

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

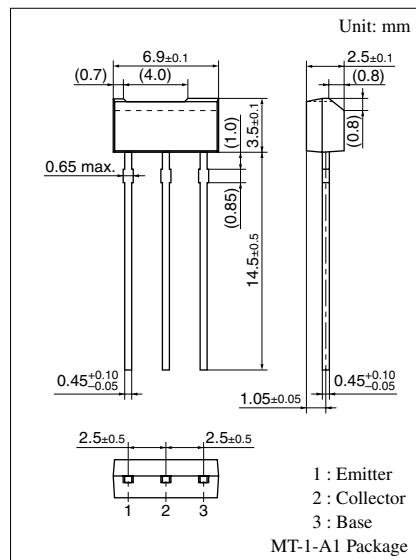
For digital circuits

Features

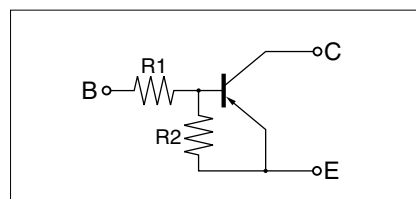
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- MT-1 type package, allowing supply with the radial taping.

Resistance by Part Number

	(R ₁)	(R ₂)
• 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



Internal Connection



Absolute Maximum Ratings (T_a=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	400	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	−55 to +150	°C

(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**

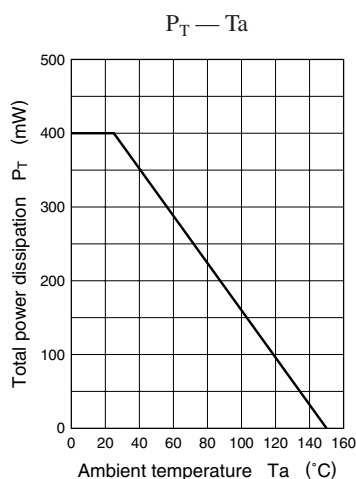
Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I _{CBO}	V _{CB} = -50V, I _E = 0			- 0.1	μA
		I _{CEO}	V _{CE} = -50V, I _B = 0			- 0.5	μA
Emitter cutoff current	UNR6111	I _{EBO}	V _{EB} = -6V, I _C = 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 _{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	UNR6111	h _{FE}	V _{CE} = -10V, I _C = -5mA	35			
	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 _{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 = -2.5V, R _L = 1kΩ			- 0.2	V
			V _{CC} = -5V, V _B = -3.5V, R _L = 1kΩ			- 0.2	
			V _{CC} = -5V, V _B = -10V, R _L = 1kΩ			- 0.2	
			V _{CC} = -5V, V _B = -6V, R _L = 1kΩ			- 0.2	
Transition frequency		f _T	V _{CB} = -10V, I _E = 1mA, f = 200MHz		80		MHz
Input resistance	UNR6111/6114/6115	R _i		(-30%)	10	(+30%)	kΩ
	UNR6112/6117				22		
	UNR6113/6110/611D/611E				47		
	UNR6116/611F/611L				4.7		
	UNR6118				0.51		
	UNR6119				1		
	UNR611H				2.2		
Resistance ratio	UNR6111/6112/6113/611L	R ₁ /R ₂		0.8	1.0	1.2	
	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	

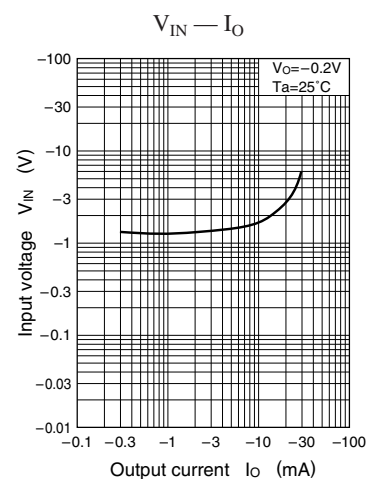
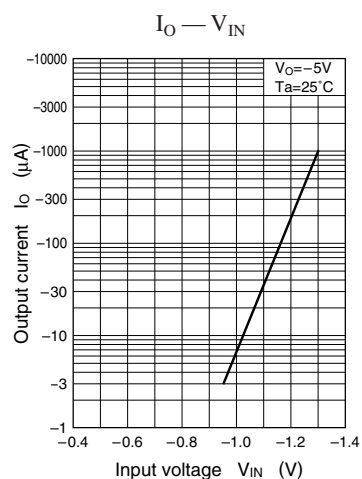
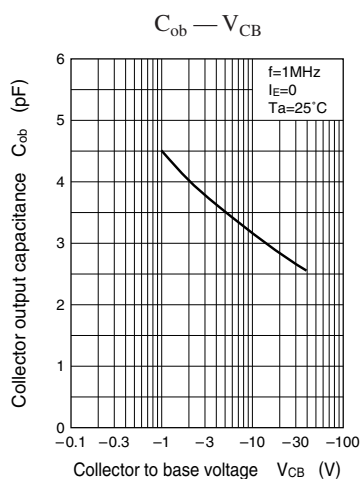
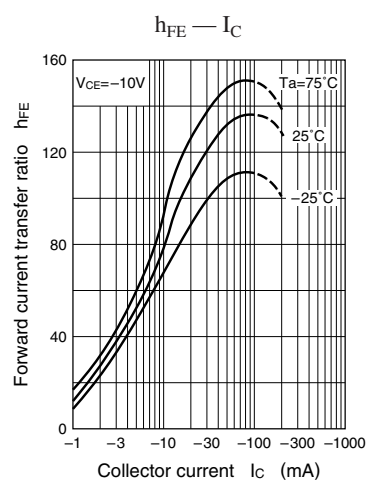
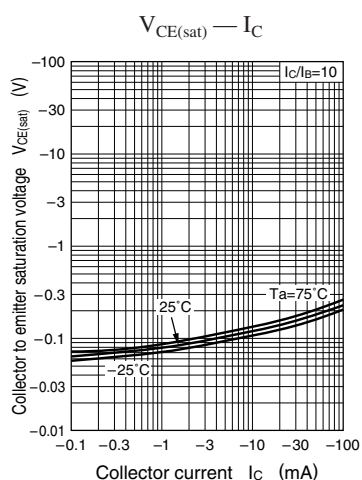
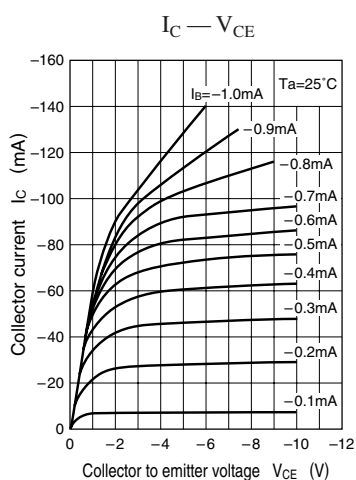
* h_{FE} rank classification (UNR6115/6116/6117/6110)

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

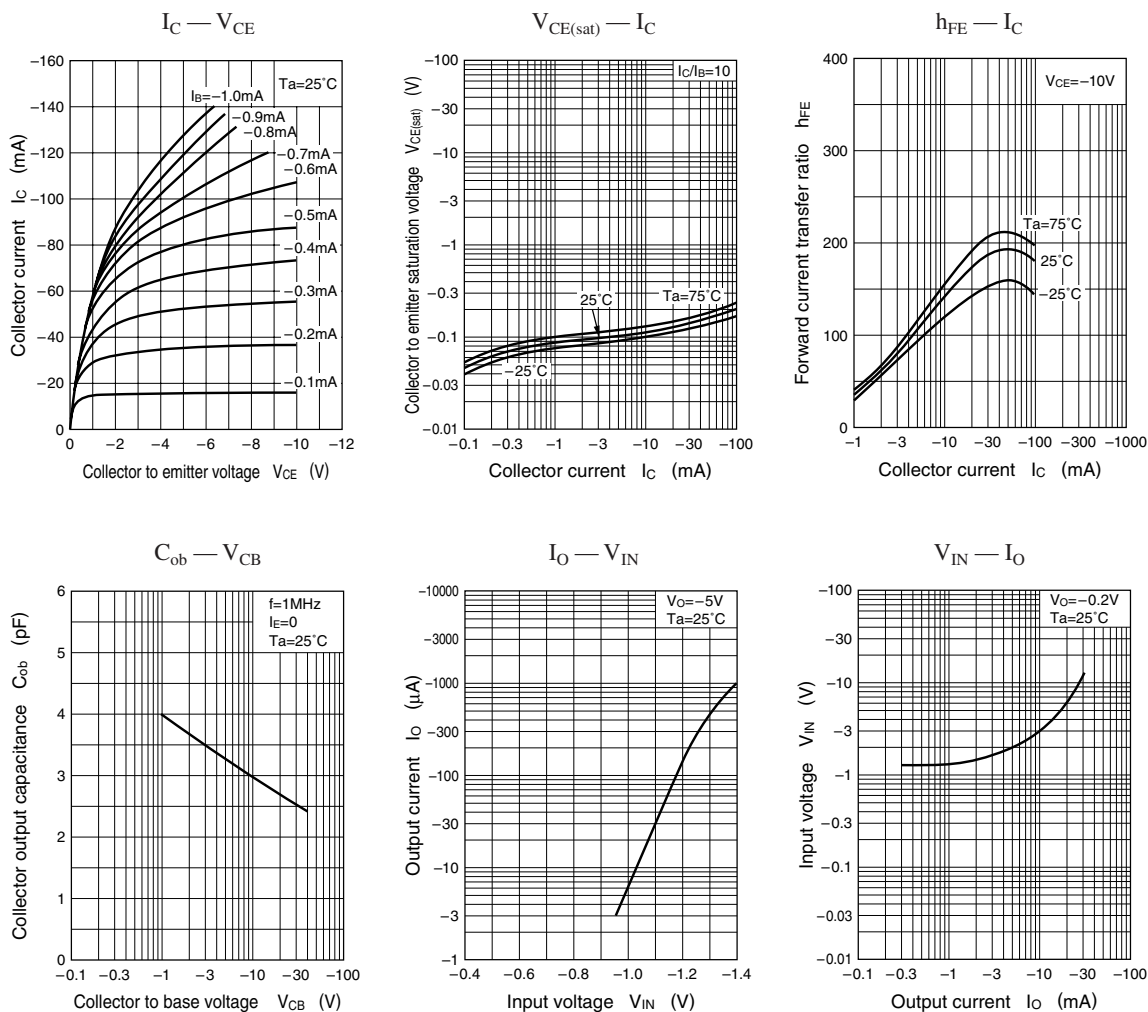
Common characteristics chart



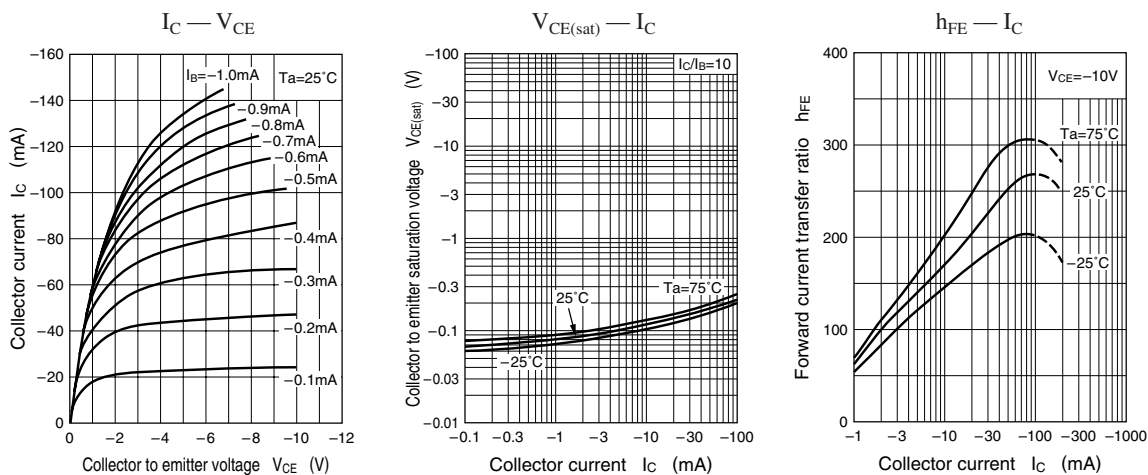
Characteristics charts of UNR6111

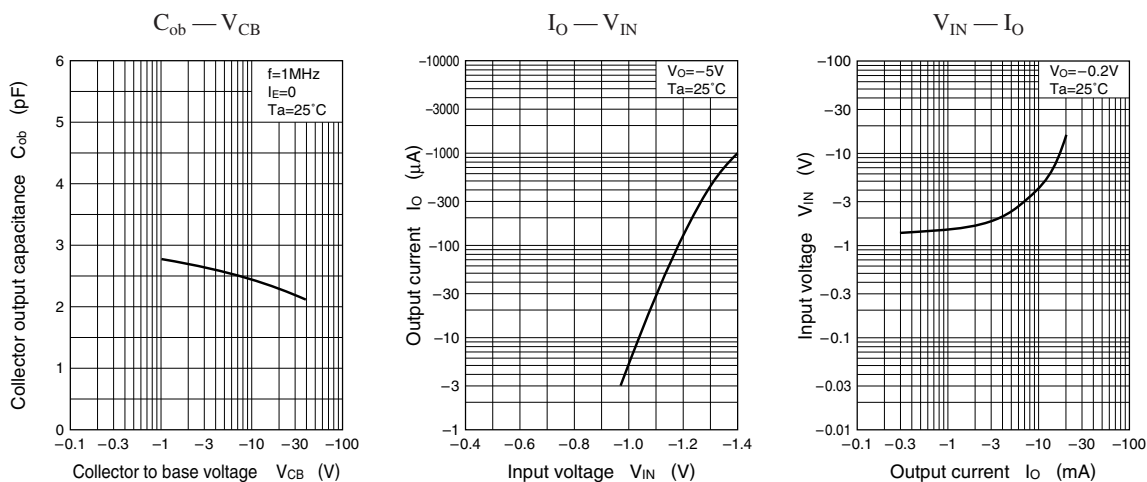


Characteristics charts of UNR6112

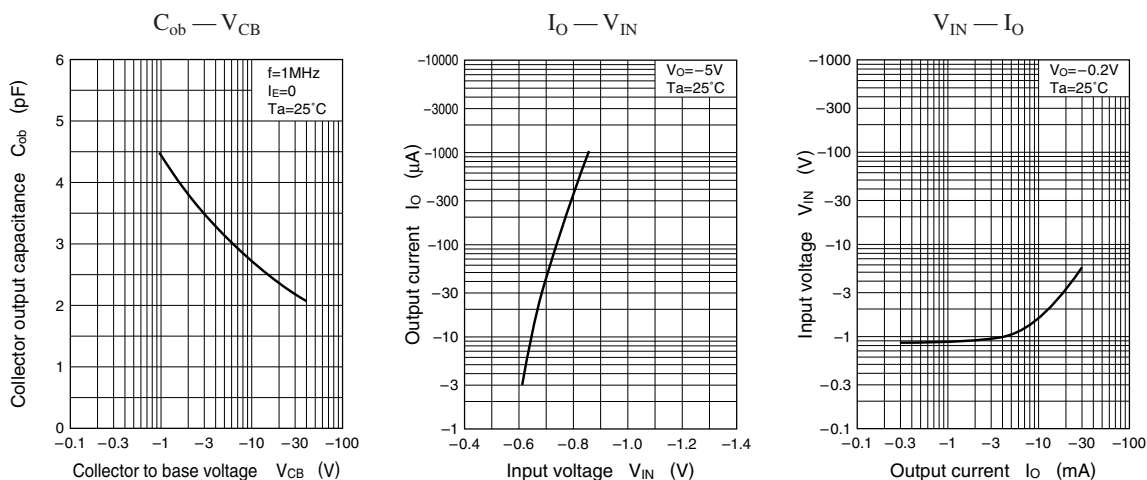
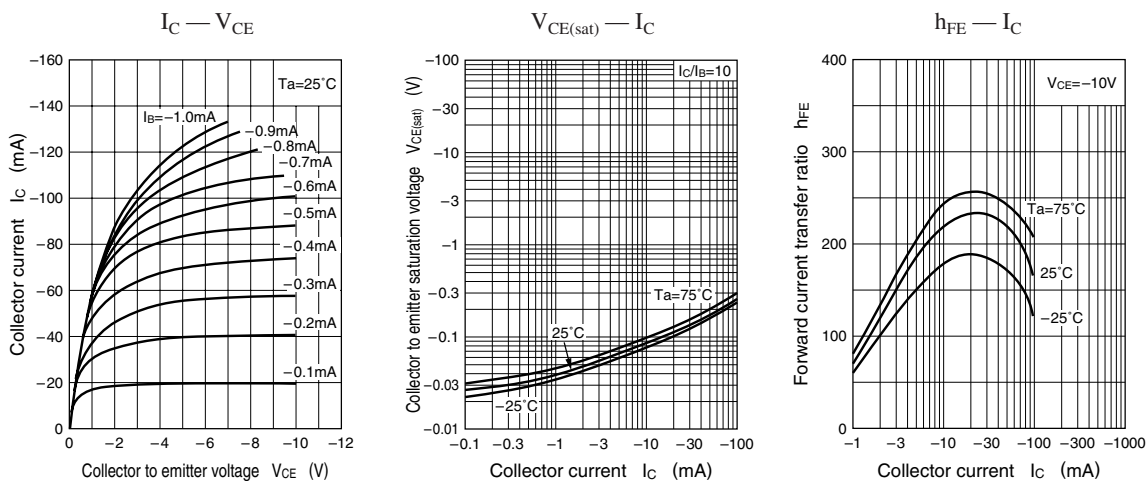


Characteristics charts of UNR6113

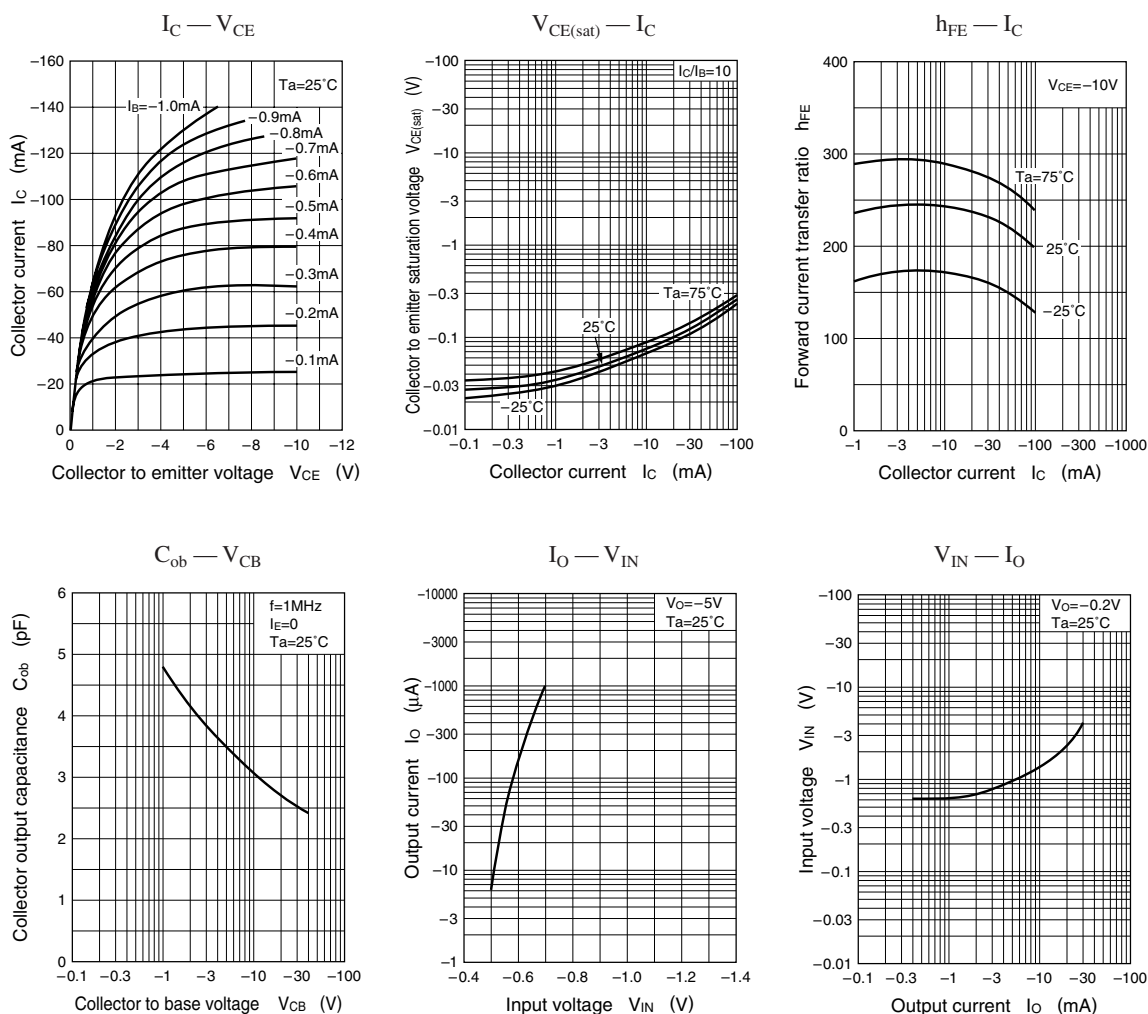




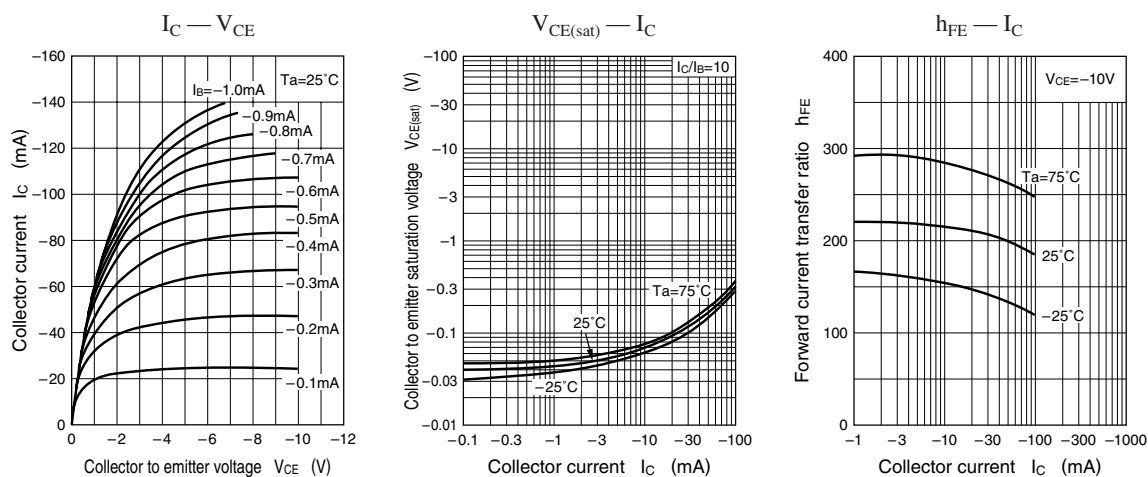
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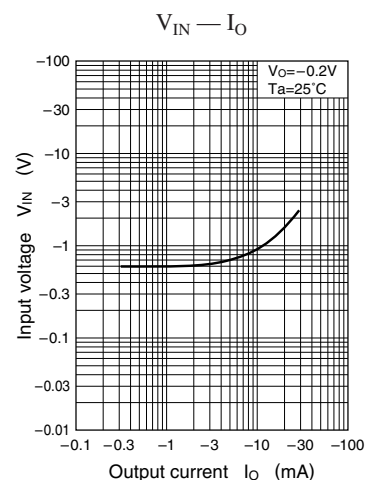
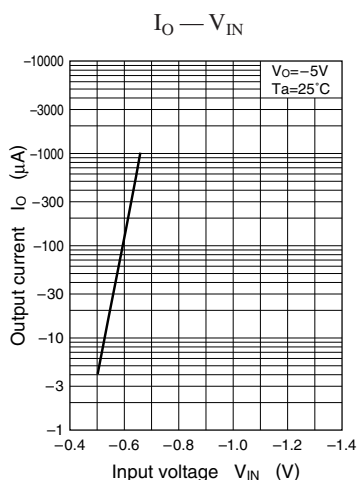
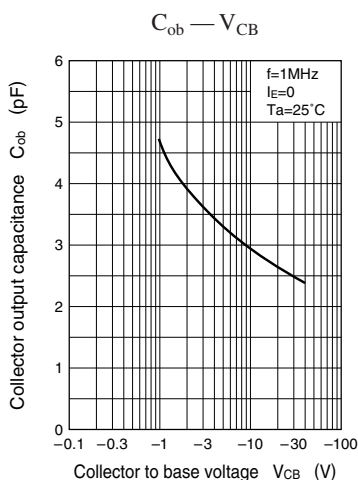


Characteristics charts of UNR6115

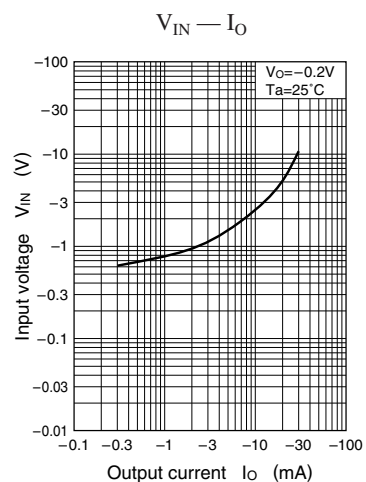
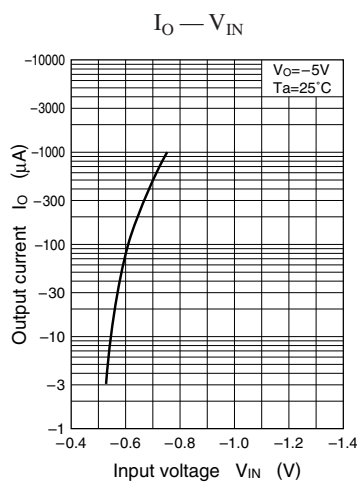
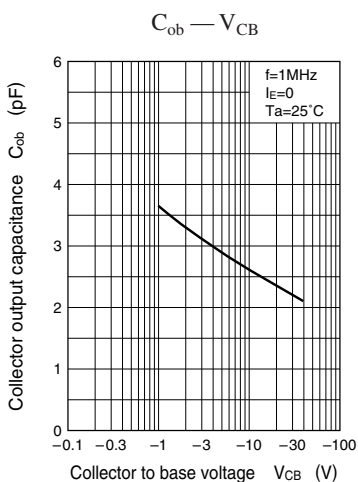
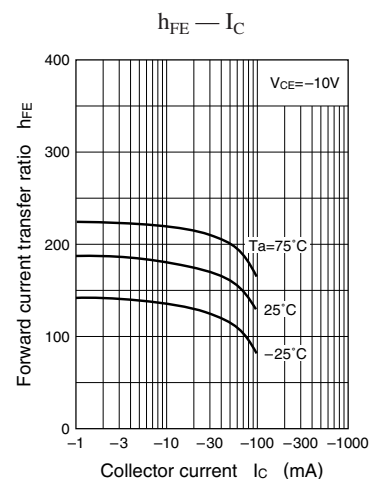
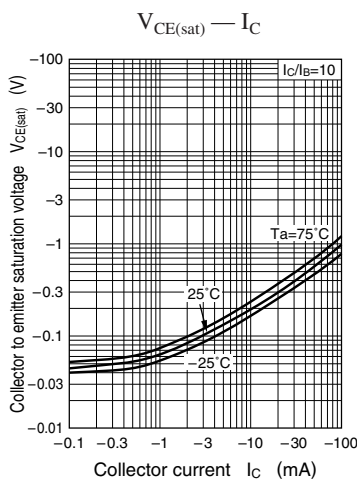
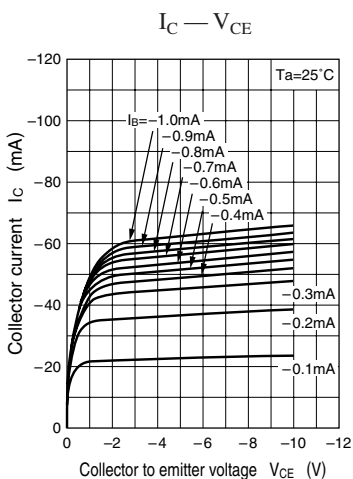


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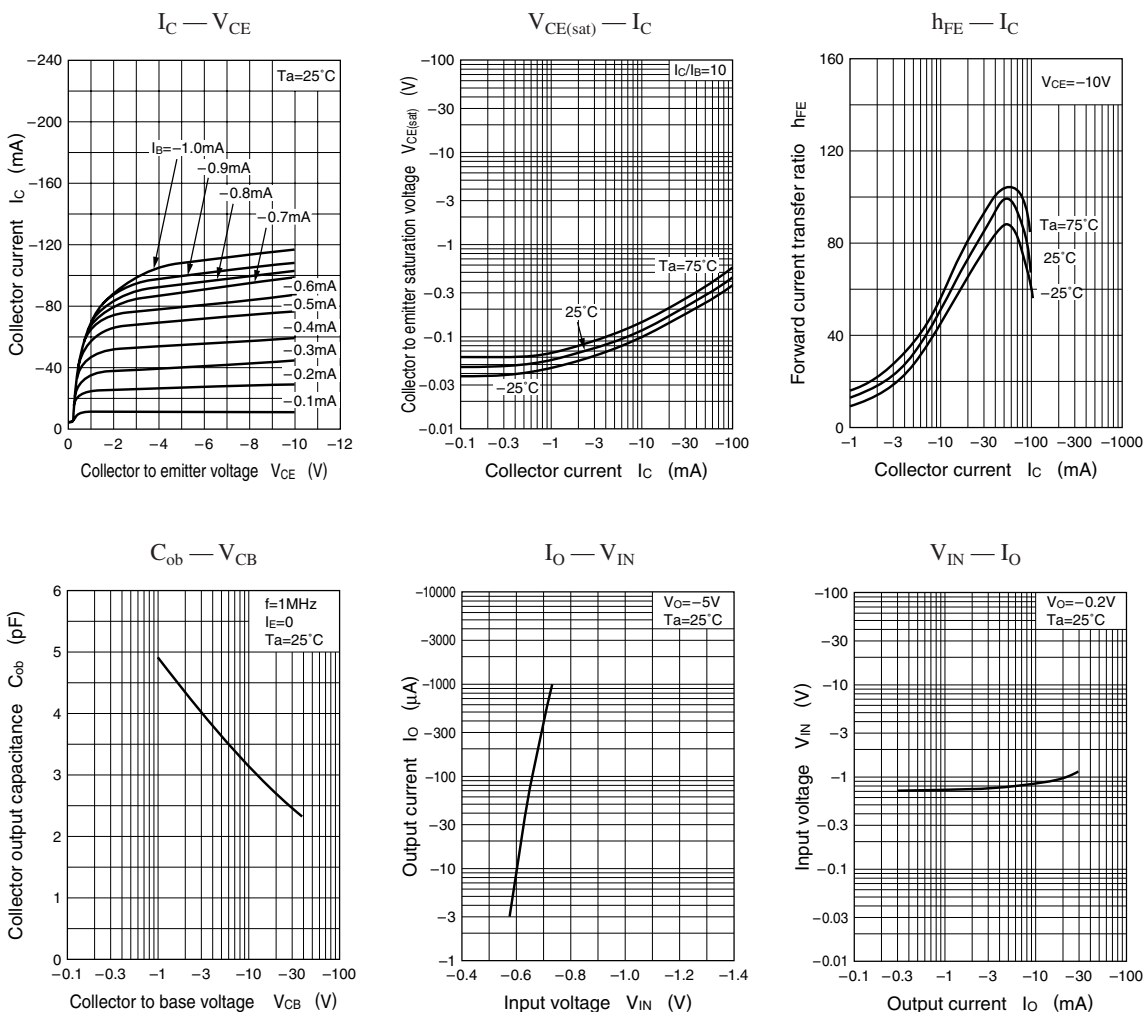




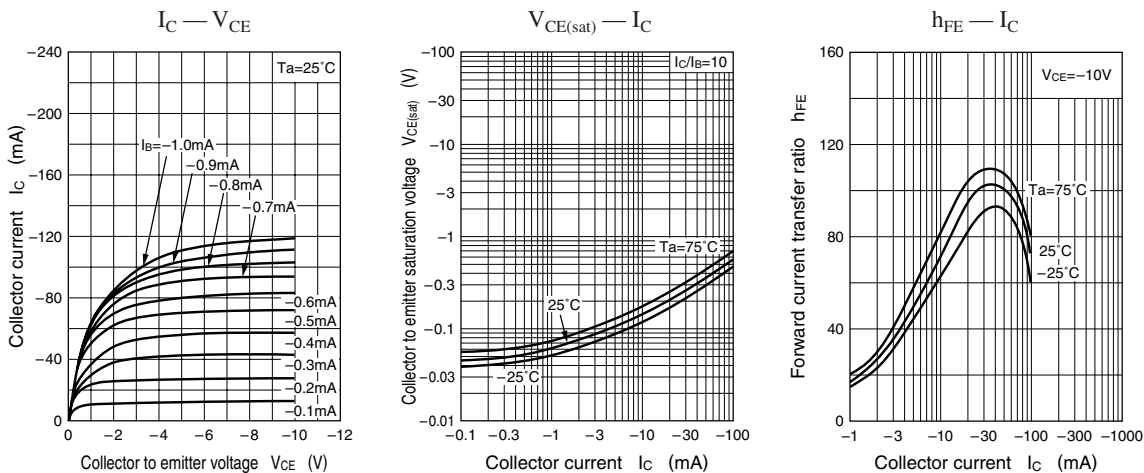
Characteristics charts of UNR6117

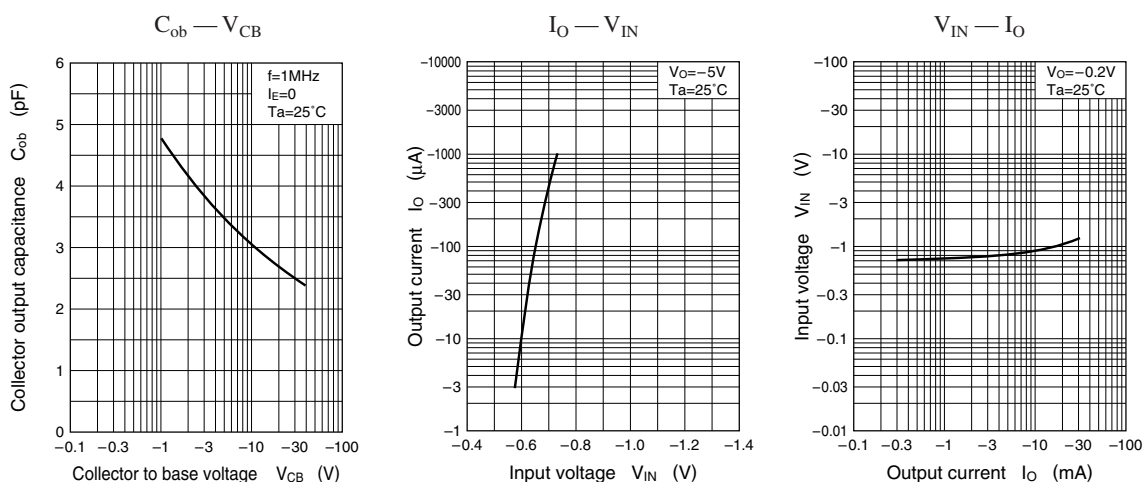


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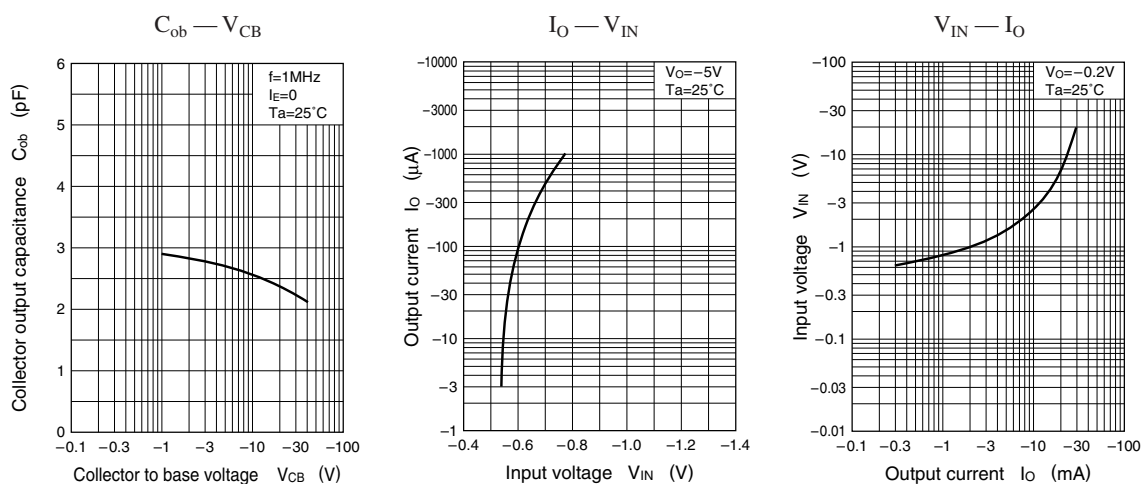
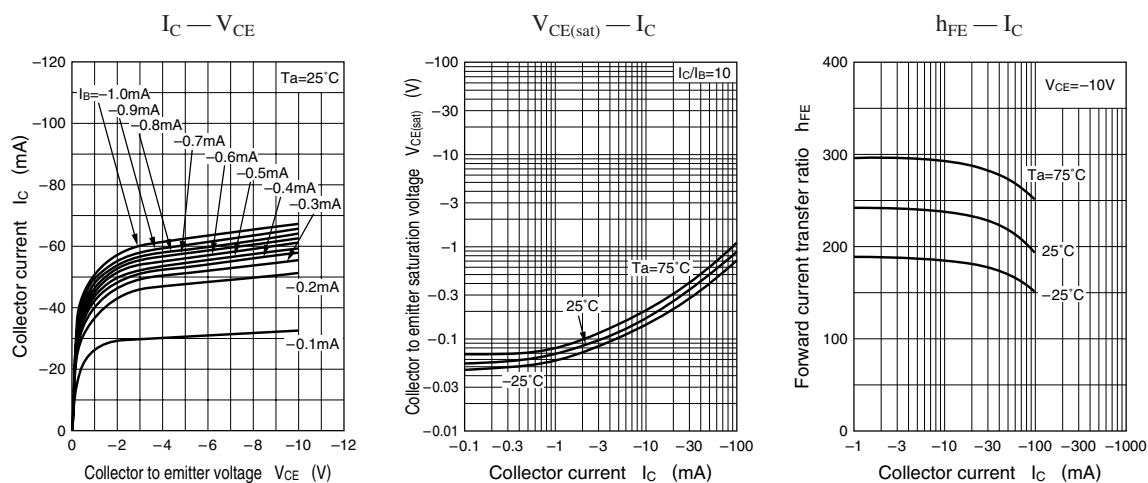


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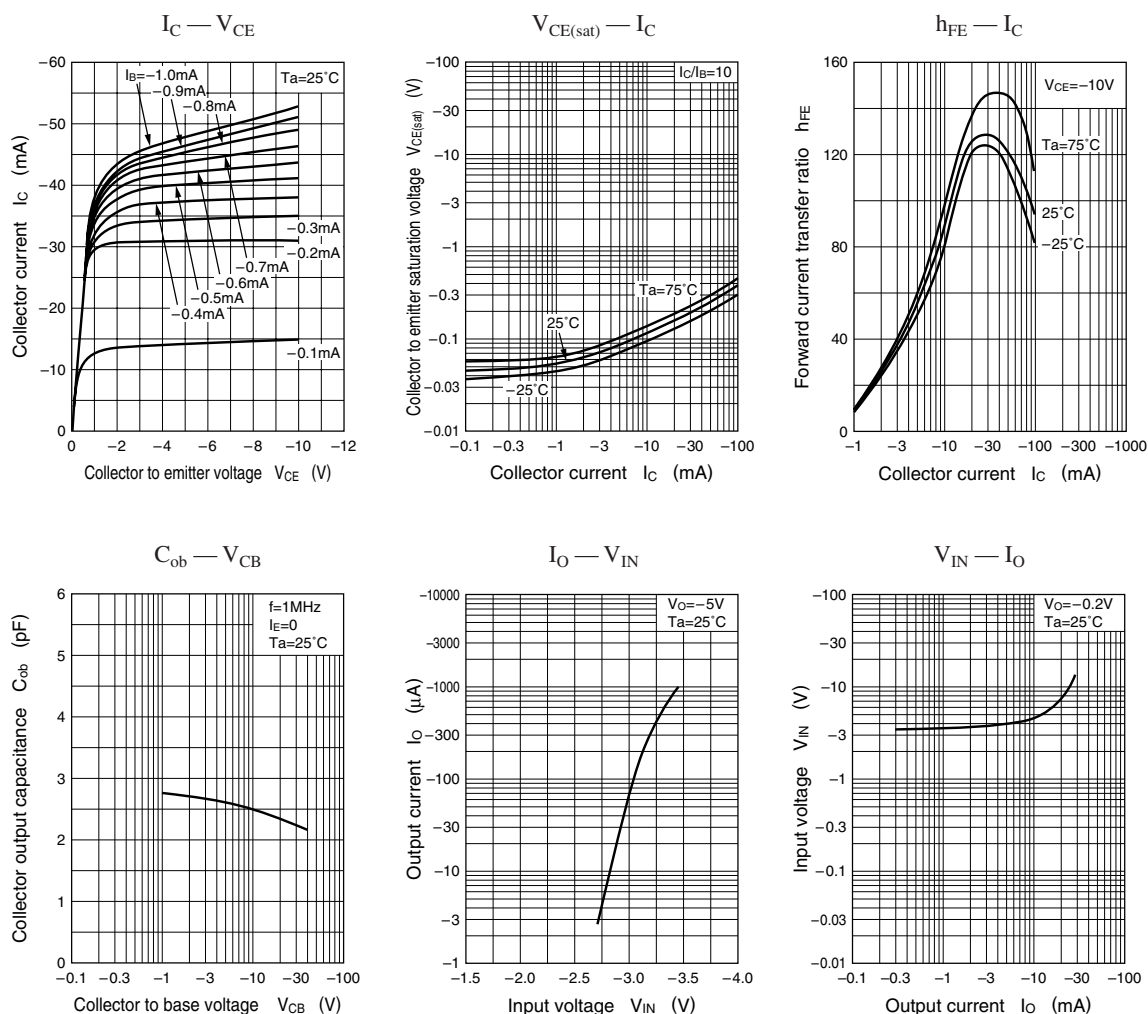




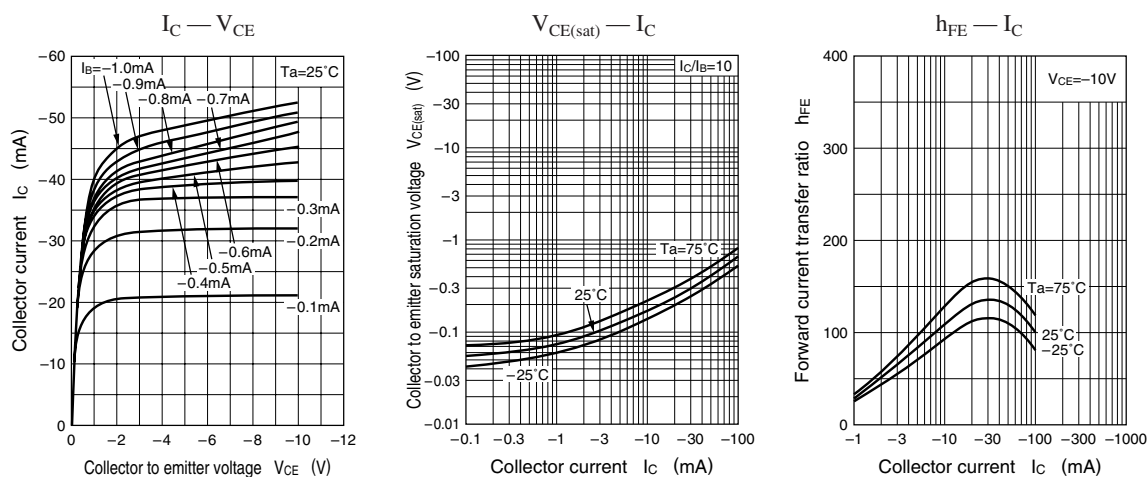
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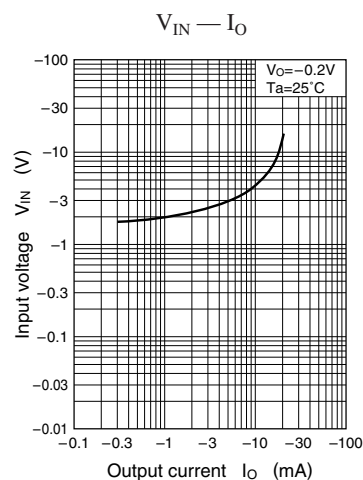
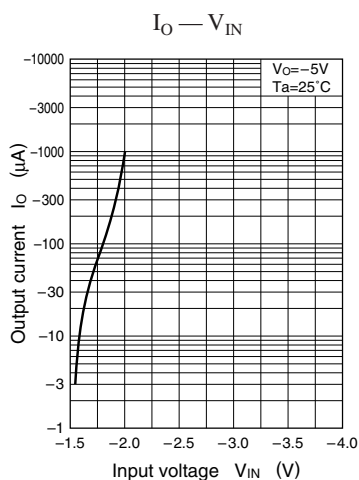
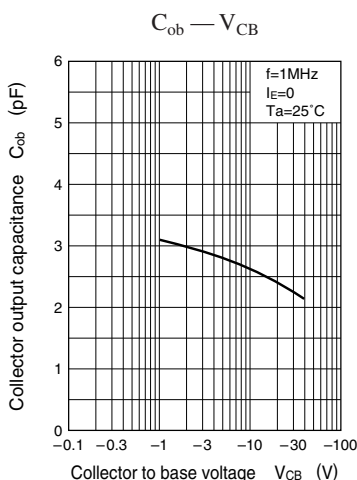


Characteristics charts of UNR611D

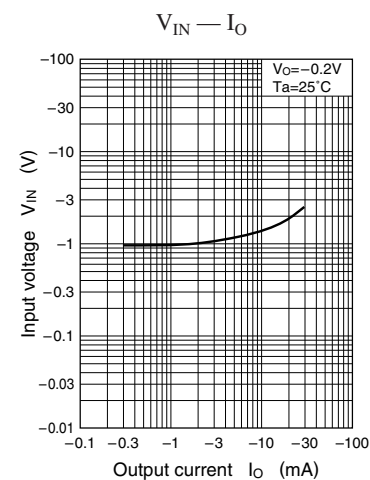
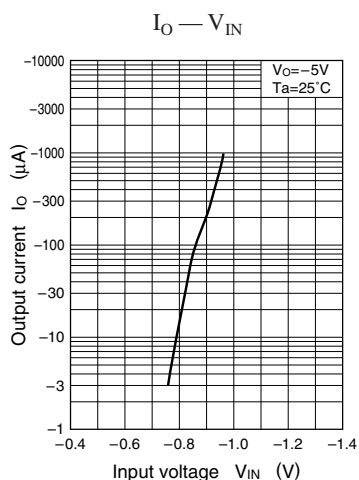
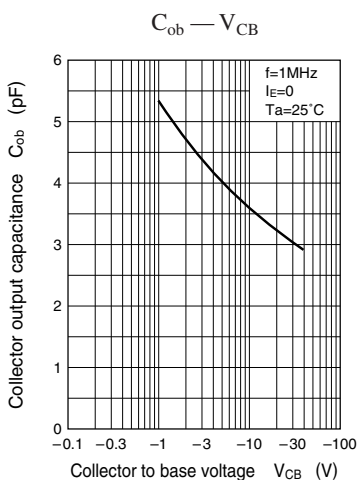
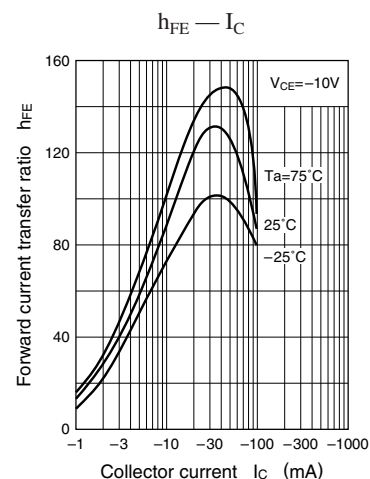
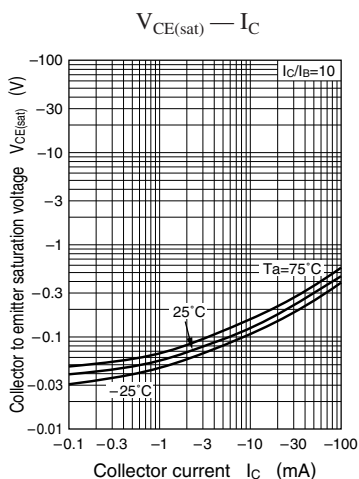
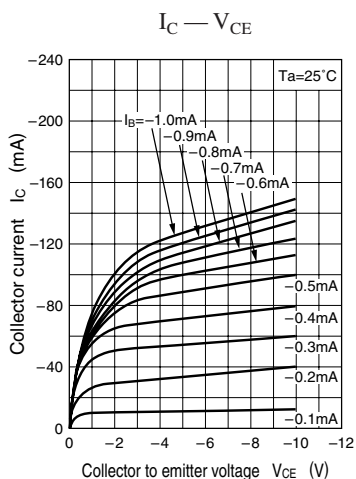


Characteristics charts of UNR611E

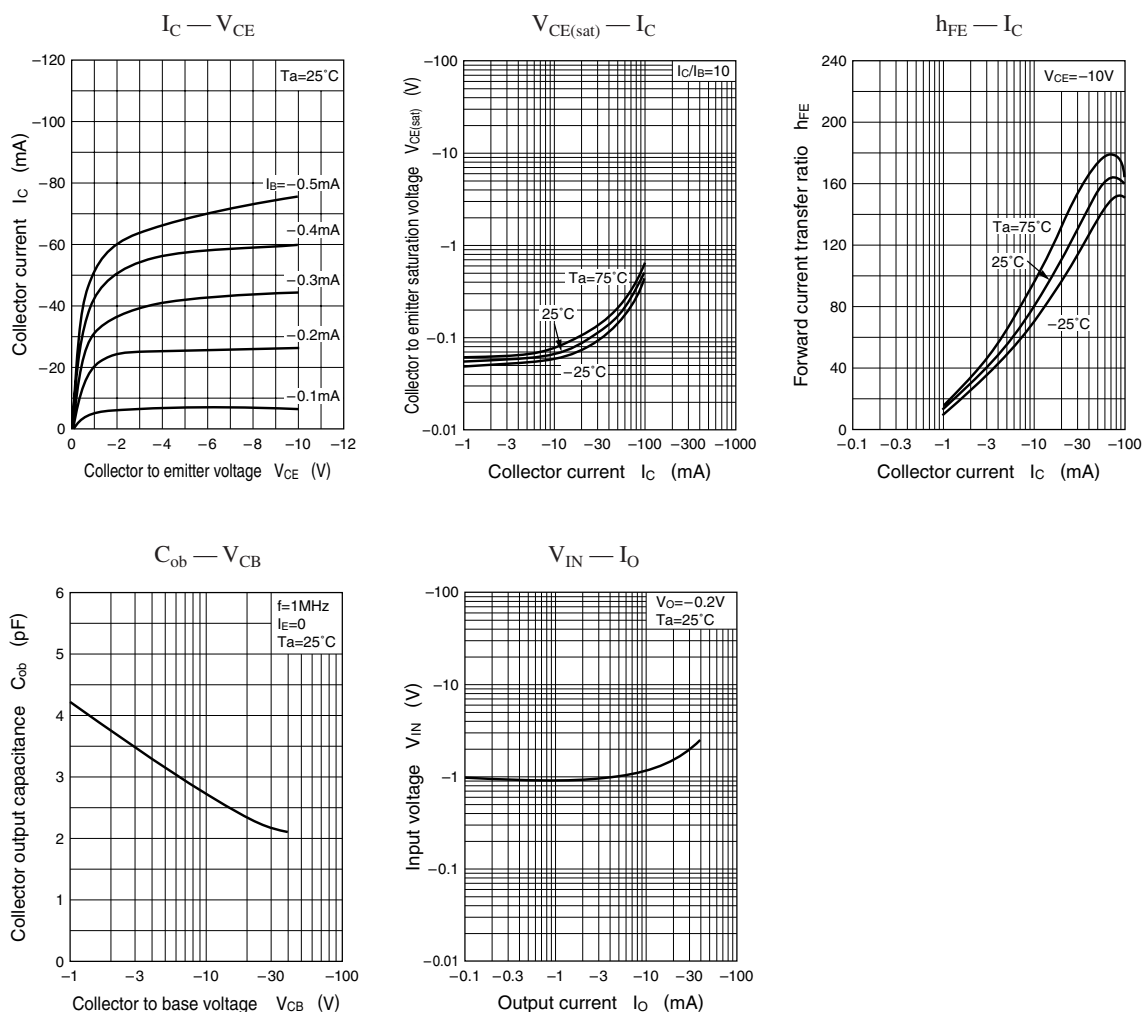




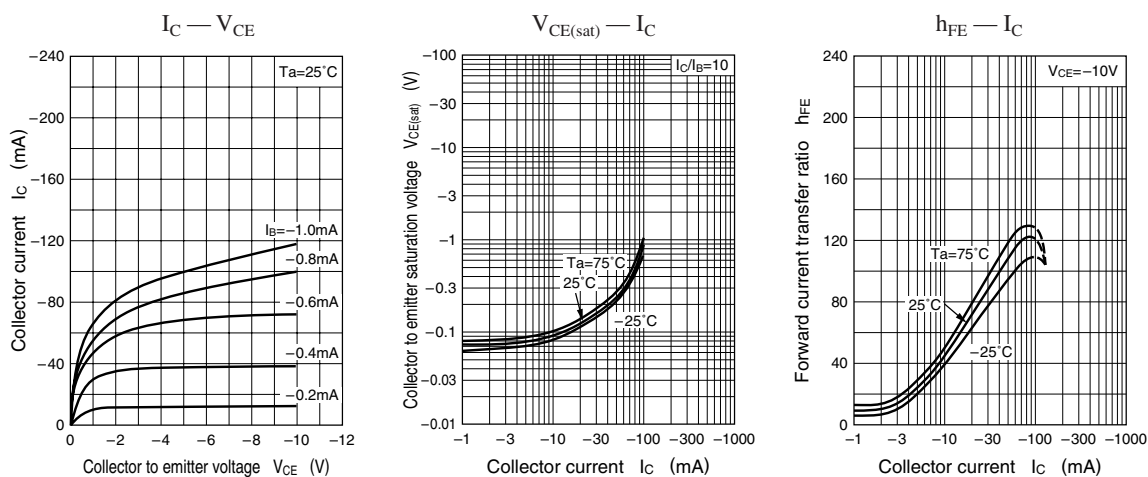
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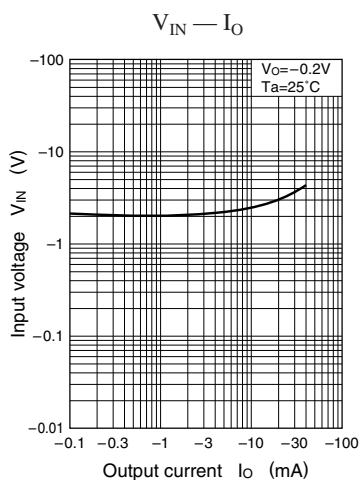
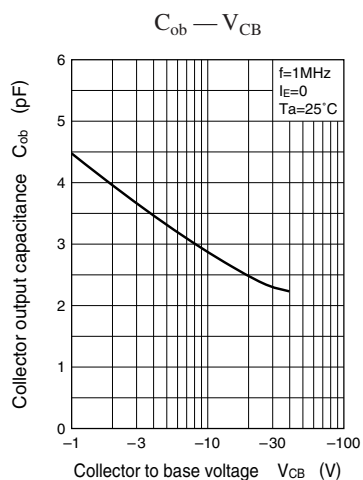


Characteristics charts of UNR611H



Characteristics charts of UNR611L





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