

UNR92XXJ Series (UN92XXJ Series)

Silicon NPN epitaxial planer type

For digital circuit

■ Features

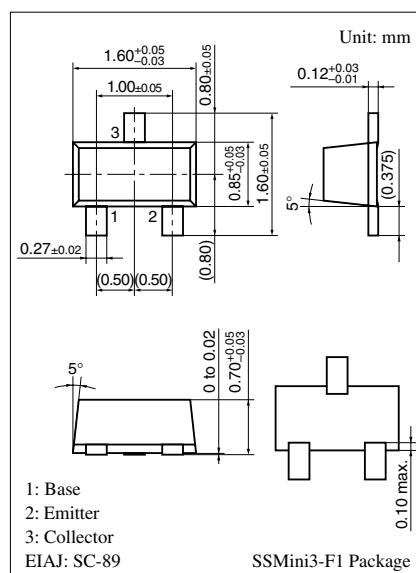
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-mini type package, allowing automatic insertion through tape packing.

■ Resistance by Part Number

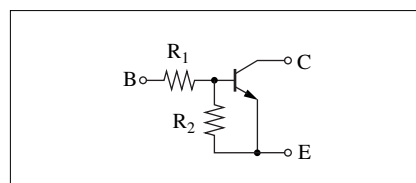
	Marking symbol	(R ₁)	(R ₂)
• UNR9210J (UN9210J)	8L	47 kΩ	—
• UNR9211J (UN9211J)	8A	10 kΩ	10 kΩ
• UNR9212J (UN9212J)	8B	22 kΩ	22 kΩ
• UNR9213J (UN9213J)	8C	47 kΩ	47 kΩ
• UNR9214J (UN9214J)	8D	10 kΩ	47 kΩ
• UNR9215J (UN9215J)	8E	10 kΩ	—
• UNR9216J (UN9216J)	8F	4.7 kΩ	—
• UNR9217J (UN9217J)	8H	22 kΩ	—
• UNR9218J (UN9218J)	8I	0.51 kΩ	5.1 kΩ
• UNR9219J (UN9219J)	8K	1 kΩ	10 kΩ
• UNR921AJ	8X	100 kΩ	100 kΩ
• UNR921BJ	8Y	100 kΩ	—
• UNR921CJ	8Z	—	47 kΩ
• UNR921DJ (UN921DJ)	8M	47 kΩ	10 kΩ
• UNR921EJ (UN921EJ)	8N	47 kΩ	22 kΩ
• UNR921FJ (UN921FJ)	8O	4.7 kΩ	10 kΩ
• UNR921KJ (UN921KJ)	8P	10 kΩ	4.7 kΩ
• UNR921LJ (UN921LJ)	8Q	4.7 kΩ	4.7 kΩ
• UNR921MJ	EL	2.2 kΩ	47 kΩ
• UNR921NJ	EX	4.7 kΩ	47 kΩ
• UNR921TJ (UN921TJ)	EZ	22 kΩ	47 kΩ
• UNR921VJ	FD	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.

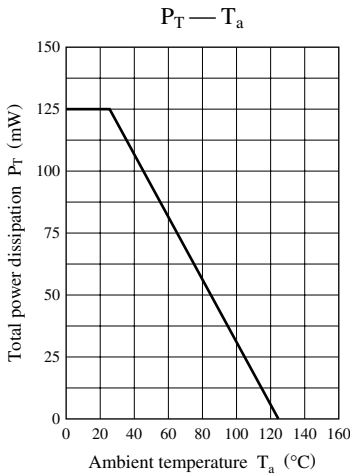
■ Electrical Characteristics $T_a = 25^\circ\text{C}$

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	UNR9211J	I_{EBO}	$V_{\text{EB}} = 6\text{ V}, I_{\text{C}} = 0$			0.5	mA
	UNR9212J/9214J/921DJ/ 921EJ/921MJ/921NJ/921TJ					0.2	
	UNR9213J/921AJ					0.1	
	UNR9215J/9216J/9217J/ 9210J/921BJ					0.01	
	UNR921FJ/921KJ					1.0	
	UNR9219J					1.5	
	UNR9218J/921LJ/921CJ/921VJ					2.0	
Collector to base voltage		V_{CBO}	$I_{\text{C}} = 10\text{ }\mu\text{A}, I_{\text{E}} = 0$	50			V
Collector to emitter voltage		V_{CEO}	$I_{\text{C}} = 2\text{ mA}, I_{\text{B}} = 0$	50			V
Forward current transfer ratio	UNR9211J	h_{FE}	$V_{\text{CE}} = 10\text{ V}, I_{\text{C}} = 5\text{ mA}$	35			
	UNR9212J/921EJ			60			
	UNR9213J/9214J/921AJ/ 921CJ/921MJ			80			
	UNR9215J/9216J/9217J/ 9210J/921BJ			160		460	
	UNR9218J/921KJ/921LJ			20			
	UNR9219J/921DJ/921FJ			30			
	UNR921NJ/921TJ			80		400	
	UNR921VJ			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
	UNR9213J/921BJ/921KJ		$V_{\text{CC}} = 5\text{ V}, V_{\text{B}} = 3.5\text{ V}, R_{\text{L}} = 1\text{ k}\Omega$				
	UNR921DJ		$V_{\text{CC}} = 5\text{ V}, V_{\text{B}} = 10\text{ V}, R_{\text{L}} = 1\text{ k}\Omega$				
	UNR921EJ		$V_{\text{CC}} = 5\text{ V}, V_{\text{B}} = 6\text{ V}, R_{\text{L}} = 1\text{ k}\Omega$				
	UNR921AJ		$V_{\text{CC}} = 5\text{ V}, V_{\text{B}} = 5\text{ V}, R_{\text{L}} = 1\text{ k}\Omega$				
Transition frequency		f_{T}	$V_{\text{CB}} = 10\text{ V}, I_{\text{E}} = -2\text{ mA}, f = 200\text{ MHz}$		150		MHz
Input resistance	UNR9218J	R_{I}		-30%	0.51	+30%	$\text{k}\Omega$
	UNR9219J				1		
	UNR921MJ/921VJ				2.2		
	UNR9216J/921FJ/921LJ/921NJ				4.7		
	UNR9211J/9214J/9215J/921KJ				10		
	UNR9212J/9217J/921TJ				22		
	UNR9213J/9210J/921DJ/921EJ				47		
	UNR921AJ/921BJ				100		

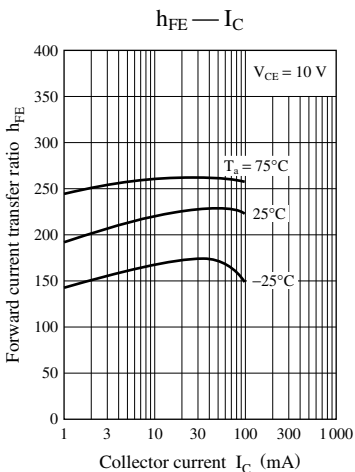
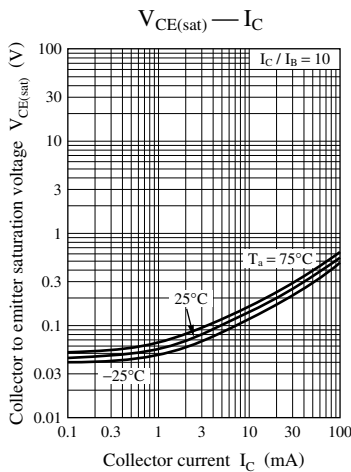
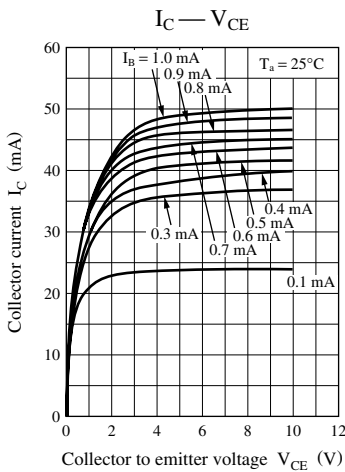
■ Electrical Characteristics (continued) $T_a = 25^\circ\text{C}$

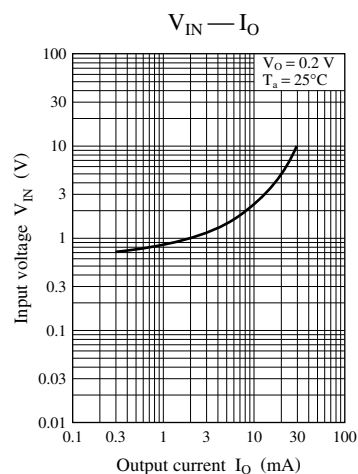
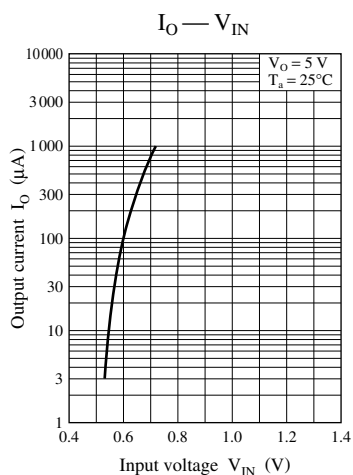
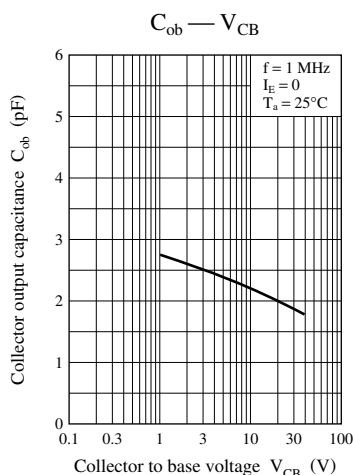
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Resistance ratio	UNR9211J/9212J/9213J/9214J	R_1/R_2		0.8	1.0	1.2	
	UNR9214J			0.17	0.21	0.25	
	UNR9218J/9219J			0.08	0.1	0.12	
	UNR921DJ			3.7	4.7	5.7	
	UNR921EJ			1.7	2.14	2.6	
	UNR921FJ			0.37	0.47	0.57	
	UNR921KJ			1.7	2.13	2.6	
	UNR921MJ				0.047		
	UNR921NJ				0.1		
	UNR921TJ				0.47		
	UNR921AJ/921VJ				1.0		
Resistance between emitter to base		UNR921CJ	R_2	-30%	47	+30%	$\text{k}\Omega$

Common characteristics chart

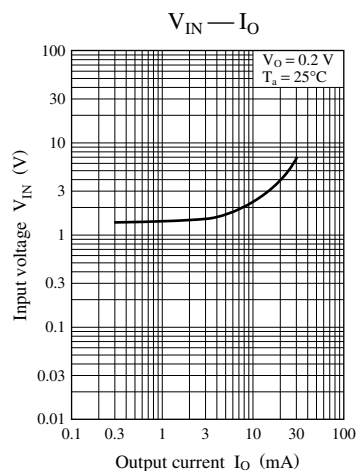
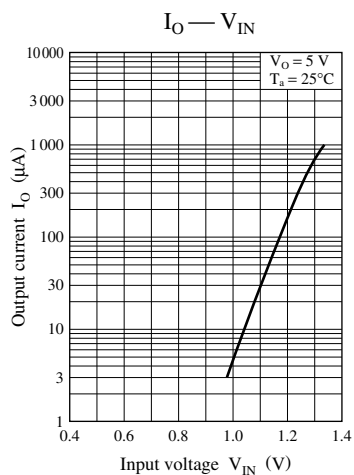
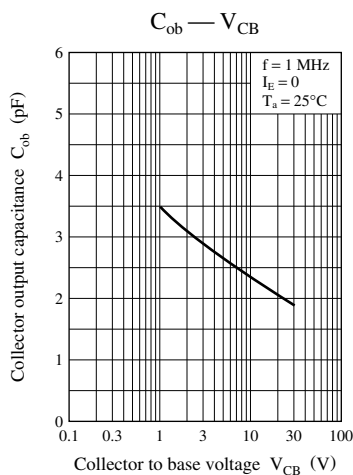
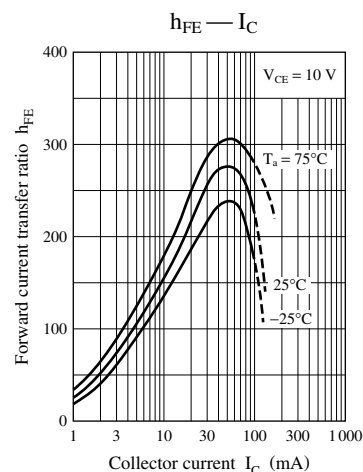
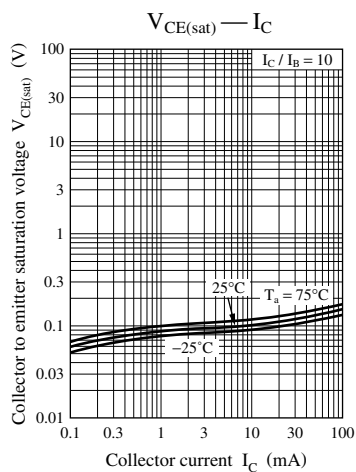
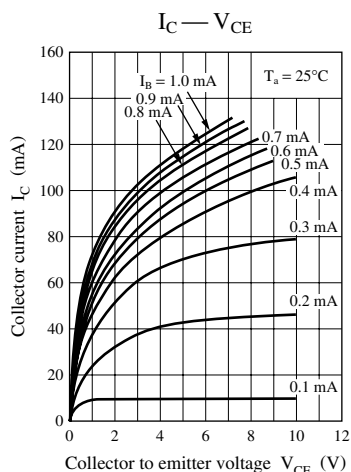


Characteristics chart of UNR9210J

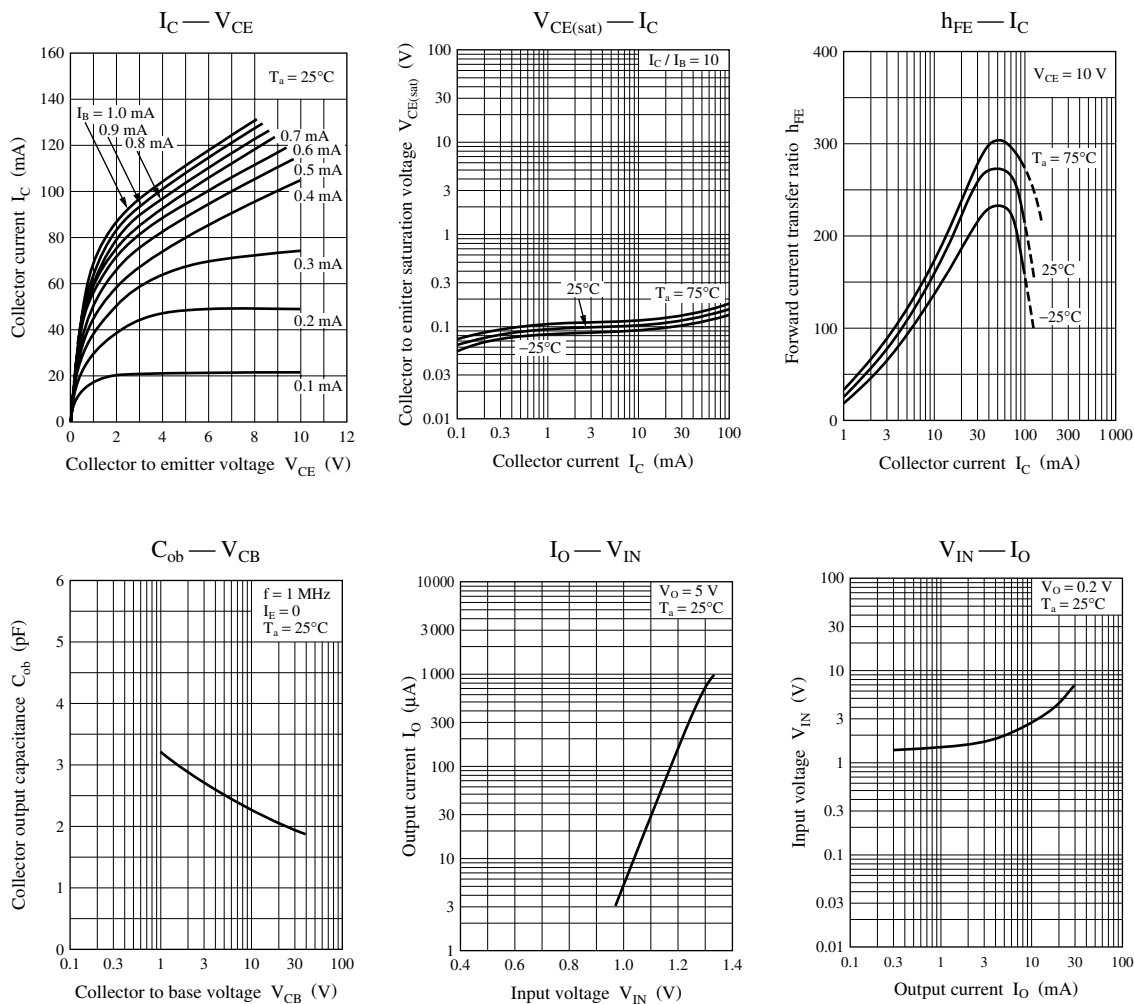




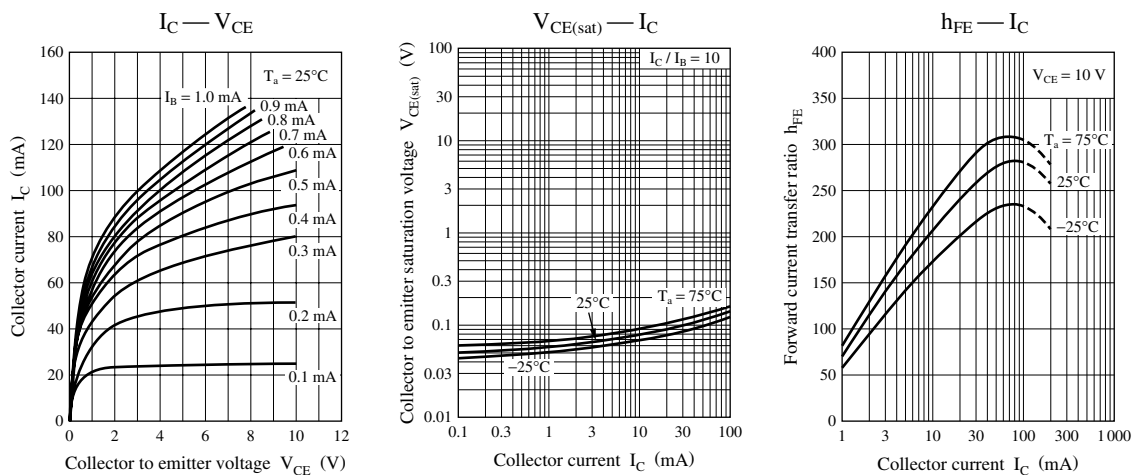
Characteristics chart of UNR9211J

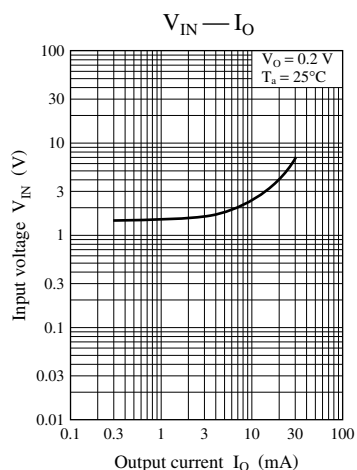
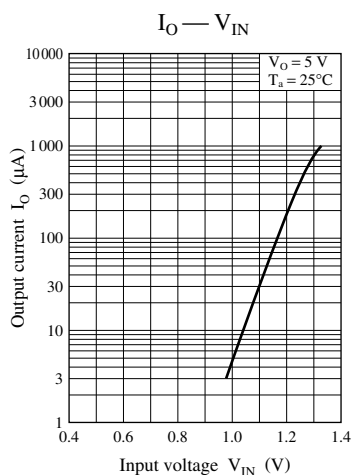
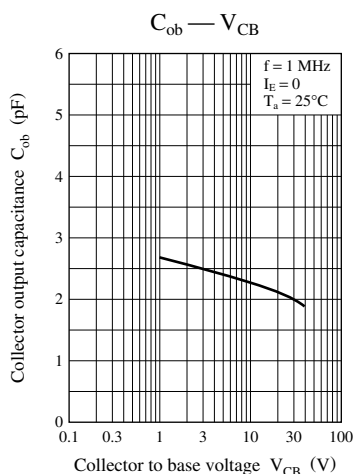


Characteristics chart of UNR9212J

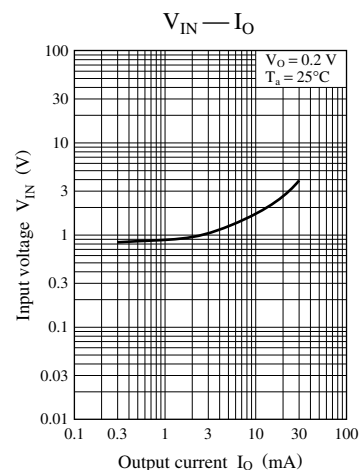
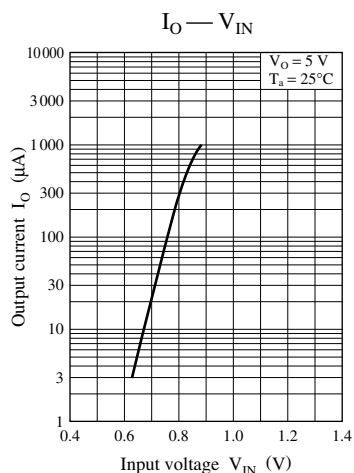
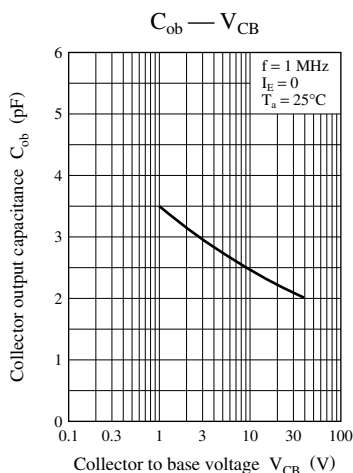
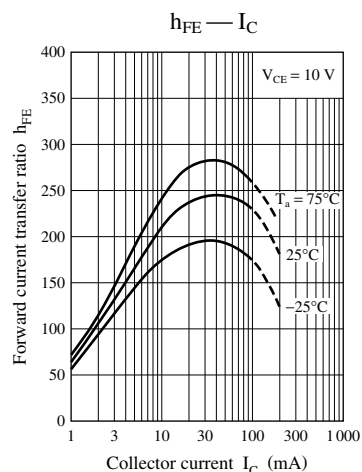
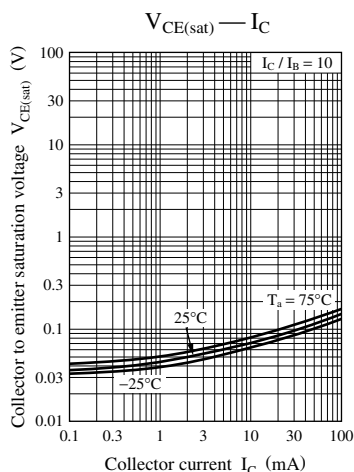
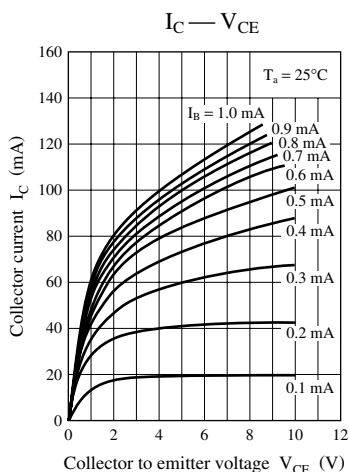


Characteristics chart of UNR9213J

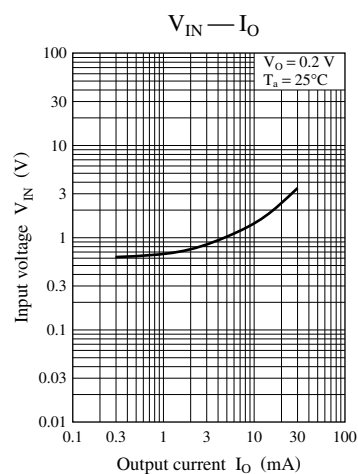
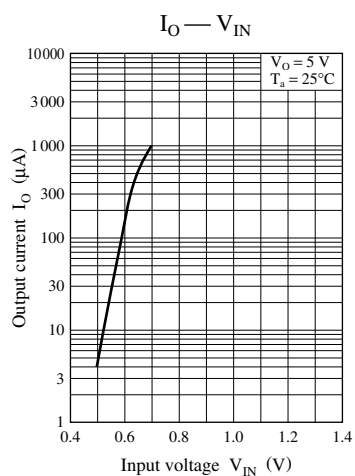
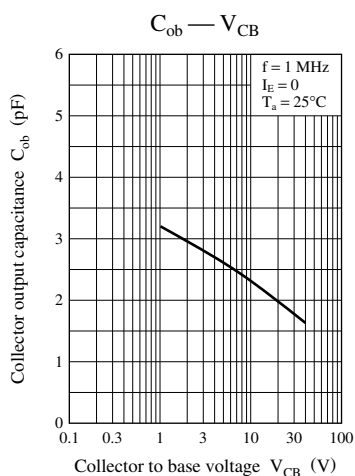
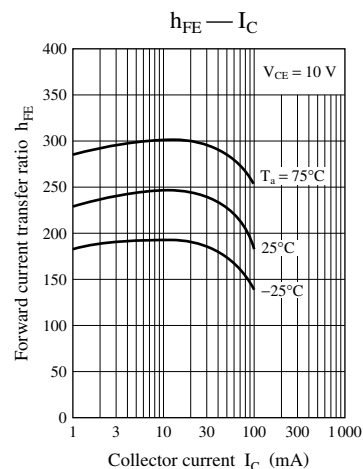
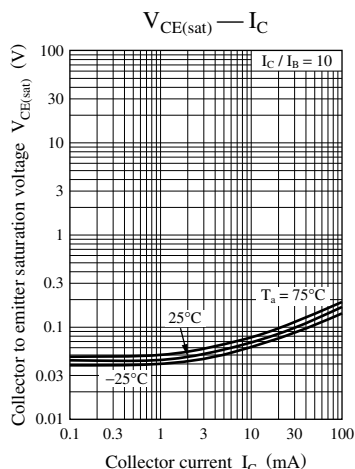
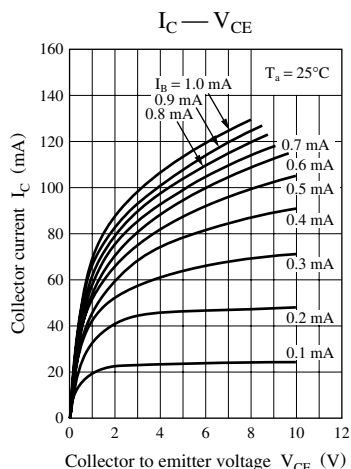




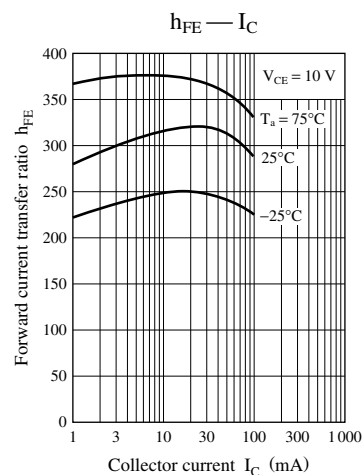
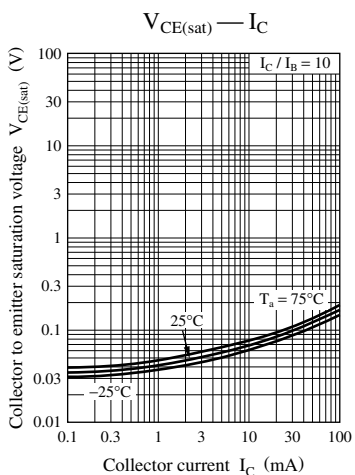
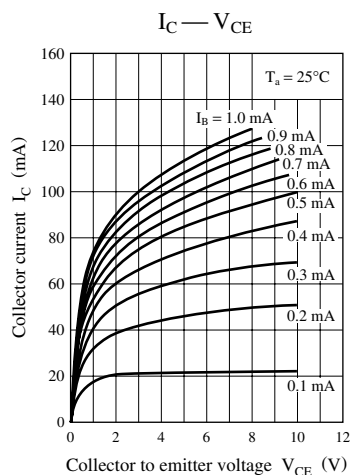
Characteristics chart of UNR9214J

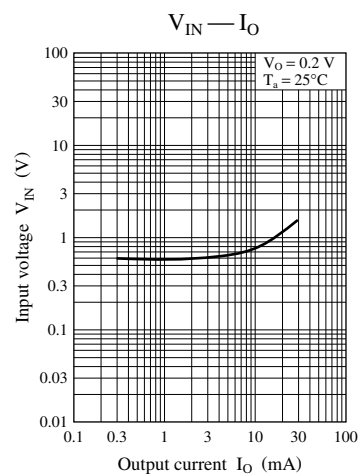
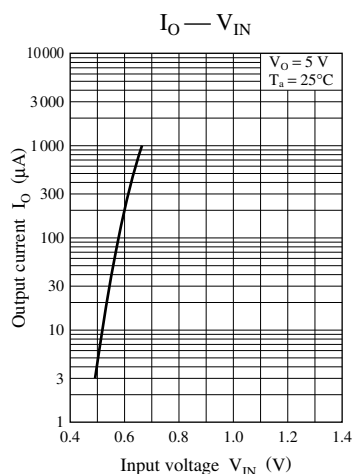
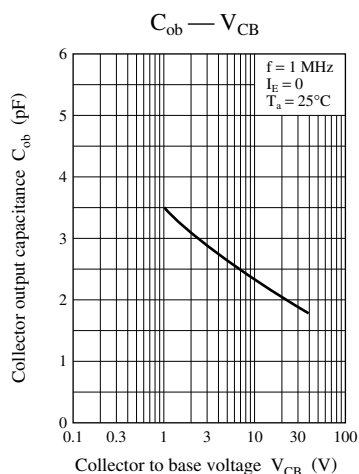


Characteristics chart of UNR9215J

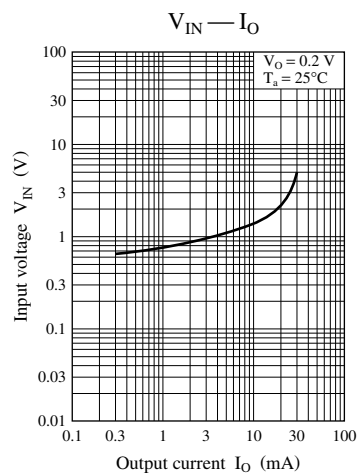
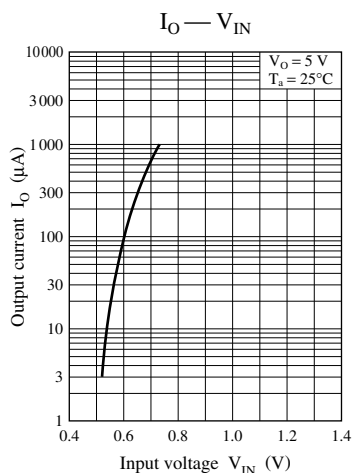
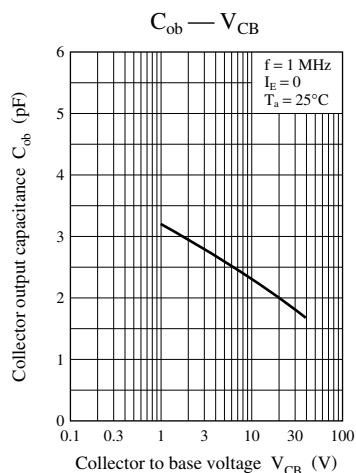
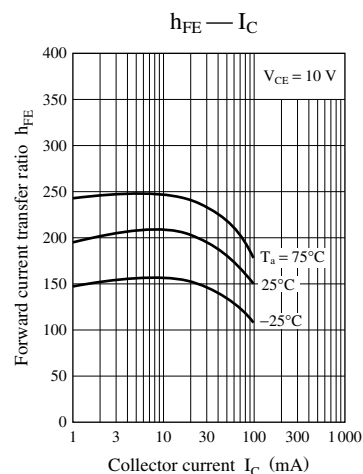
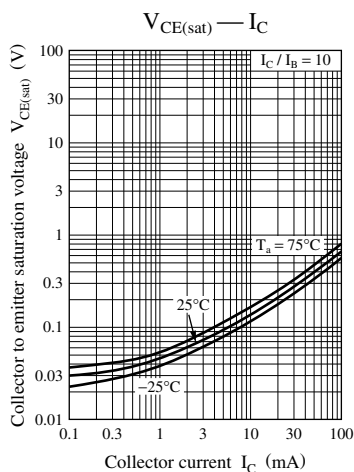
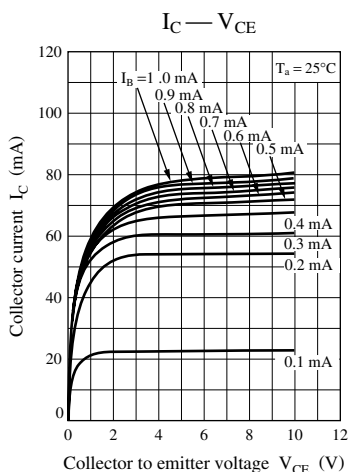


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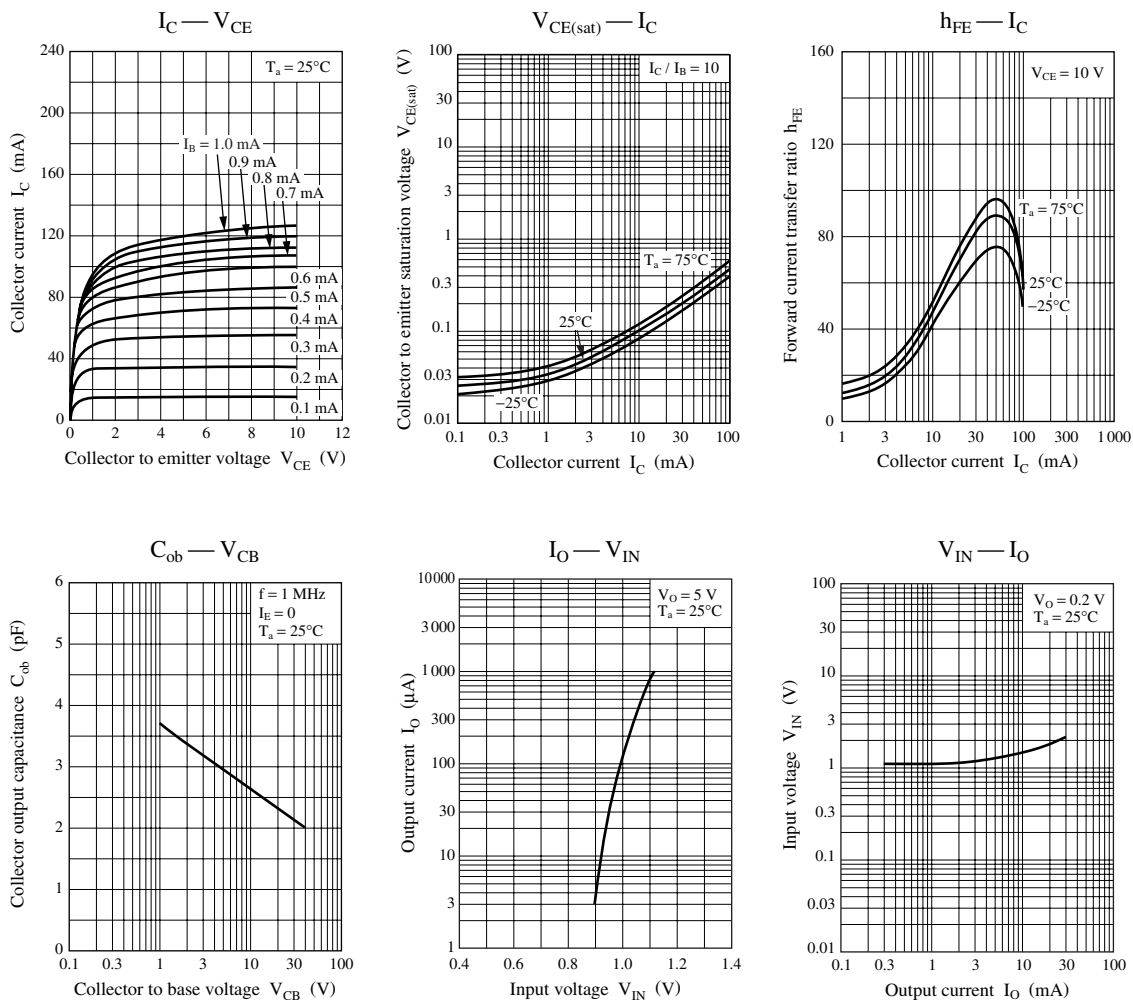




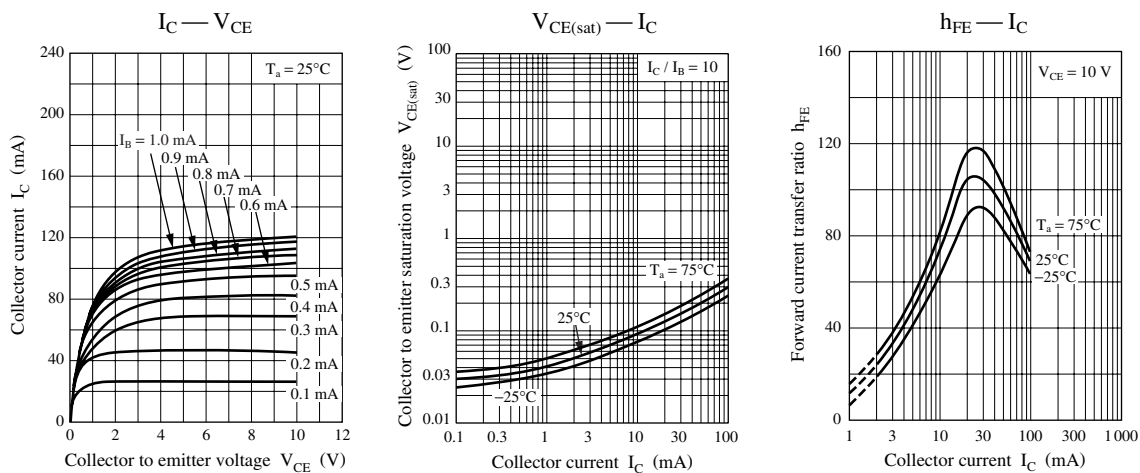
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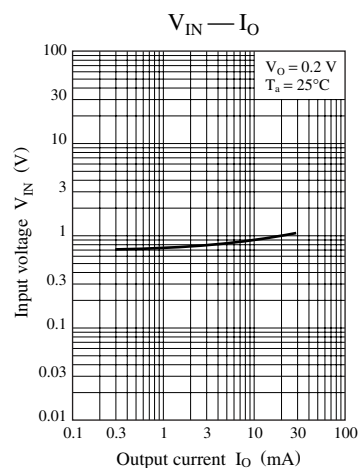
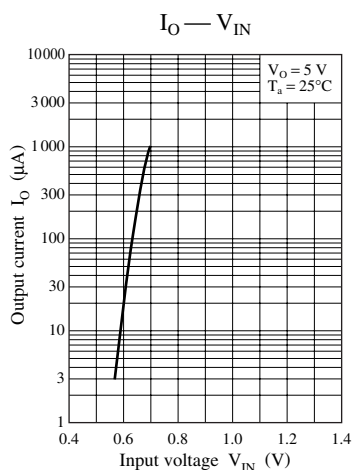
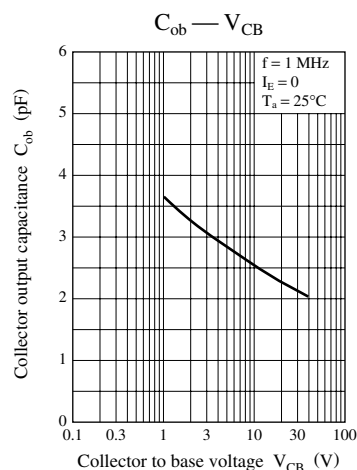


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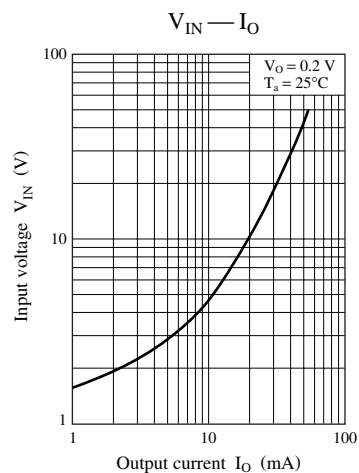
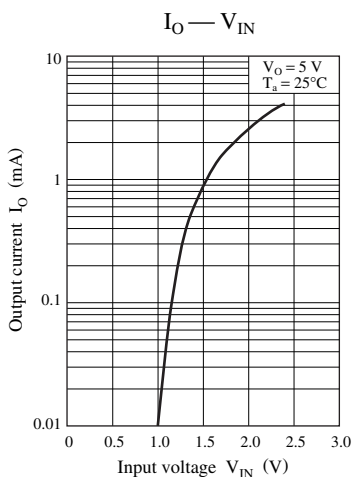
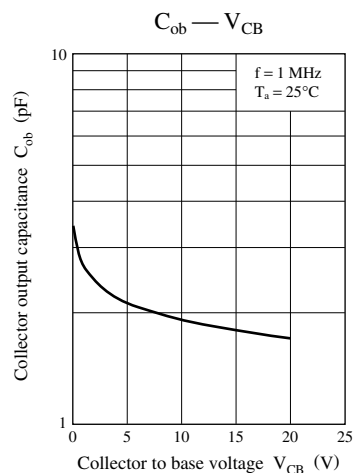
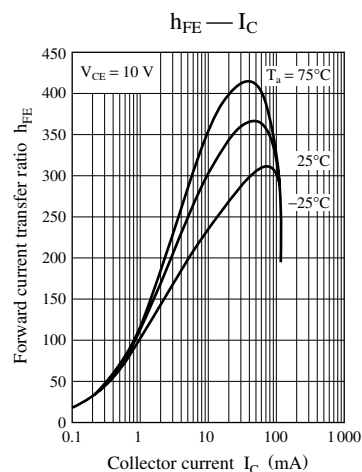
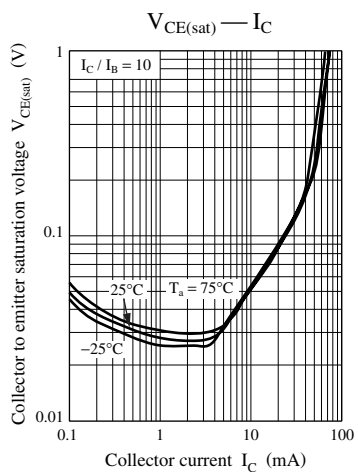
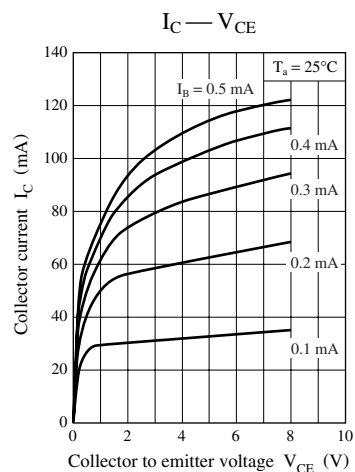


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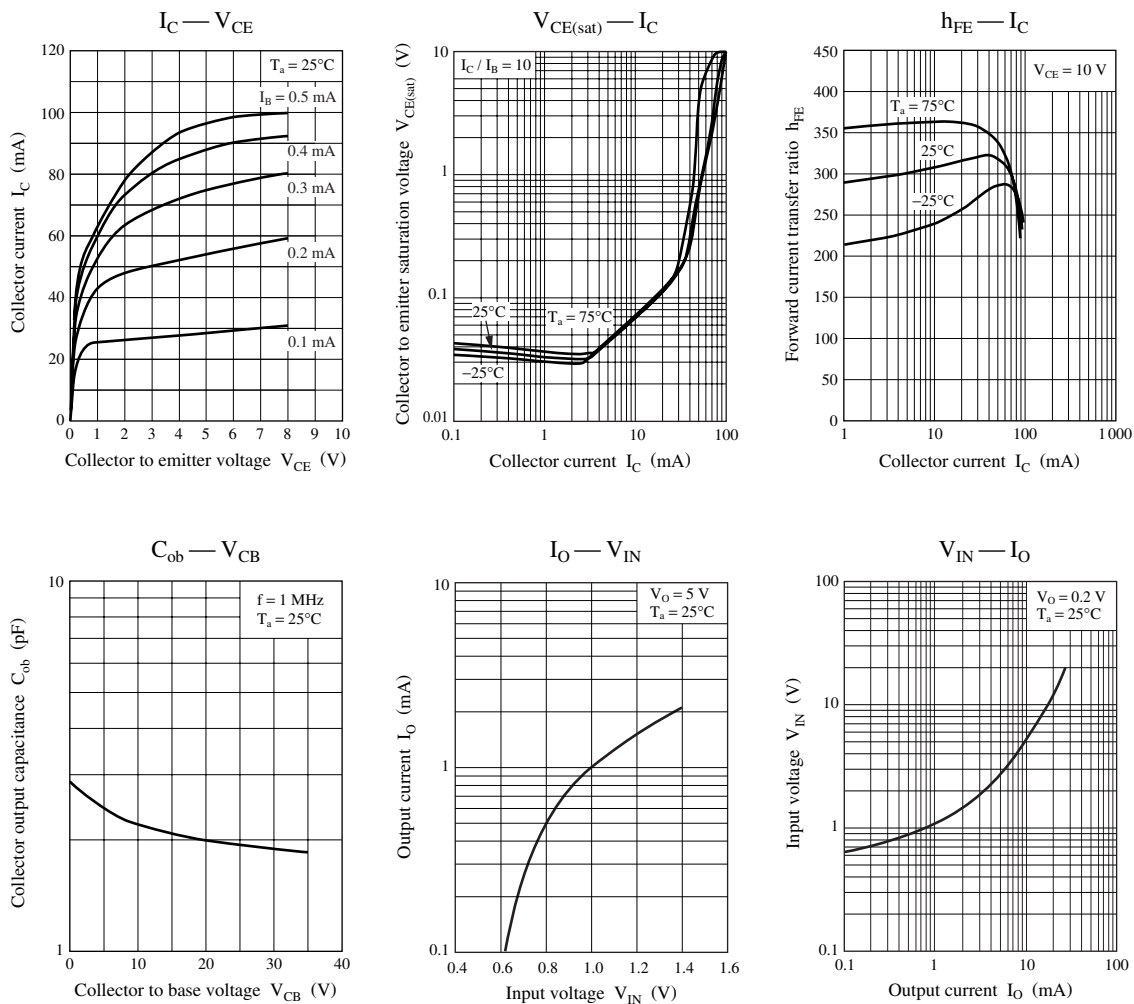




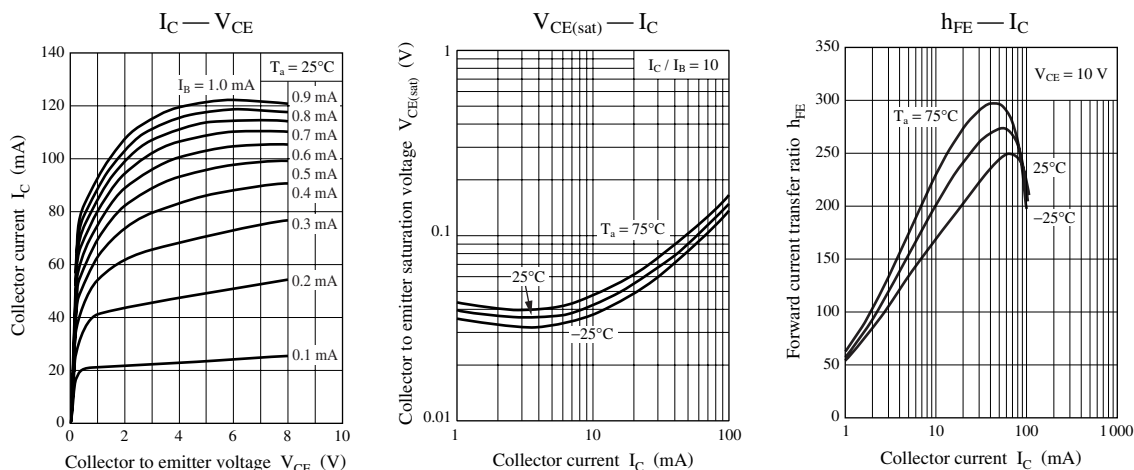
Characteristics chart of UNR921AJ

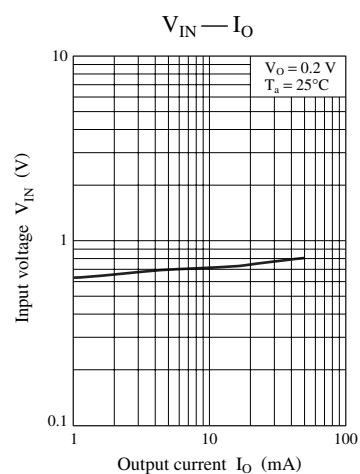
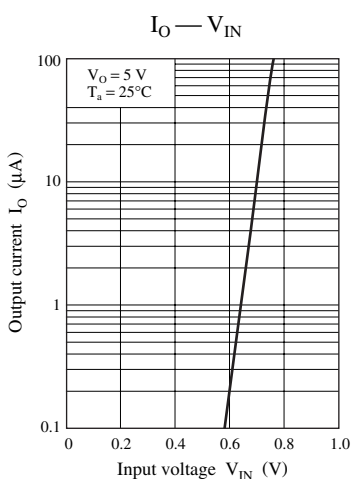
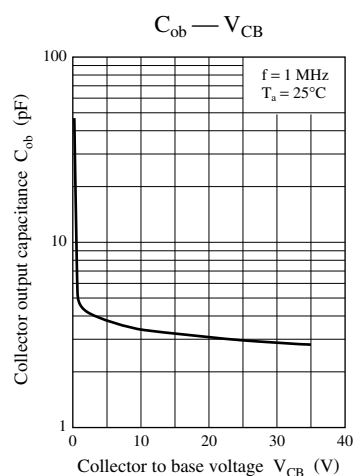


Characteristics chart of UNR921BJ

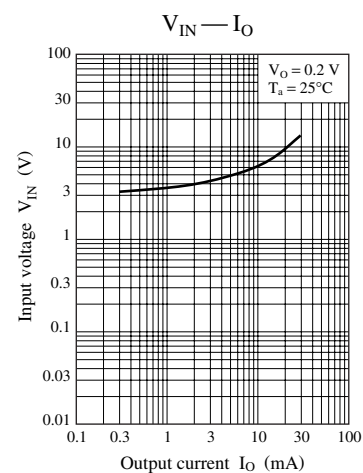
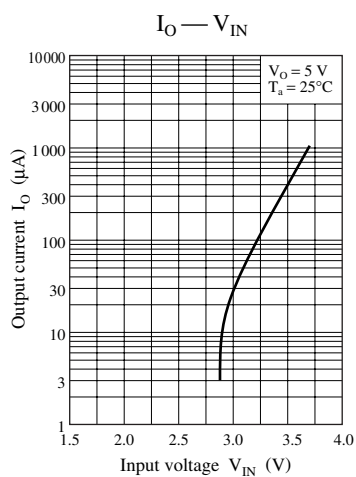
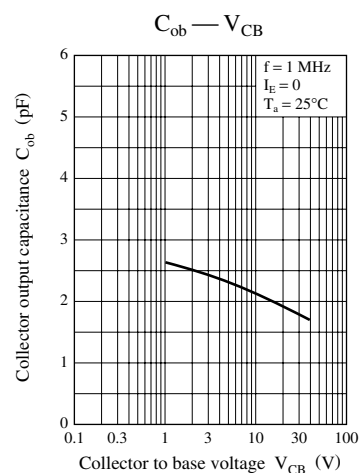
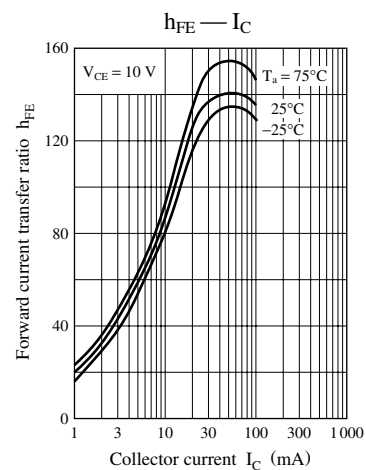
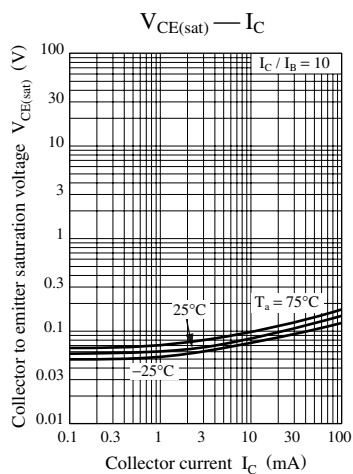
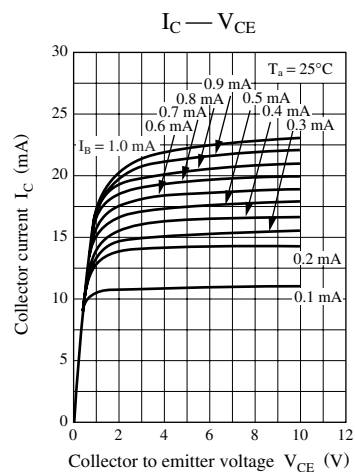


Characteristics chart of UNR921CJ

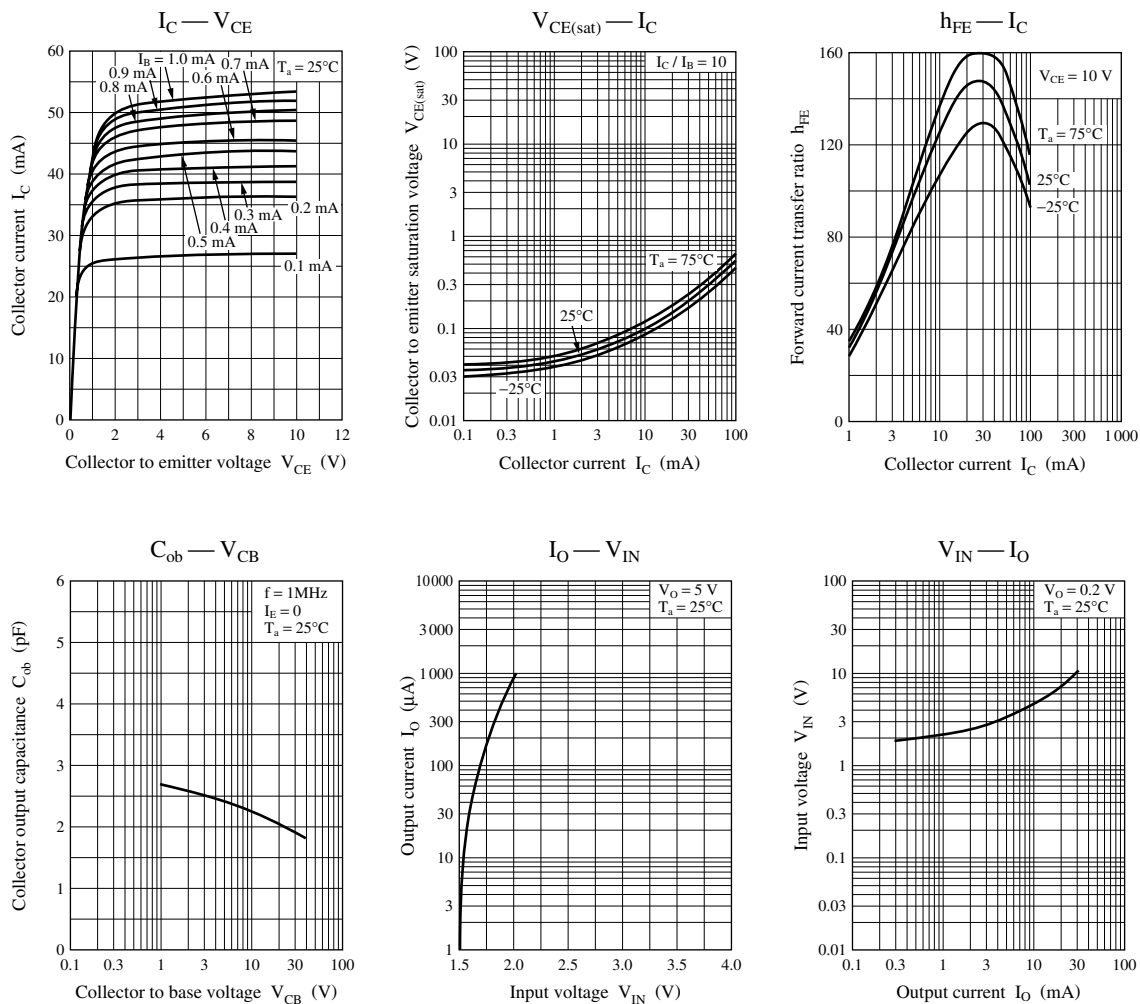




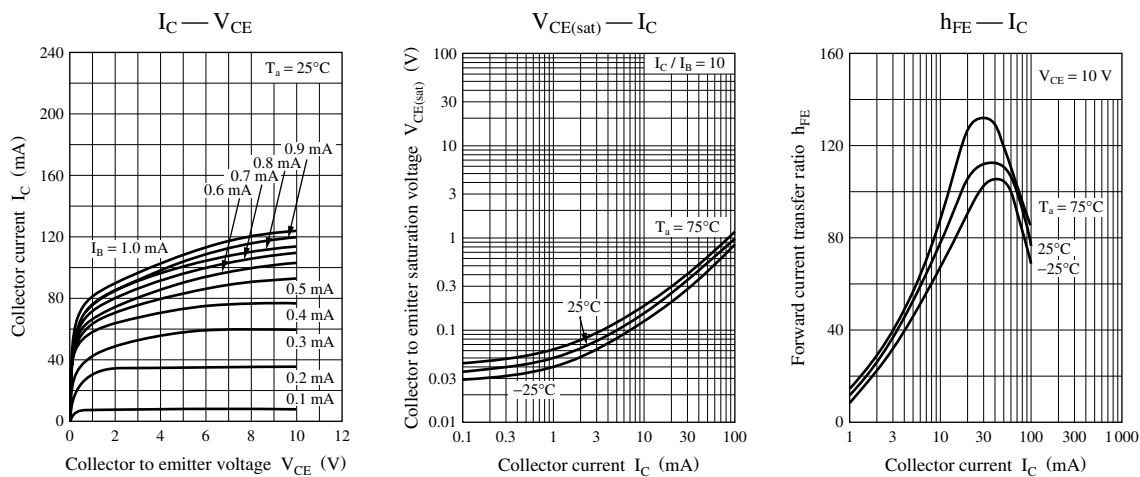
Characteristics chart of UNR921DJ

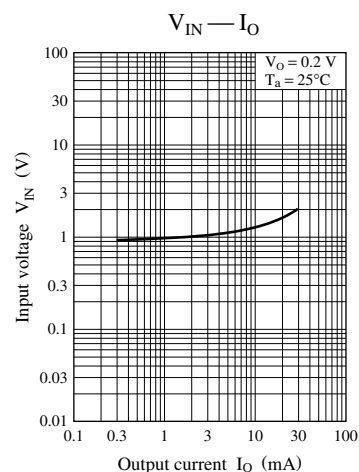
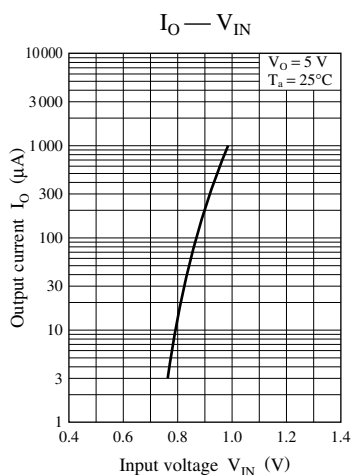
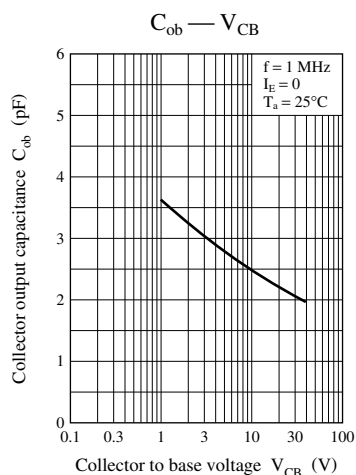


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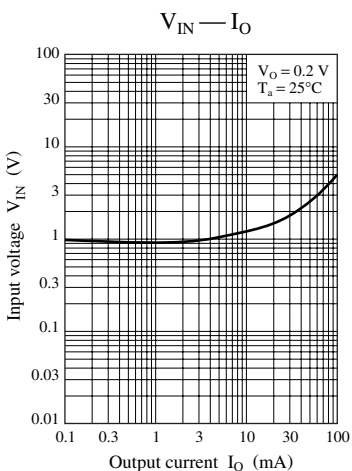
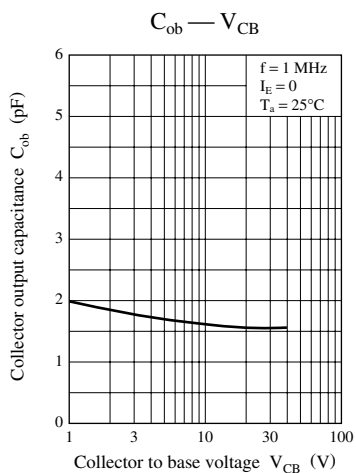
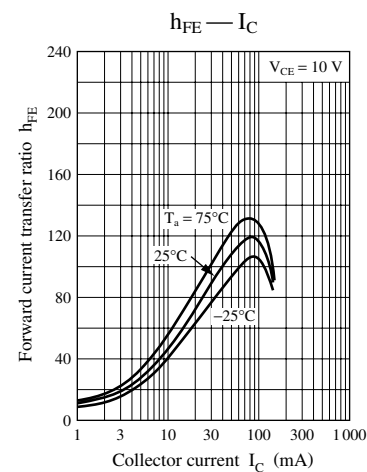
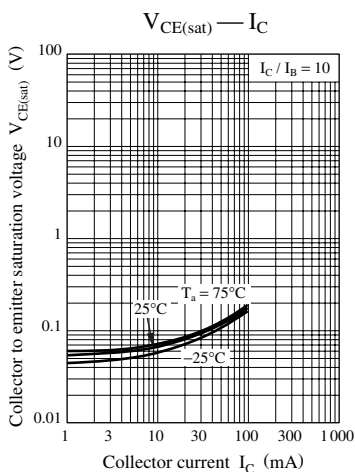
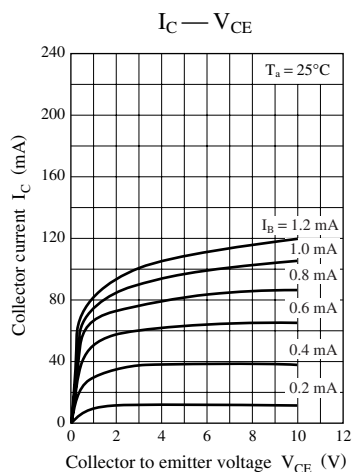


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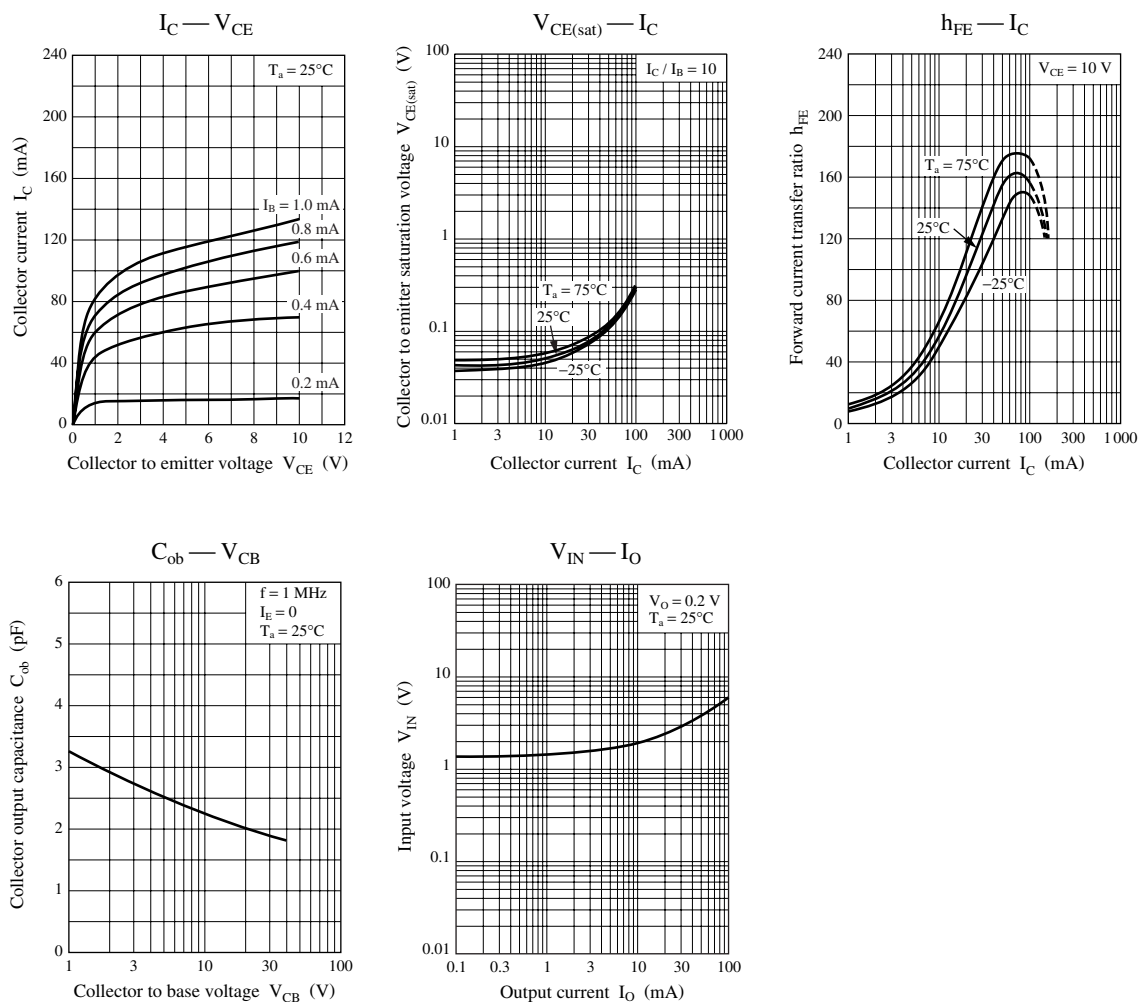




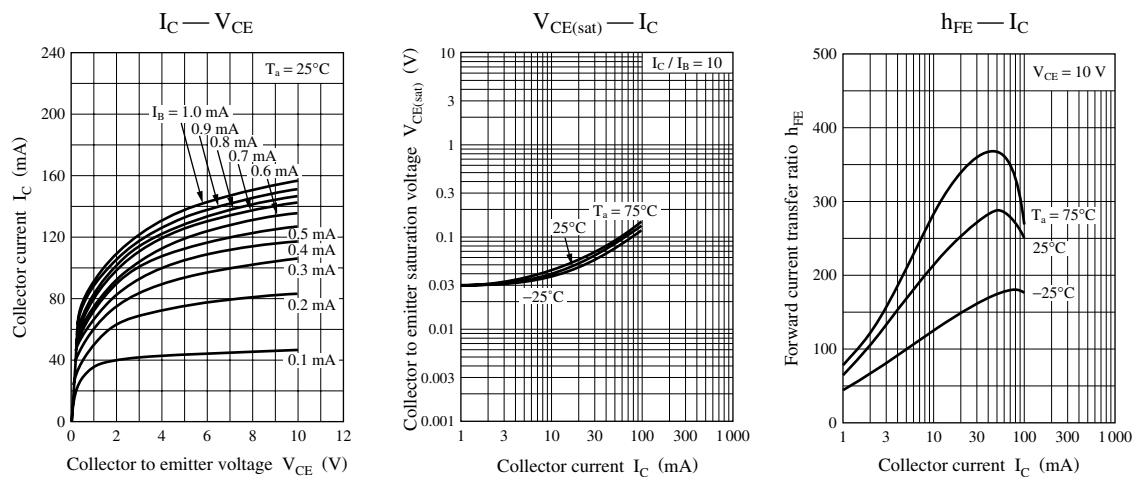
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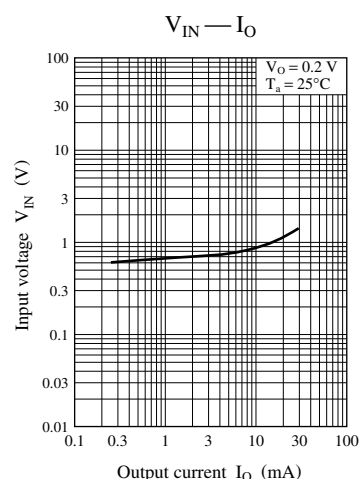
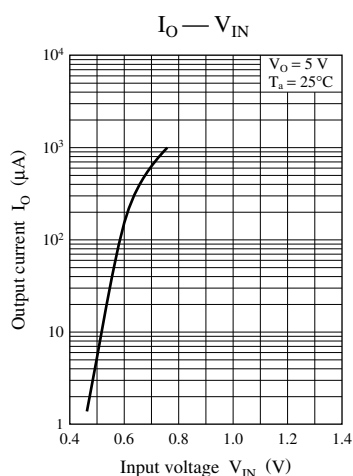
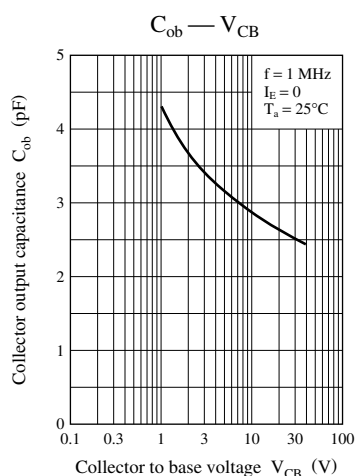


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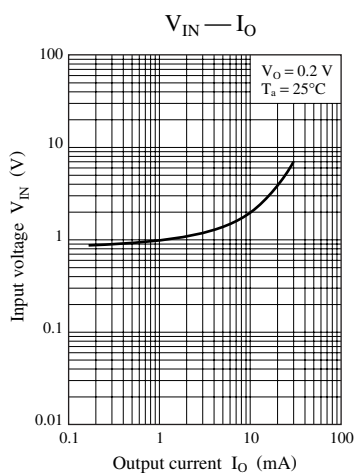
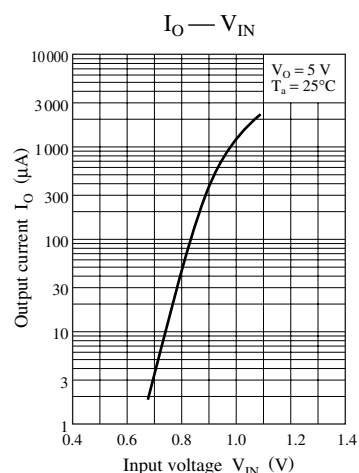
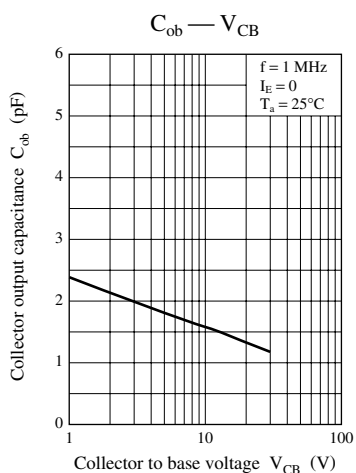
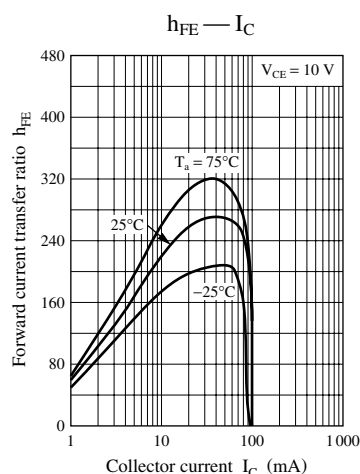
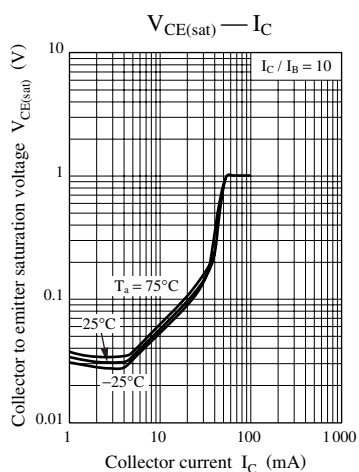
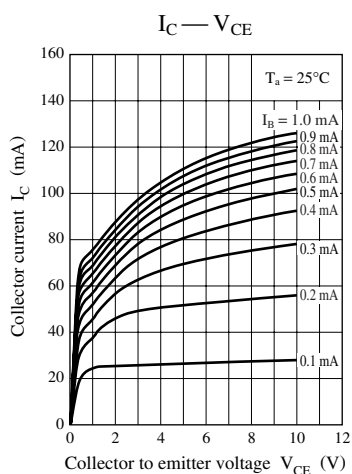


Characteristics chart of UNR921MJ

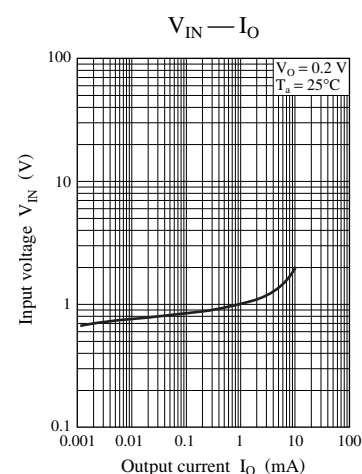
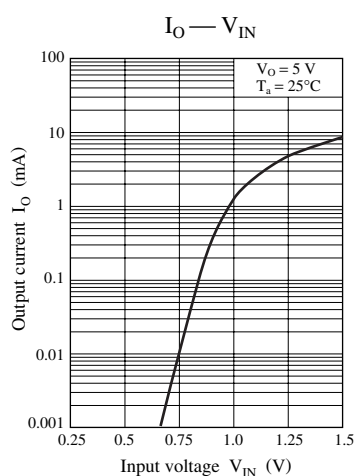
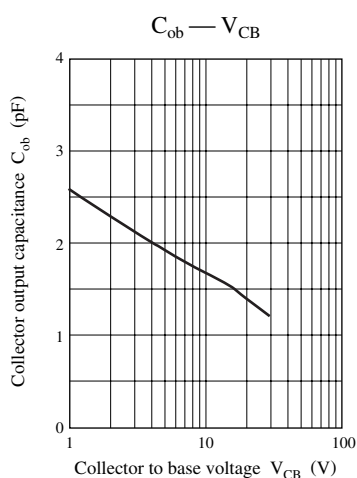
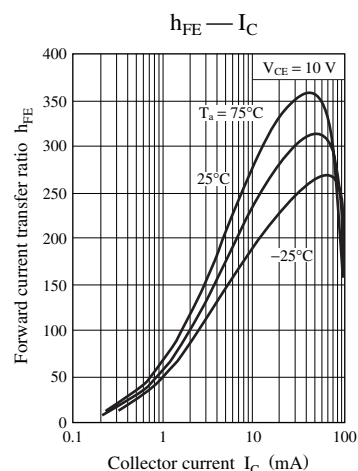
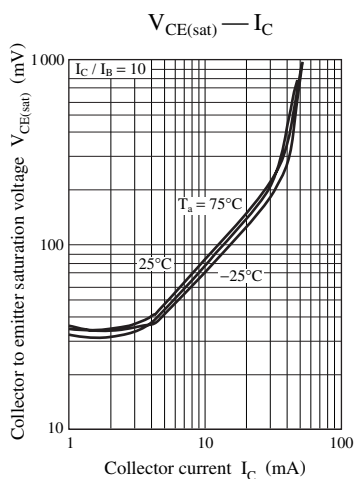
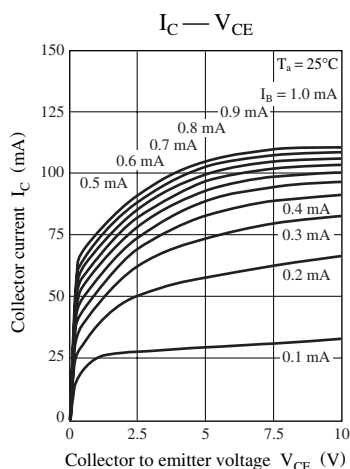




Characteristics chart of UNR921NJ



Characteristics chart of UNR921TJ



Characteristics chart of UNR921VJ

