

UNR911xJ Series (UN911xJ Series)

Silicon PNP epitaxial planar type

For digital circuits

■ Features

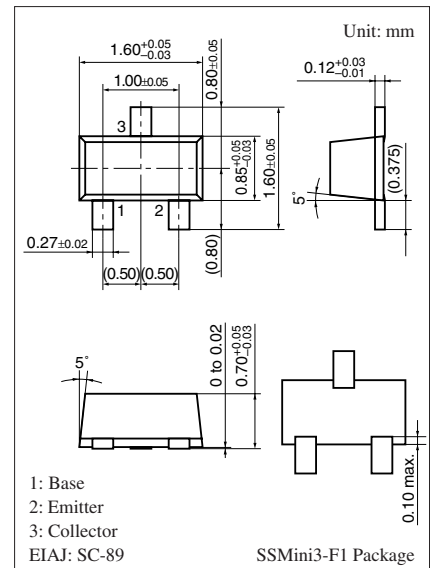
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-Mini type package, allowing automatic insertion through tape packing.

■ Resistance by Part Number

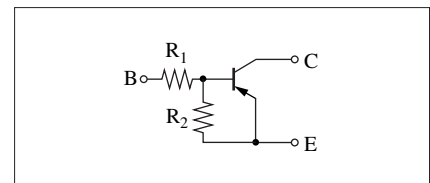
	Marking Symbol	(R ₁)	(R ₂)
• UNR9110J (UN9110J)	6L	47 kΩ	—
• UNR9111J (UN9111J)	6A	10 kΩ	10 kΩ
• UNR9112J (UN9112J)	6B	22 kΩ	22 kΩ
• UNR9113J (UN9113J)	6C	47 kΩ	47 kΩ
• UNR9114J (UN9114J)	6D	10 kΩ	47 kΩ
• UNR9115J (UN9115J)	6E	10 kΩ	—
• UNR9116J (UN9116J)	6F	4.7 kΩ	—
• UNR9117J (UN9117J)	6H	22 kΩ	—
• 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-base voltage (Emitter open)	V _{CBO}	−50	V
Collector-emitter voltage (Base open)	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 numbers in the parenthesis show conventional part number.

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

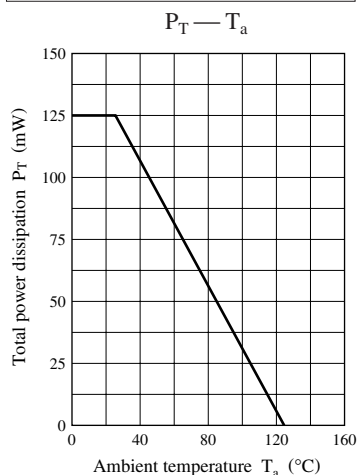
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)		V_{CBO}	$I_{\text{C}} = -10\ \mu\text{A}$, $I_{\text{E}} = 0$	-50			V
Collector-emitter voltage (Base open)		V_{CEO}	$I_{\text{C}} = -2\ \text{mA}$, $I_{\text{B}} = 0$	-50			V
Collector-base cutoff current (Emitter open)		I_{CBO}	$V_{\text{CB}} = -50\ \text{V}$, $I_{\text{E}} = 0$			-0.1	μA
Collector-base cutoff current (Emitter open)		I_{CEO}	$V_{\text{CE}} = -50\ \text{V}$, $I_{\text{B}} = 0$			-0.5	μA
Emitter-base cutoff current (Collector open)	UNR9115J/9116J/9117J/911BJ	I_{EBO}	$V_{\text{EB}} = -6\ \text{V}$, $I_{\text{C}} = 0$			-0.01	mA
	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/911CJ/911LJ/911VJ					-2.0	
	Forward current transfer ratio			UNR911VJ	h_{FE}	$V_{\text{CE}} = -10\ \text{V}$, $I_{\text{C}} = -5\ \text{mA}$	
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		$V_{\text{CE(sat)}}$	$I_{\text{C}} = -10\ \text{mA}$, $I_{\text{B}} = -0.3\ \text{mA}$			-0.25	V
UNR911VJ			$I_{\text{C}} = -10\ \text{mA}$, $I_{\text{B}} = -1.5\ \text{mA}$				
Output voltage high-level		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
Output voltage low-level		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	
UNR9113J		$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 1\ \text{mA}$, $f = 200\ \text{MHz}$			150		
UNR911AJ		$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 2\ \text{mA}$, $f = 200\ \text{MHz}$			80		
UNR911CJ		$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 2\ \text{mA}$, $f = 200\ \text{MHz}$			150		
Input resistance	UNR9118J	R_{I}		-30%	0.51	+30%	k Ω
	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) $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

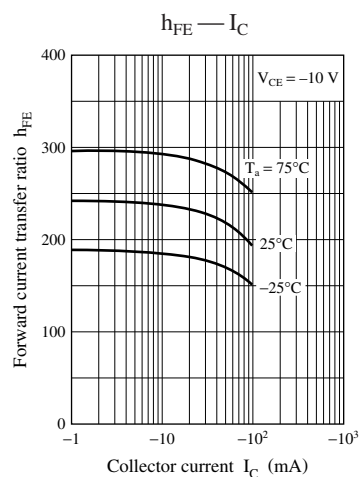
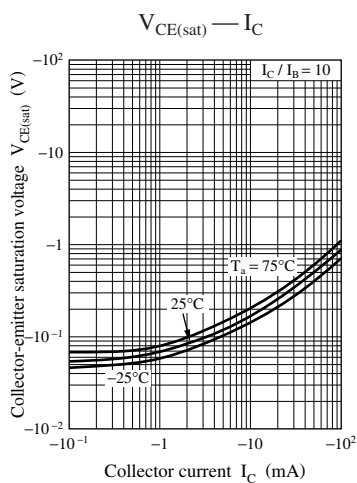
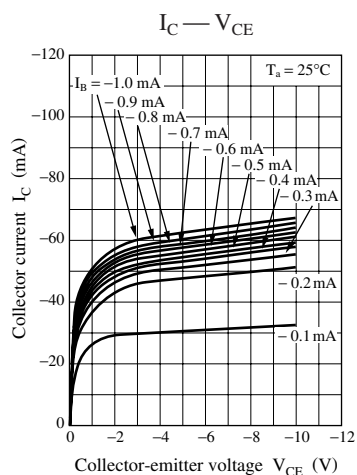
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Emitter-base resistance		UNR911CJ	R_2	-30%	47	+30%	$k\Omega$
Resistance ratio	UNR911MJ	R_1/R_2			0.047		—
	UNR911NJ				0.1		
	UNR9118J/9119J			0.08	0.10	0.12	
	UNR9114J			0.17	0.21	0.25	
	UNR911HJ			0.17	0.22	0.27	
	UNR911TJ				0.47		
	UNR911FJ			0.37	0.47	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	

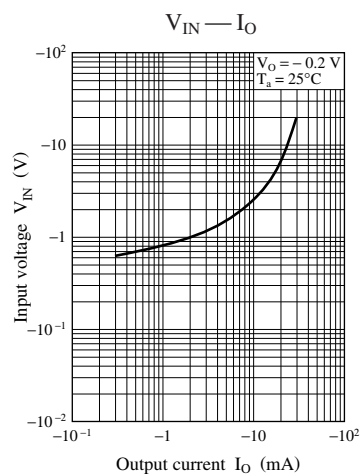
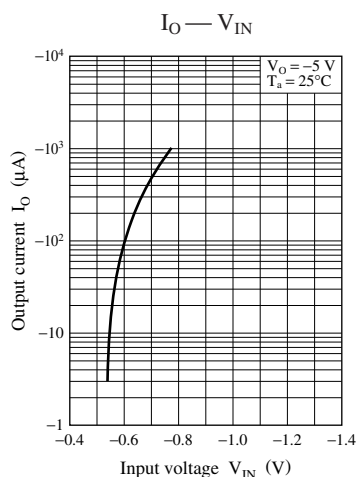
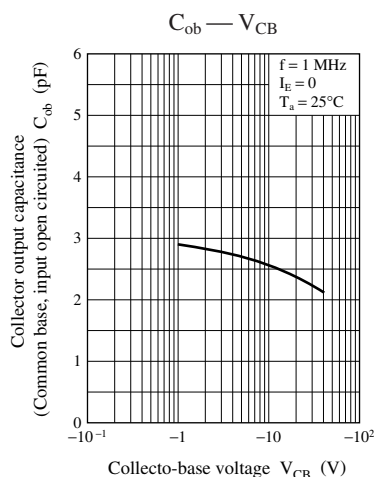
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Common characteristics chart

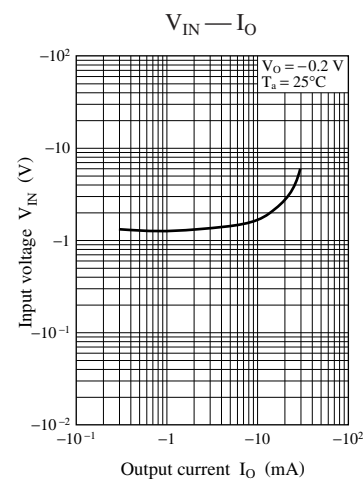
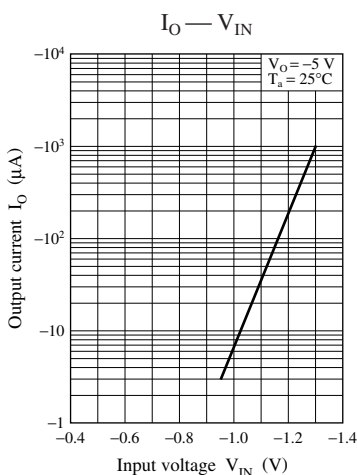
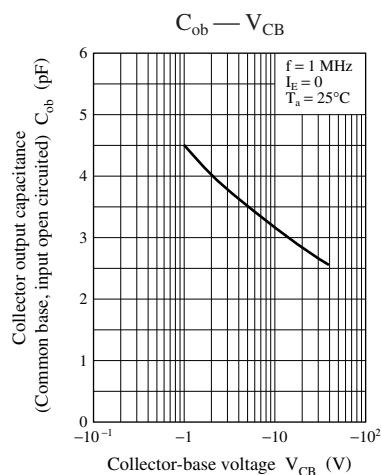
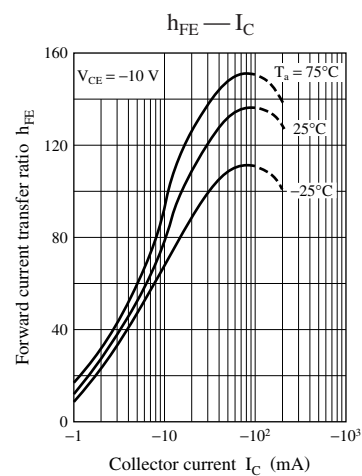
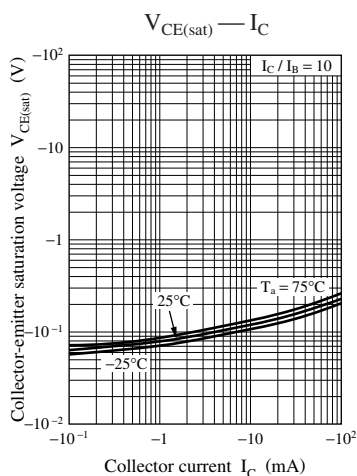
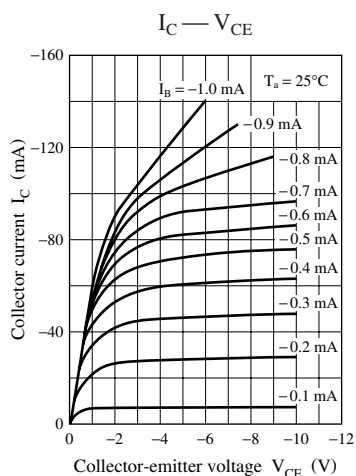


Characteristics charts of UNR9110J

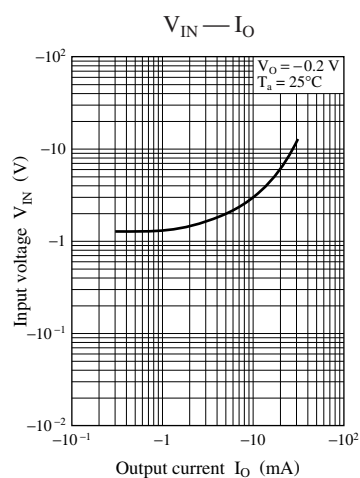
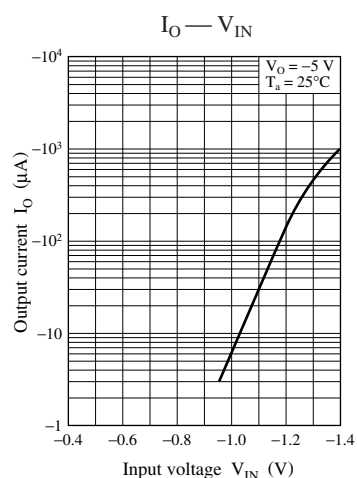
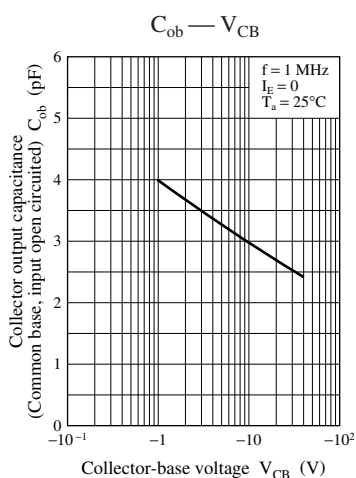
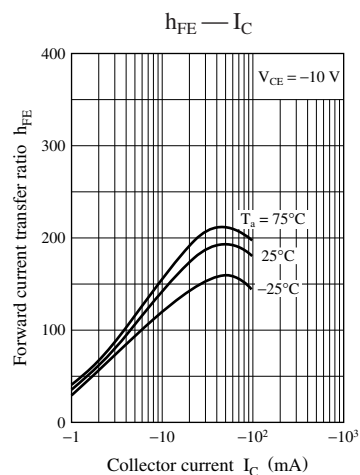
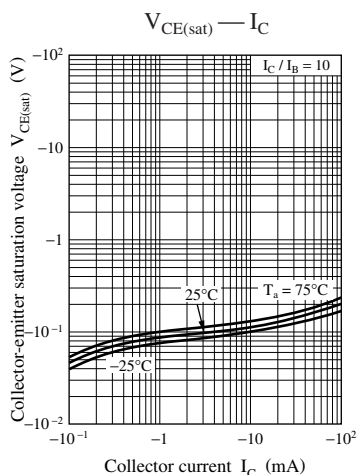
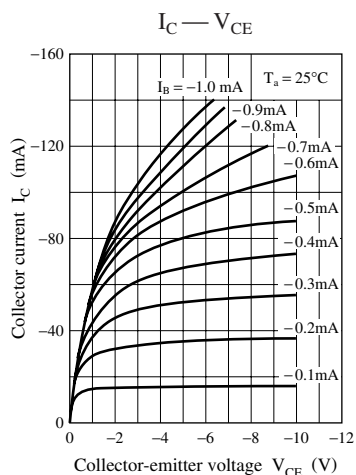




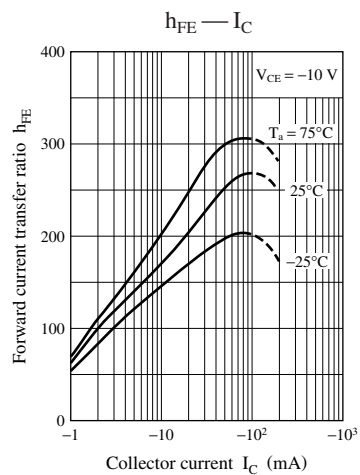
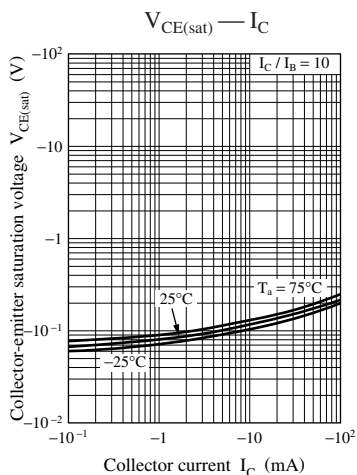
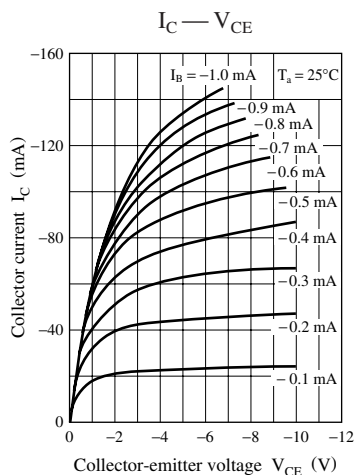
Characteristics charts of UNR9111J

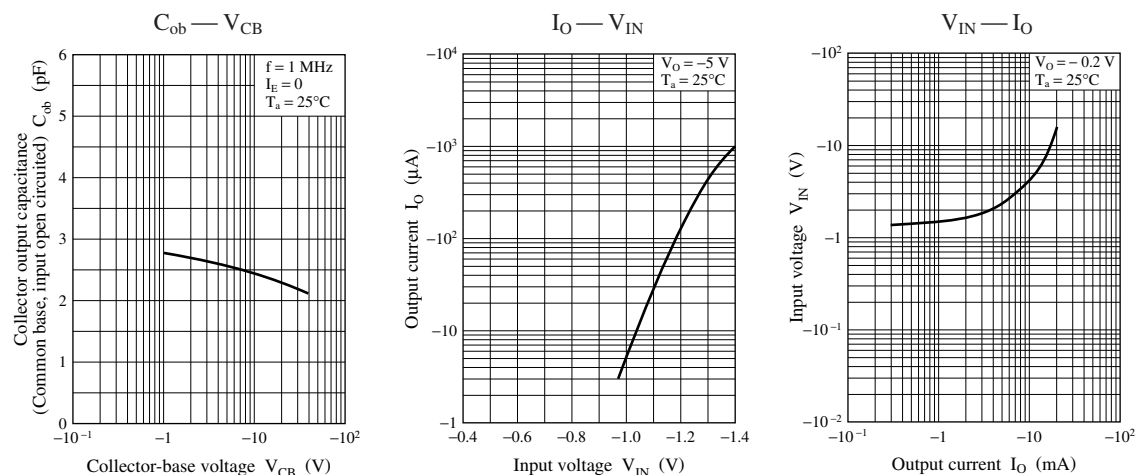


Characteristics charts of UNR9112J

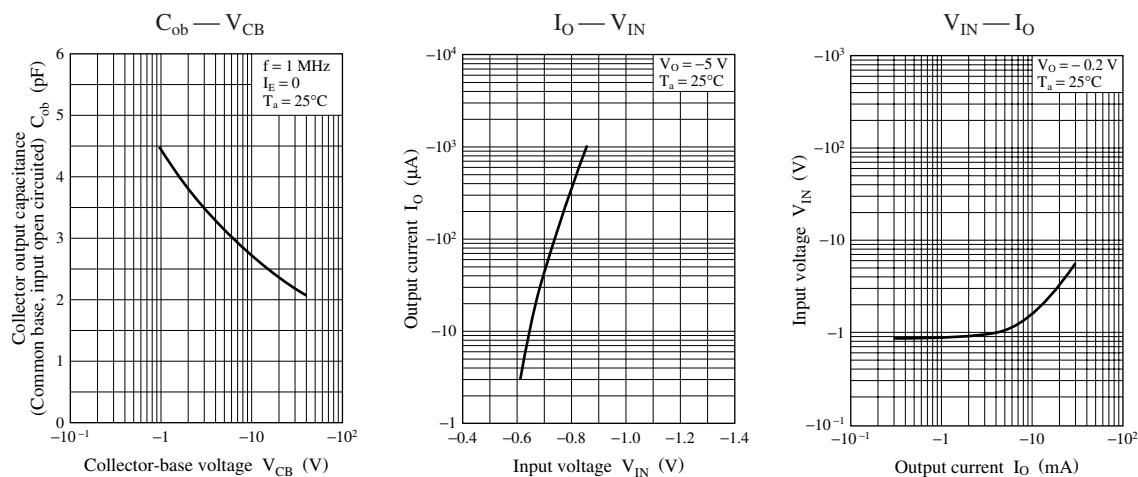
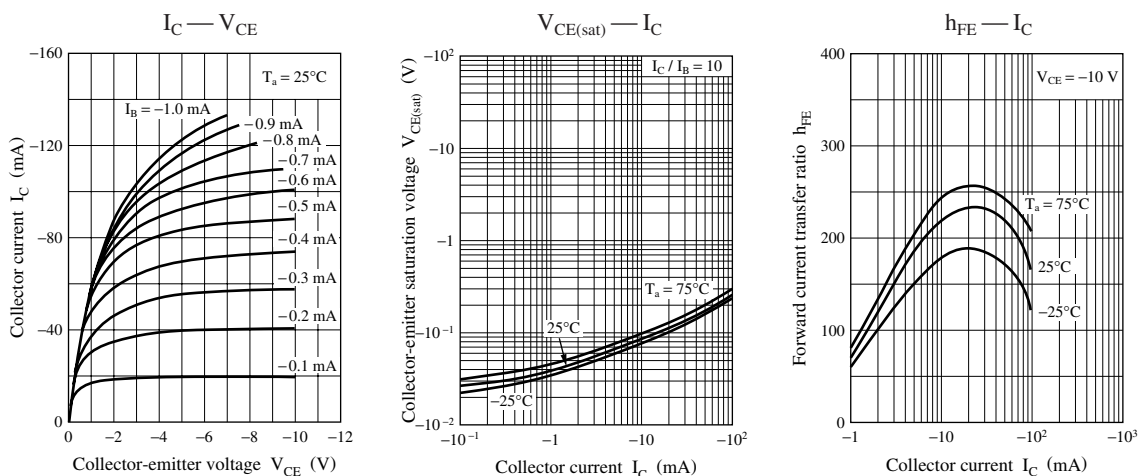


Characteristics charts of UNR9113J

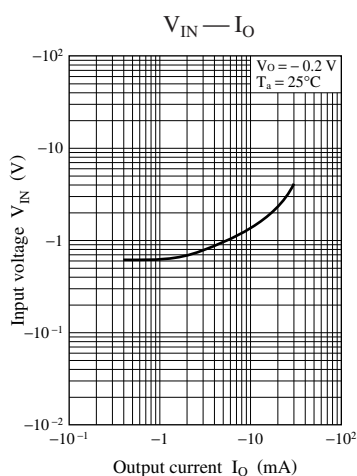
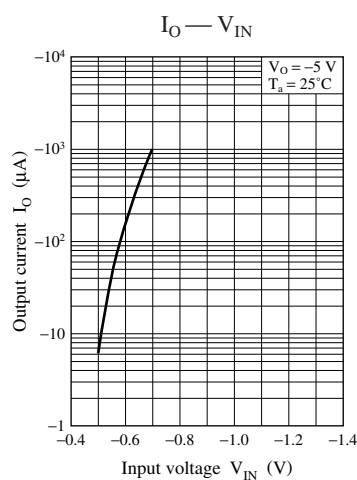
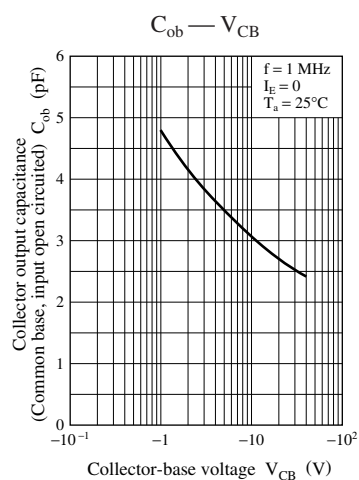
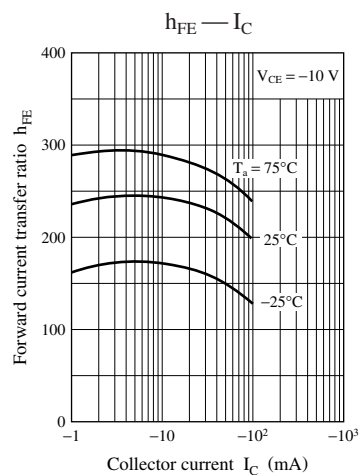
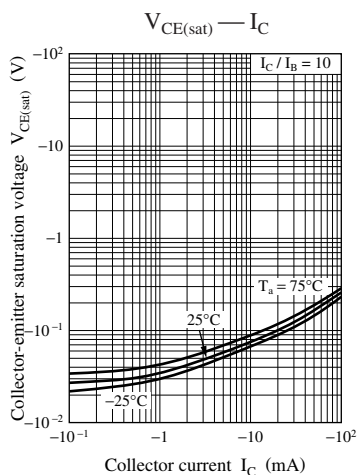
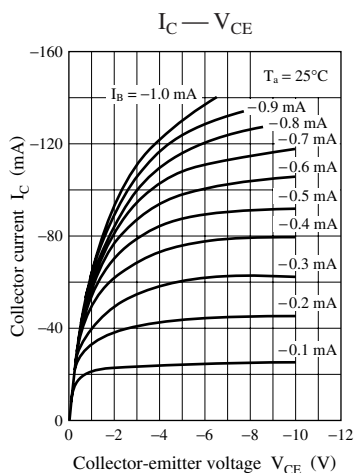




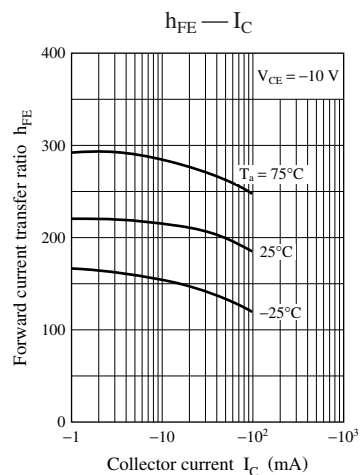
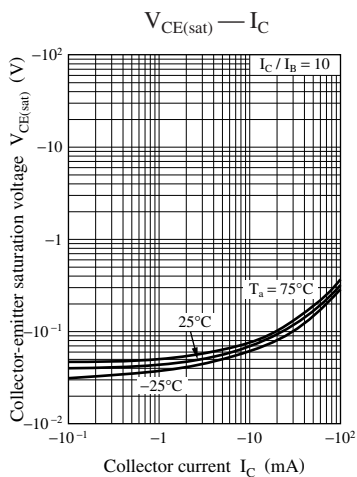
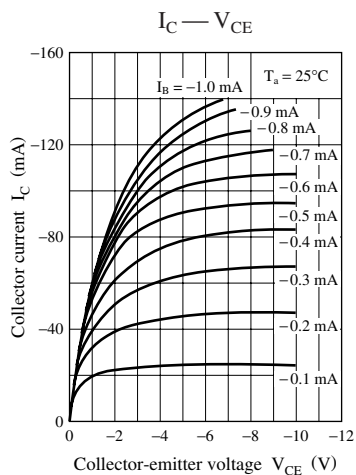
Characteristics charts of UNR9114J

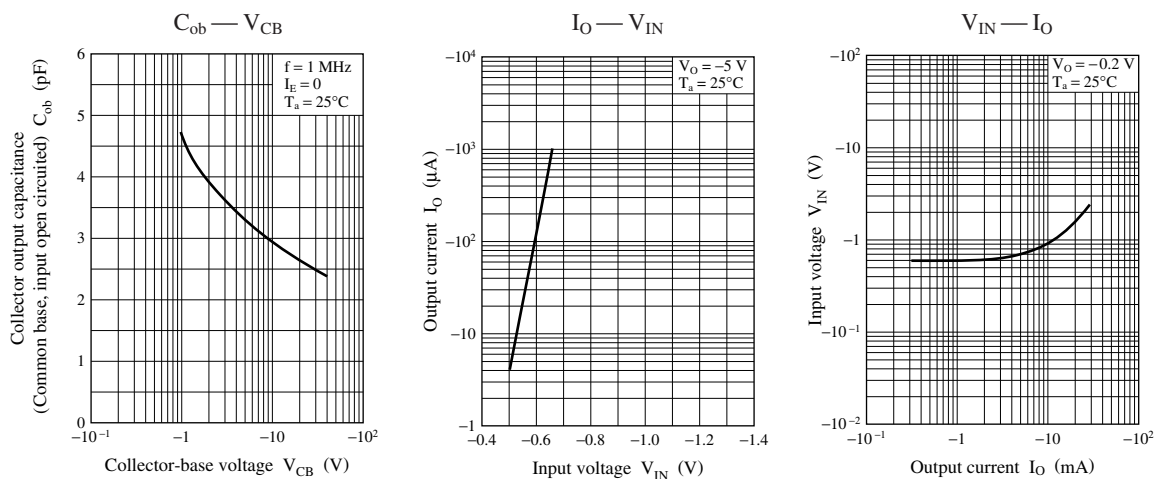


Characteristics charts of UNR9115J

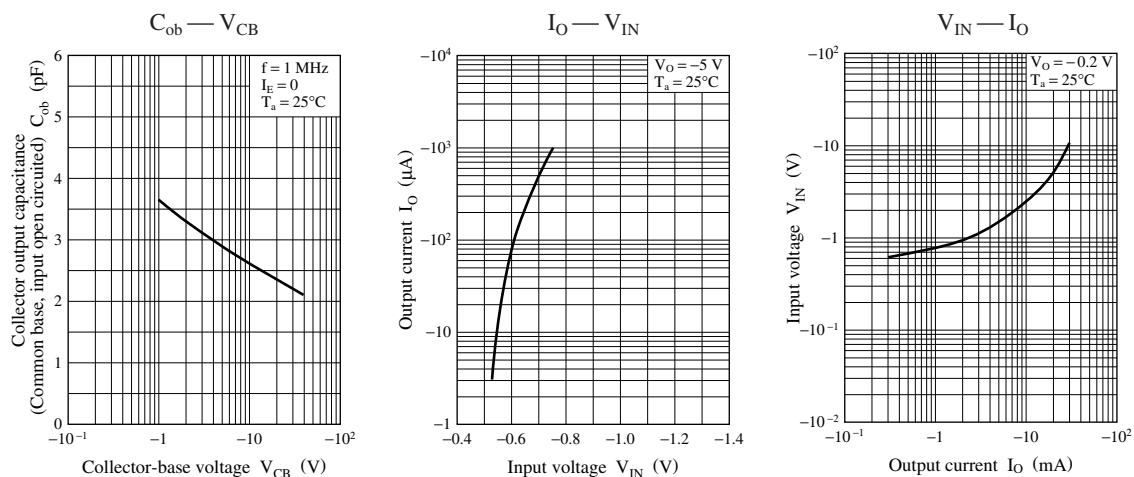
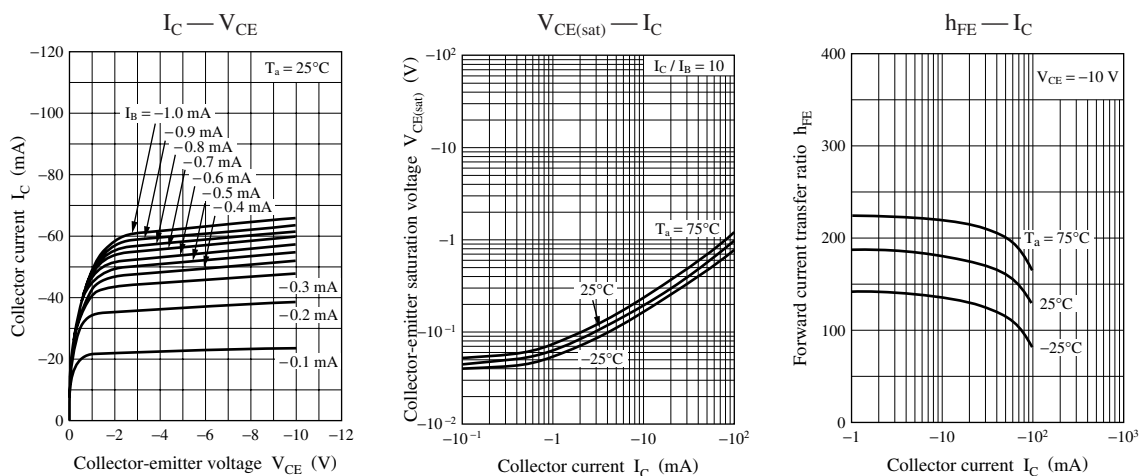


Characteristics charts of UNR9116J

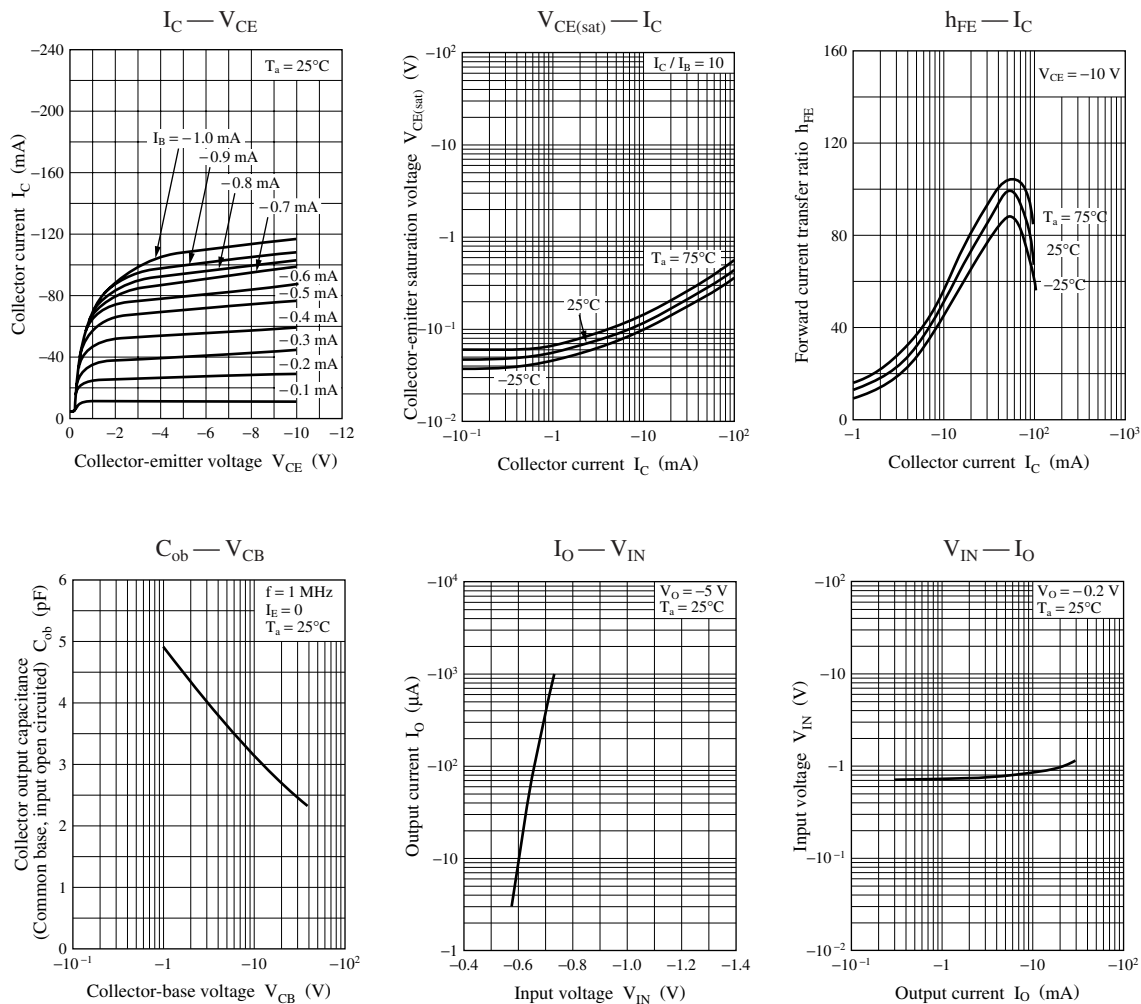




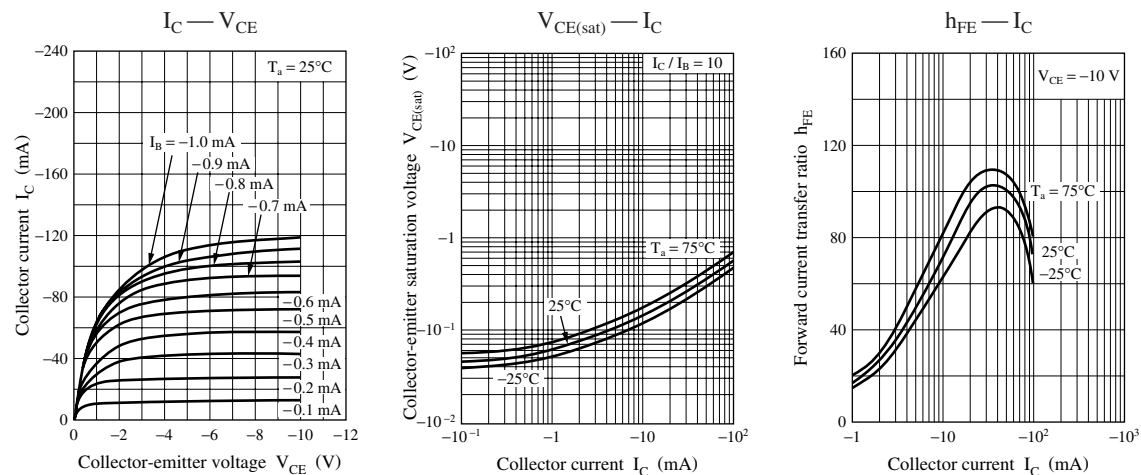
Characteristics charts of UNR9117J

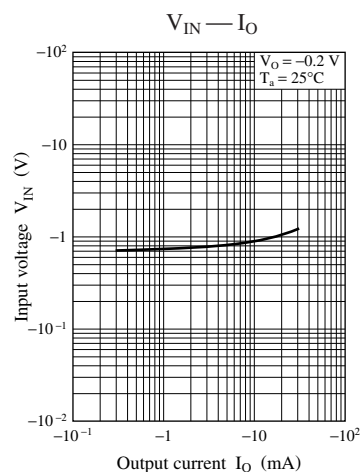
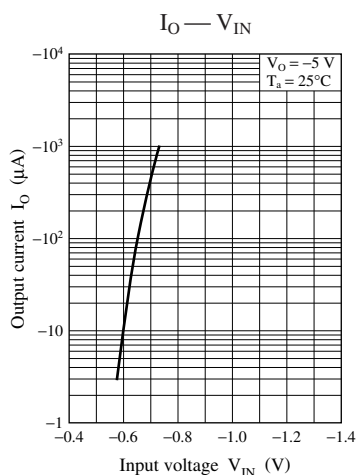
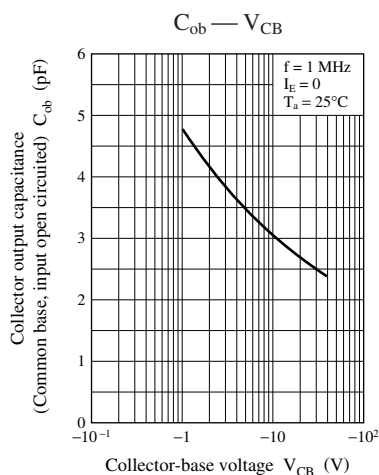


Characteristics charts of UNR9118J

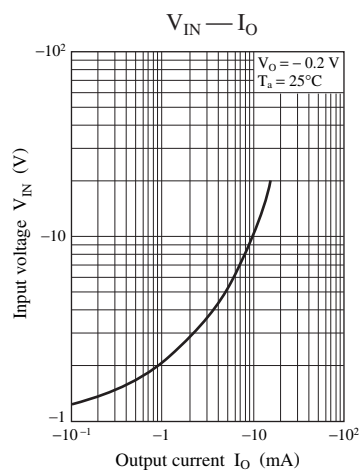
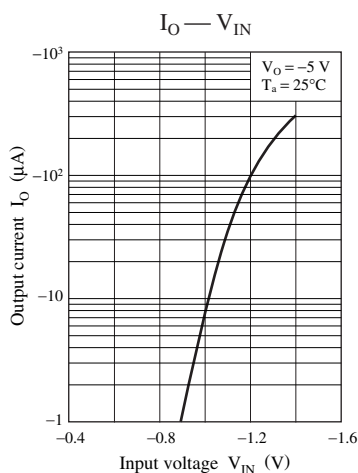
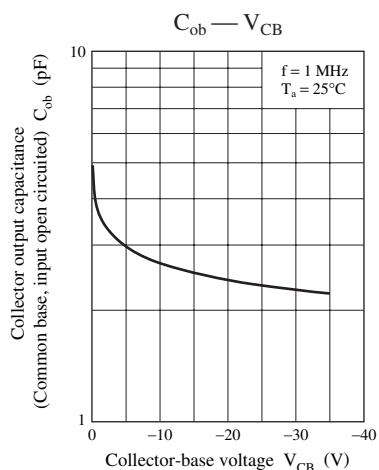
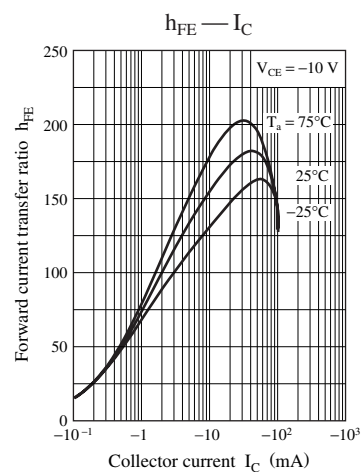
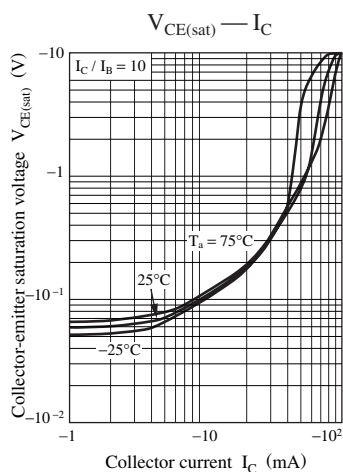
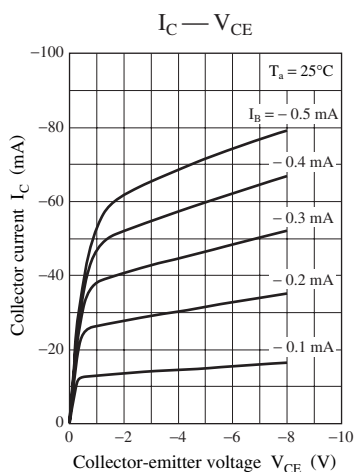


Characteristics charts of UNR9119J

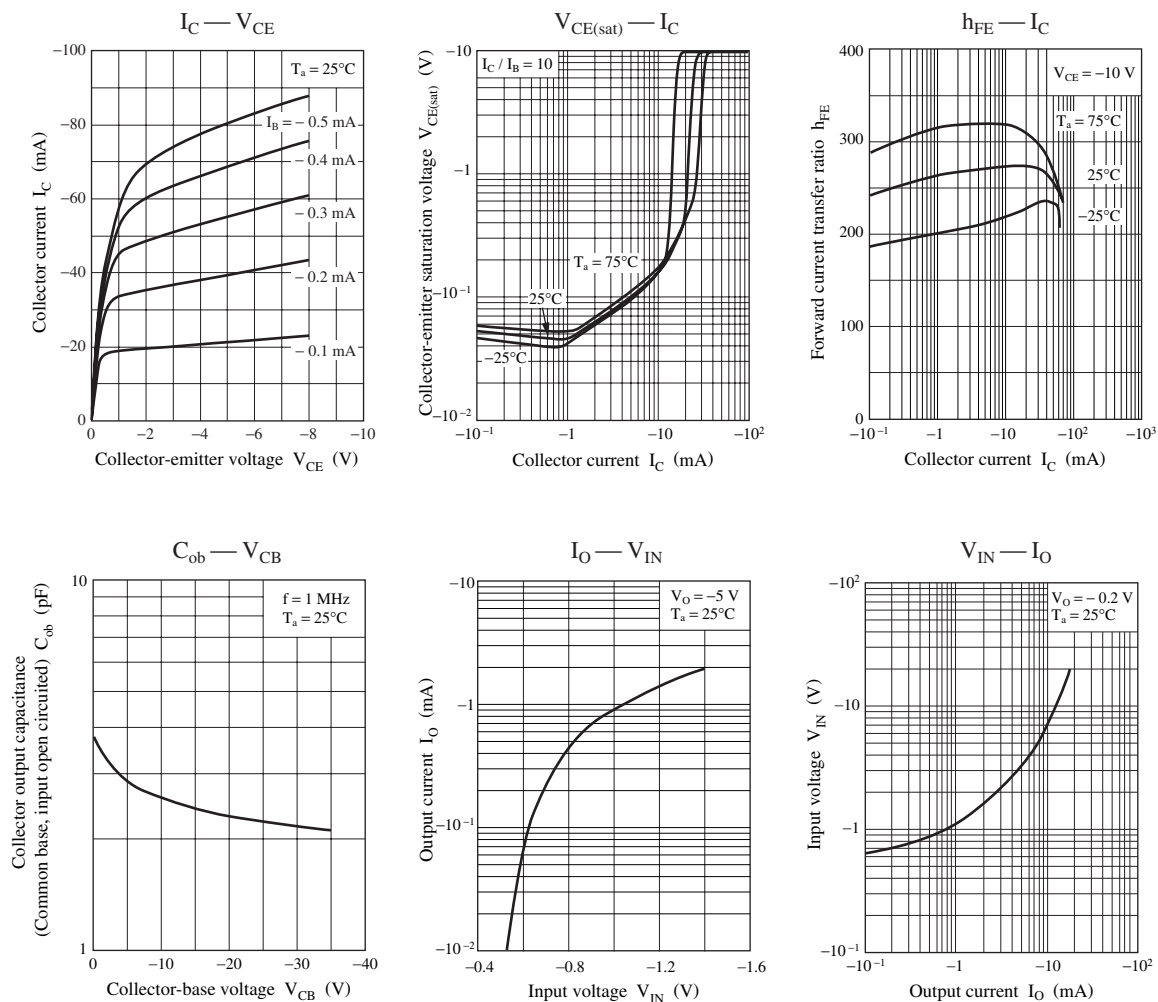




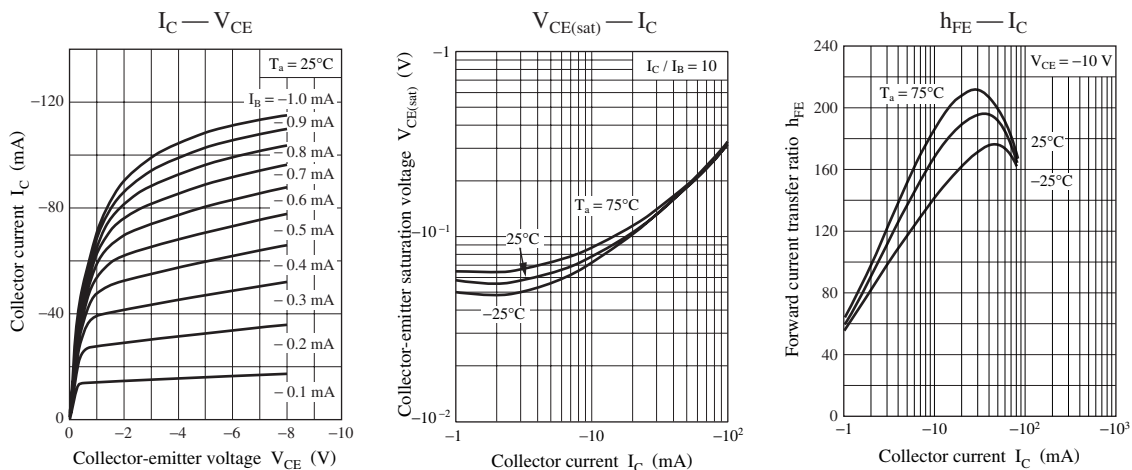
Characteristics charts of UNR911AJ

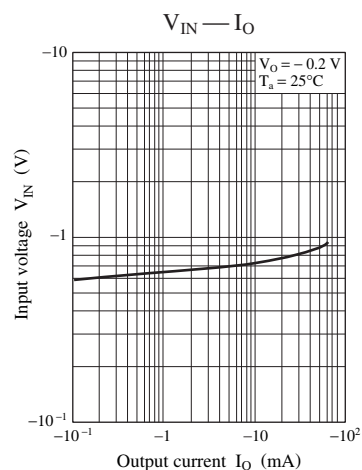
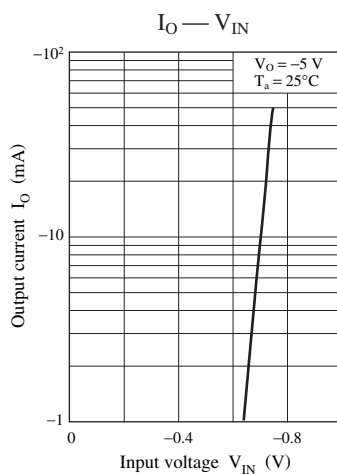
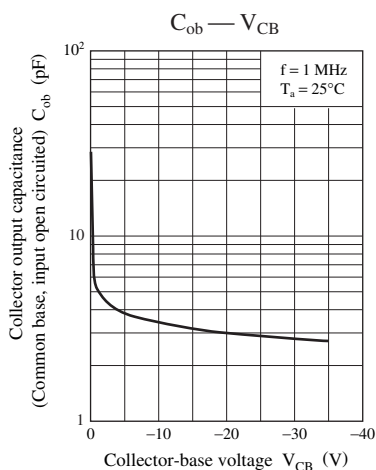


Characteristics charts of UNR911BJ

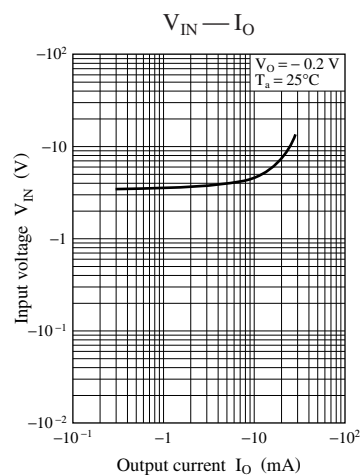
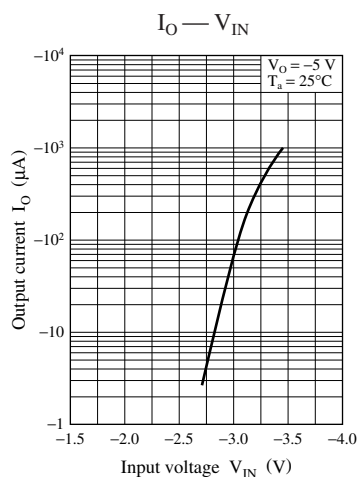
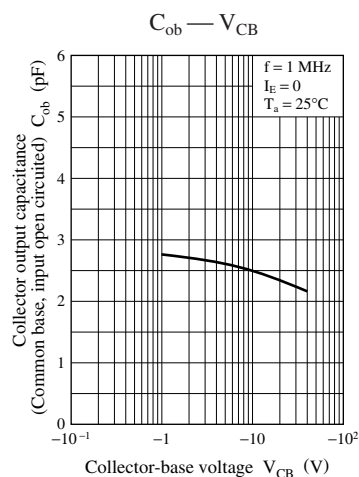
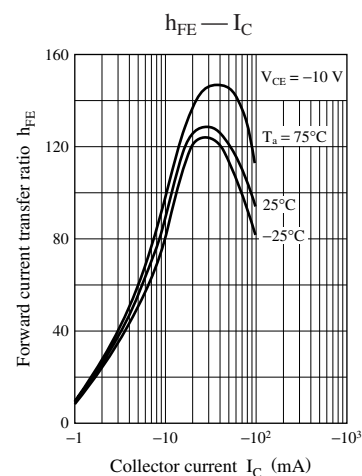
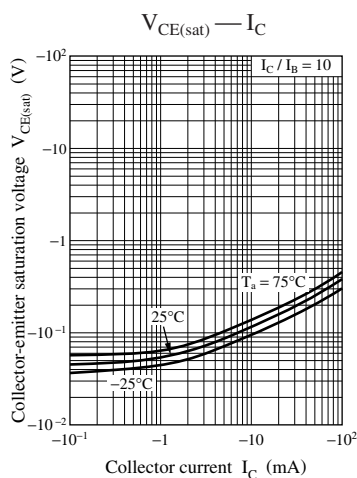
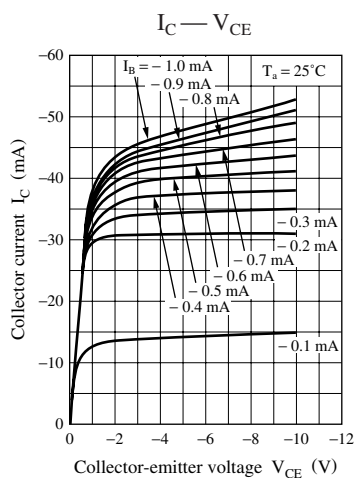


Characteristics charts of UNR911CJ

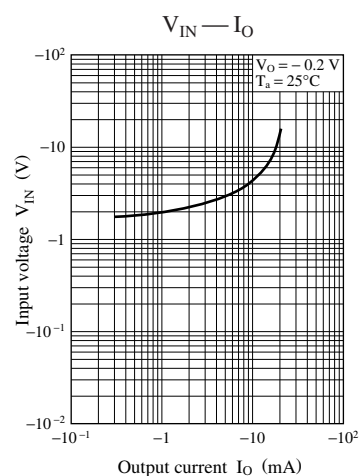
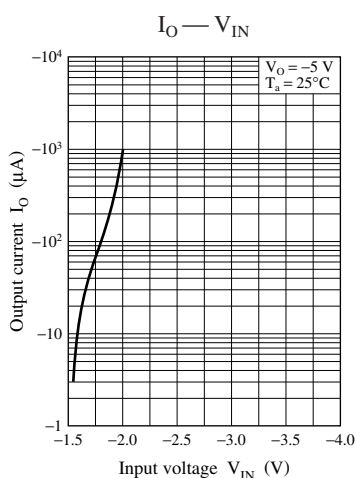
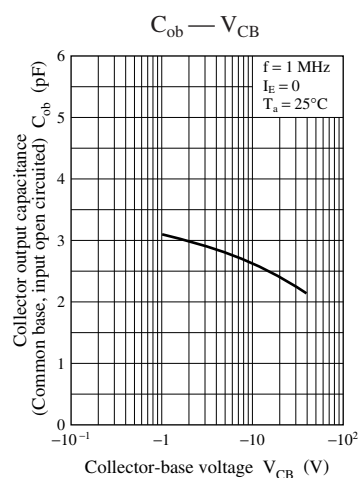
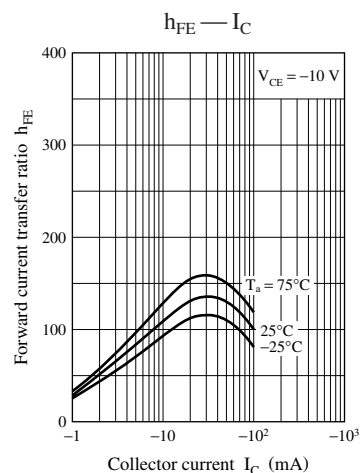
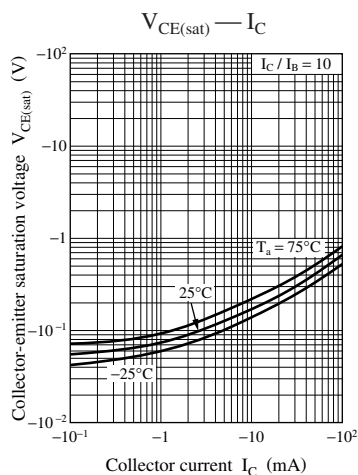
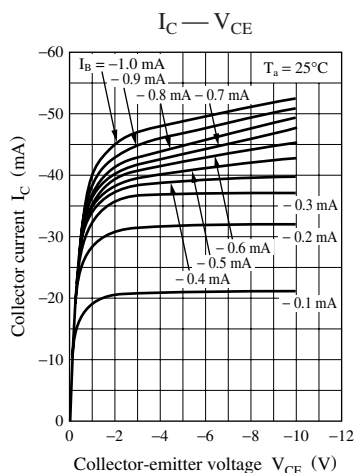




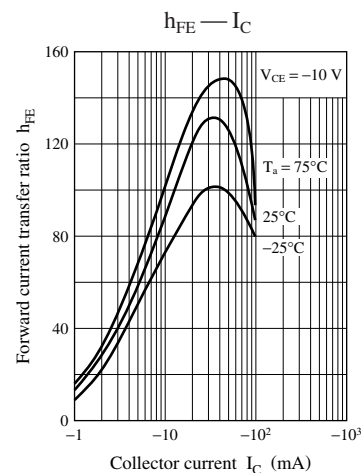
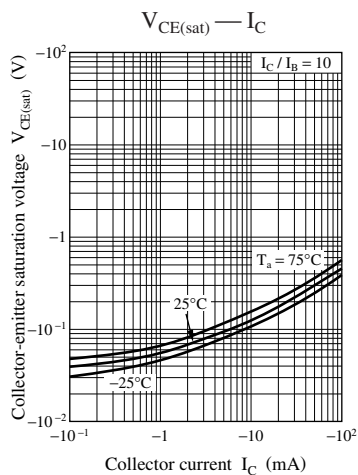
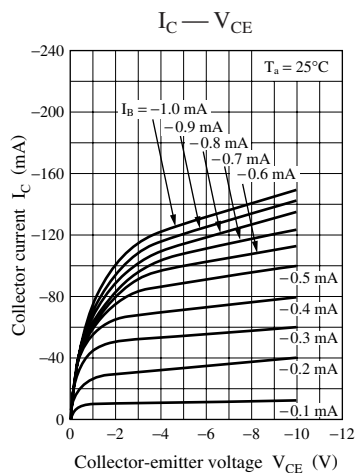
Characteristics charts of UNR911DJ

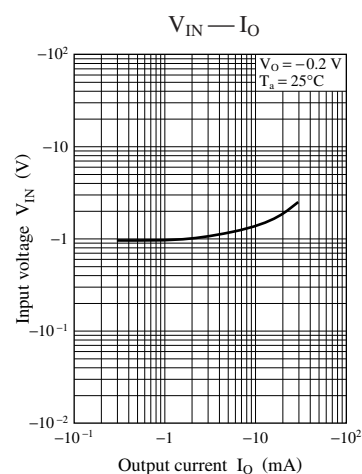
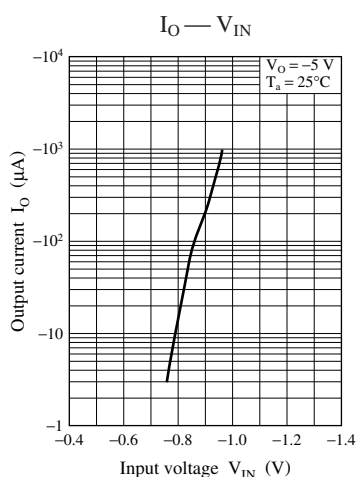
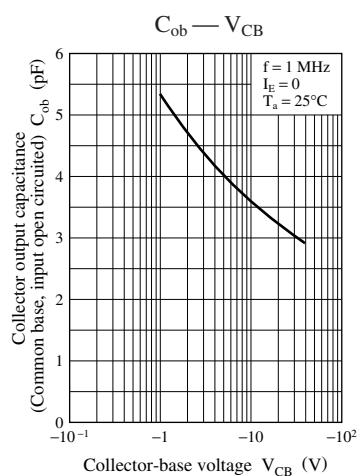


Characteristics charts of UNR911EJ

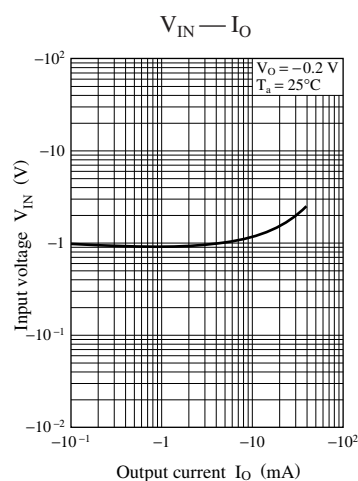
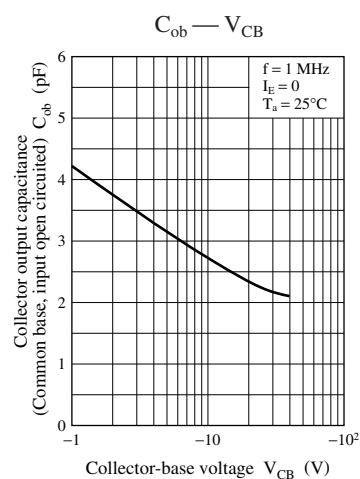
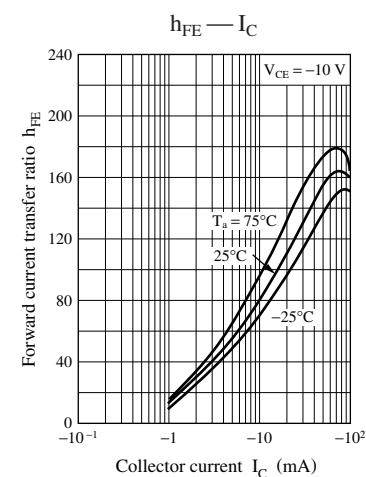
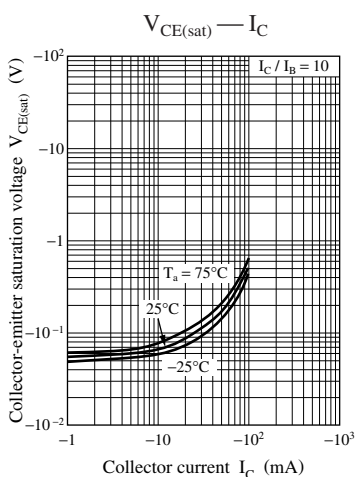
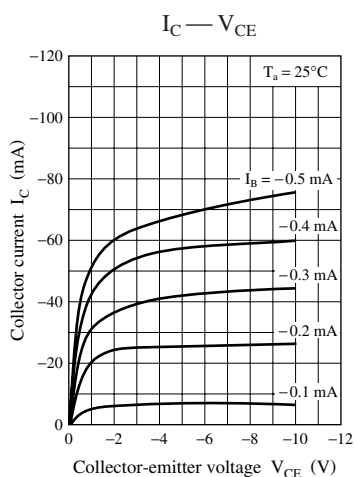


Characteristics charts of UNR911FJ

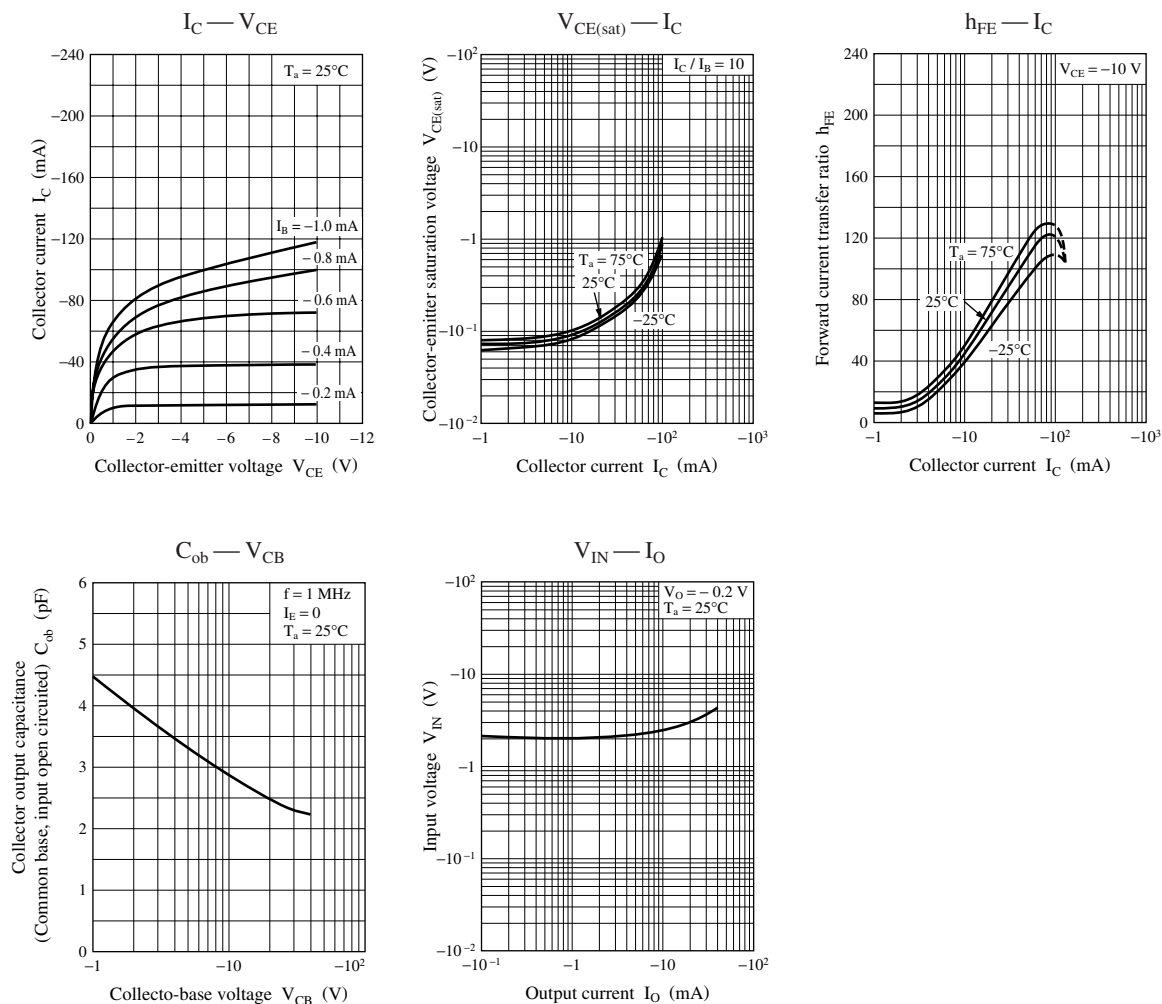




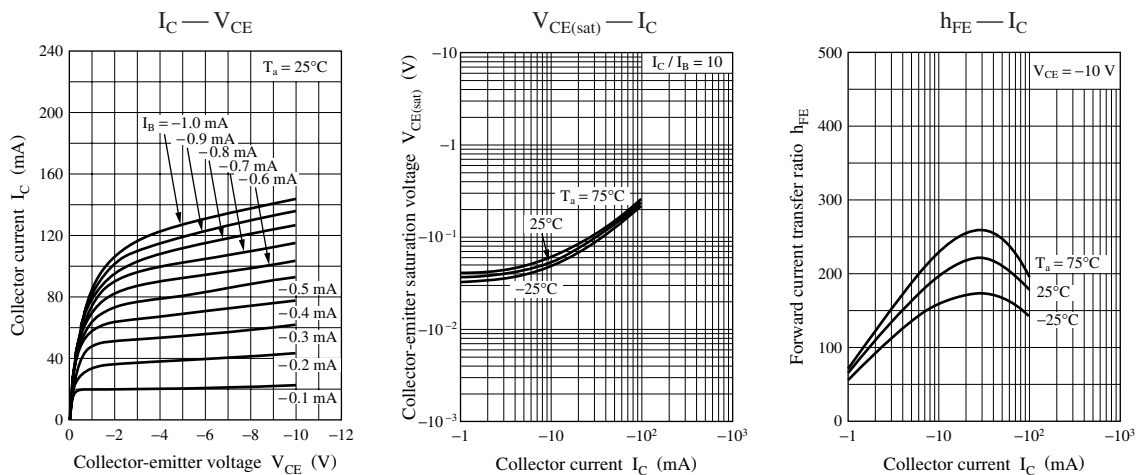
Characteristics charts of UNR911HJ

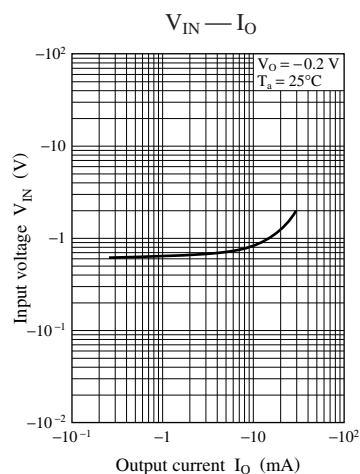
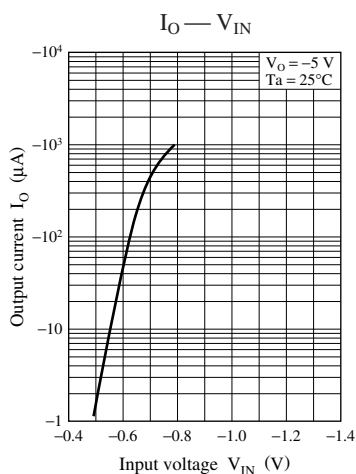
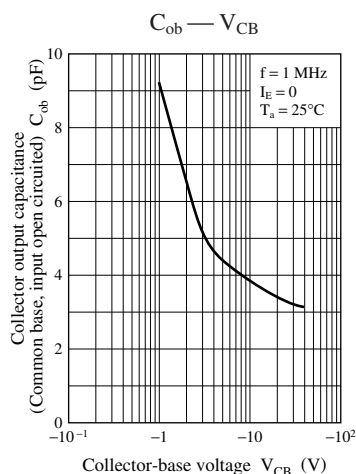


Characteristics charts of UNR911LJ

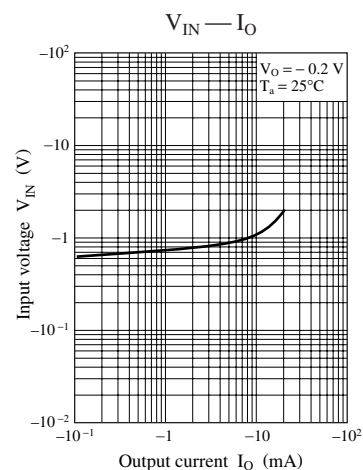
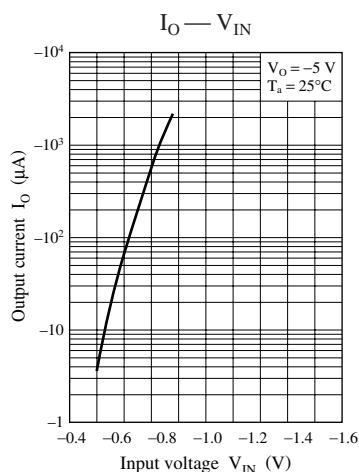
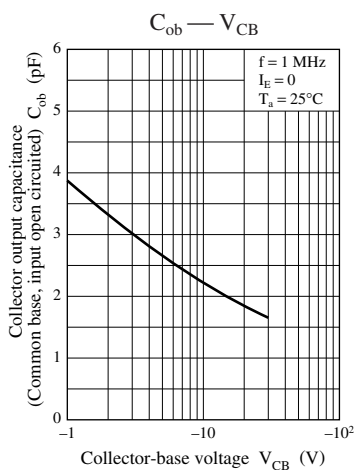
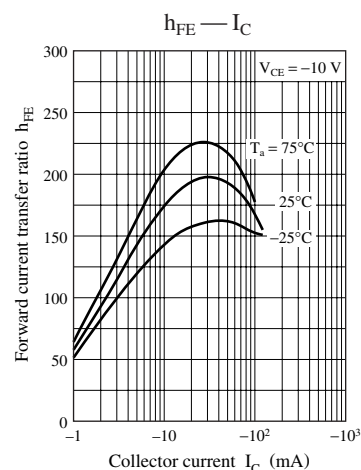
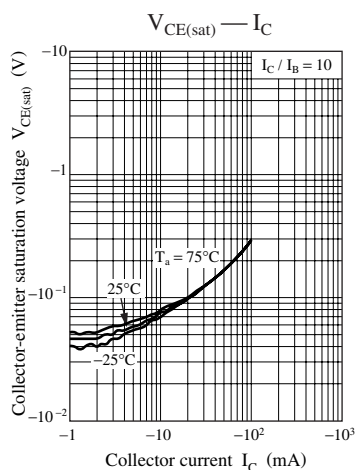
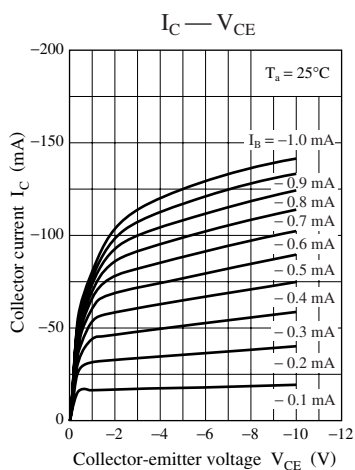


Characteristics charts of UNR911MJ

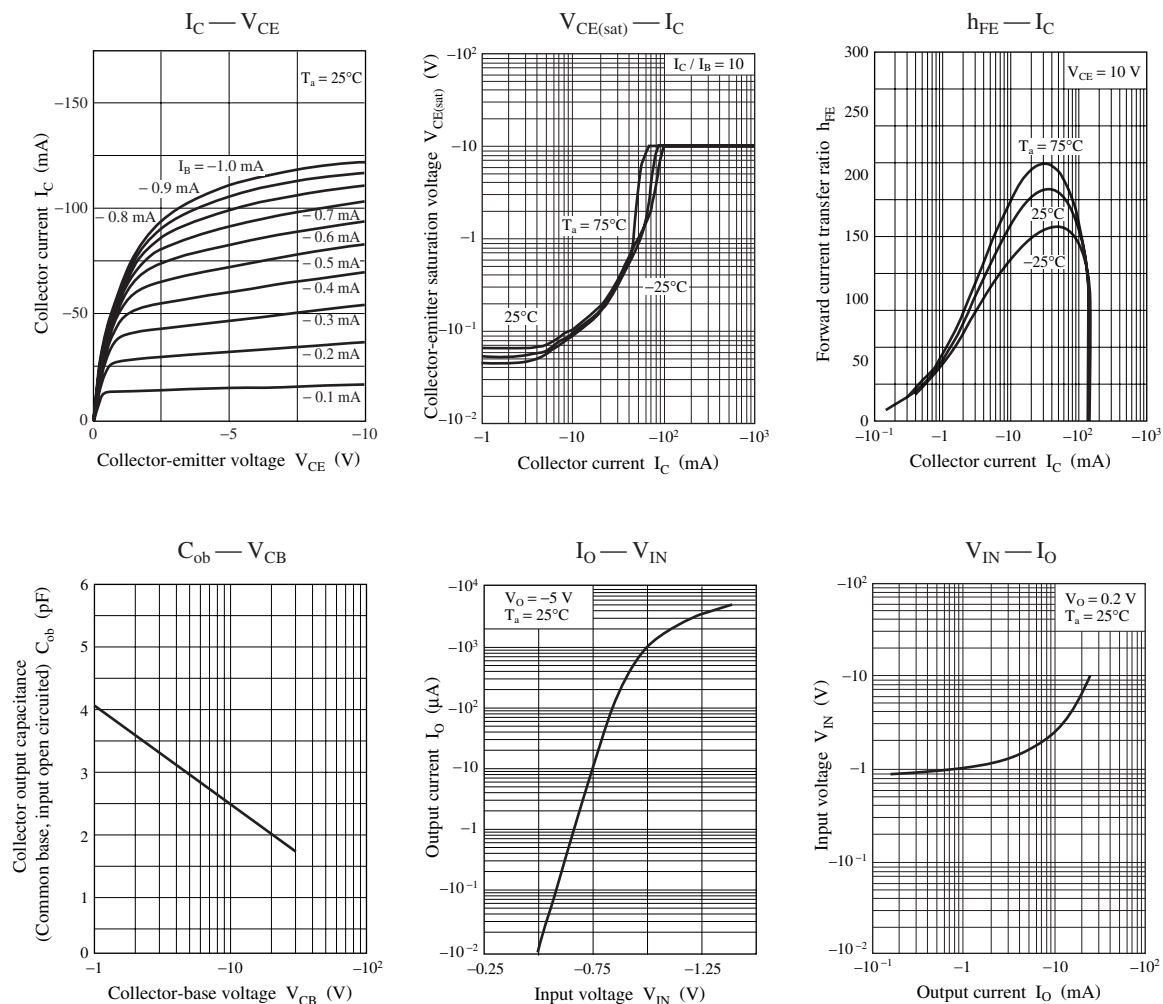




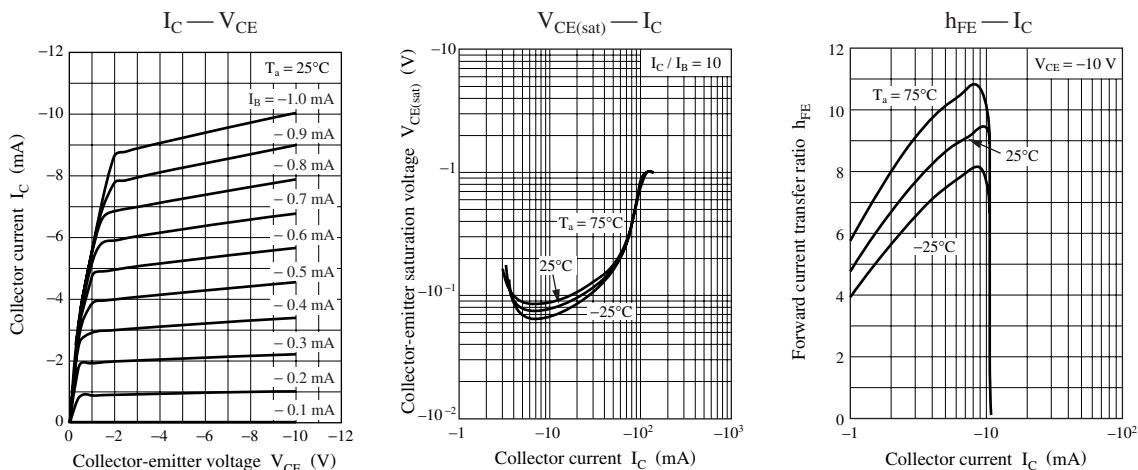
Characteristics charts of UNR911NJ

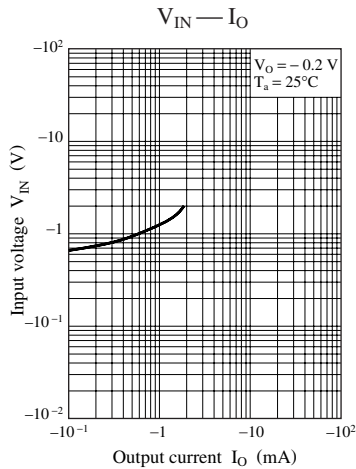
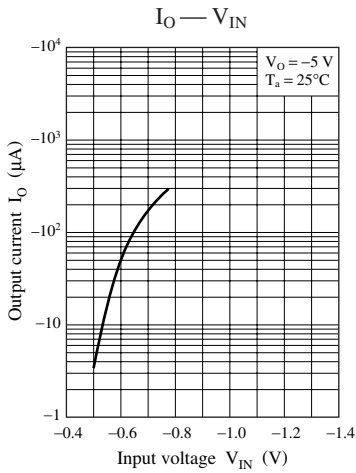


Characteristics charts of UNR911TJ



Characteristics charts of UNR911VJ





Request for your special attention and precautions in using the technical information and semiconductors described in this material

- (1) An export permit needs to be obtained from the competent authorities of the Japanese Government if any of the products or technical information described in this material and controlled under the "Foreign Exchange and Foreign Trade Law" is to be exported or taken out of Japan.
- (2) The technical information described in this material is limited to showing representative characteristics and applied circuits examples of the products. It neither warrants non-infringement of intellectual property right or any other rights owned by our company or a third party, nor grants any license.
- (3) We are not liable for the infringement of rights owned by a third party arising out of the use of the technical information as described in this material.
- (4) The products described in this material are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
 - Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
 - Any applications other than the standard applications intended.
- (5) The products and product specifications described in this material are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.
- (6) When designing your equipment, comply with the guaranteed values, in particular those of maximum rating, the range of operating power supply voltage, and heat radiation characteristics. Otherwise, we will not be liable for any defect which may arise later in your equipment.
Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
- (7) When using products for which damp-proof packing is required, observe the conditions (including shelf life and amount of time let standing of unsealed items) agreed upon when specification sheets are individually exchanged.
- (8) This material may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.