

UNR91XXJ Series (UN91XXJ Series)

Silicon PNP epitaxial planer type

For digital circuit

■ Features

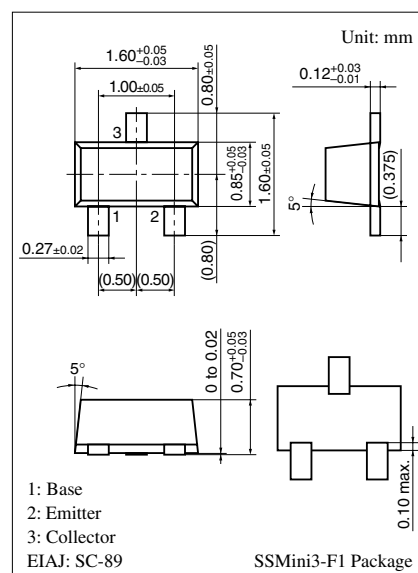
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-mini type package, allowing automatic insertion through tape packing.

■ Resistance by Part Number

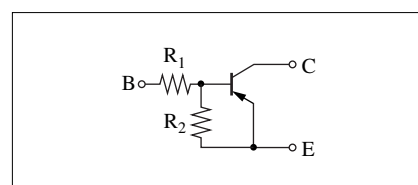
	Marking symbol	(R ₁)	(R ₂)
• UNR9110J (UN9110J)	6L	47 kΩ	—
• UNR9111J (UN9111J)	6A	10 kΩ	10 kΩ
• UNR9112J (UN9112J)	6B	22 kΩ	22 kΩ
• UNR9113J (UN9113J)	6C	47 kΩ	47 kΩ
• UNR9114J (UN9114J)	6D	10 kΩ	47 kΩ
• UNR9115J (UN9115J)	6E	10 kΩ	—
• UNR9116J (UN9116J)	6F	4.7 kΩ	—
• UNR9117J (UN9117J)	6H	22 kΩ	—
• UNR9118J (UN9118J)	6I	0.51 kΩ	5.1 kΩ
• UNR9119J (UN9119J)	6K	1 kΩ	10 kΩ
• UNR911AJ	6X	100 kΩ	100 kΩ
• UNR911BJ	6Y	100 kΩ	—
• UNR911CJ	6Z	—	47 kΩ
• UNR911DJ (UN911DJ)	6M	47 kΩ	10 kΩ
• UNR911EJ (UN911EJ)	6N	47 kΩ	22 kΩ
• UNR911FJ (UN911FJ)	6O	4.7 kΩ	10 kΩ
• UNR911HJ (UN911HJ)	6P	2.2 kΩ	10 kΩ
• UNR911LJ (UN911LJ)	6Q	4.7 kΩ	4.7 kΩ
• UNR911MJ	EI	2.2 kΩ	47 kΩ
• UNR911NJ	EW	4.7 kΩ	47 kΩ
• UNR911TJ (UN911TJ)	EY	22 kΩ	47 kΩ
• UNR911VJ	FC	2.2 kΩ	2.2 kΩ

■ Absolute Maximum Ratings T_a = 25°C

Parameter	Symbol	Rating	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



Note) The part number in the parenthesis shows conventional part number.

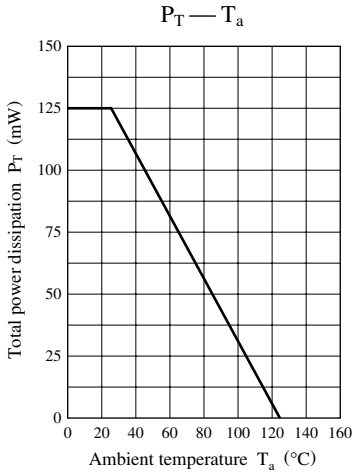
■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	$V_{\text{CB}} = -50 \text{ V}, I_{\text{E}} = 0$			- 0.1	μA
		I_{CEO}	$V_{\text{CE}} = -50 \text{ V}, I_{\text{B}} = 0$			- 0.5	
Emitter cutoff current	UNR9111J	I_{EBO}	$V_{\text{EB}} = -6 \text{ V}, I_{\text{C}} = 0$			- 0.5	mA
	UNR9112J/9114J/911DJ/ 911EJ/911MJ/911NJ/911TJ					- 0.2	
	UNR9113J/911AJ					- 0.1	
	UNR9115J/9116J/9117J/ 9110J/911BJ					- 0.01	
	UNR911FJ/911HJ					-1.0	
	UNR9119J					-1.5	
	UNR9118J/911LJ/911CJ/911VJ					-2.0	
Collector to base voltage		V_{CBO}	$I_{\text{C}} = -10 \mu\text{A}, I_{\text{E}} = 0$	-50			V
Collector to emitter voltage		V_{CEO}	$I_{\text{C}} = -2 \text{ mA}, I_{\text{B}} = 0$	-50			V
Forward current transfer ratio	UNR9111J	h_{FE}	$V_{\text{CE}} = -10 \text{ V}, I_{\text{C}} = -5 \text{ mA}$	35			
	UNR9112J/911EJ			60			
	UNR9113J/9114J/911AJ/ 911CJ/911MJ			80			
	UNR9115J/9116J/9117J/ 9110J/911BJ			160		460	
	UNR9118J/911LJ			20			
	UNR9119J/911DJ/911FJ/911HJ			30			
	UNR911NJ/911TJ			80		400	
	UNR911VJ			6		20	
Collector to emitter saturation voltage		$V_{\text{CE(sat)}}$	$I_{\text{C}} = -10 \text{ mA}, I_{\text{B}} = -0.3 \text{ mA}$			- 0.25	V
High-level output voltage		V_{OH}	$V_{\text{CC}} = -5 \text{ V}, V_{\text{B}} = -0.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$	-4.9			V
Low-level output voltage		V_{OL}	$V_{\text{CC}} = -5 \text{ V}, V_{\text{B}} = -2.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$			- 0.2	V
	UNR9113J/911BJ		$V_{\text{CC}} = -5 \text{ V}, V_{\text{B}} = -3.5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$				
	UNR911DJ		$V_{\text{CC}} = -5 \text{ V}, V_{\text{B}} = -10 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$				
	UNR911EJ		$V_{\text{CC}} = -5 \text{ V}, V_{\text{B}} = -6 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$				
	UNR911AJ		$V_{\text{CC}} = -5 \text{ V}, V_{\text{B}} = -5 \text{ V}, R_{\text{L}} = 1 \text{ k}\Omega$				
Transition frequency		f_{T}	$V_{\text{CB}} = -10 \text{ V}, I_{\text{E}} = 1 \text{ mA}, f = 200 \text{ MHz}$		80		MHz
Input resistance	UNR9118J	R_{I}		-30%	0.51	+30%	$\text{k}\Omega$
	UNR9119J				1		
	UNR911HJ/911MJ/911VJ				2.2		
	UNR9116J/911FJ/911LJ/911NJ				4.7		
	UNR9111J/9114J/9115J				10		
	UNR9112J/9117J/911TJ				22		
	UNR9110J/9113J/911DJ/911EJ				47		
	UNR911AJ/911BJ				100		

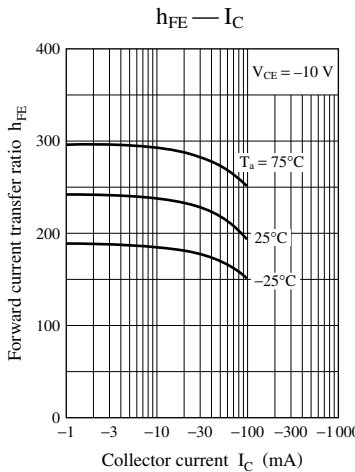
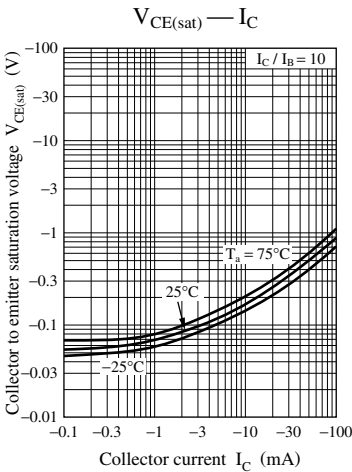
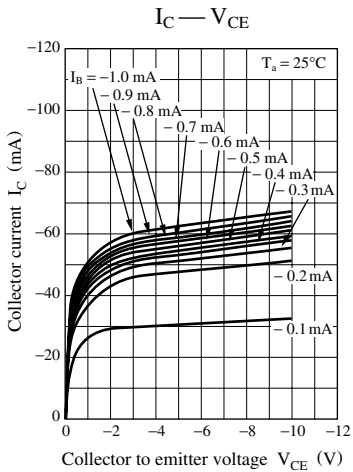
■ Electrical Characteristics (continued) $T_a = 25^\circ\text{C}$

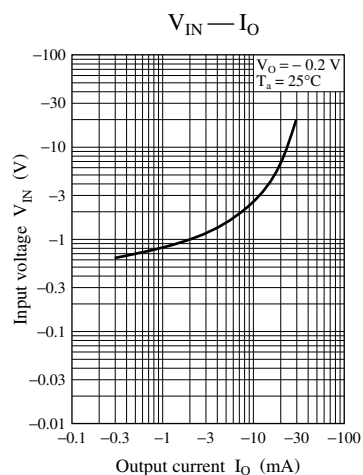
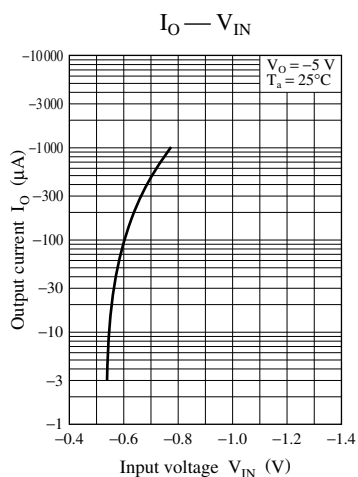
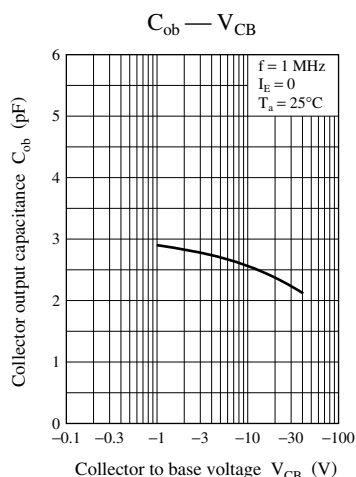
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Resistance ratio	UNR9111J/9112J/9113J/9114J	R_1/R_2		0.8	1.0	1.2	
	UNR9114J			0.17	0.21	0.25	
	UNR9118J/9119J			0.08	0.1	0.12	
	UNR911DJ			3.7	4.7	5.7	
	UNR911EJ			1.7	2.14	2.6	
	UNR911FJ			0.37	0.47	0.57	
	UNR911HJ			0.17	0.22	0.27	
	UNR911MJ				0.047		
	UNR911NJ				0.1		
	UNR911TJ				0.47		
	UNR911AJ/911VJ				1.0		
Resistance between emitter to base		UNR911CJ	R_2	-30%	47	+30%	k Ω

Common characteristics chart

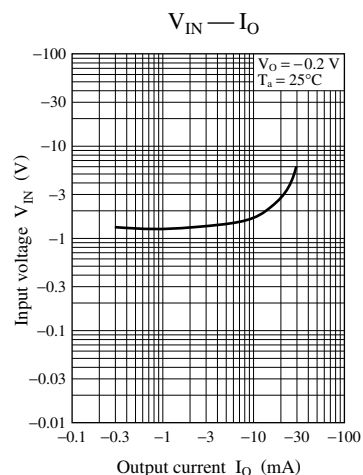
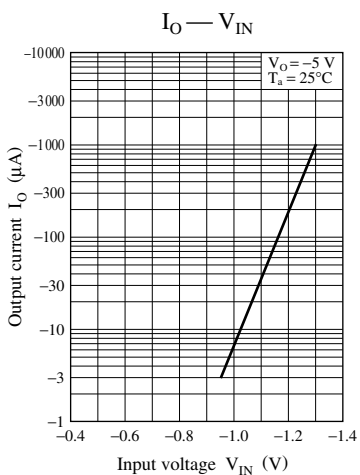
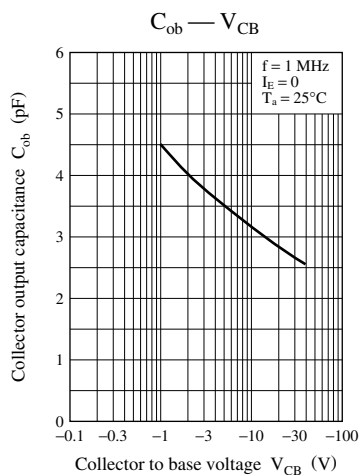
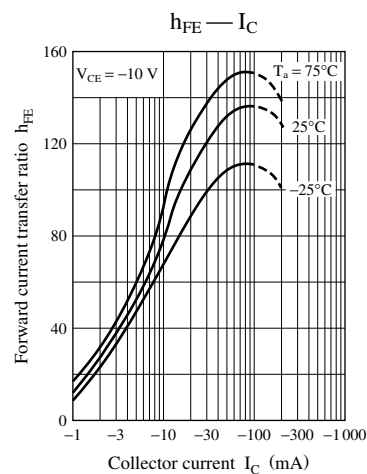
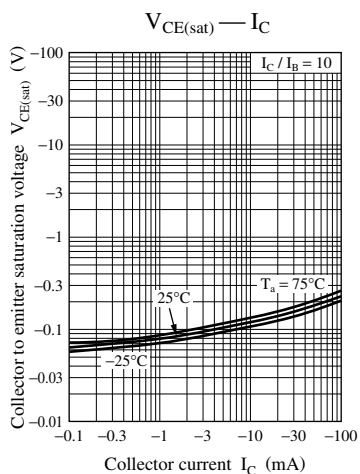
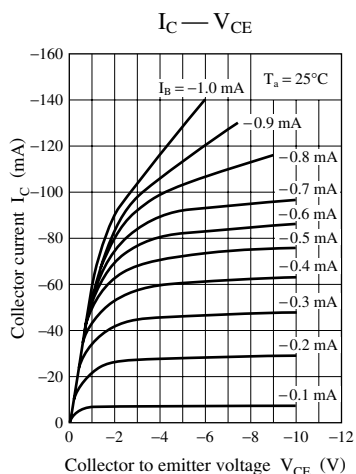


Characteristics chart of UNR9110J

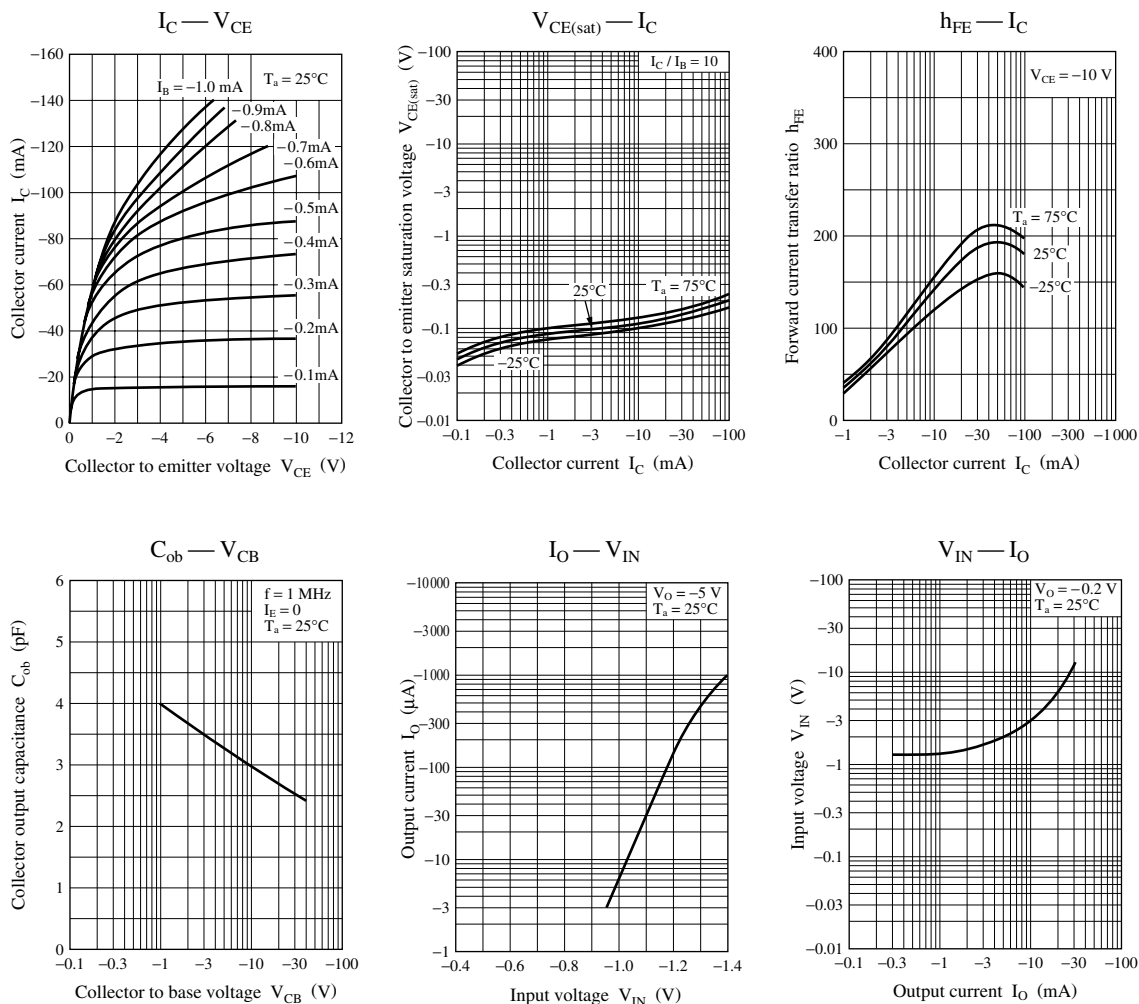




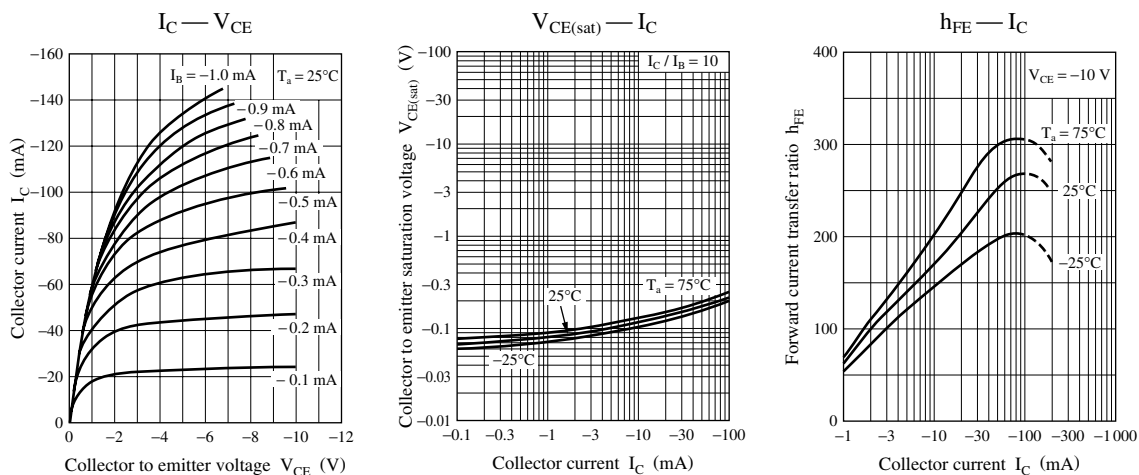
Characteristics chart of UNR9111J

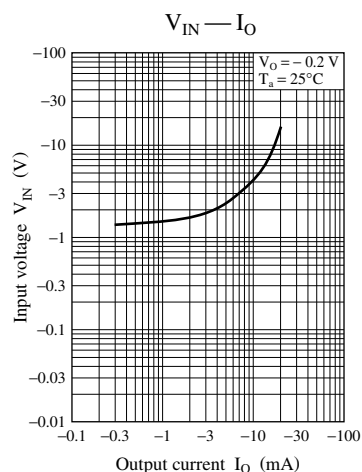
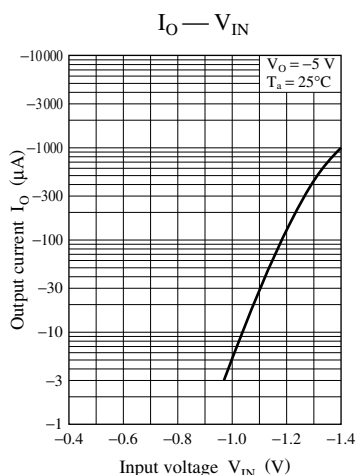
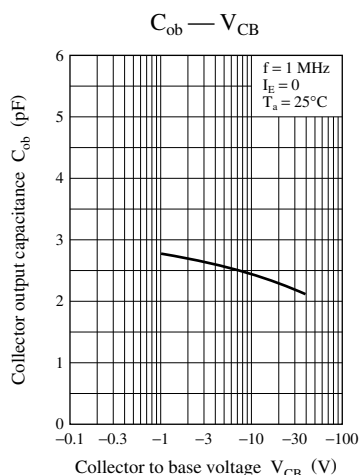


Characteristics chart of UNR9112J

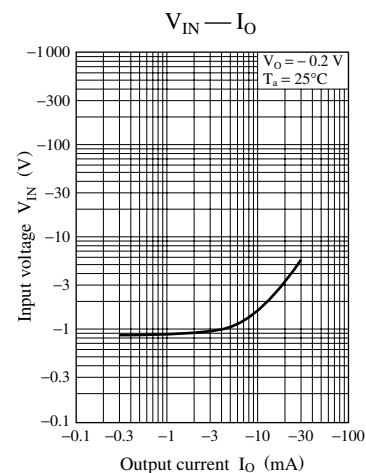
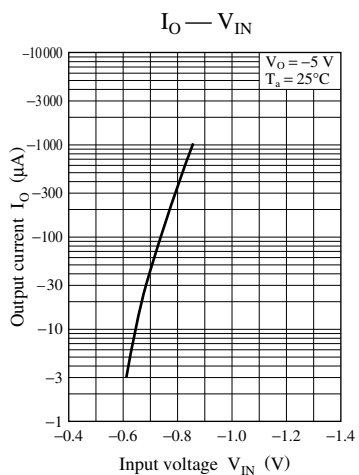
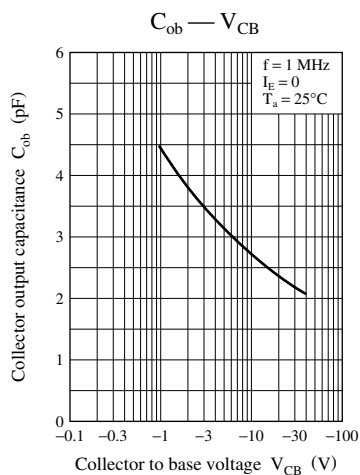
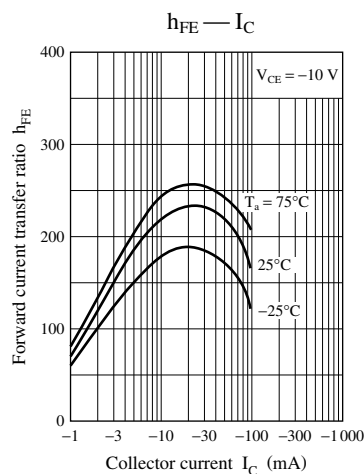
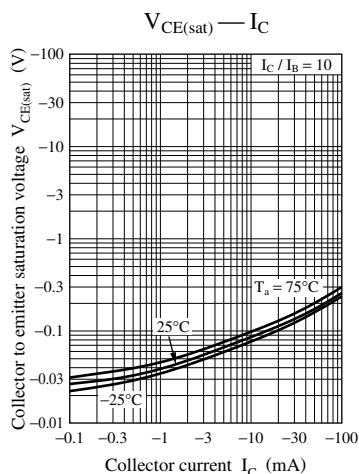
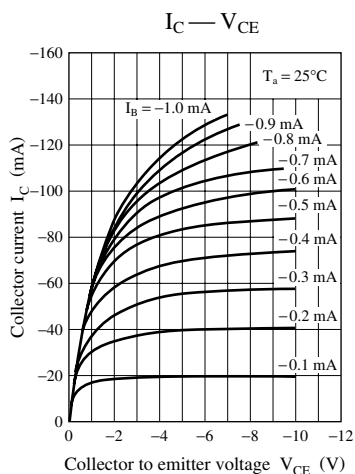


Characteristics chart of UNR9113J

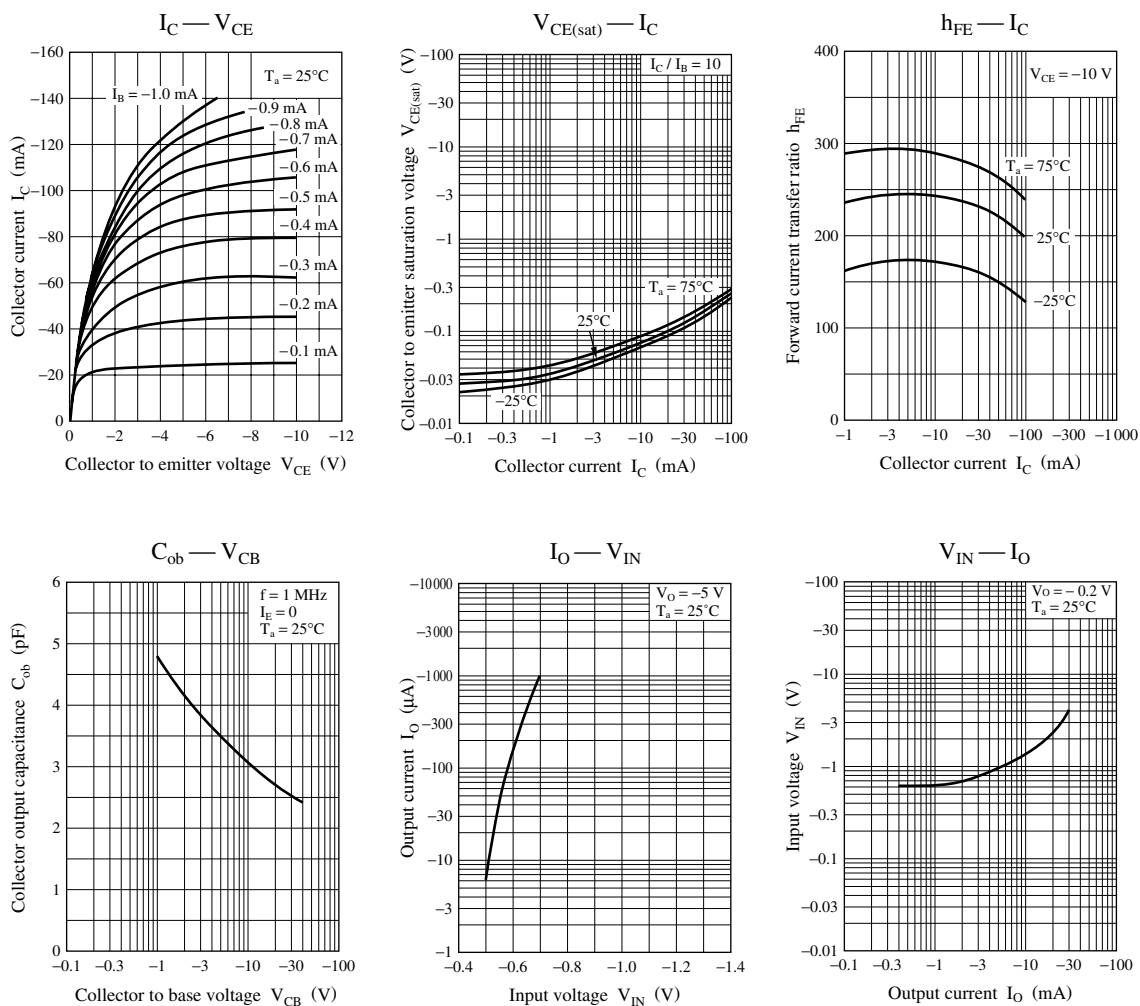




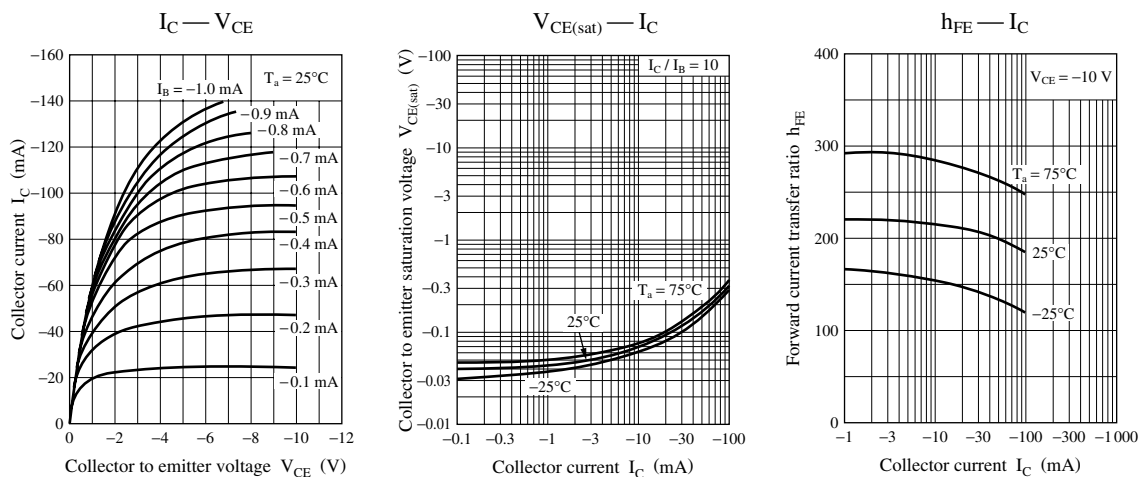
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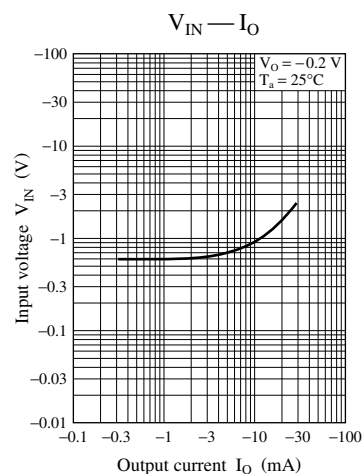
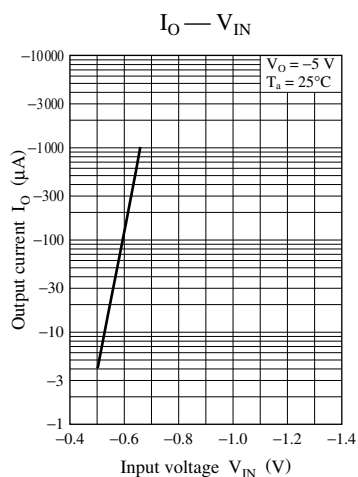
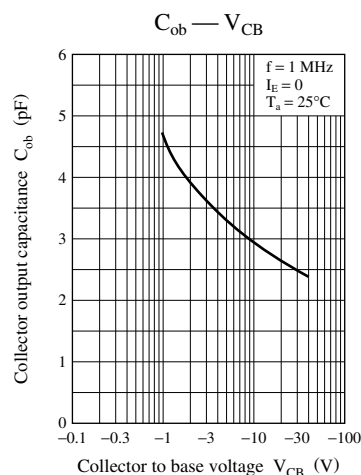


Characteristics chart of UNR9115J

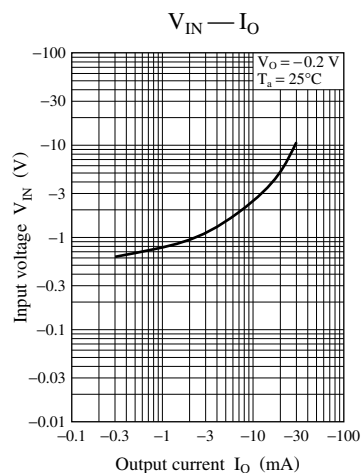
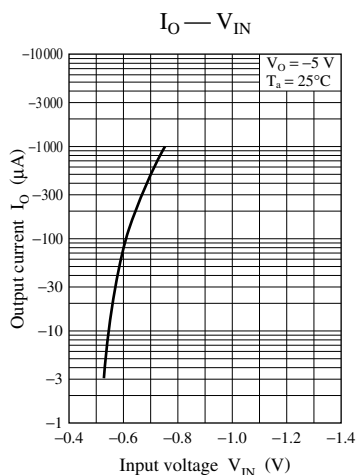
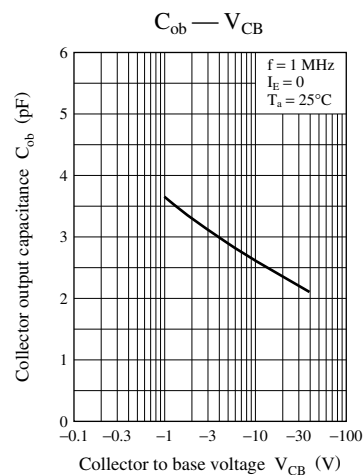
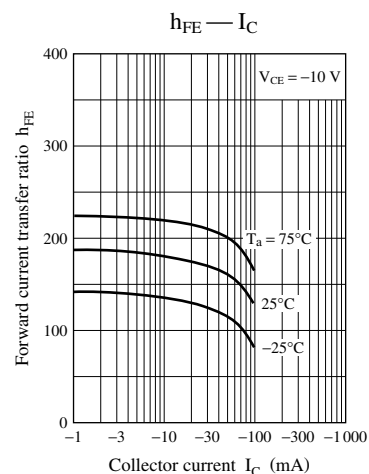
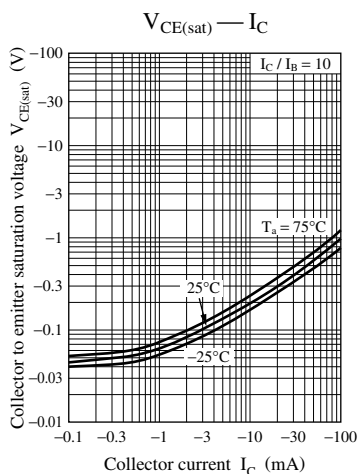
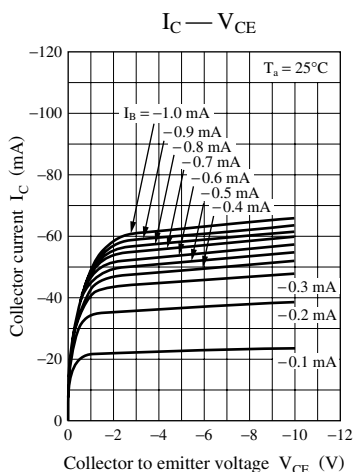


Characteristics chart of UNR9116J

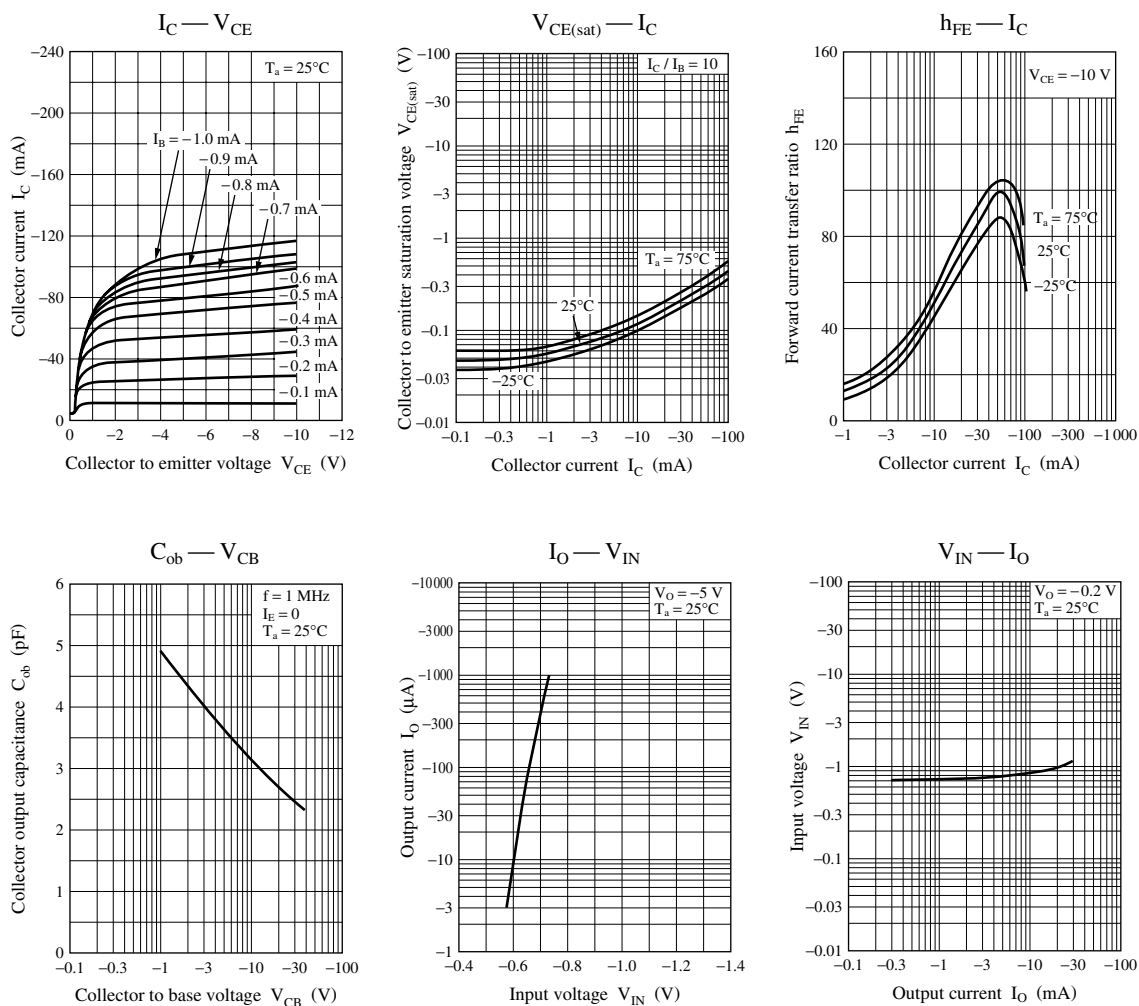




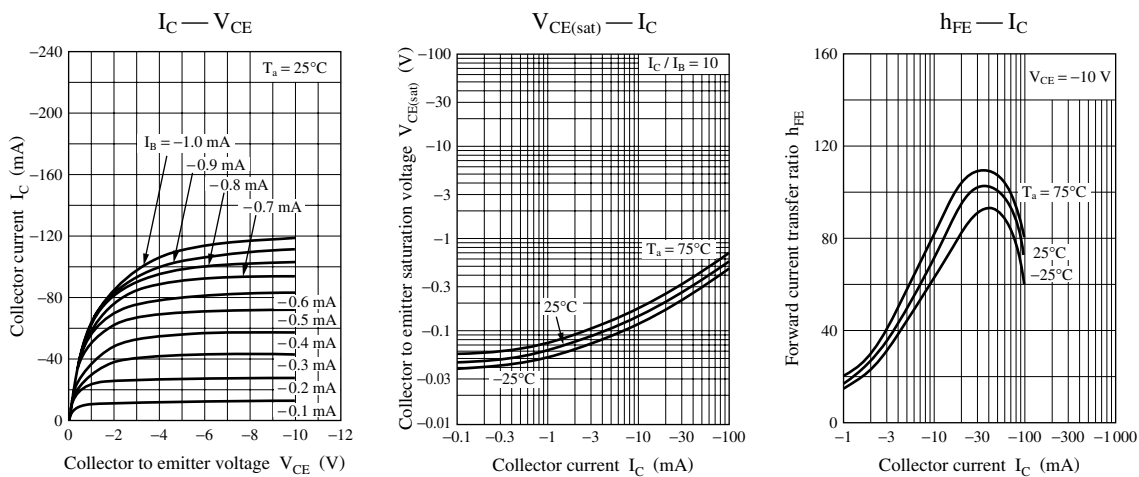
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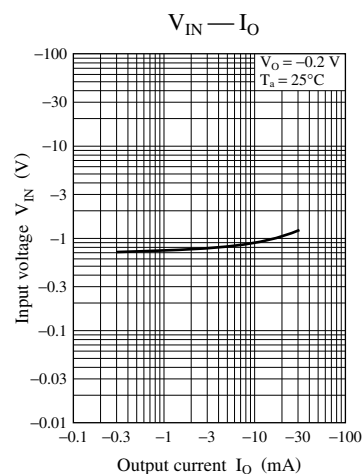
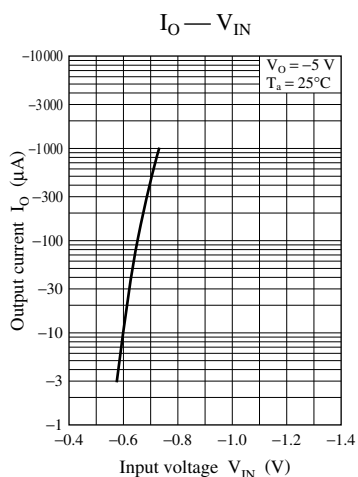
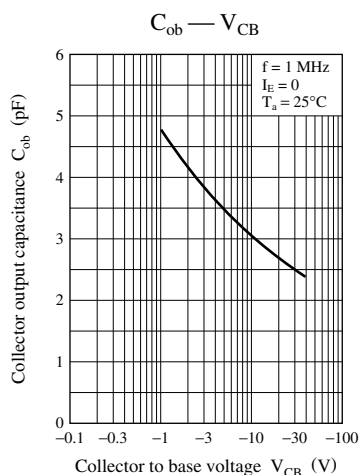


Characteristics chart of UNR9118J

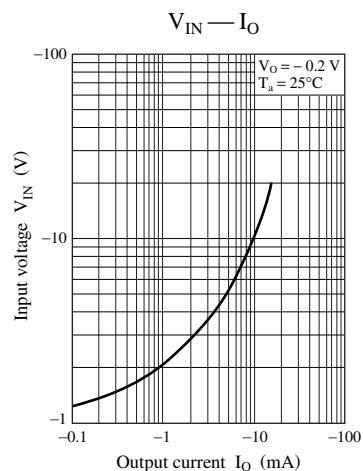
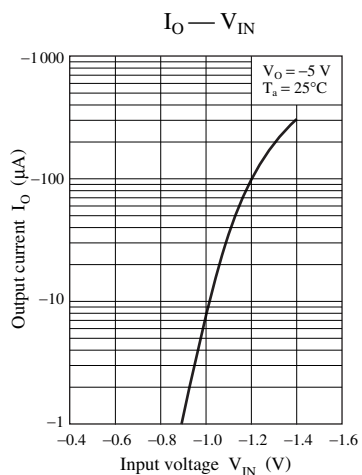
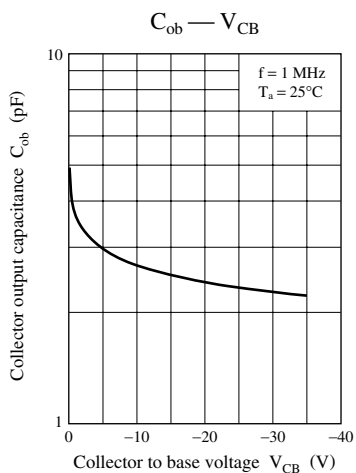
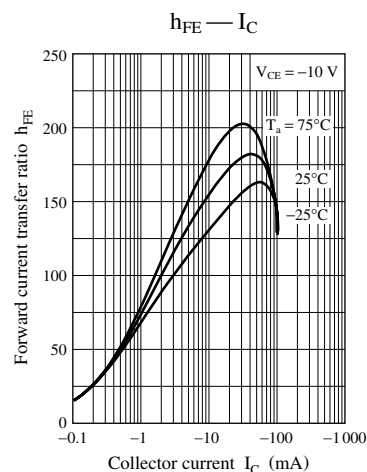
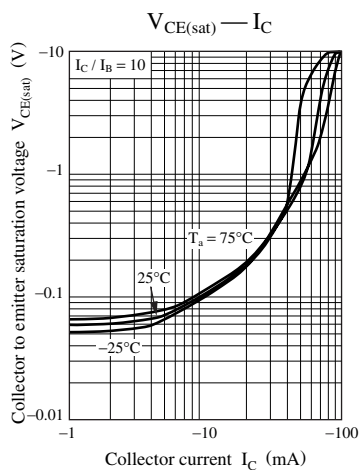
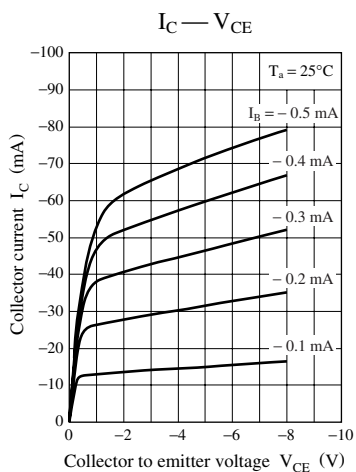


Characteristics chart of UNR9119J

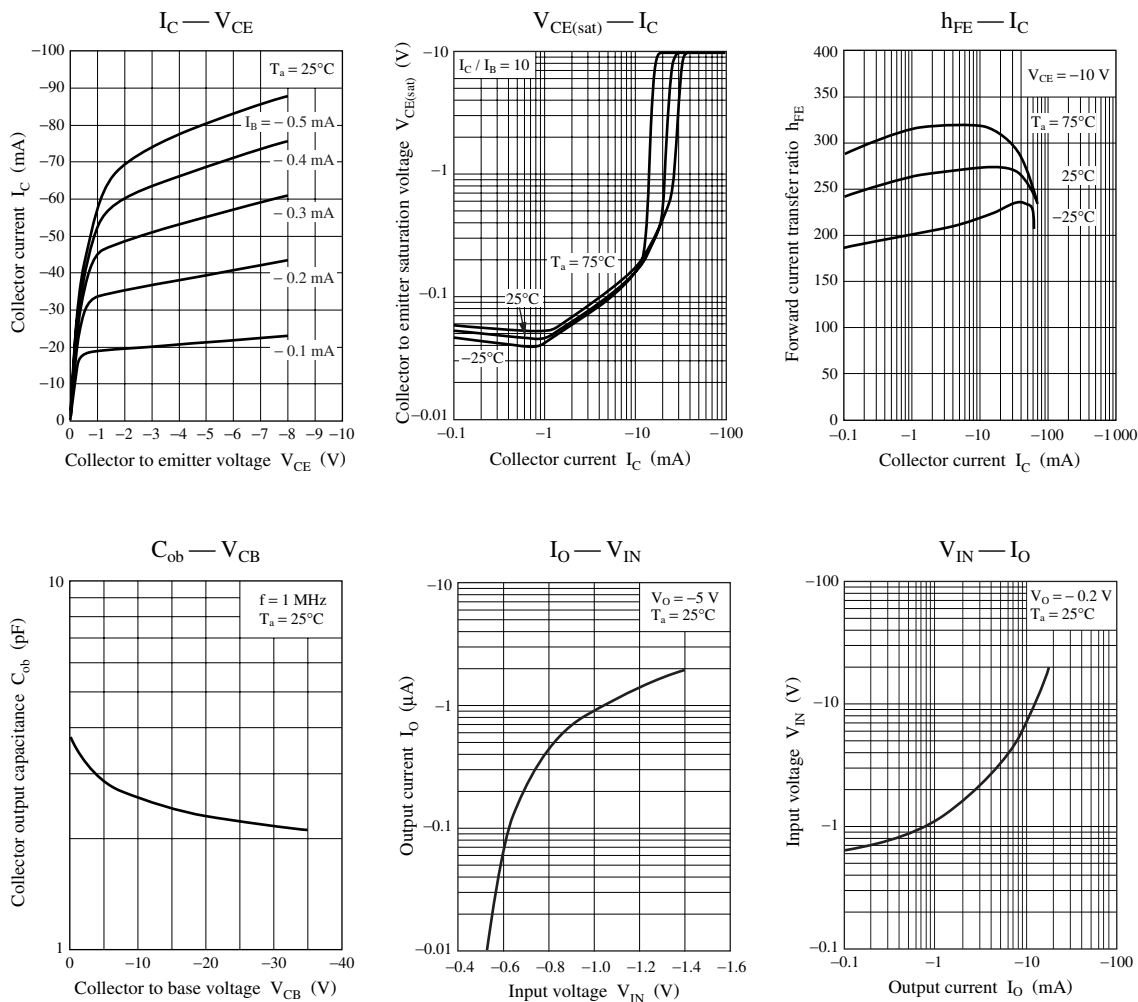




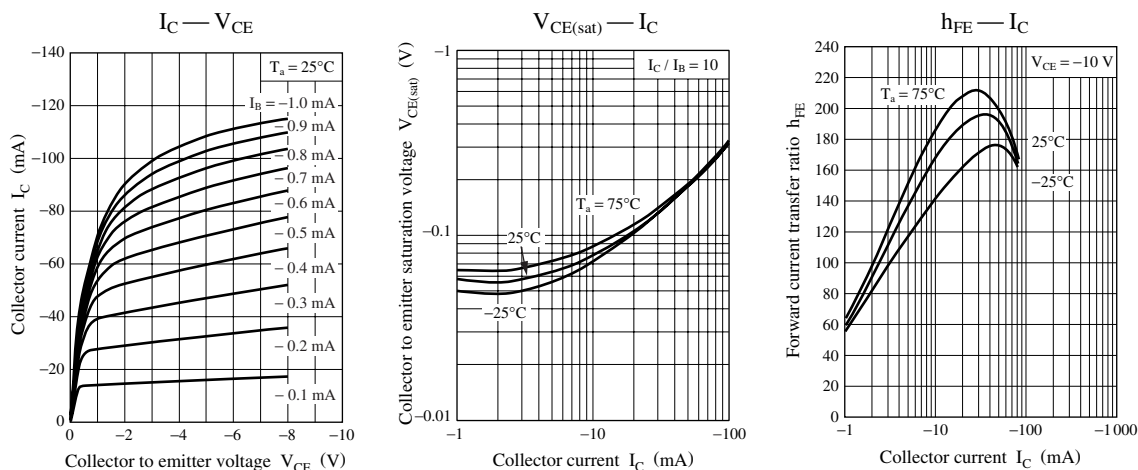
Characteristics chart of UNR911AJ

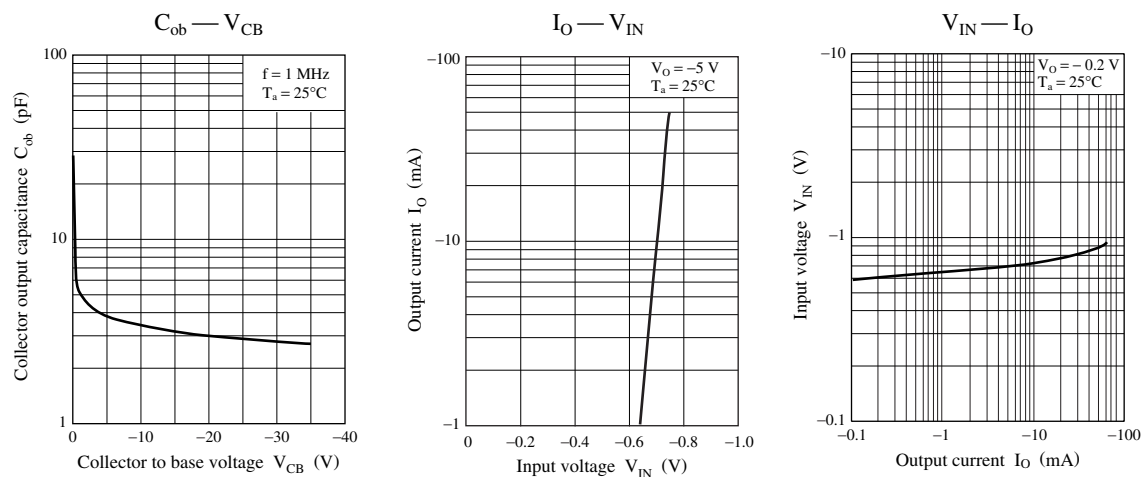


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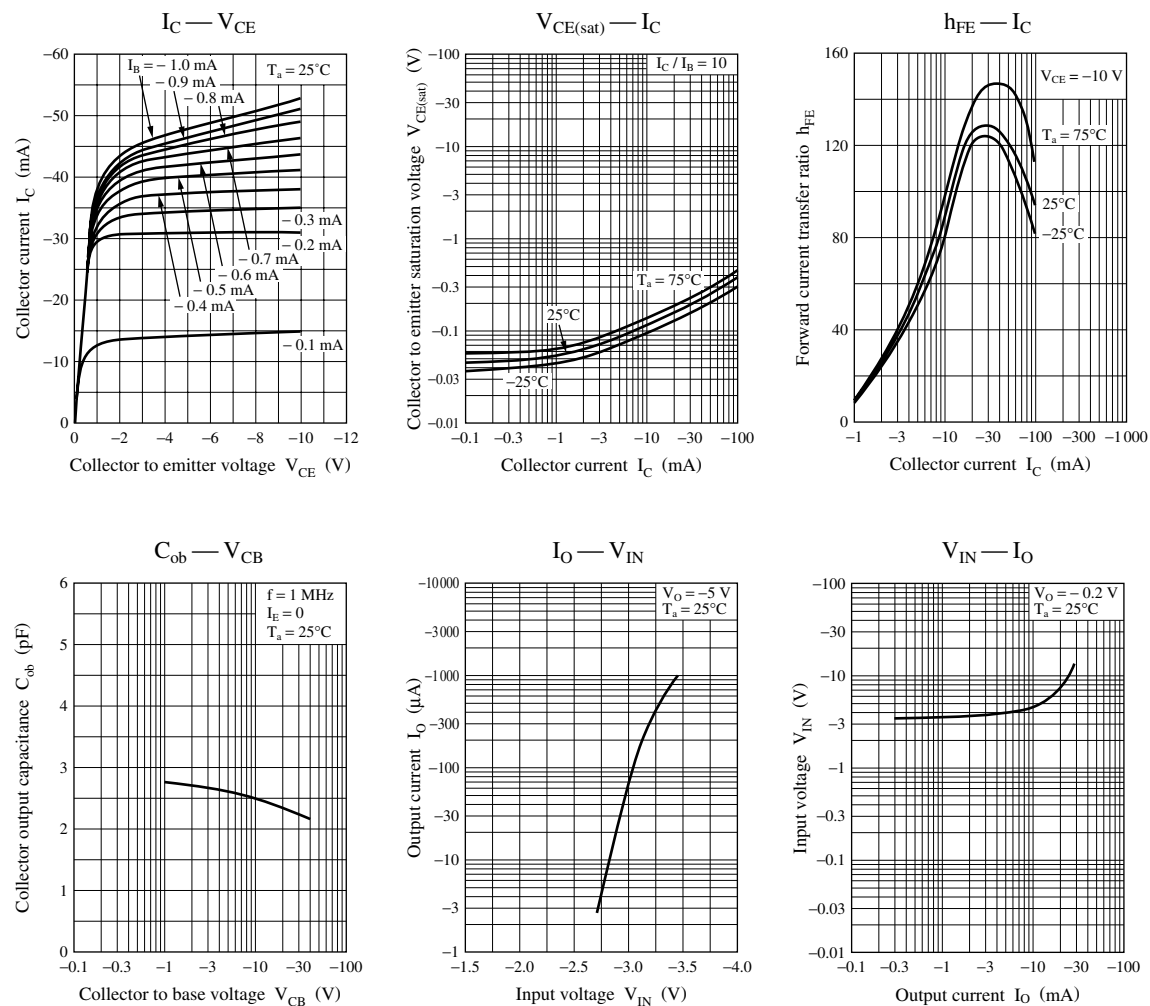


Characteristics chart of UNR911CJ

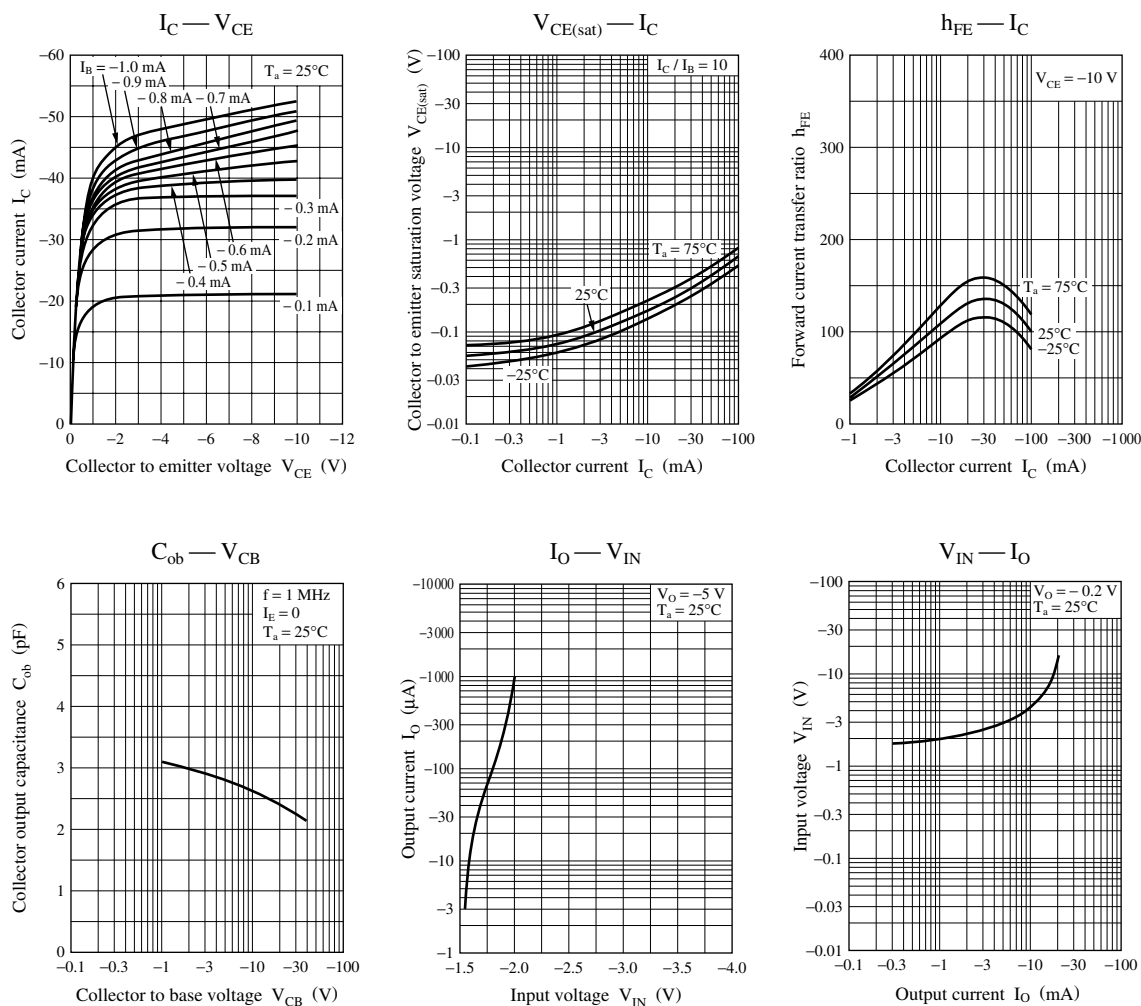




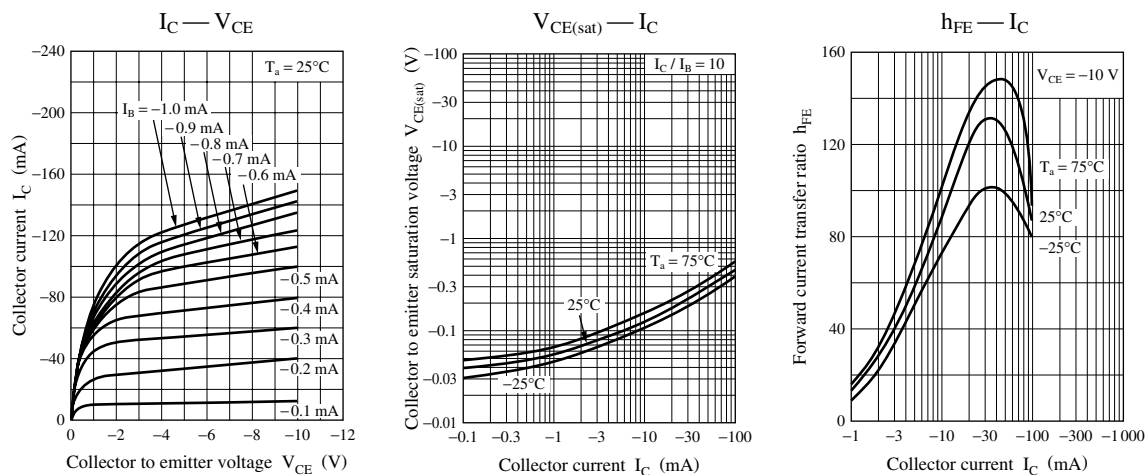
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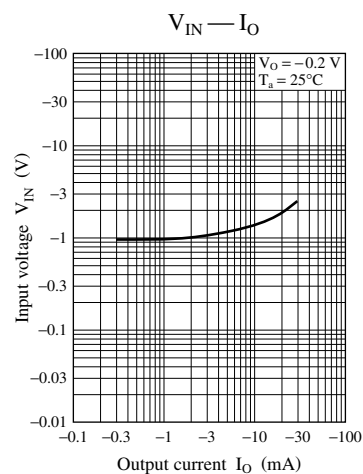
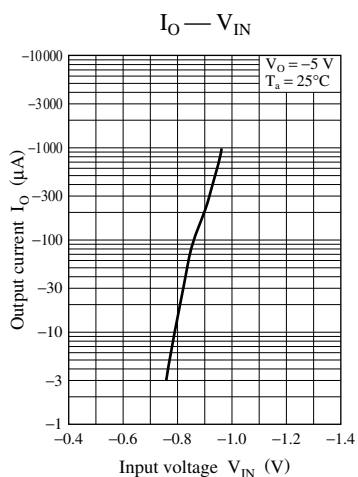
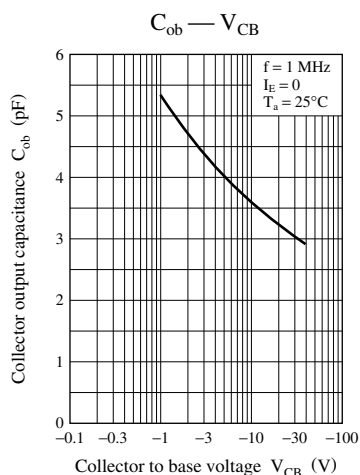


Characteristics chart of UNR911EJ

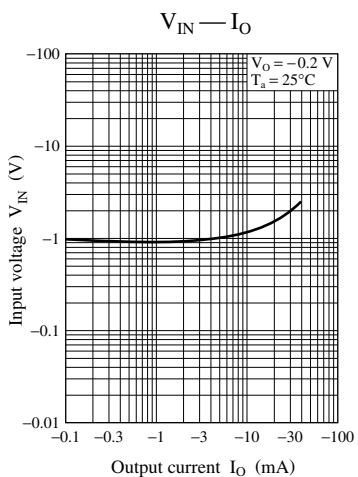
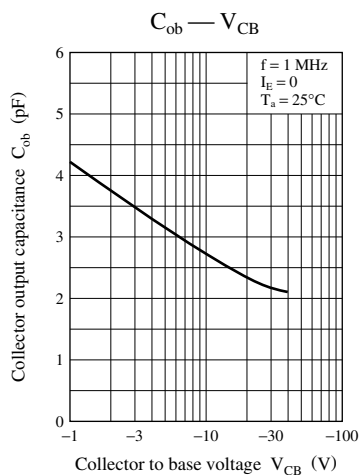
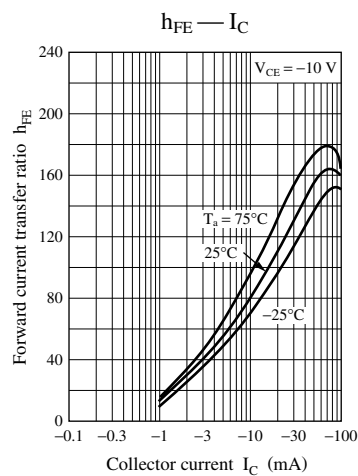
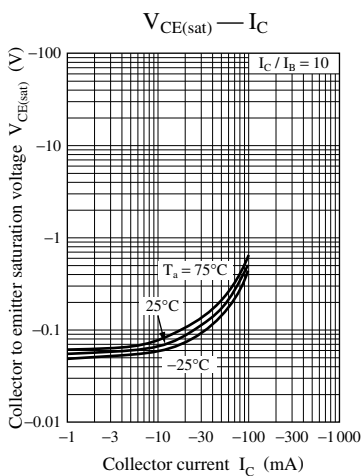
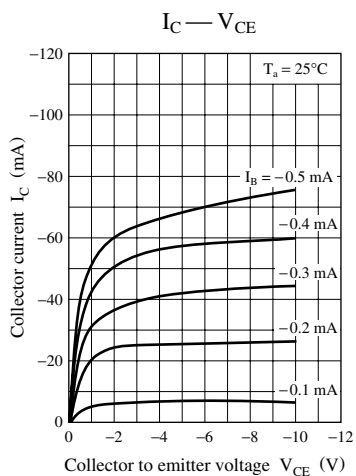


Characteristics chart of UNR911FJ

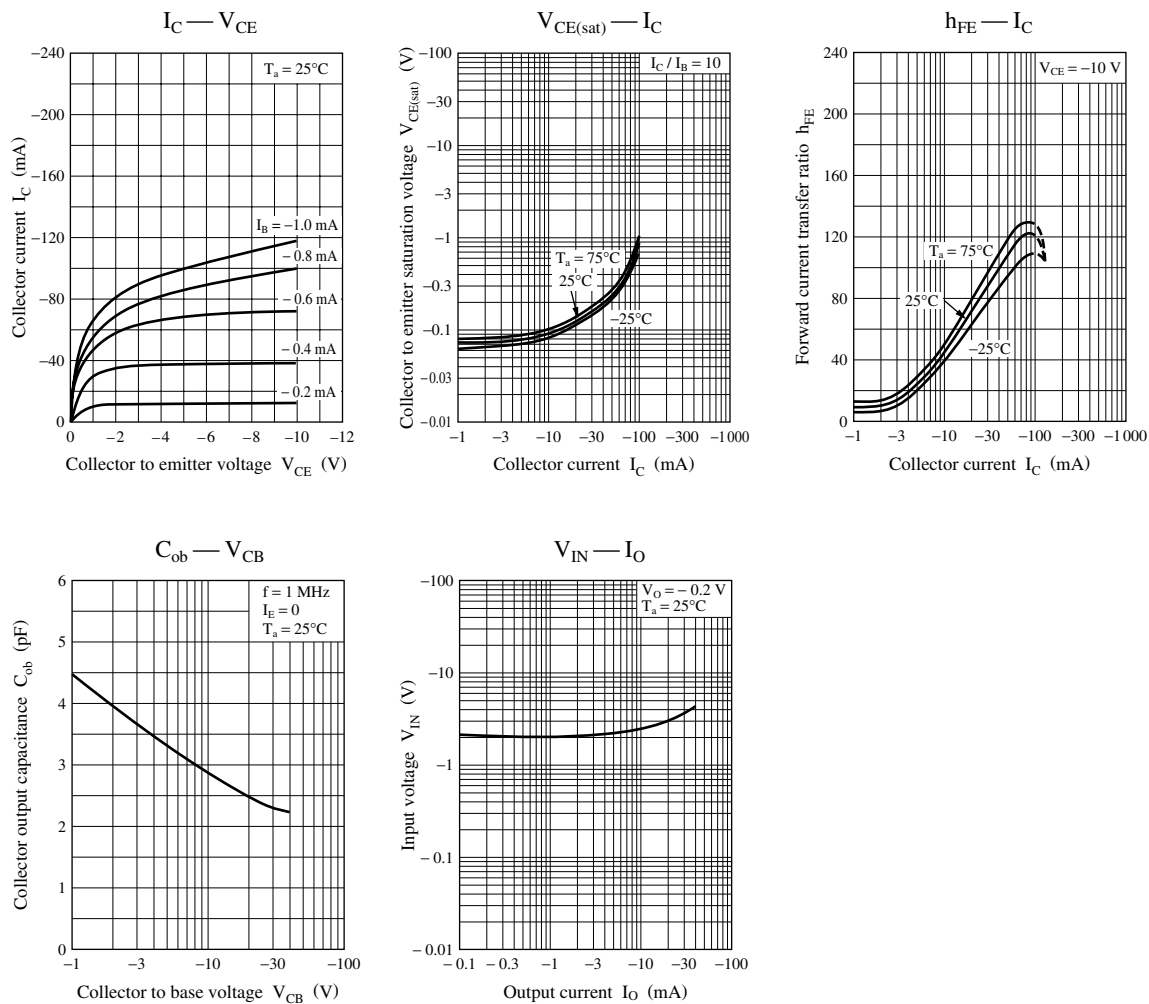




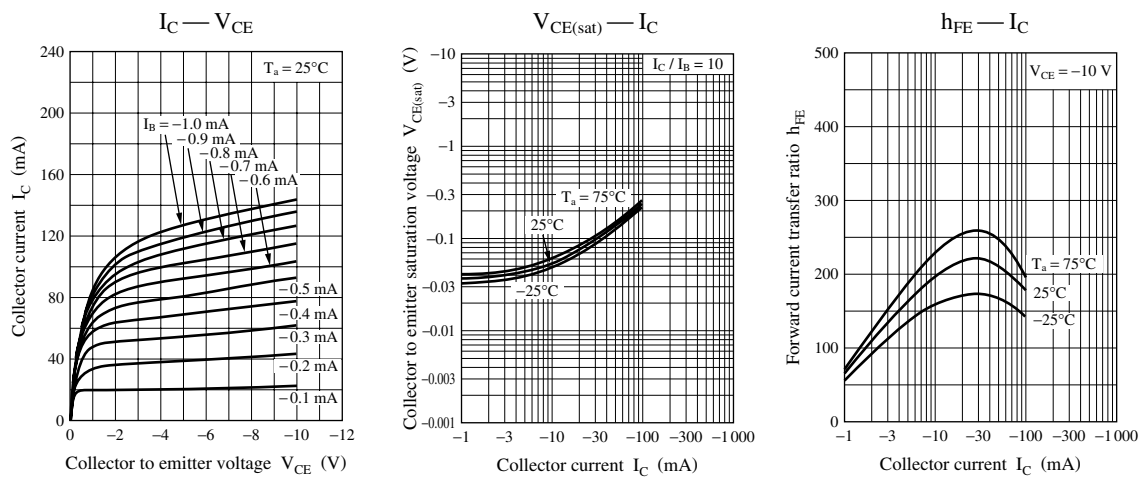
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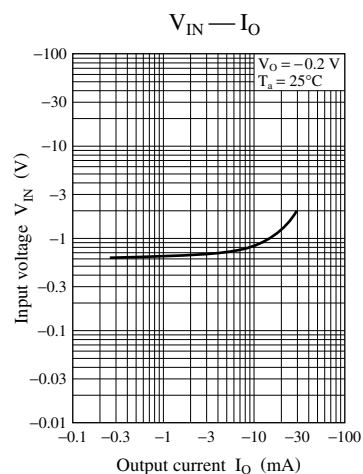
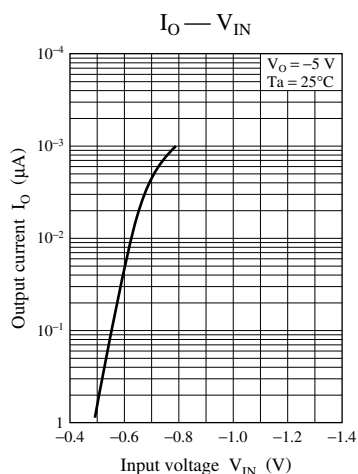
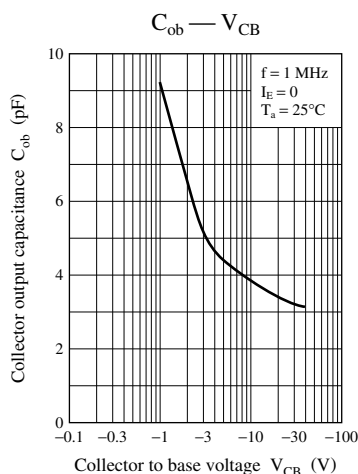


Characteristics chart of UNR911LJ

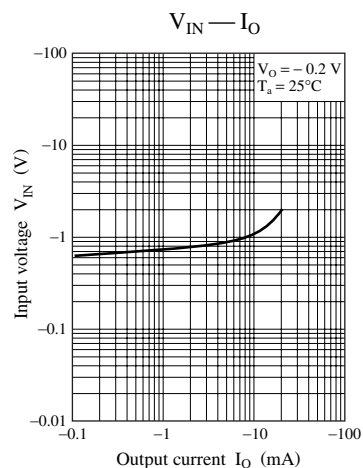
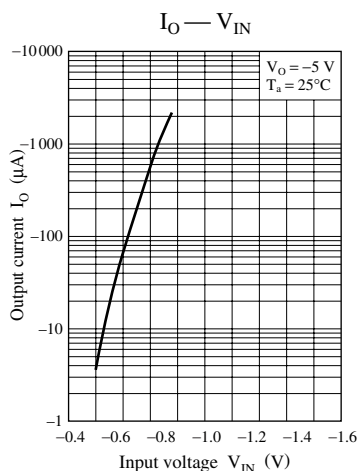
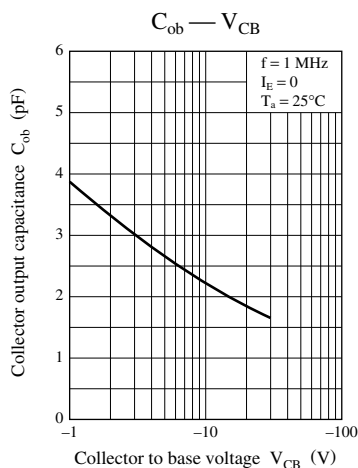
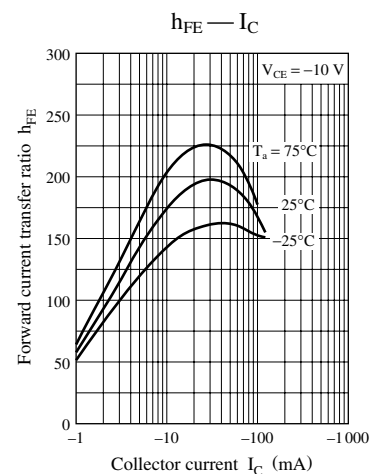
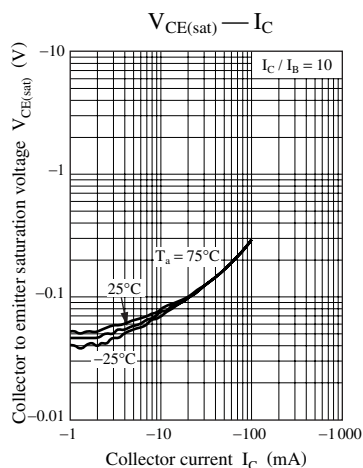
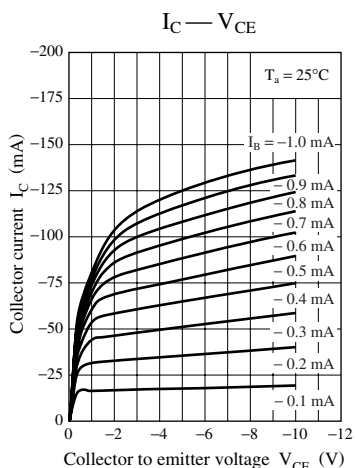


Characteristics chart of UNR911MJ

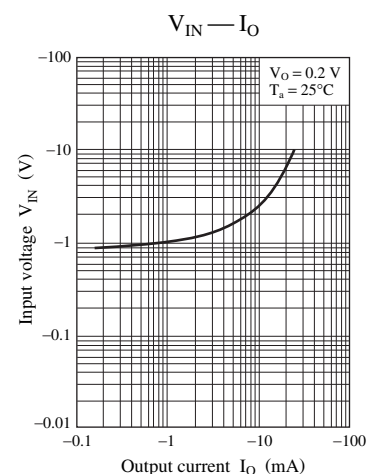
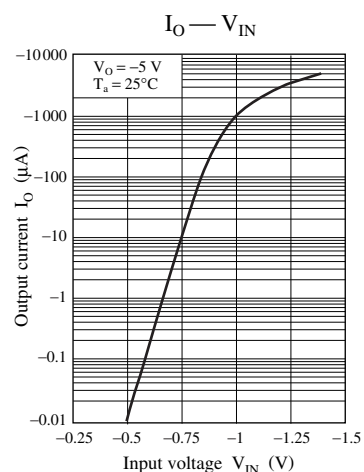
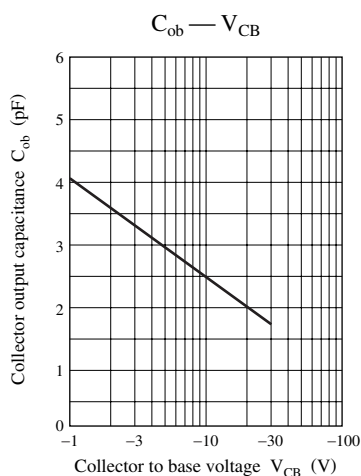
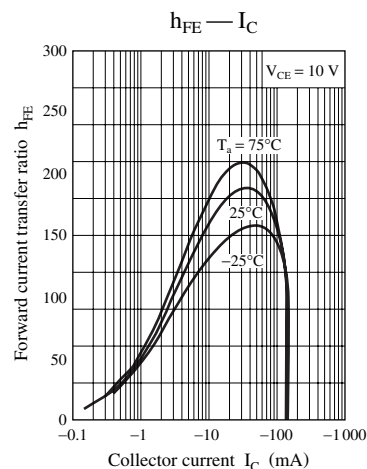
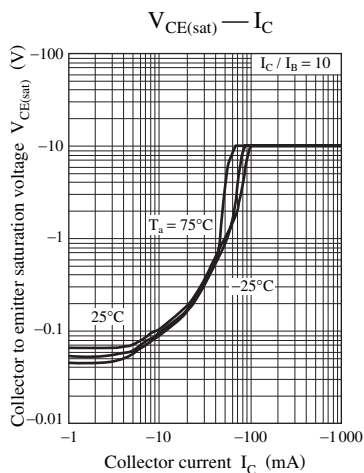
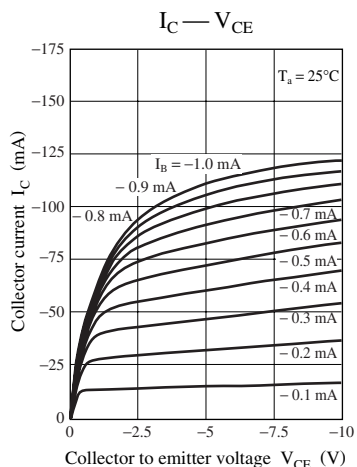




Characteristics chart of UNR911NJ



Characteristics chart of UNR911TJ



Characteristics chart of UNR911VJ

