

# UNR911xJ Series (UN911xJ Series)

## Silicon PNP epitaxial planar type

For digital circuits

### ■ Features

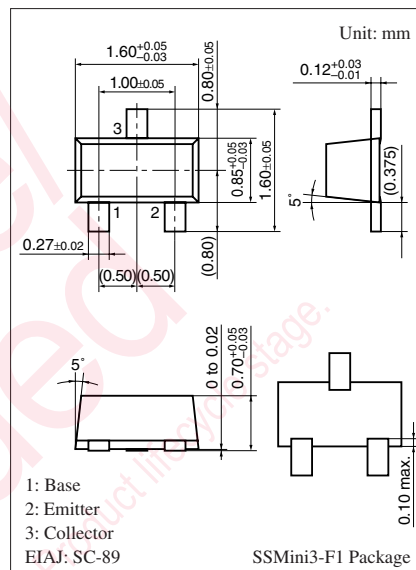
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-Mini type package, allowing automatic insertion through tape packing.

### ■ Resistance by Part Number

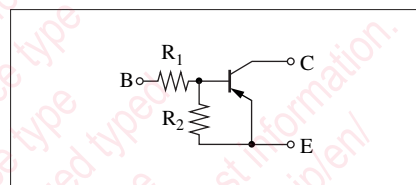
	Marking Symbol	(R <sub>1</sub> )	(R <sub>2</sub> )
• UNR9110J (UN9110J)	6L	47 kΩ	—
• UNR9111J (UN9111J)	6A	10 kΩ	10 kΩ
• UNR9112J (UN9112J)	6B	22 kΩ	22 kΩ
• UNR9113J (UN9113J)	6C	47 kΩ	47 kΩ
• UNR9114J (UN9114J)	6D	10 kΩ	47 kΩ
• UNR9115J (UN9115J)	6E	10 kΩ	—
• UNR9116J (UN9116J)	6F	4.7 kΩ	—
• UNR9117J (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<sub>a</sub> = 25°C

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	-50	V
Collector-emitter voltage (Base open)	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



(Note) The part numbers in the parenthesis show conventional part number.

**Electrical Characteristics**  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$ 

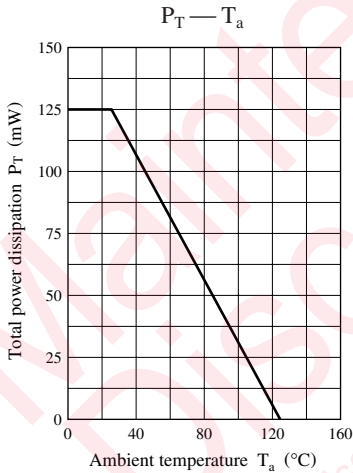
Parameter	Symbol	Conditions	Min	Typ	Max	Unit					
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-50			V					
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -2 \text{mA}, I_B = 0$	-50			V					
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -50 \text{V}, I_E = 0$			-0.1	$\mu\text{A}$					
Collector-base cutoff current (Emitter open)	$I_{CEO}$	$V_{CE} = -50 \text{V}, I_B = 0$			-0.5	$\mu\text{A}$					
Emitter-base cutoff current (Collector open)	UNR9115J/9116J/9117J/911BJ	$I_{EBO}$				-0.01					
	UNR9110J/9113J/911AJ					-0.1					
	UNR9112J/9114J/911DJ/ 911EJ/911MJ/911NJ/911TJ					-0.2					
	UNR9111J					-0.5					
	UNR911FJ/911HJ					-1.0					
	UNR9119J					-1.5					
	UNR9118J/9111CJ/911LJ/911VJ					-2.0					
Forward current transfer ratio	UNR911VJ	$h_{FE}$	$V_{CE} = -10 \text{V}, I_C = -5 \text{mA}$	6		20	—				
	UNR9118J/911LJ			20							
	UNR9119J/911DJ/911FJ/911HJ			30							
	UNR9111J			35							
	UNR9112J/911EJ			60							
	UNR9113J/9114J/911AJ/ 911CJ/911MJ			80							
	UNR911NJ/911TJ			80	400						
	UNR9110J/9115J/9116J/ 9117J/911BJ			160	460						
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10 \text{mA}, I_B = -0.3 \text{mA}$				-0.25	V				
								$I_C = -10 \text{mA}, I_B = -1.5 \text{mA}$			
Output voltage high-level	$V_{OH}$	$V_{CC} = -5 \text{V}, V_B = -0.5 \text{V}, R_L = 1 \text{k}\Omega$	-4.9			V					
Output voltage low-level	$V_{OL}$	$V_{CC} = -5 \text{V}, V_B = -2.5 \text{V}, R_L = 1 \text{k}\Omega$				-0.2	V				
								$V_{CC} = -5 \text{V}, V_B = -3.5 \text{V}, R_L = 1 \text{k}\Omega$			
								$V_{CC} = -5 \text{V}, V_B = -10 \text{V}, R_L = 1 \text{k}\Omega$			
								$V_{CC} = -5 \text{V}, V_B = -6 \text{V}, R_L = 1 \text{k}\Omega$			
								$V_{CC} = -5 \text{V}, V_B = -5 \text{V}, R_L = 1 \text{k}\Omega$			
Transition frequency	$f_T$	$V_{CB} = -10 \text{V}, I_E = 1 \text{mA}, f = 200 \text{MHz}$					MHz				
								$V_{CB} = -10 \text{V}, I_E = 1 \text{mA}, f = 200 \text{MHz}$	80		
								$V_{CB} = -10 \text{V}, I_E = 2 \text{mA}, f = 200 \text{MHz}$	150		
								$V_{CB} = -10 \text{V}, I_E = 2 \text{mA}, f = 200 \text{MHz}$	80		
								$V_{CB} = -10 \text{V}, I_E = 2 \text{mA}, f = 200 \text{MHz}$	150		
Input resistance	$R_i$						k $\Omega$				
								UNR9118J	-30%	0.51	+30%
								UNR9119J		1.0	
								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)  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

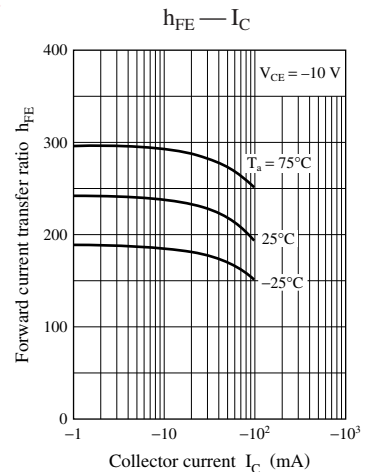
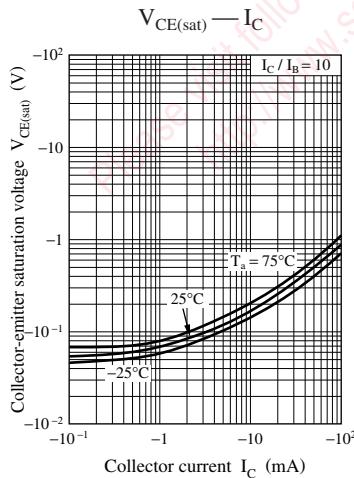
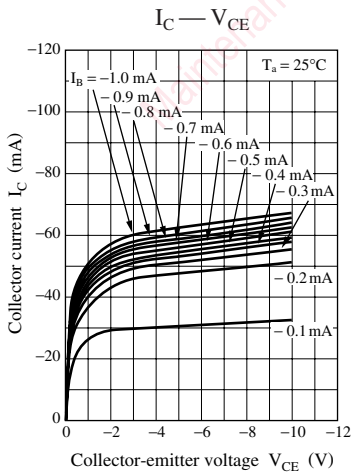
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Emitter-base resistance	UNR911CJ	$R_2$		-30%	47	+30%	k $\Omega$
Resistance ratio	UNR911MJ	$R_1/R_2$			0.047		—
	UNR911NJ				0.1		
	UNR9118J/9119J			0.08	0.10	0.12	
	UNR9114J			0.17	0.21	0.25	
	UNR911HJ			0.17	0.22	0.27	
	UNR911TJ				0.47		
	UNR911FJ			0.37	0.47	0.57	
	UNR911AJ/911VJ				1.0		
	UNR9111J/9112J/9113J/911LJ			0.8	1.0	1.2	
	UNR911EJ			1.70	2.14	2.60	
	UNR911DJ			3.7	4.7	5.7	

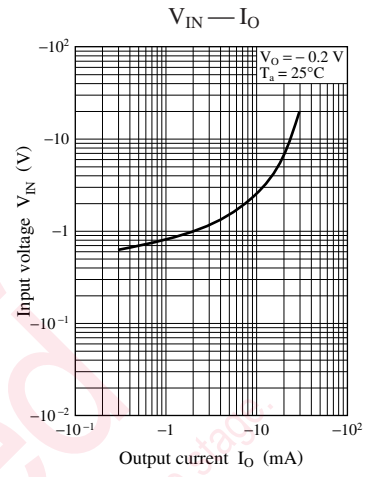
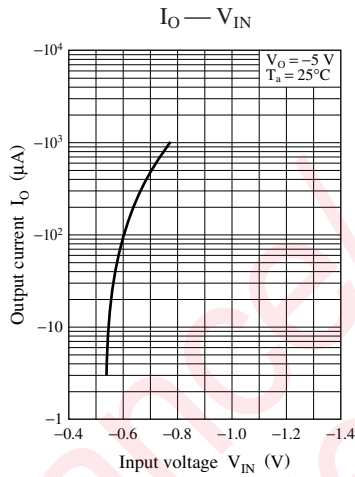
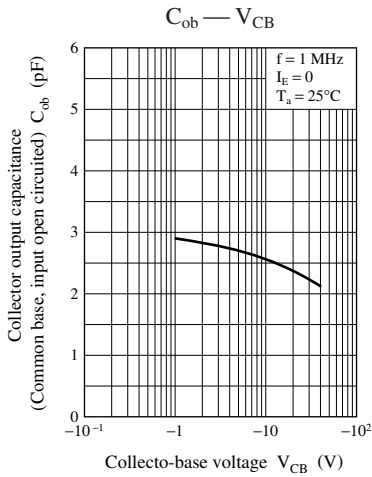
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Common characteristics chart

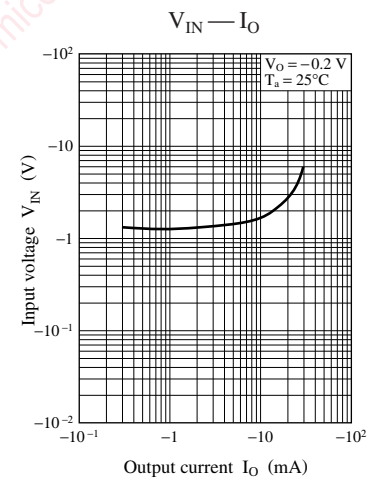
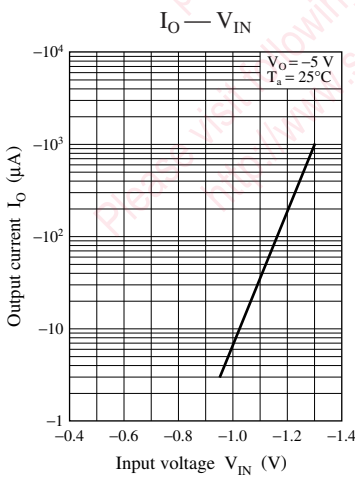
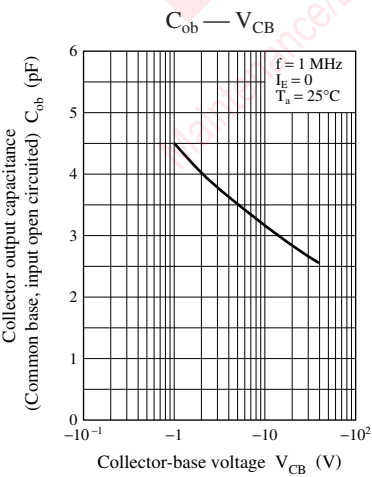
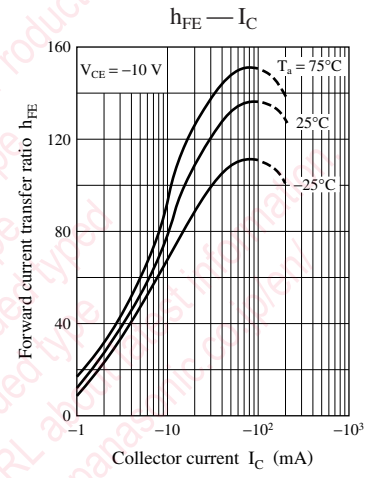
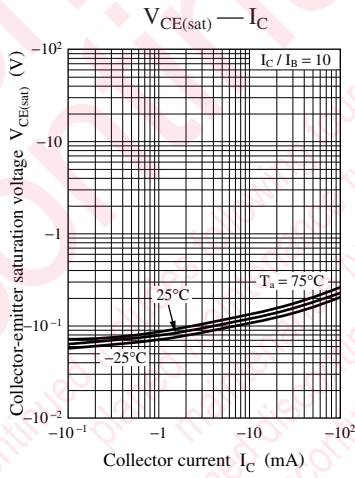
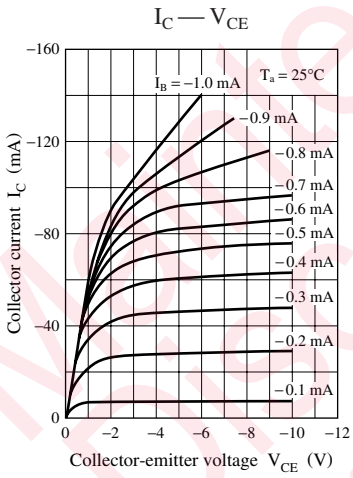


Characteristics charts of UNR9110J

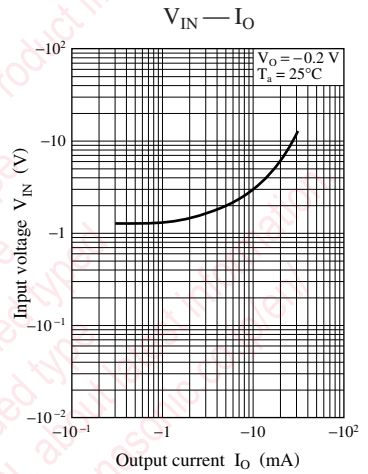
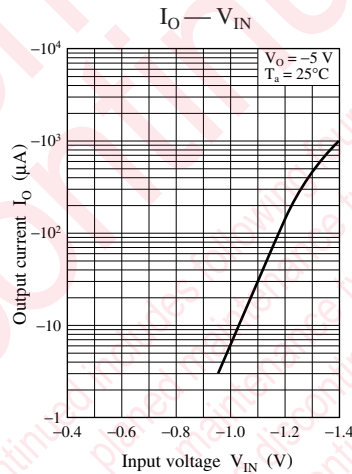
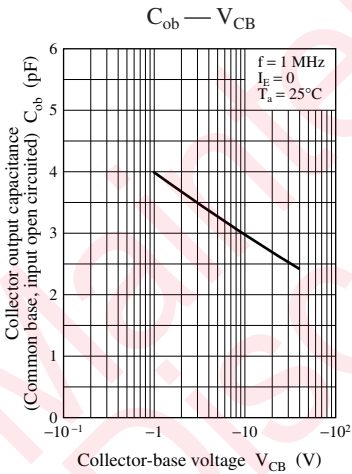
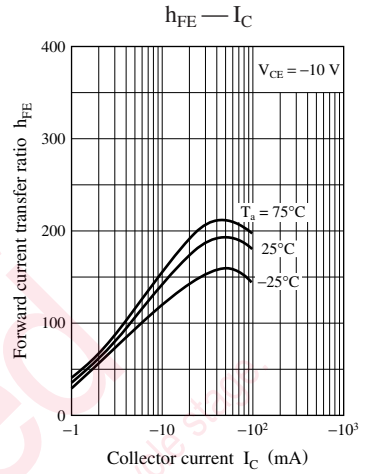
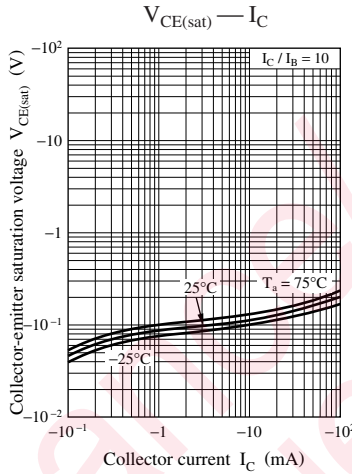
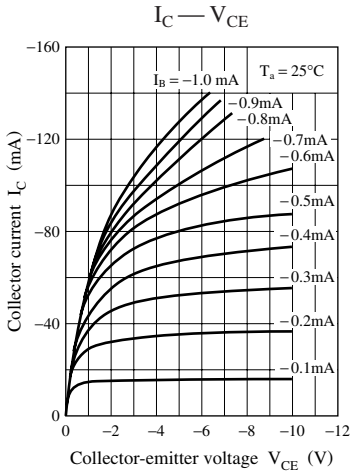




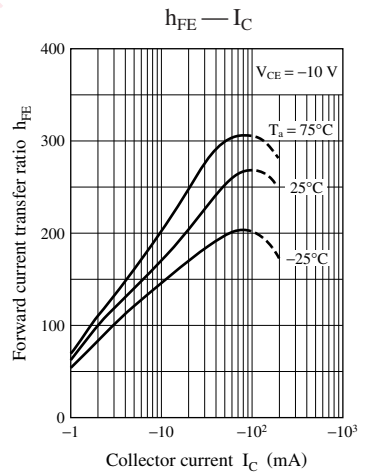
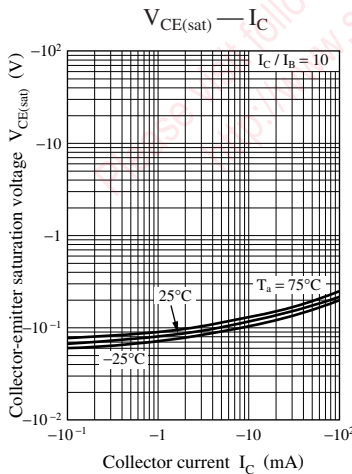
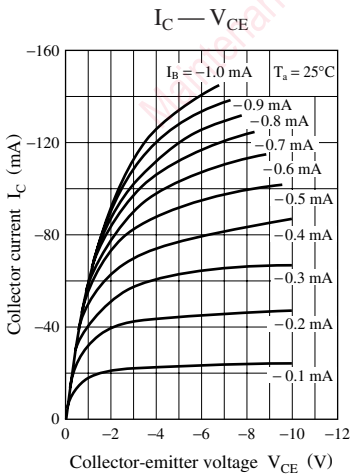
**Characteristics charts of UNR9111J**

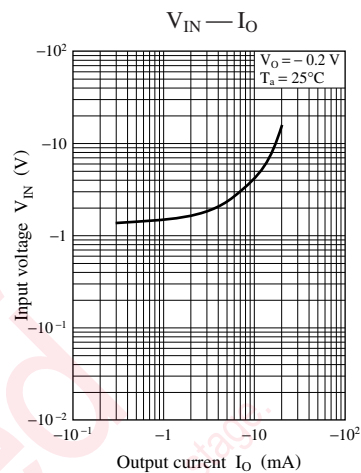
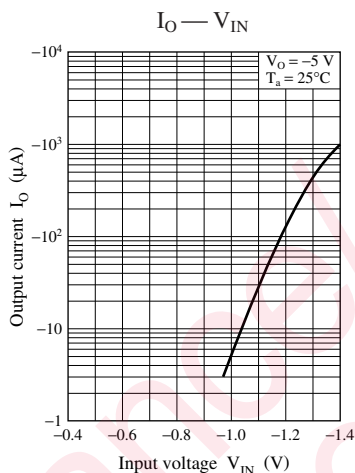
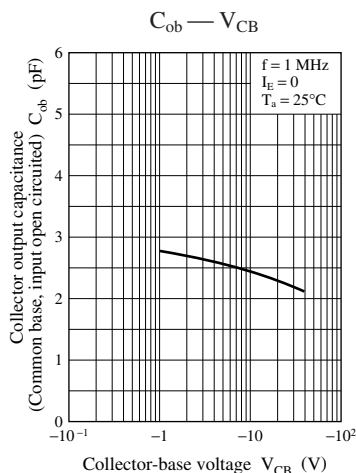


Characteristics charts of UNR9112J

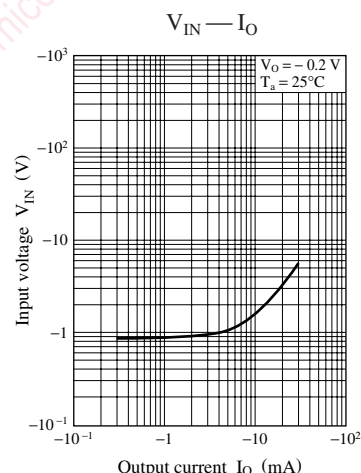
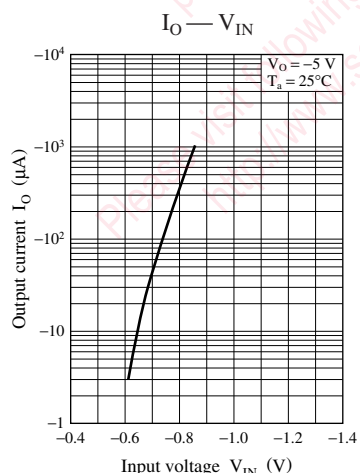
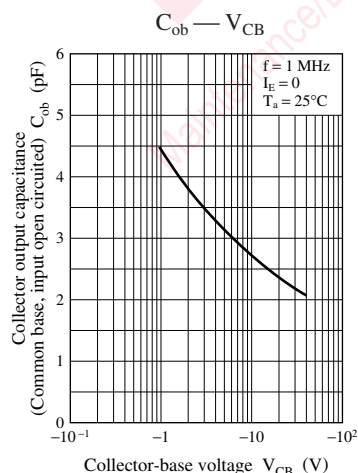
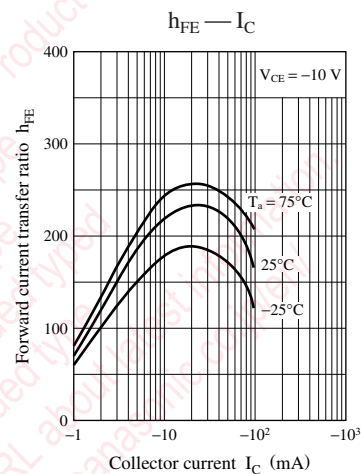
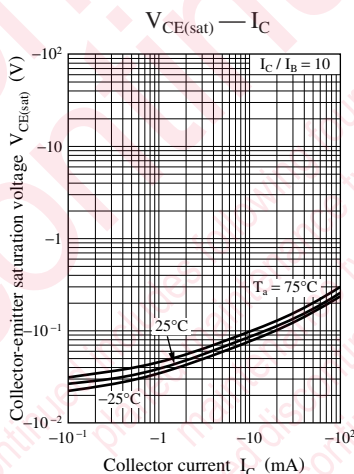
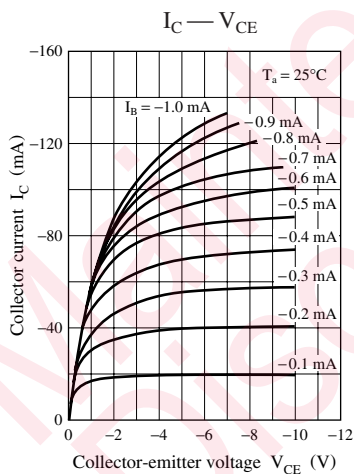


Characteristics charts of UNR9113J

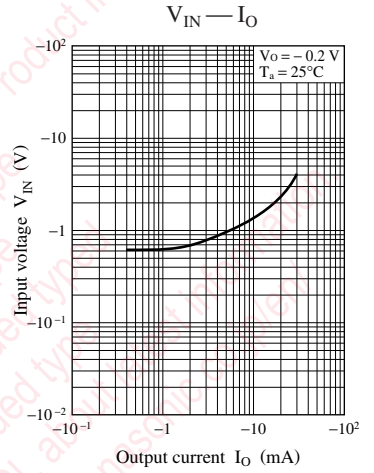
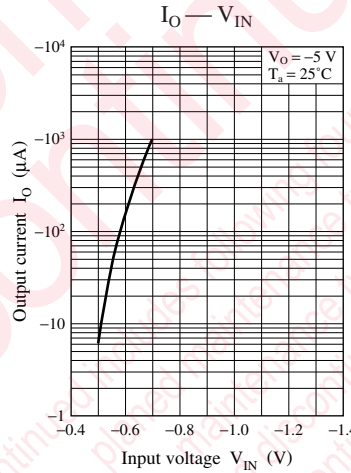
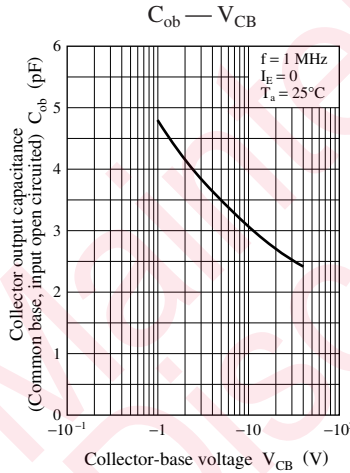
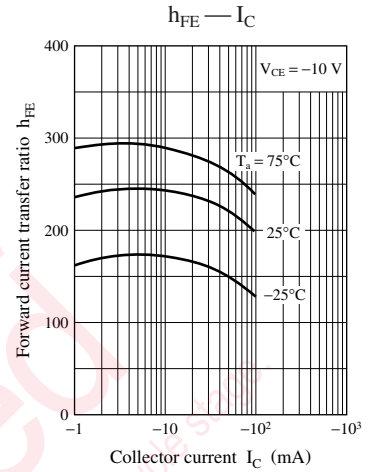
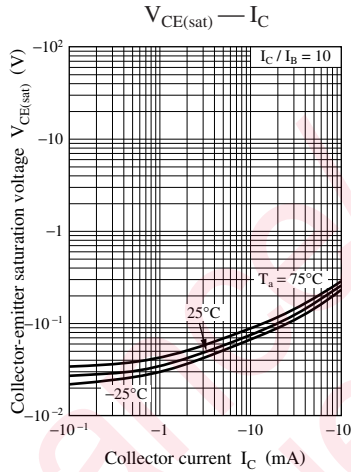
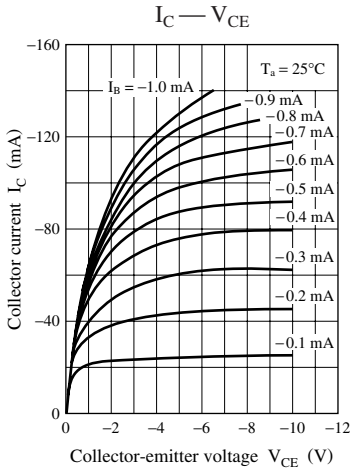




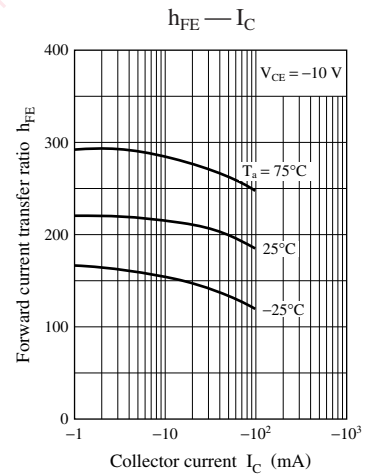
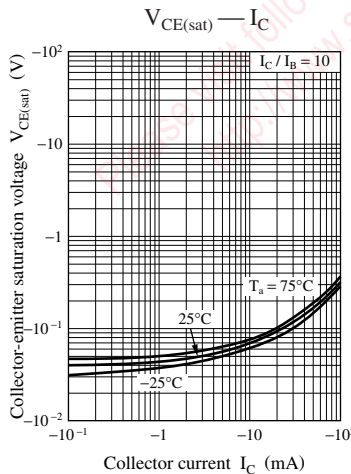
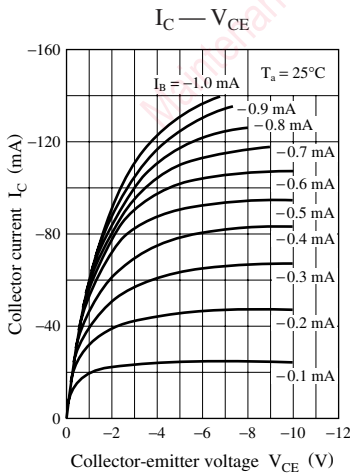
Characteristics charts of UNR9114J

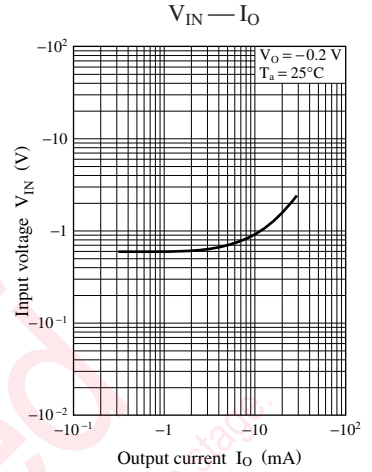
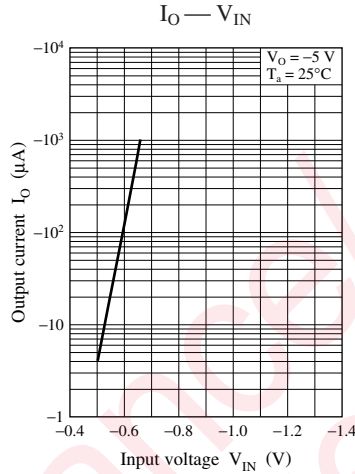
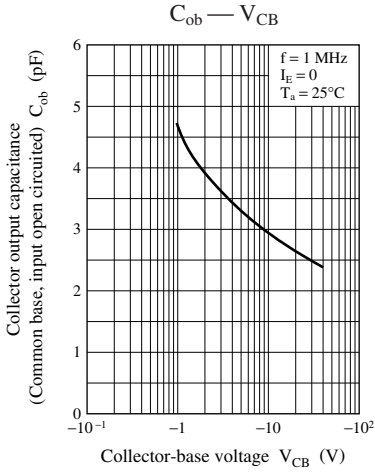


Characteristics charts of UNR9115J

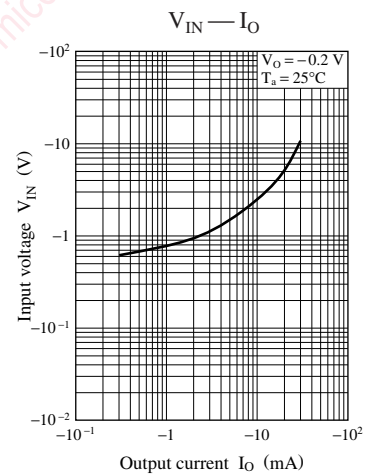
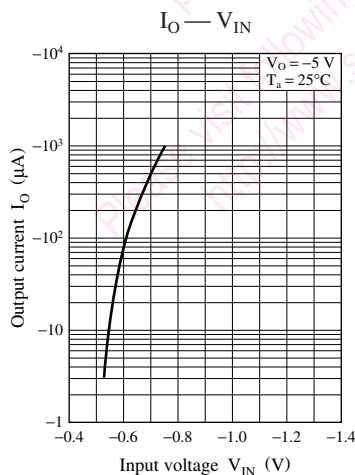
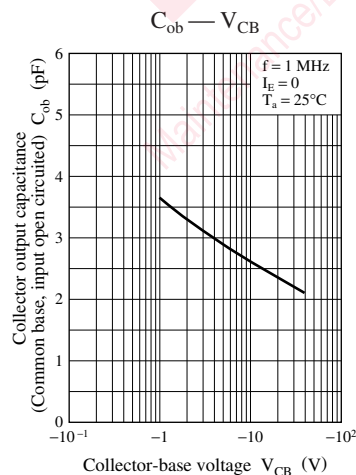
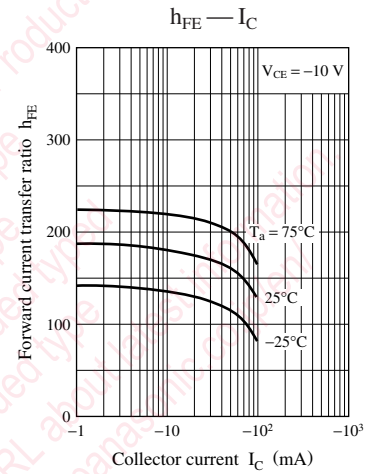
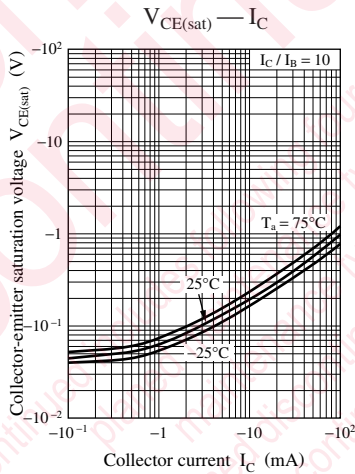
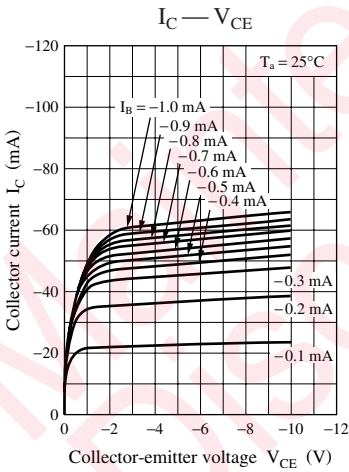


Characteristics charts of UNR9116J

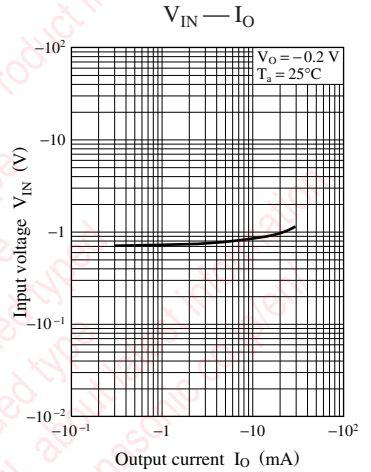
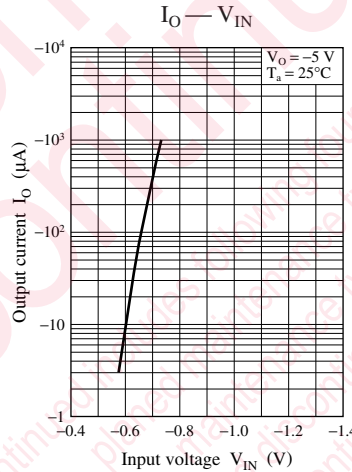
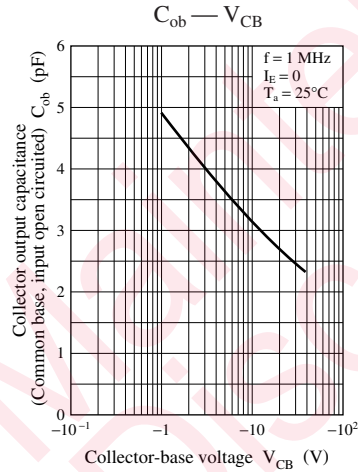
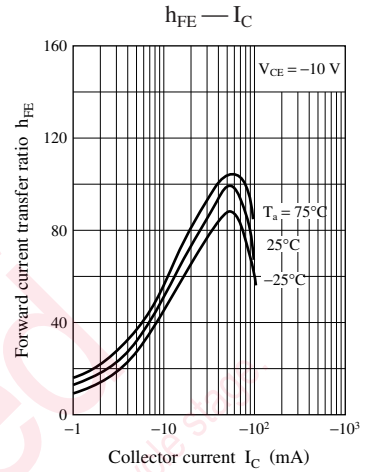
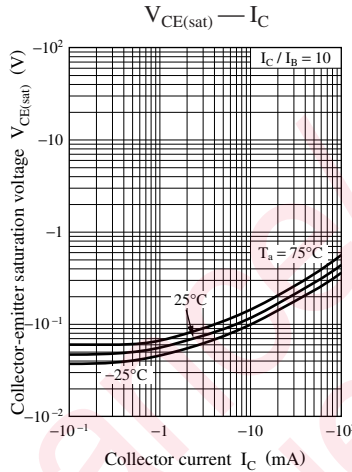
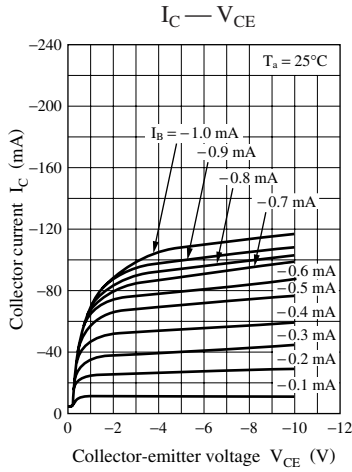




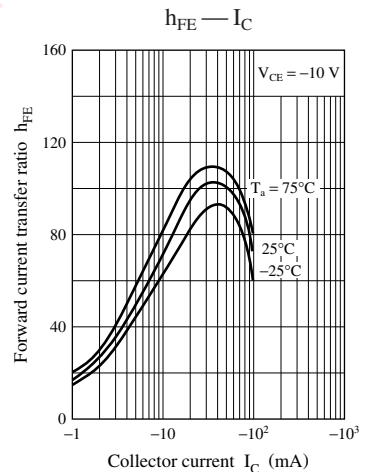
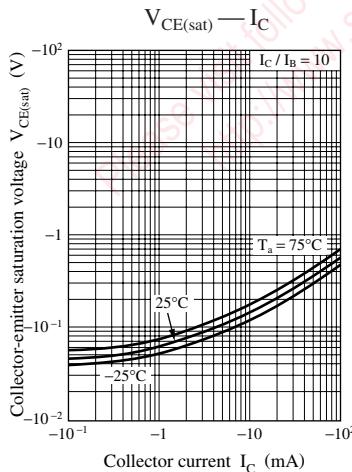
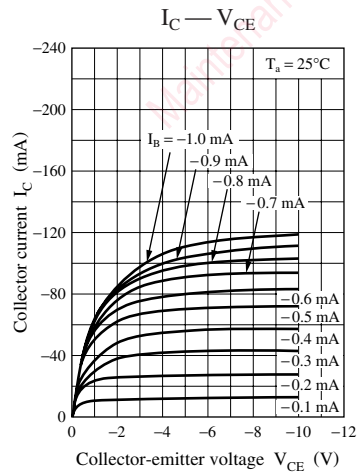
Characteristics charts of UNR9117J

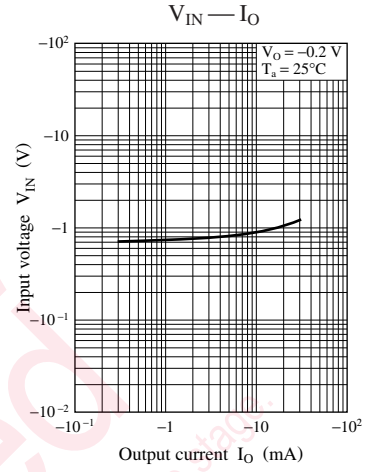
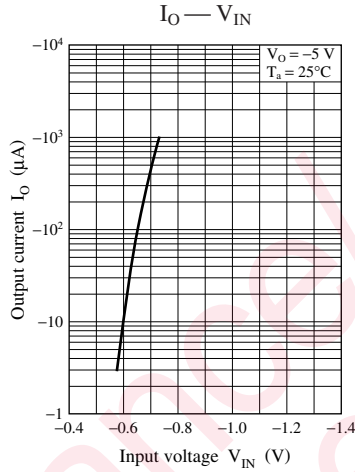
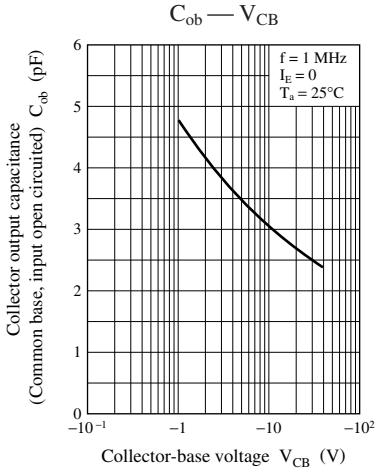


Characteristics charts of UNR9118J

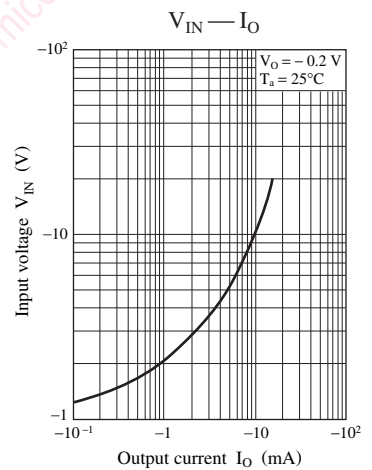
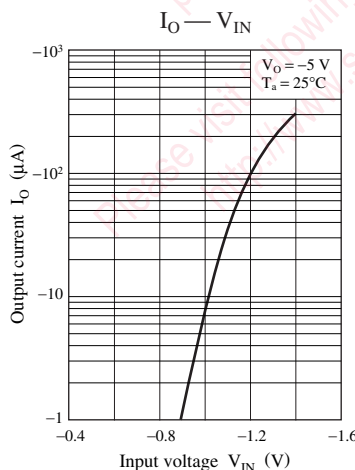
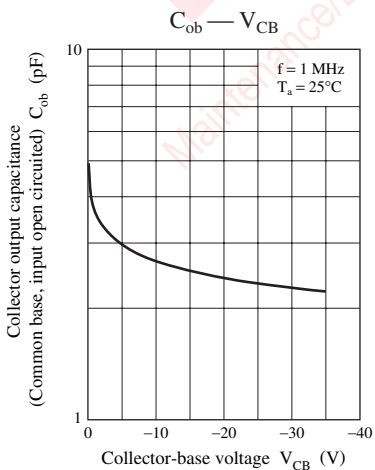
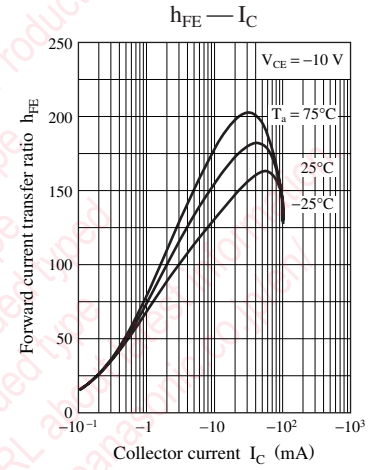
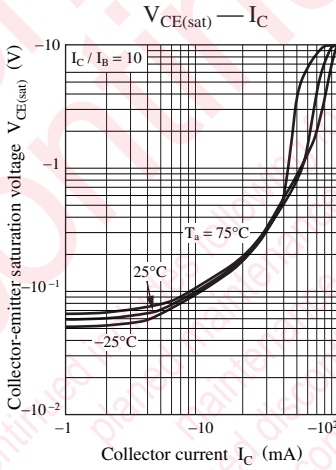
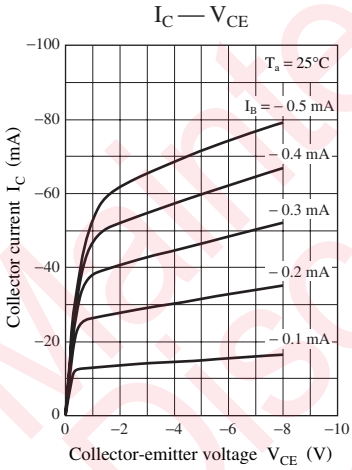


Characteristics charts of UNR9119J

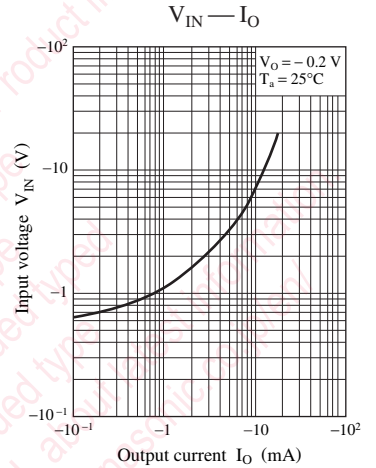
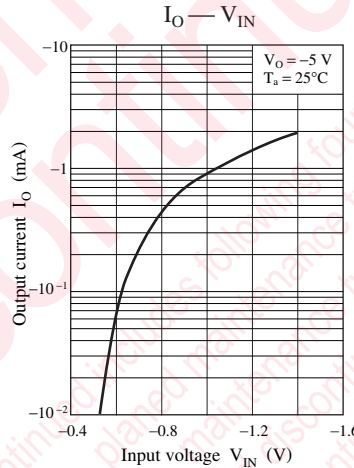
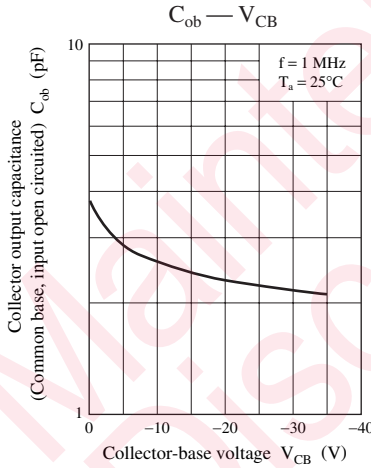
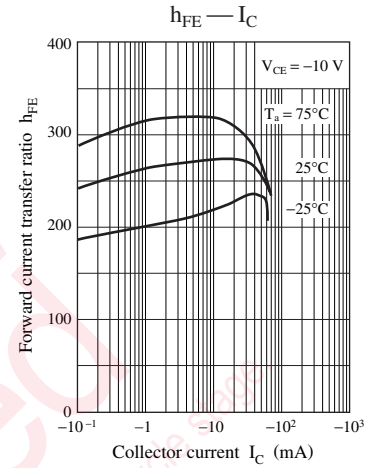
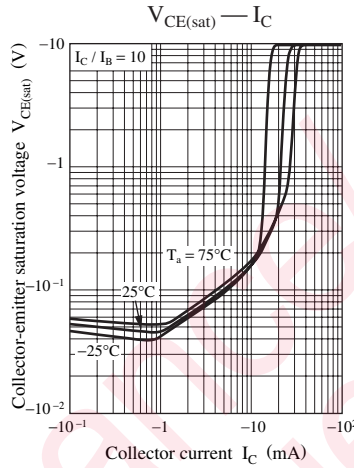
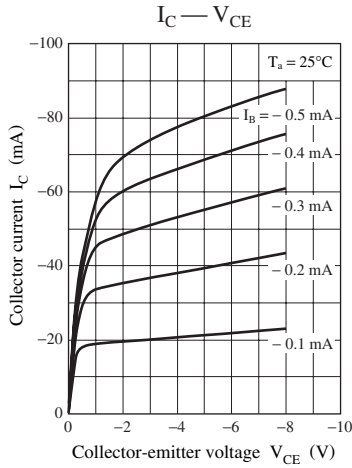




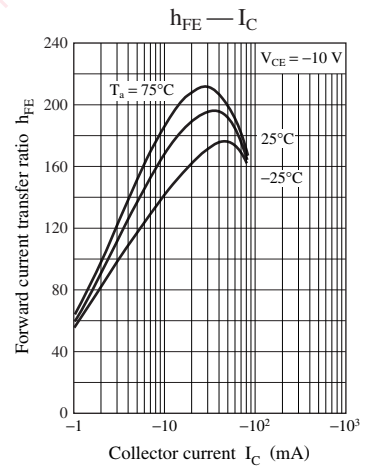
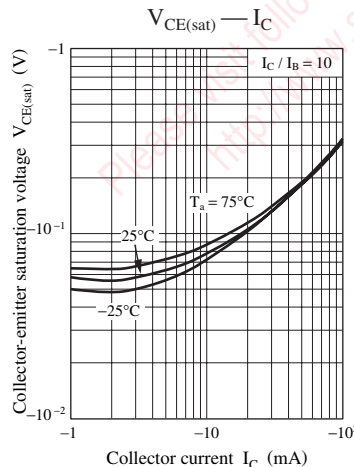
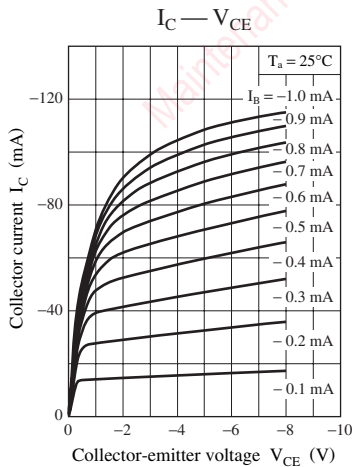
Characteristics charts of UNR911AJ

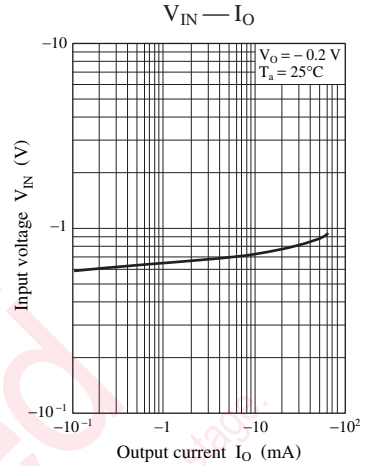
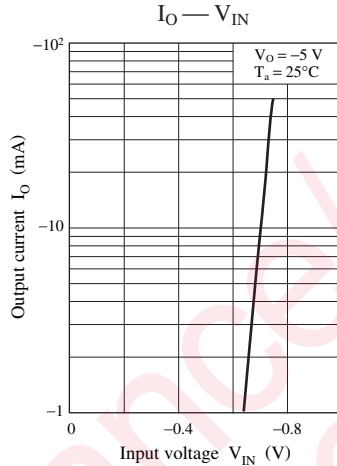
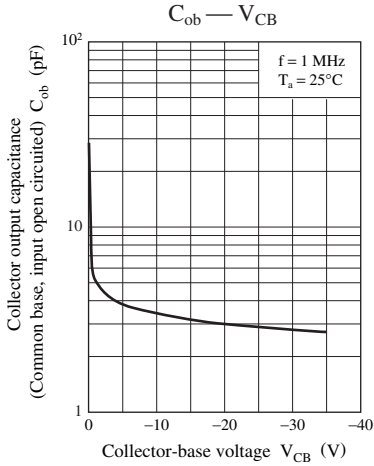


Characteristics charts of UNR911BJ

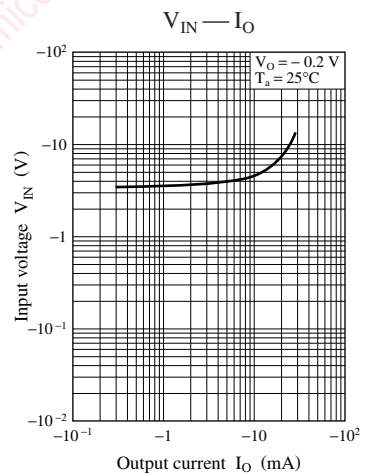
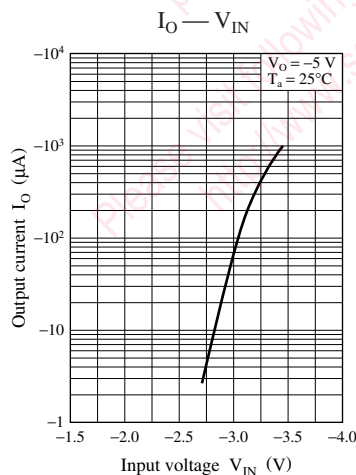
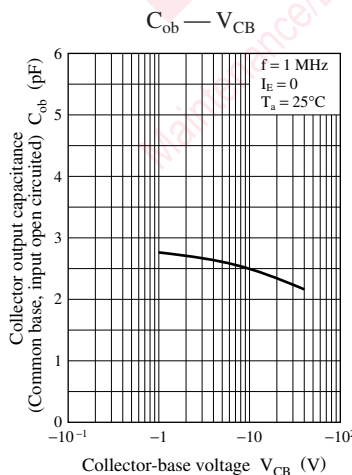
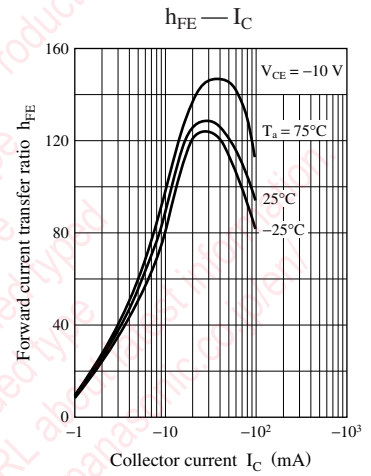
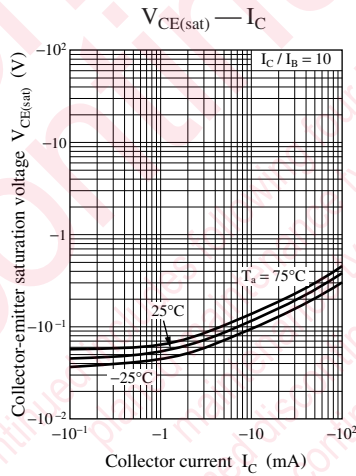
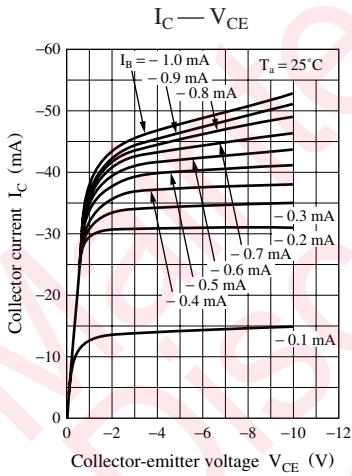


Characteristics charts of UNR911CJ

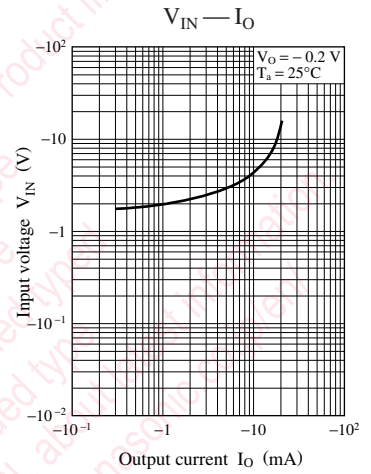
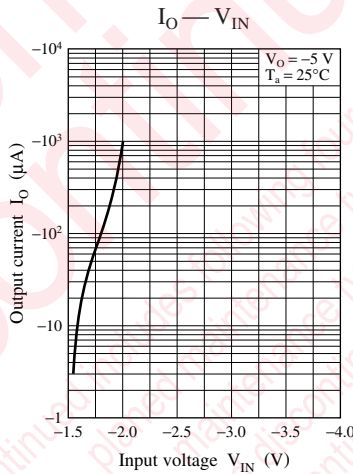
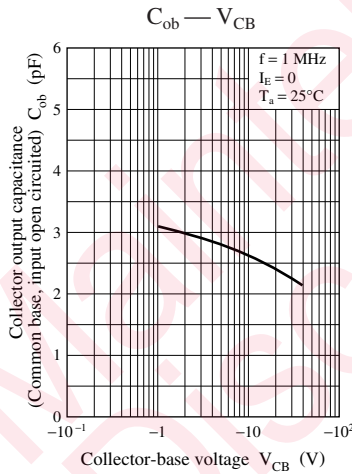
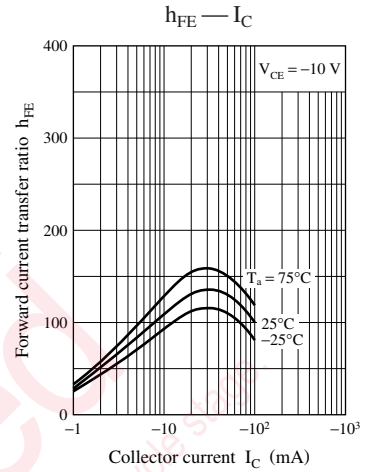
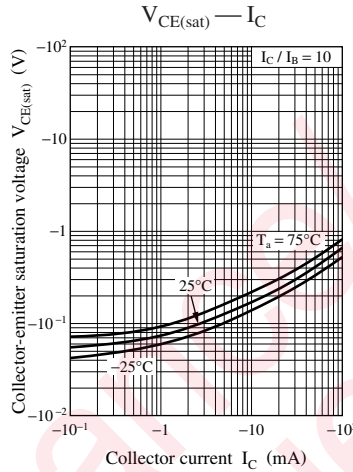
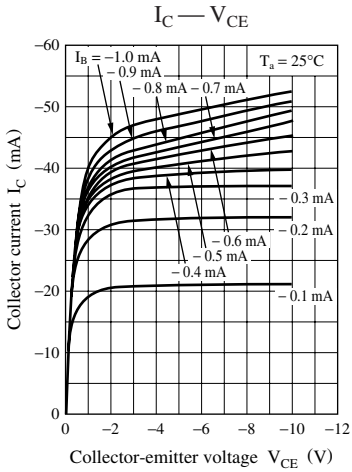




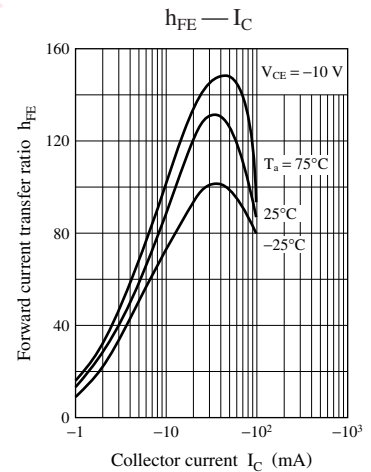
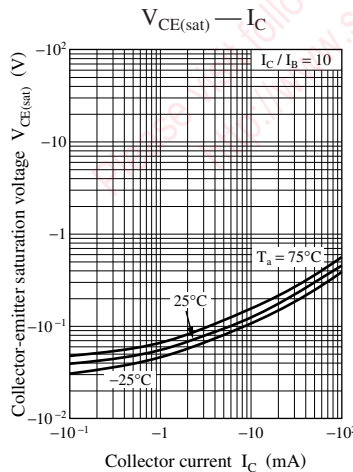
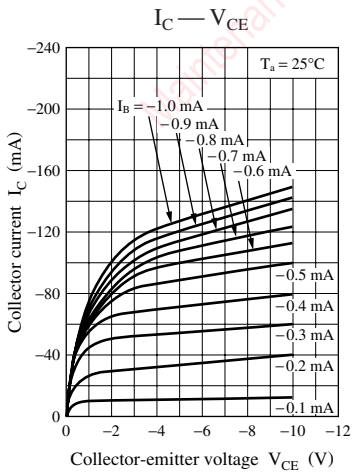
Characteristics charts of UNR911DJ

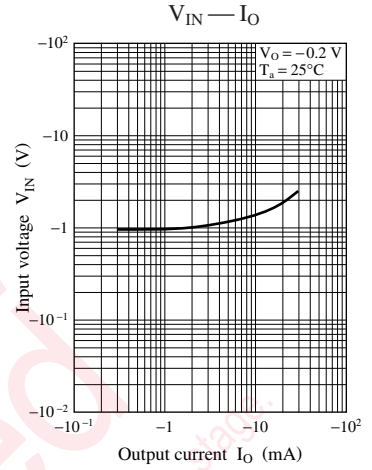
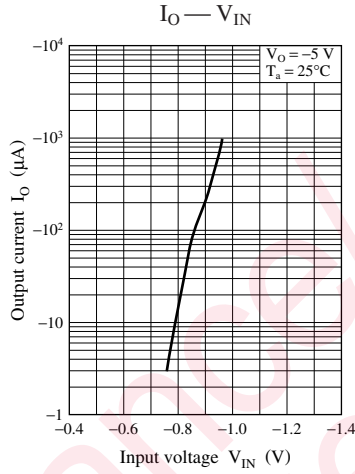
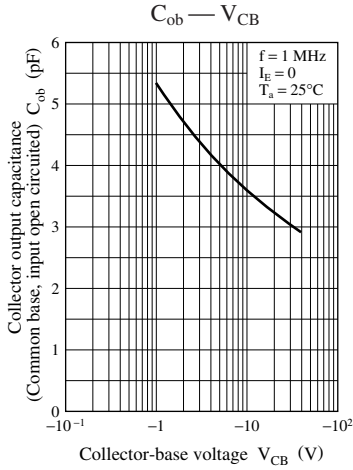


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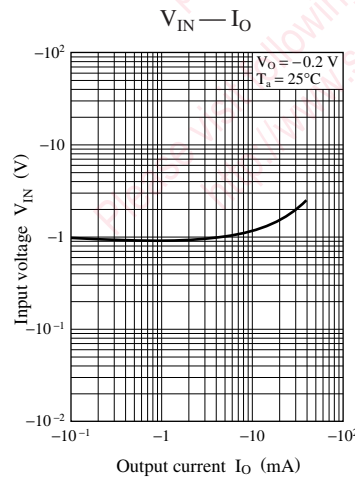
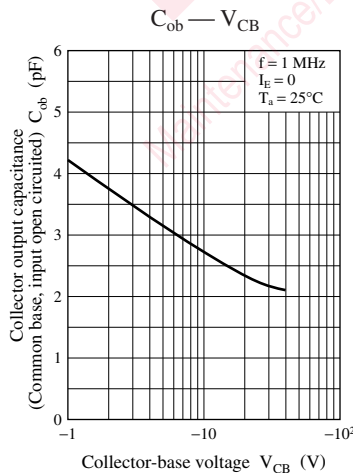
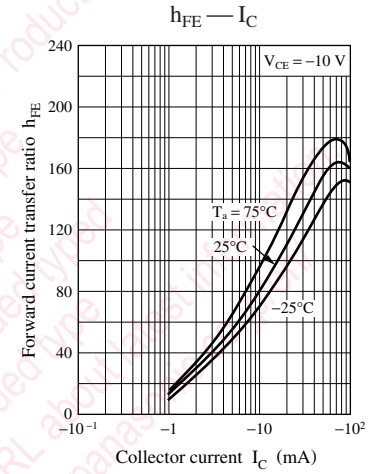
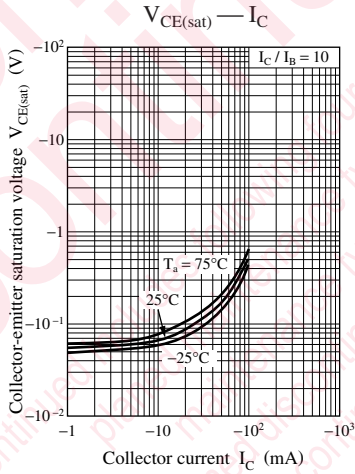
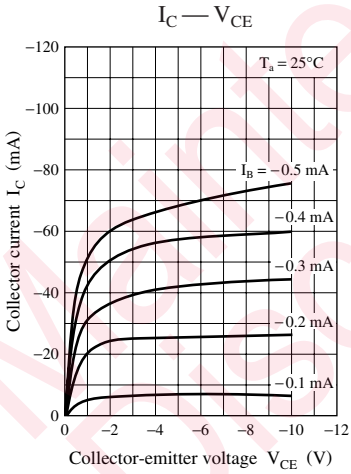


Characteristics charts of UNR911FJ

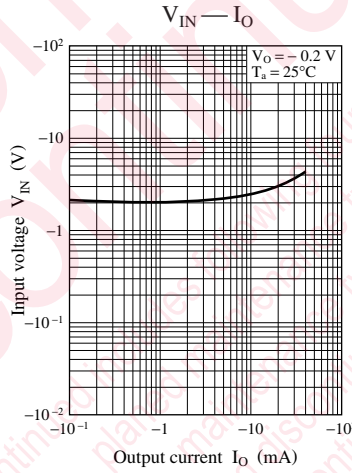
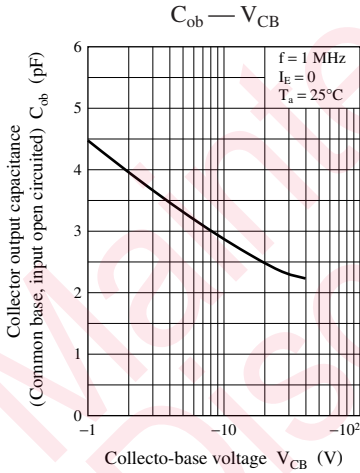
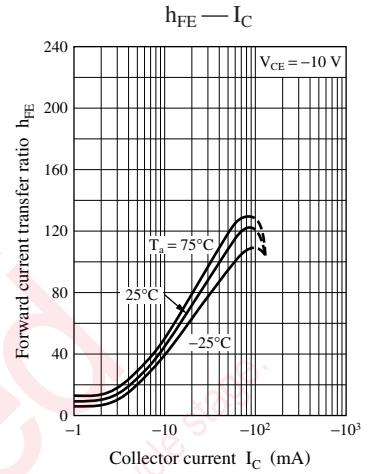
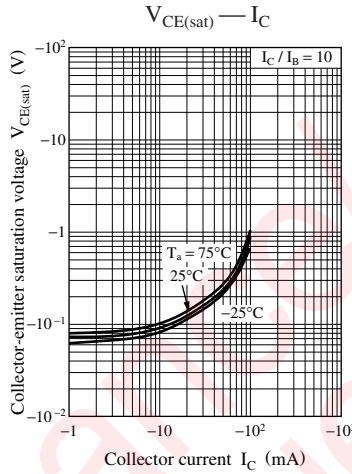
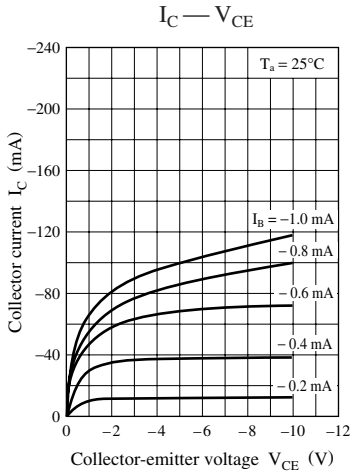




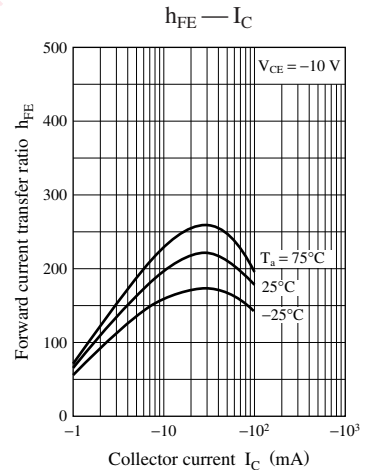
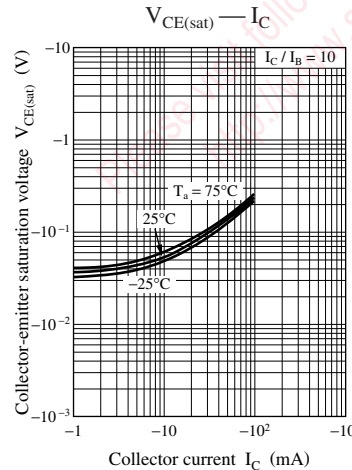
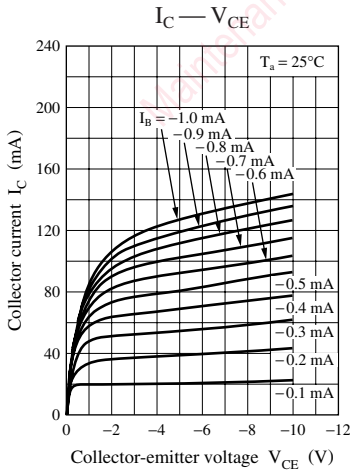
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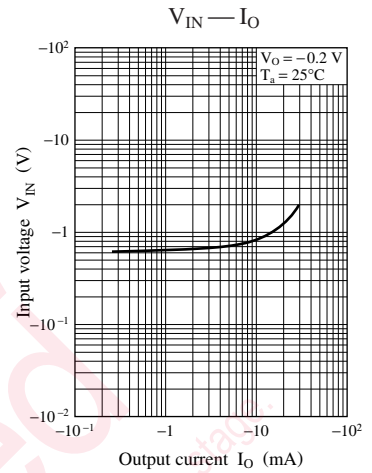
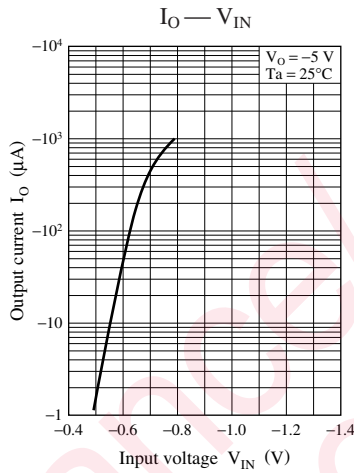
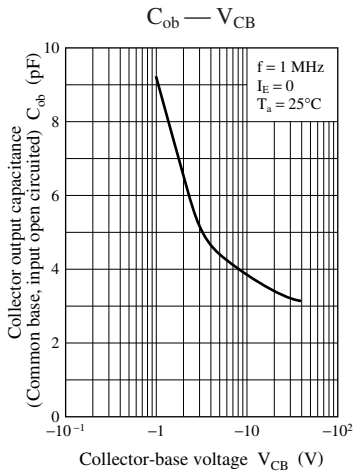


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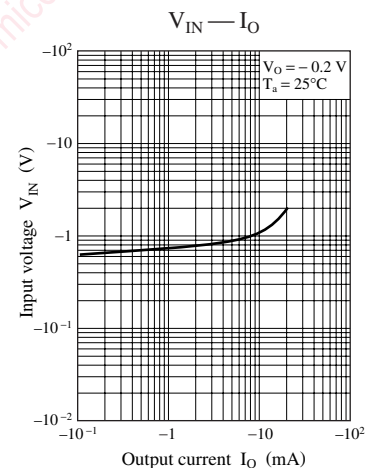
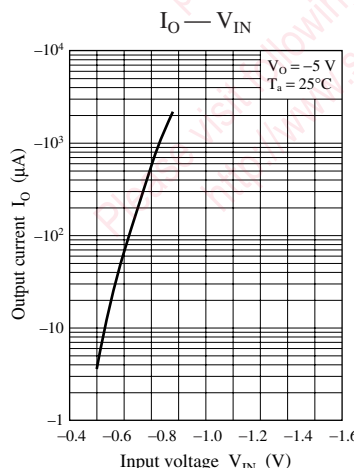
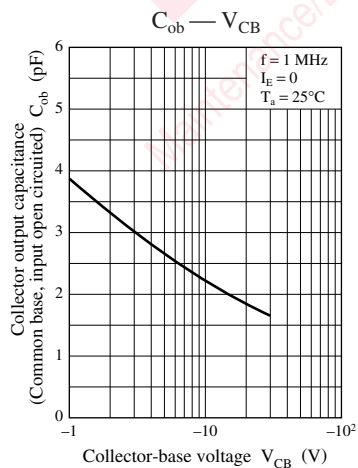
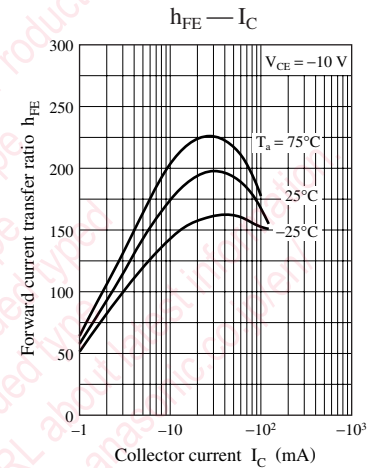
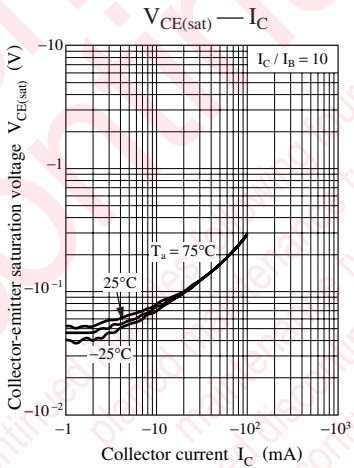
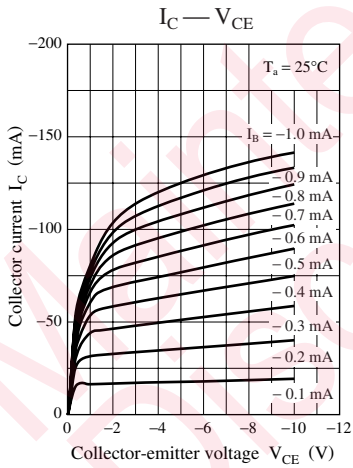


Characteristics charts of UNR911MJ

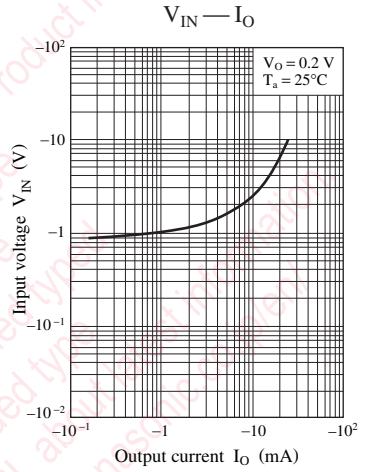
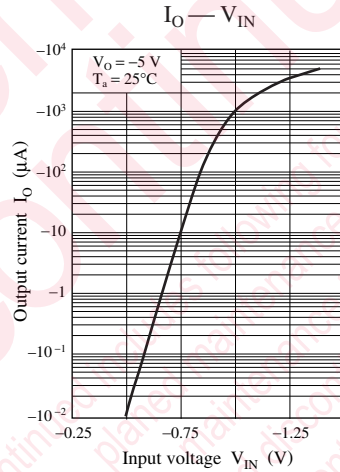
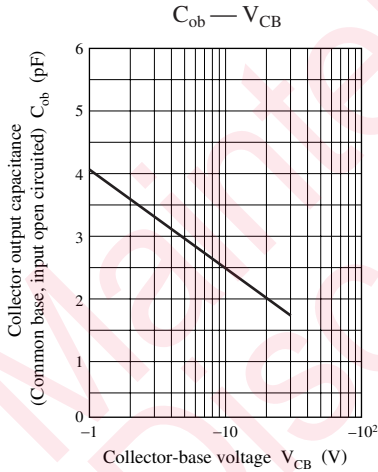
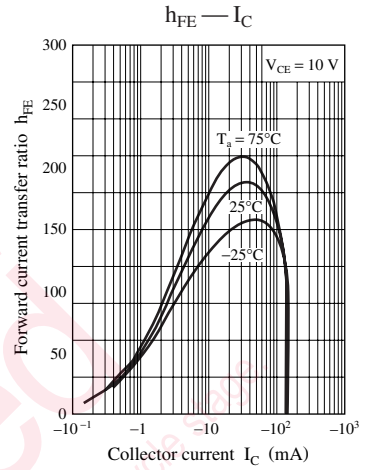
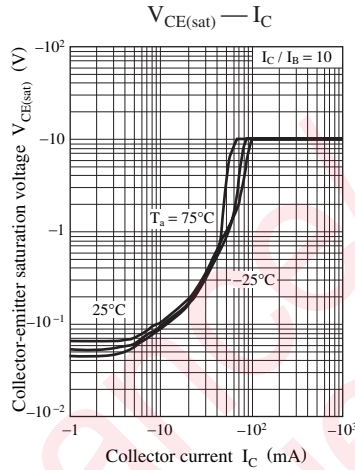
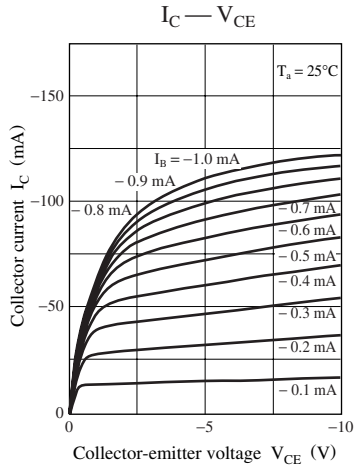




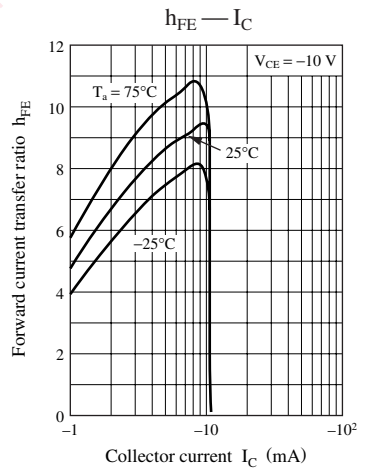
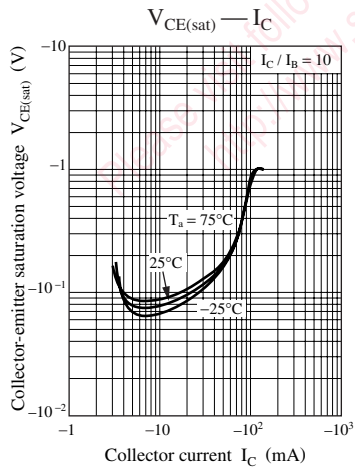
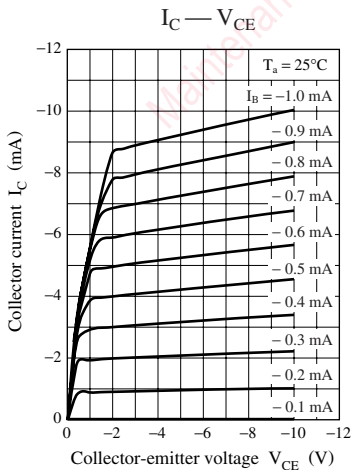
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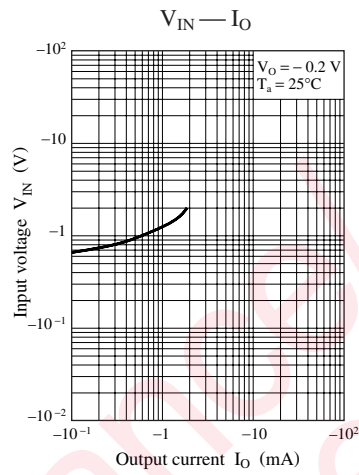
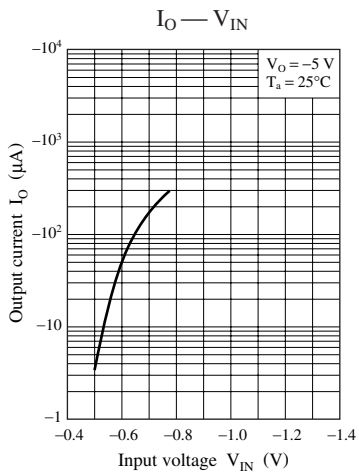


Characteristics charts of UNR911TJ



Characteristics charts of UNR911VJ





Maintenance/Discontinued

Maintenance/Discontinued includes following four Product lifecycle stage.

- planned maintenance type
- maintenance type
- planned discontinued type
- discontinued type

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