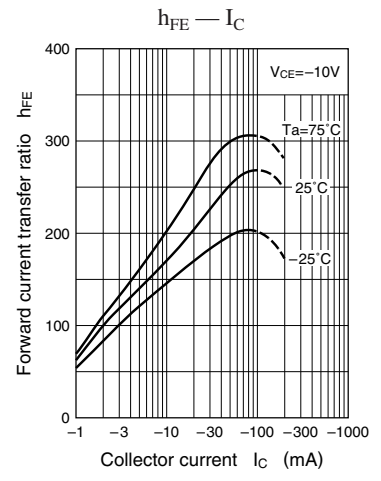
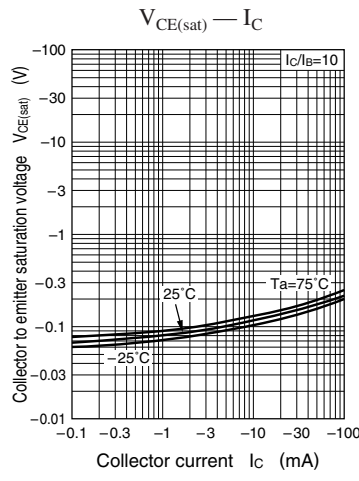
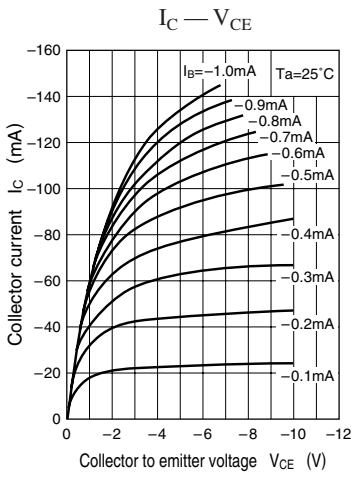
Characteristics charts of UNR6111

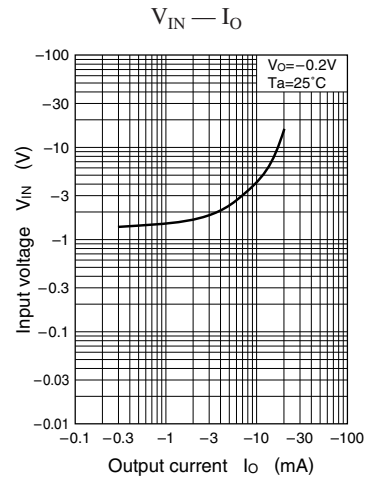
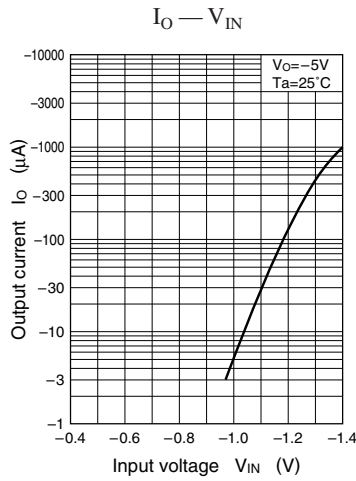
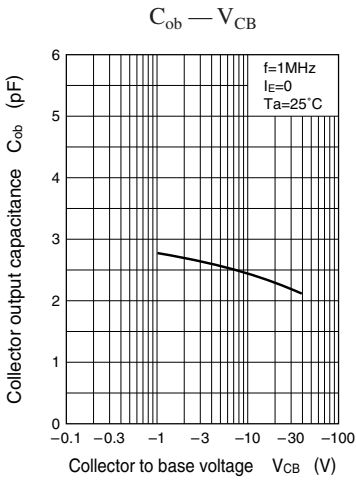


Characteristics charts of UNR6112

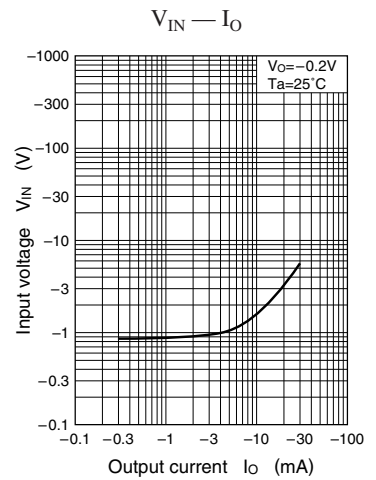
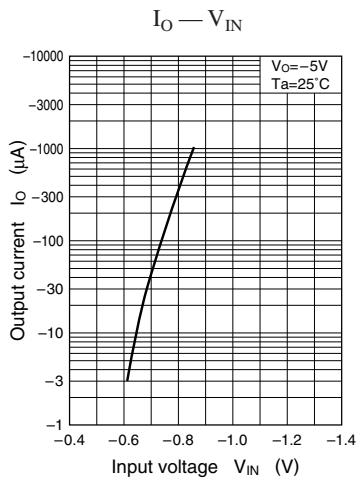
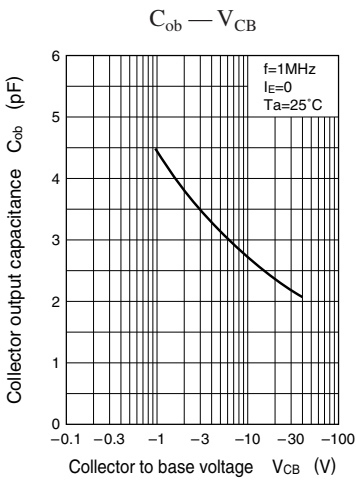
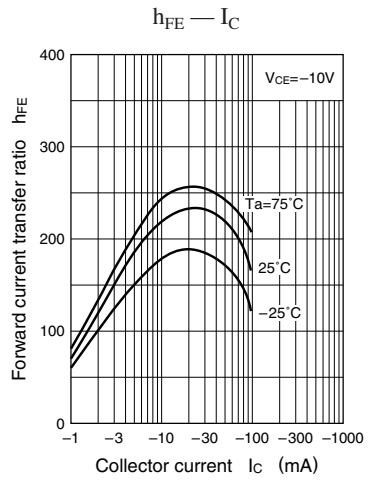
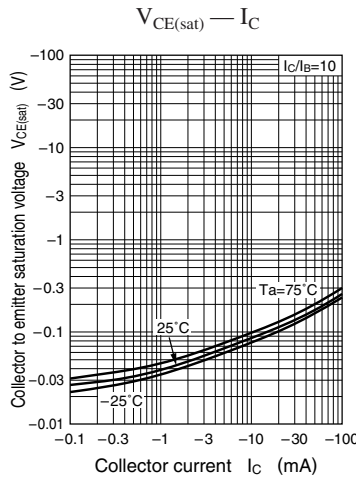
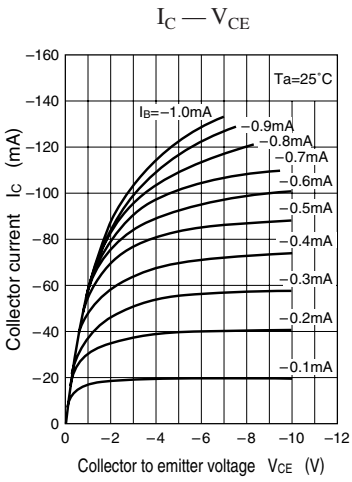


Characteristics charts of UNR6113

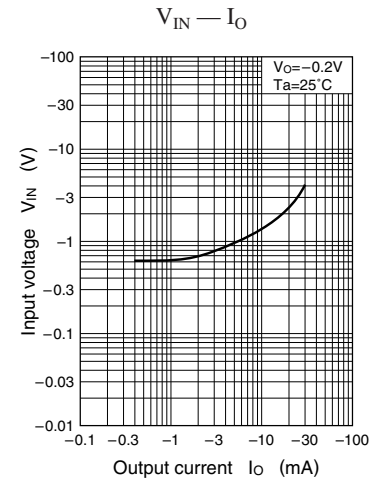
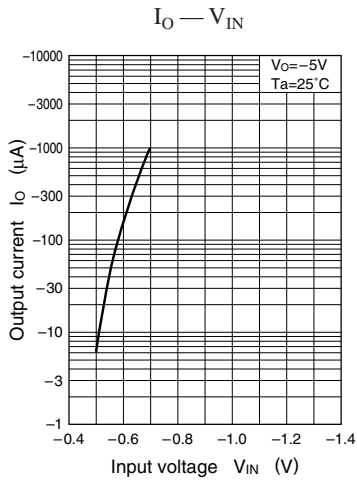
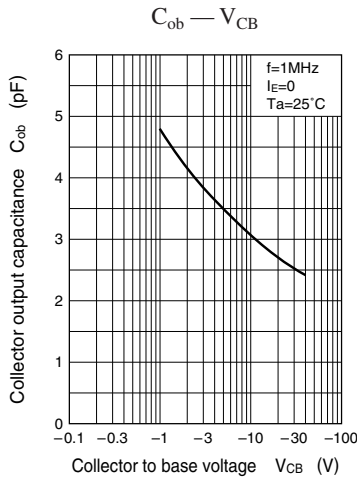
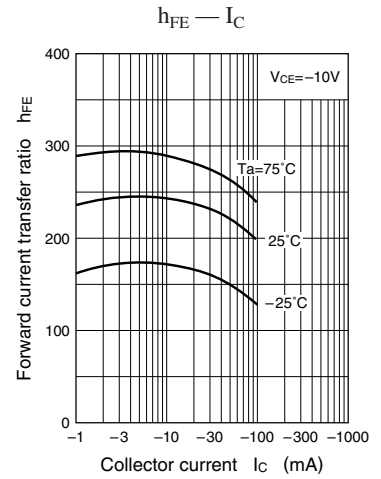
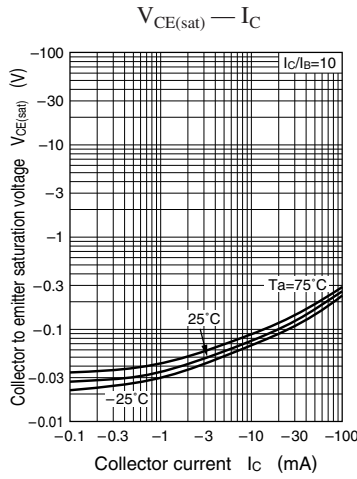
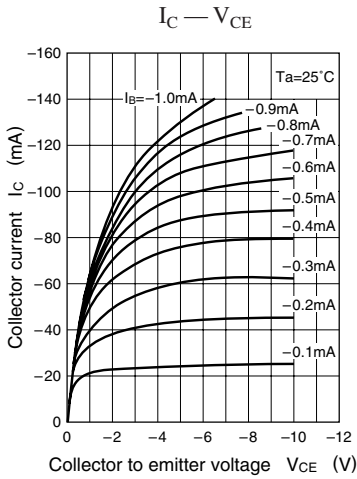




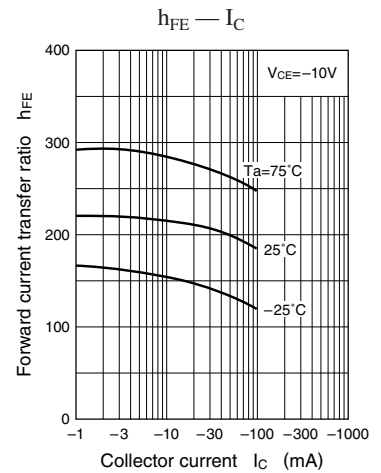
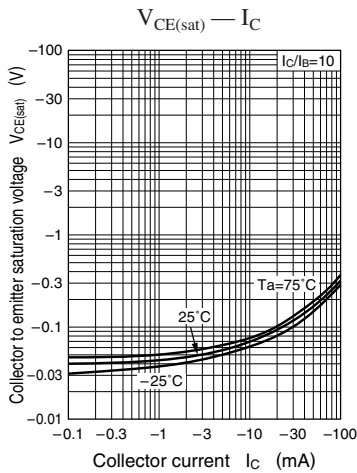
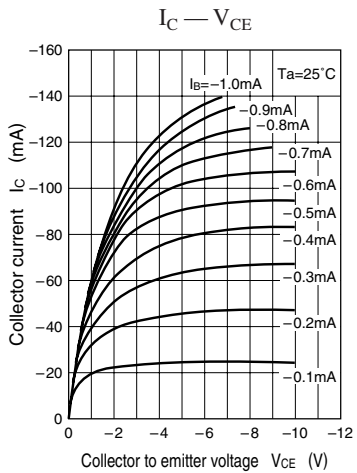
Characteristics charts of UNR6114

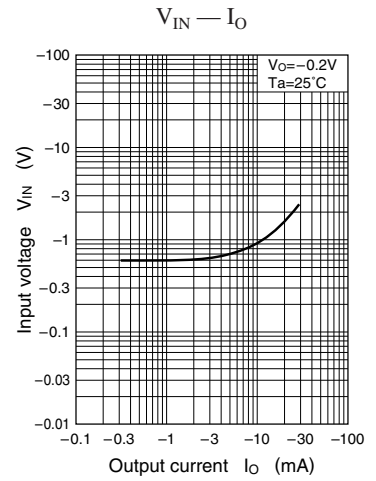
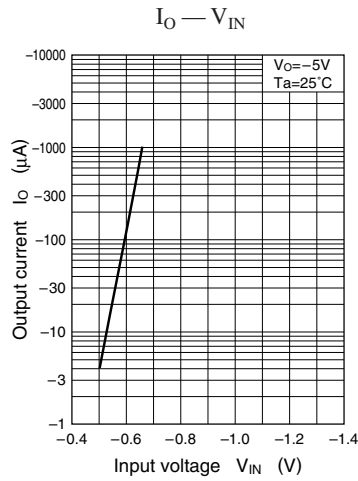
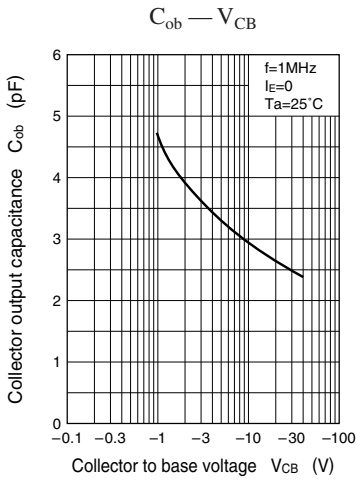


Characteristics charts of UNR6115

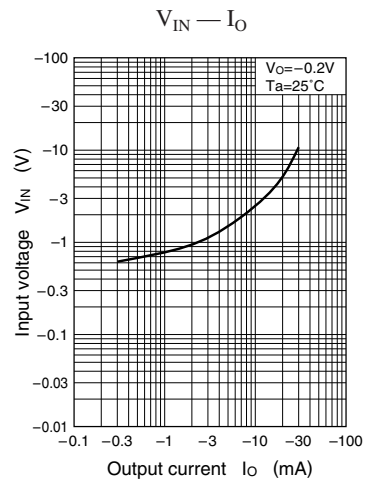
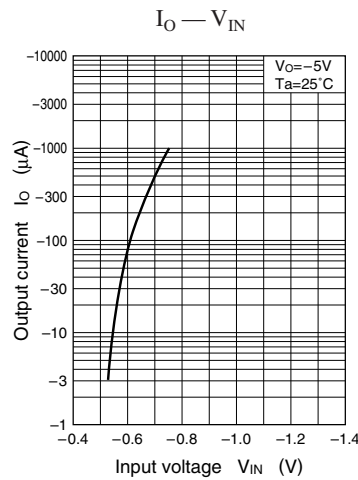
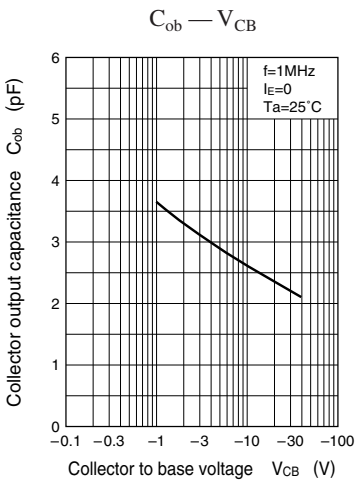
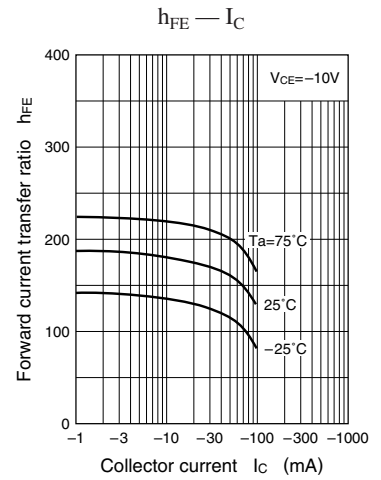
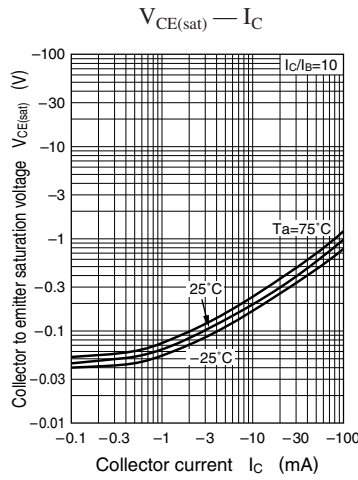
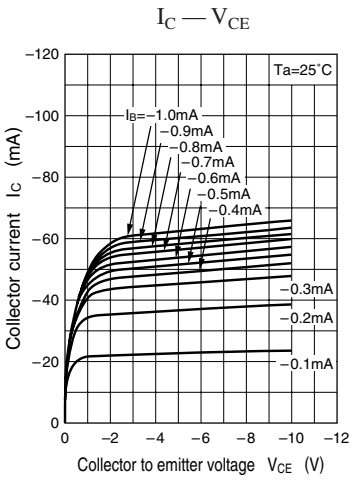


Characteristics charts of UNR6116

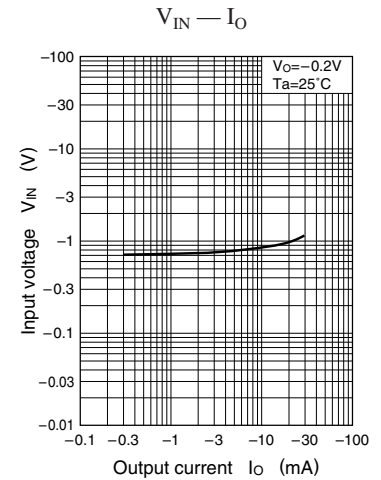
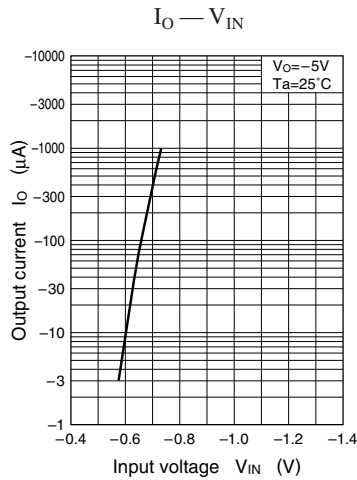
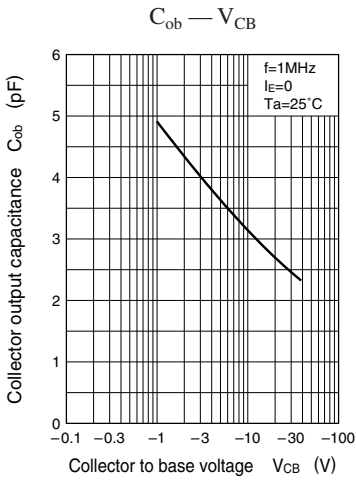
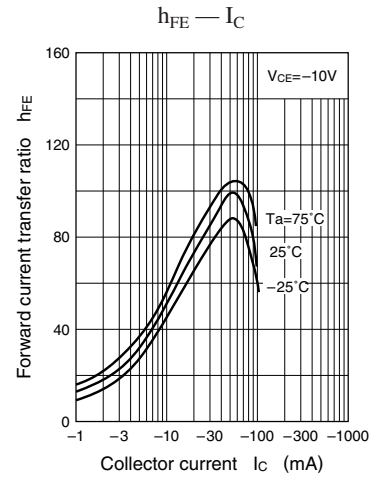
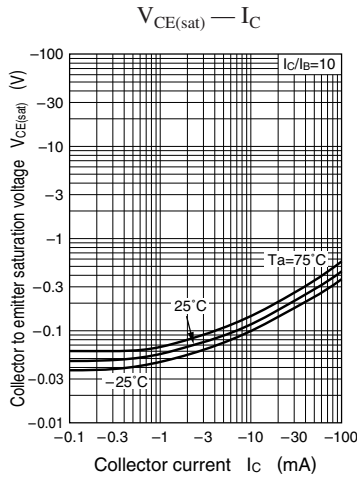
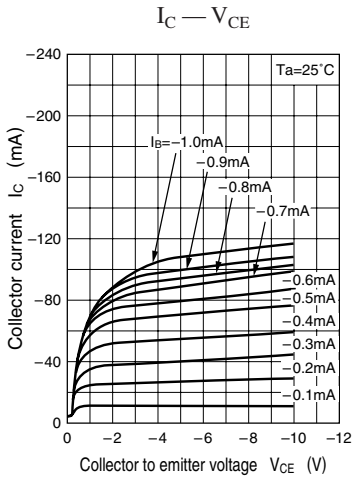




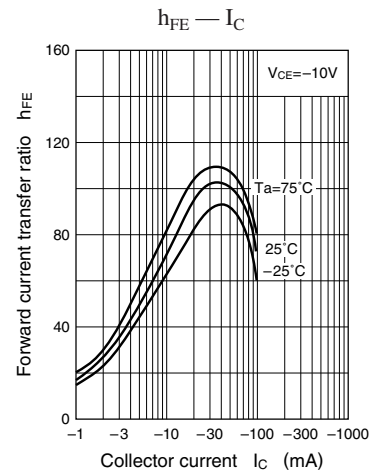
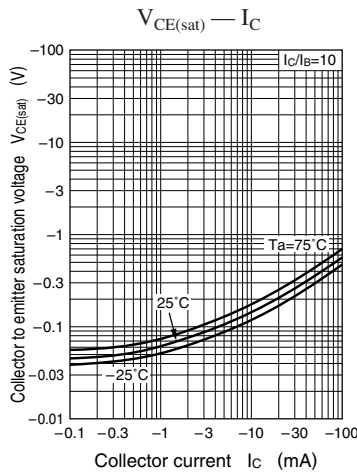
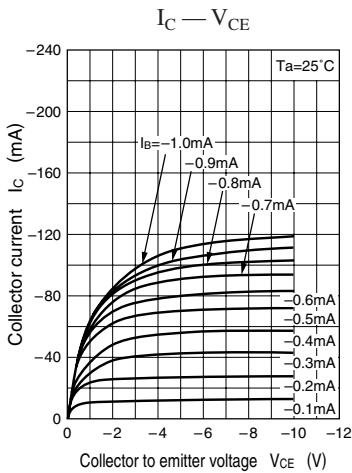
Characteristics charts of UNR6117



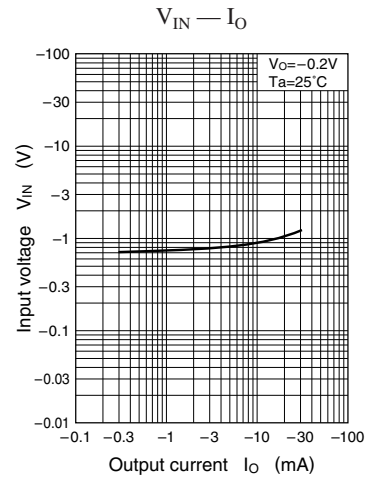
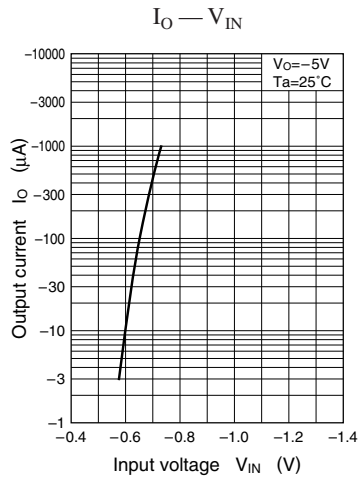
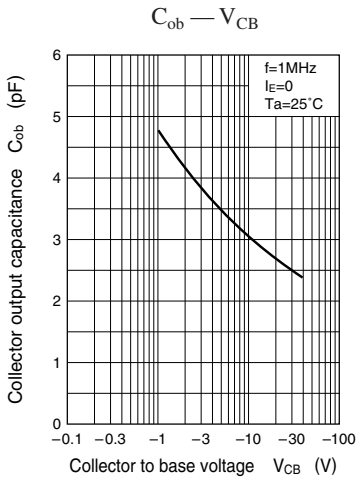
Characteristics charts of UNR6118



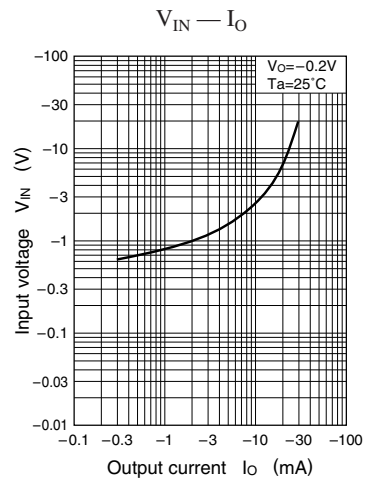
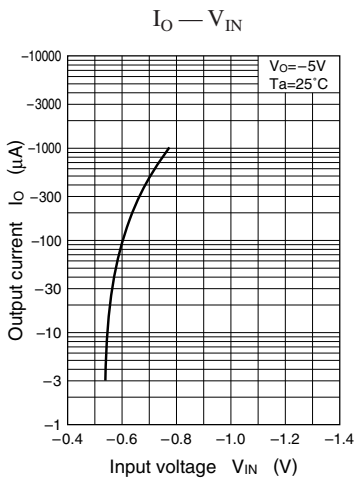
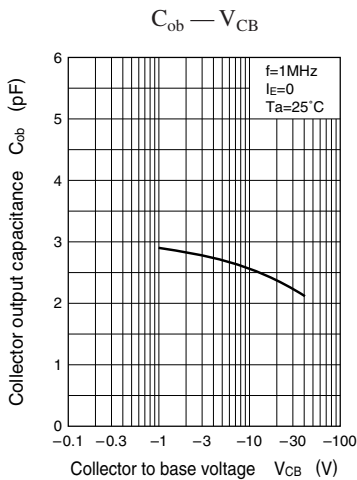
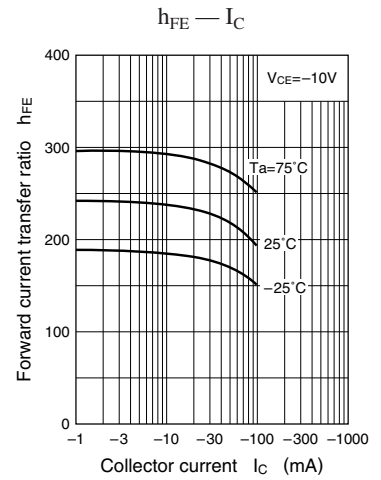
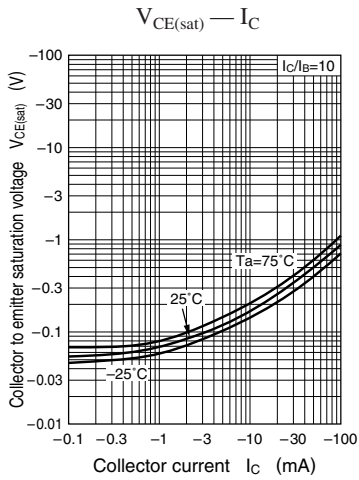
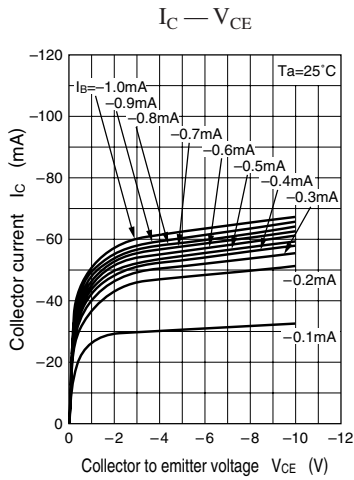
Characteristics charts of UNR6119



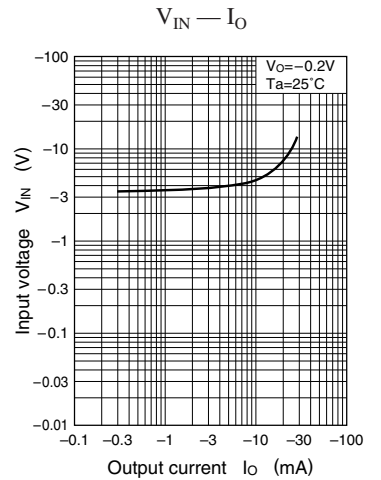
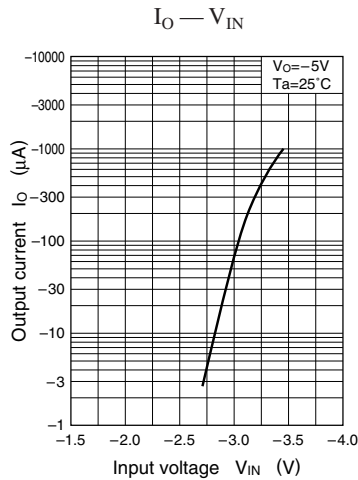
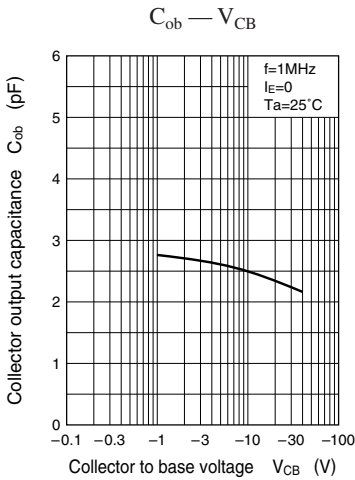
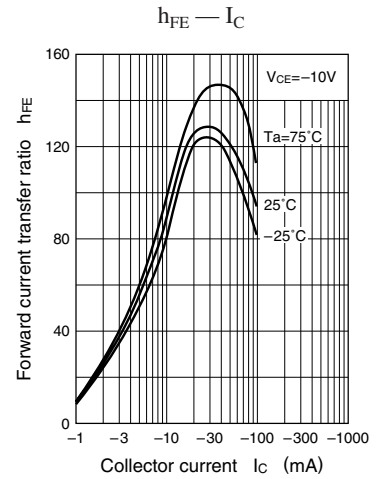
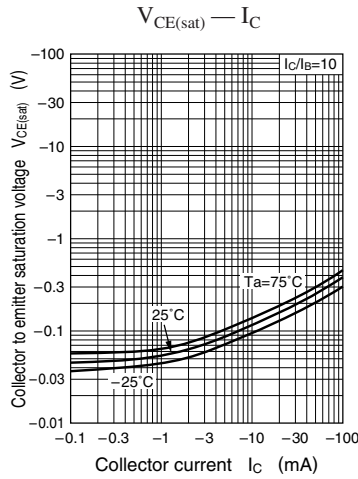
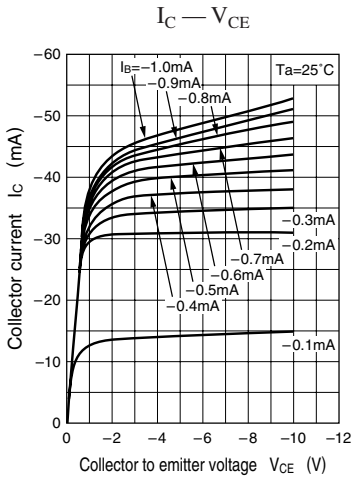




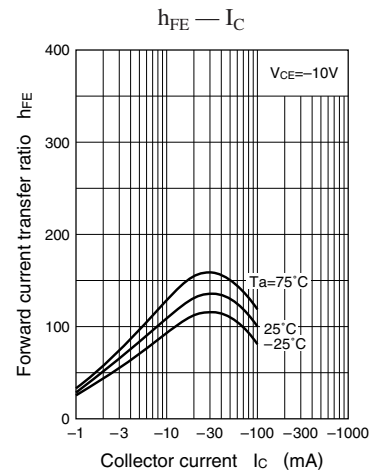
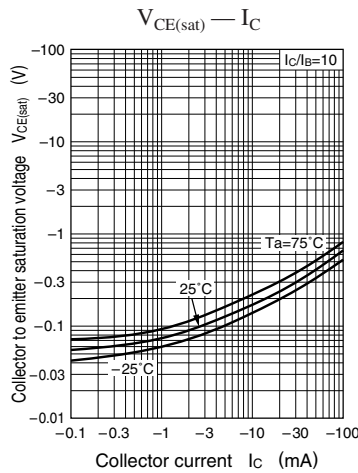
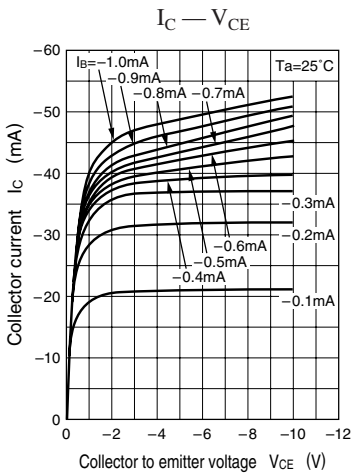
Characteristics charts of UNR6110

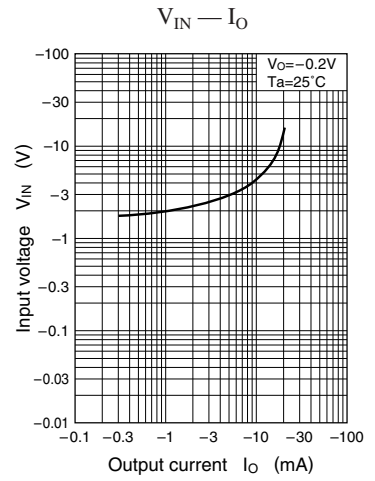
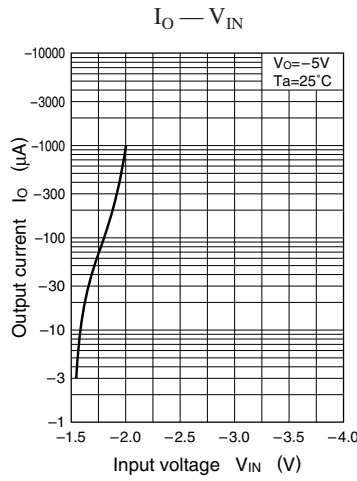
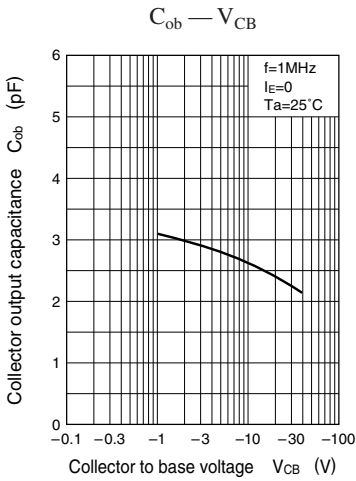


Characteristics charts of UNR611D

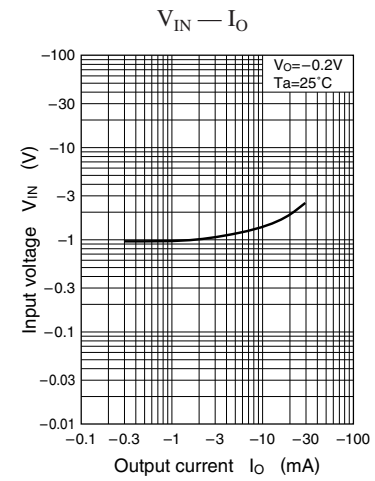
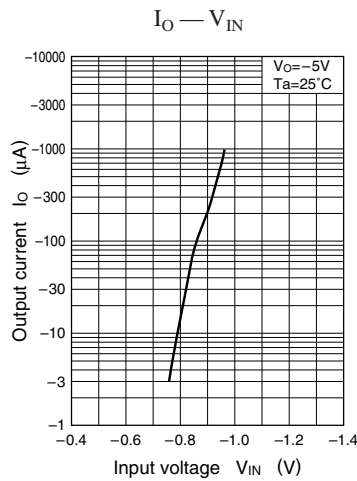
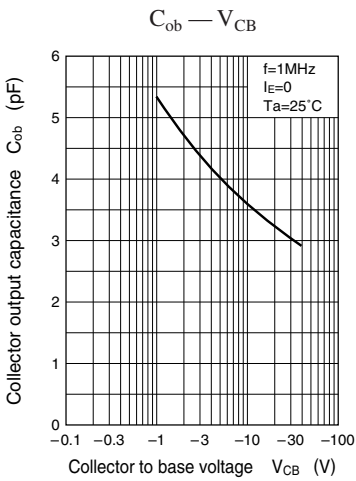
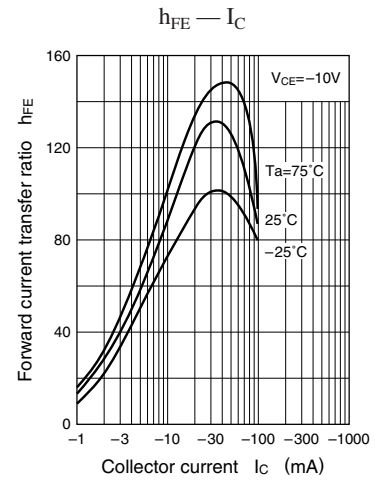
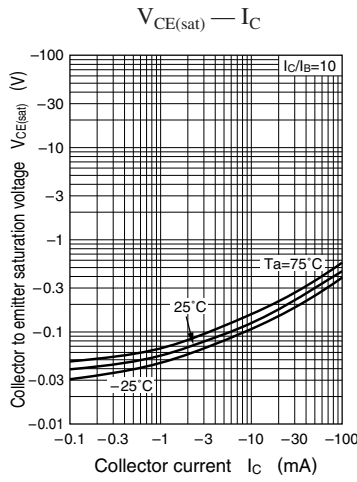
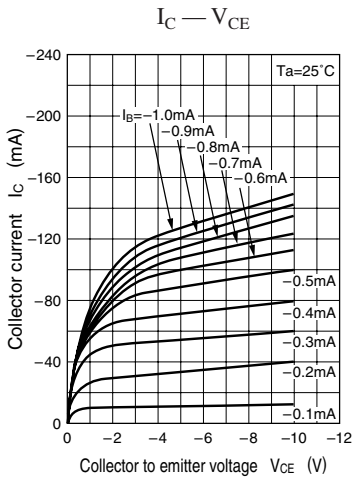


Characteristics charts of UNR611E

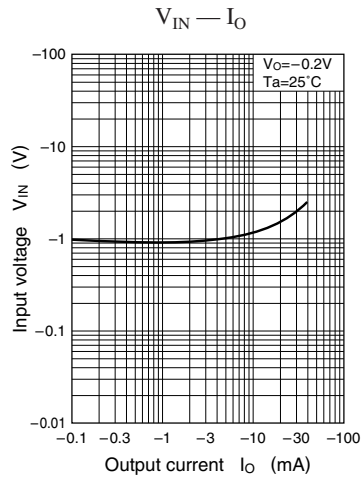
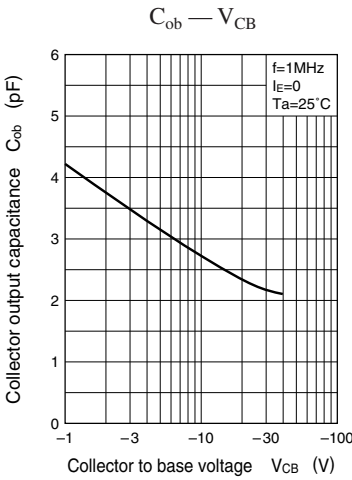
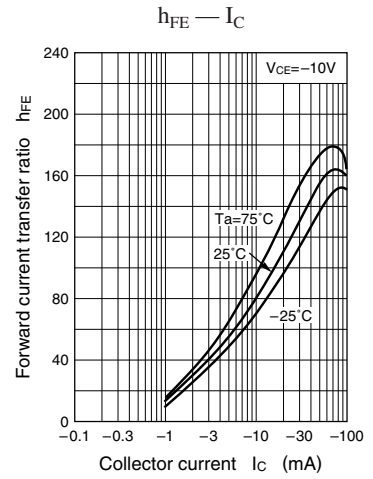
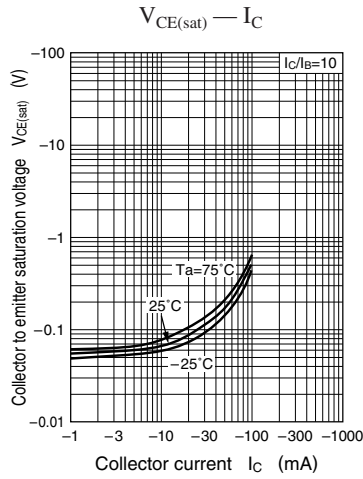
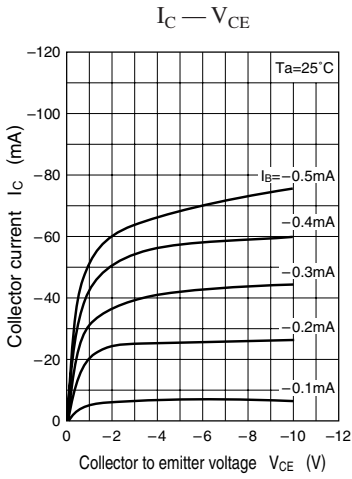




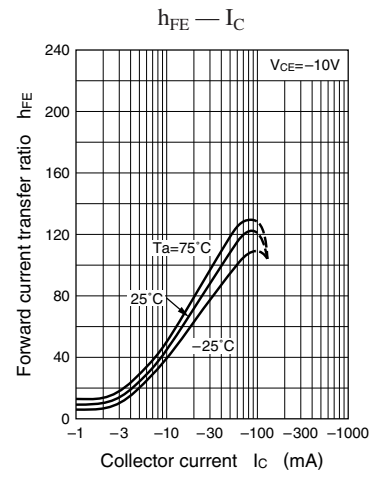
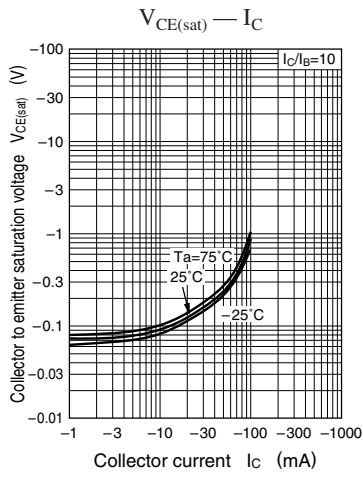
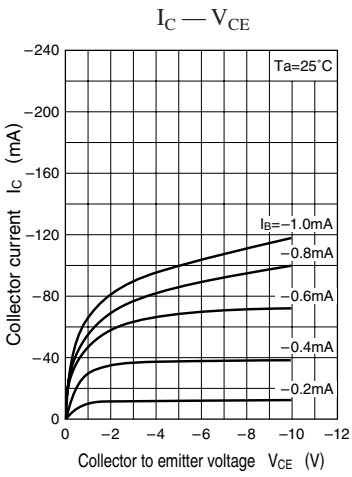
Characteristics charts of UNR611F

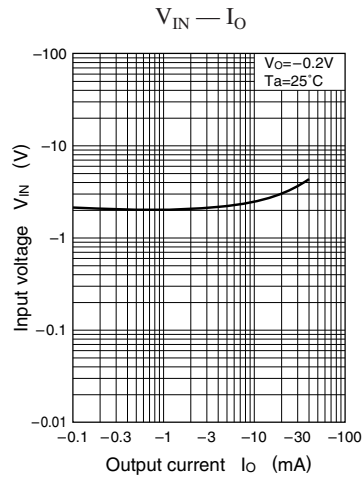
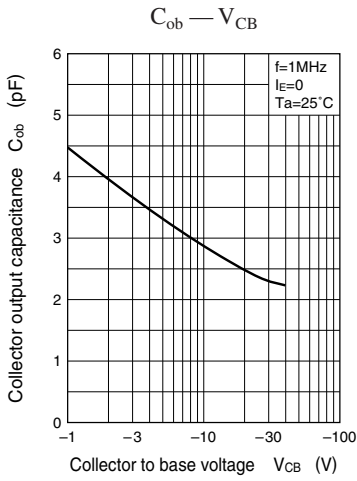


Characteristics charts of UNR611H



Characteristics charts of UNR611L





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