

UNR9111/9112/9113/9114/9115/9116/9117/9118/9119/9110/ 911D/911E/911F/911H/911L/911AJ/911BJ/911CJ (UN9111/9112/9113/9114/9115/9116/9117/9118/9119/9110/911D/911E/ 911F/911H/911L/911AJ/911BJ/911CJ)

Silicon PNP epitaxial planer transistor

For digital circuits

Features

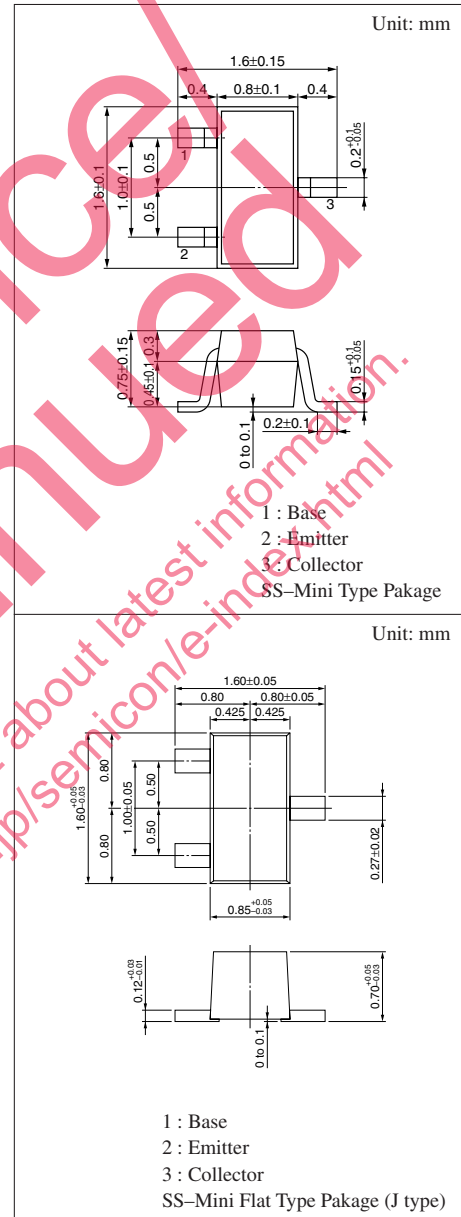
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-Mini type package, allowing automatic insertion through tape packing and magazine packing.

Resistance by Part Number

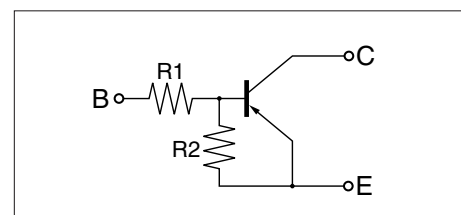
	Marking Symbol	(R ₁)	(R ₂)
• UNR9111	6A	10kΩ	10kΩ
• UNR9112	6B	22kΩ	22kΩ
• UNR9113	6C	47kΩ	47kΩ
• UNR9114	6D	10kΩ	47kΩ
• UNR9115	6E	10kΩ	—
• UNR9116	6F	4.7kΩ	—
• UNR9117	6H	22kΩ	—
• UNR9118	6I	0.51kΩ	5.1kΩ
• UNR9119	6K	1kΩ	10kΩ
• UNR9110	6L	47kΩ	—
• UNR911D	6M	47kΩ	10kΩ
• UNR911E	6N	47kΩ	22kΩ
• UNR911F	6O	4.7kΩ	10kΩ
• UNR911H	6P	2.2kΩ	10kΩ
• UNR911L	6Q	4.7kΩ	4.7kΩ
• UNR911AJ	6X	100kΩ	100kΩ
• UNR911BJ	6Y	100kΩ	—
• UNR911CJ	6Z	—	47kΩ

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	-50	V
Collector to emitter voltage	V _{CEO}	-50	V
Collector current	I _C	-100	mA
Total power dissipation	P _T	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 (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit		
Collector cutoff current		I _{CBO}	V _{CB} = -50V, I _E = 0			-0.1	μA		
		I _{CEO}	V _{CE} = -50V, I _B = 0			-0.5	μA		
Emitter cutoff current	UNR9111	I _{EBO}	V _{EB} = -6V, I _C = 0			-0.5	mA		
	UNR9112/9114/911E/911D					-0.2			
	UNR9113/UNR911AJ					-0.1			
	UNR9115/9116/9117/9110/UNR911BJ					-0.01			
	UNR911F/911H					-1.0			
	UNR9119					-1.5			
	UNR9118/911L/911CJ					-2.0			
Collector to base voltage		V _{CBO}	I _C = -10μA, I _E = 0	-50			V		
Collector to emitter voltage		V _{CEO}	I _C = -2mA, I _B = 0	-50			V		
Forward current transfer ratio	UNR9111	h _{FE}	V _{CE} = -10V, I _C = -5mA	35					
	UNR9112/911E			60					
	UNR9113/9114/UNR911AJ/911CJ			80					
	UNR9115*9116*/9117*/9110*UNR911BJ			160		460			
	UNR911F/911D/9119/911H			30					
	UNR9118/911L			20					
Collector to emitter saturation voltage		V _{CE(sat)}	I _C = -10mA, I _B = -0.3mA			-0.25	V		
Output voltage high level		V _{OH}	V _{CC} = -5V, V _B = -0.5V, R _L = 1kΩ	-4.9			V		
Output voltage low level		V _{OL}	V _{CC} = -5V, V _B = -2.5V, R _L = 1kΩ			-0.2	V		
				UNR9113/UNR911BJ	V _{CC} = -5V, V _B = -3.5V, R _L = 1kΩ				-0.2
				UNR911D	V _{CC} = -5V, V _B = -10V, R _L = 1kΩ				-0.2
				UNR911E	V _{CC} = -5V, V _B = -6V, R _L = 1kΩ				-0.2
				UNR911AJ	V _{CC} = -5V, V _B = -5.0V, R _L = 1kΩ				-0.2
Transition frequency		f _T	V _{CB} = -10V, I _E = 2mA, f = 200MHz		150		MHz		
UNR911AJ					80				
Input resistance	UNR9111/9114/9115	R _I		(-30%)		10	(+30%)	kΩ	
	UNR9112/9117					22			
	UNR9113/9110/911D/911E					47			
	UNR9116/911F/911L					4.7			
	UNR9118					0.51			
	UNR9119					1			
	UNR911H					2.2			
	UNR911AJ/911BJ					100			

* h_{FE} rank classification (UNR9115/9116/9117/9110)

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

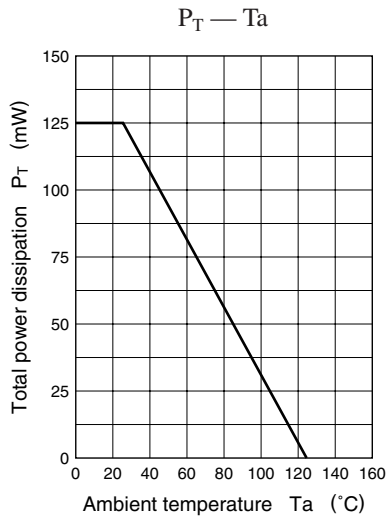
■ Electrical Characteristics (continued) (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Resistance ratio	UNR9111/9112/9113/911L	R ₁ /R ₂		0.8	1.0	1.2	
	UNR9114			0.17	0.21	0.25	
	UNR9118/9119			0.08	0.1	0.12	
	UNR911D				4.7		
	UNR911E				2.14		
	UNR911F				0.47		
	UNR911H			0.17	0.22	0.27	
	UNR911AJ				1.0		
Resistance between Emitter to Base	UNR911CJ	R ₂		-30%	47	30%	

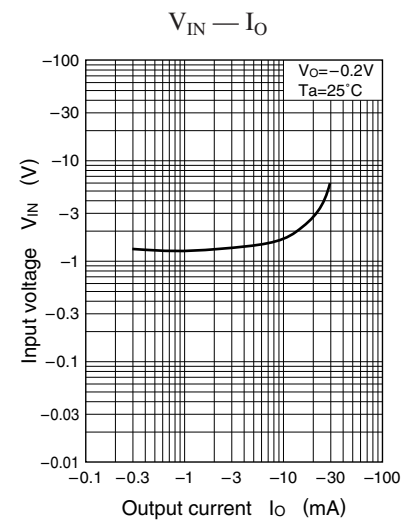
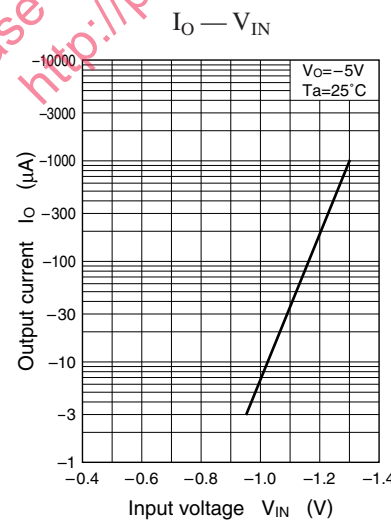
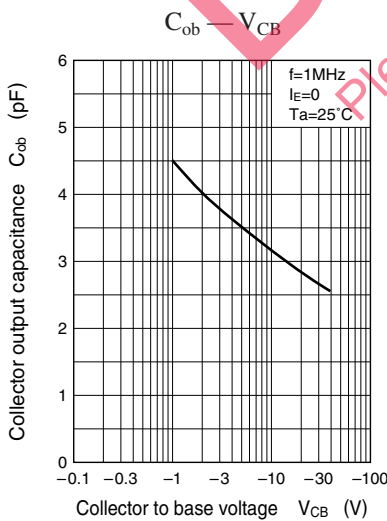
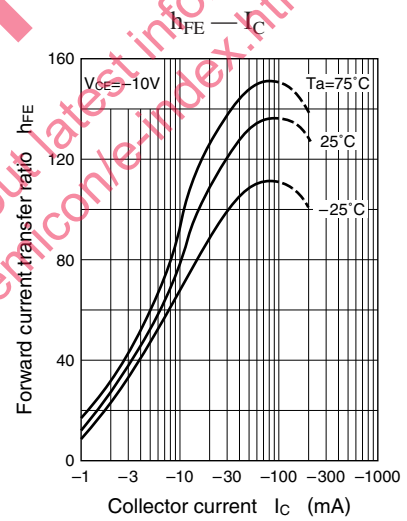
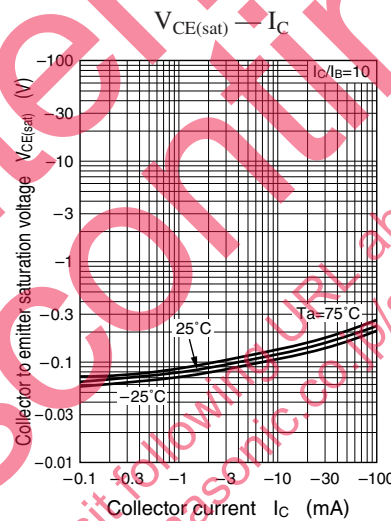
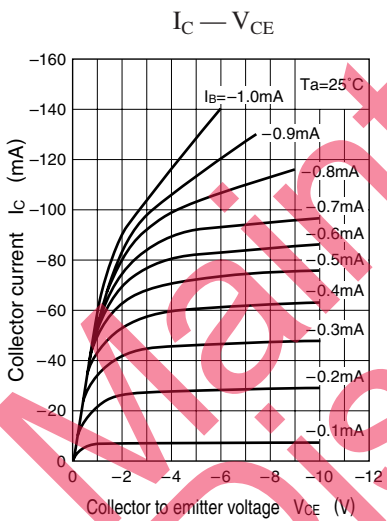
Maintenance Discontinued

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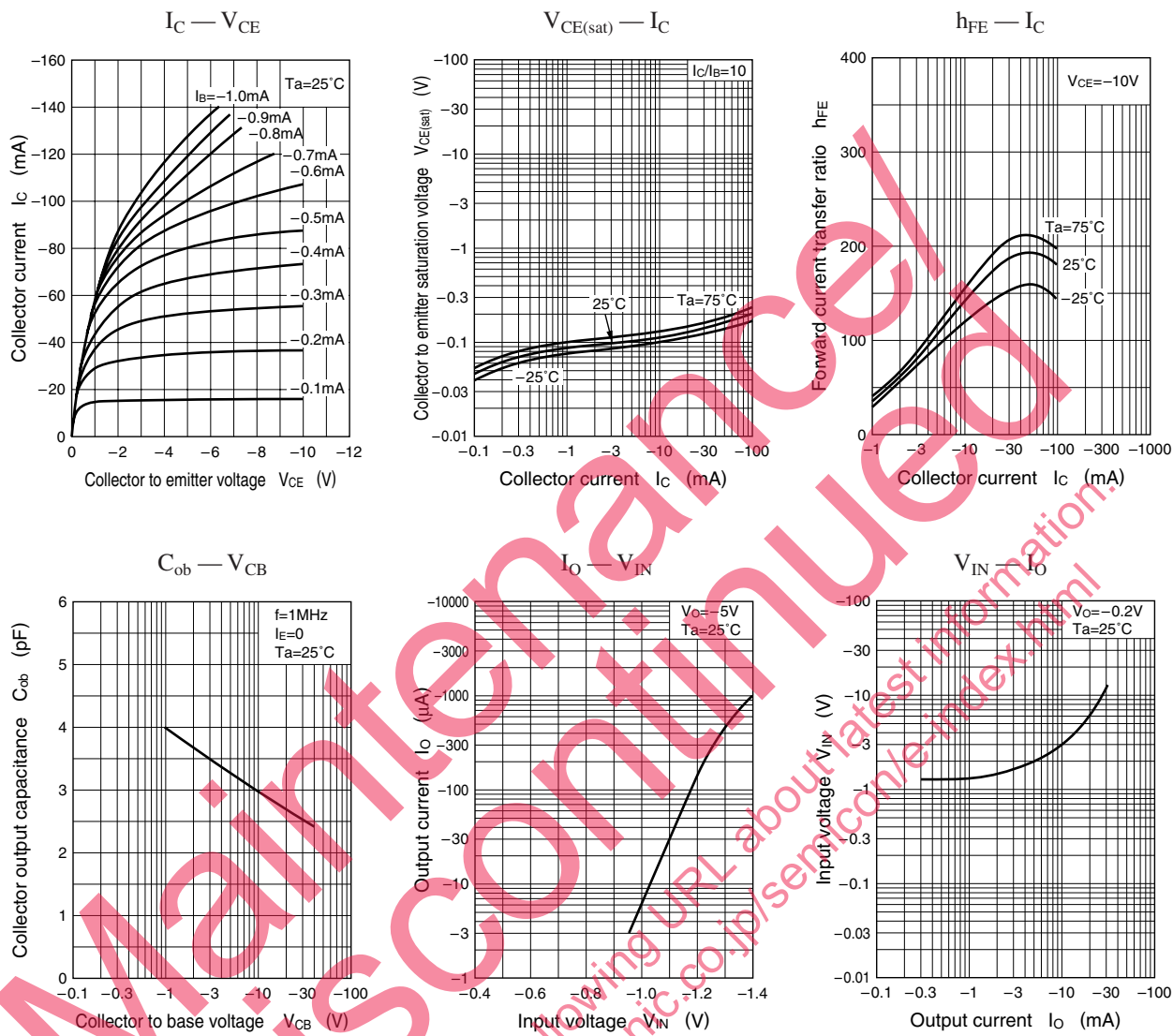
Common characteristics chart



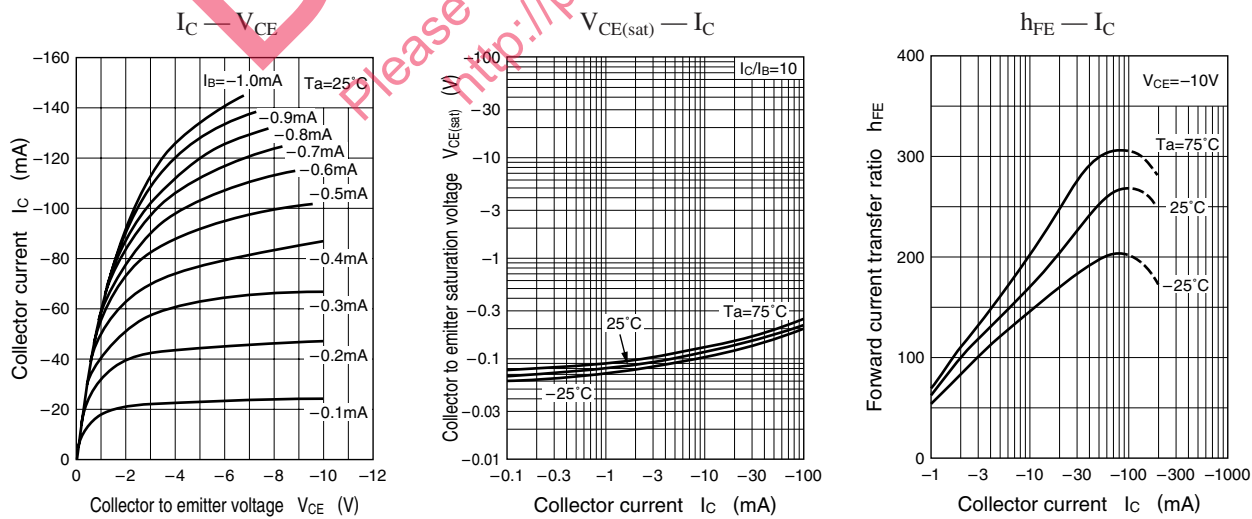
Characteristics charts of UNR9111

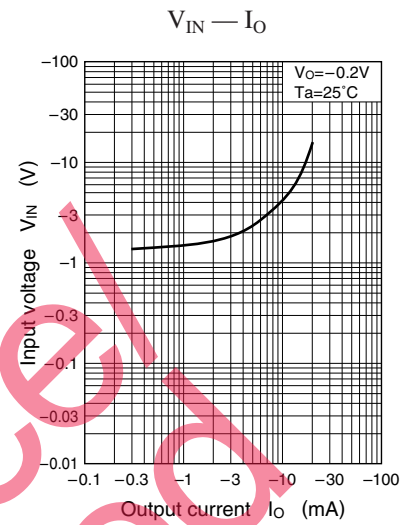
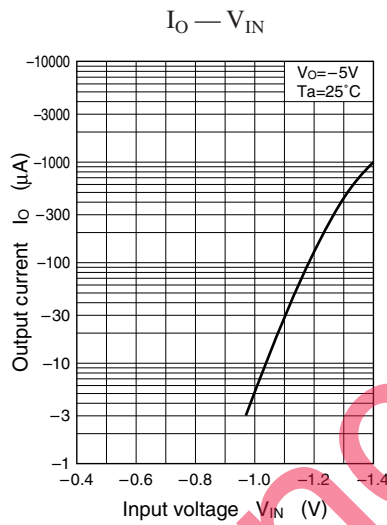
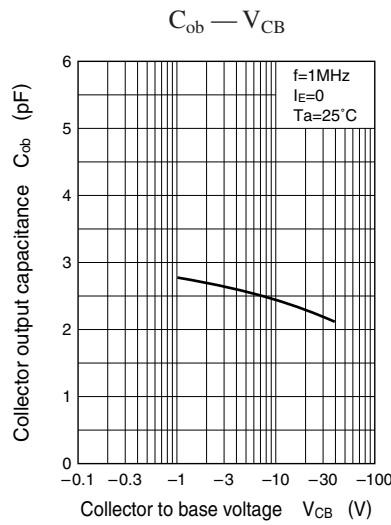


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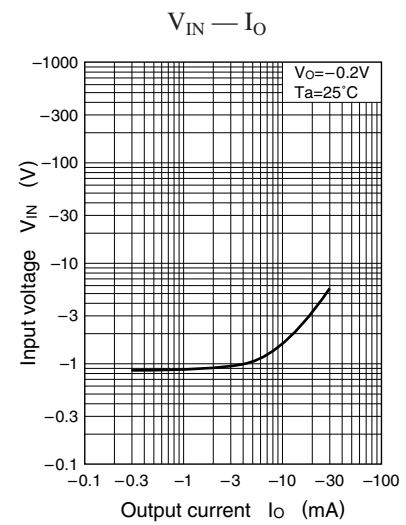
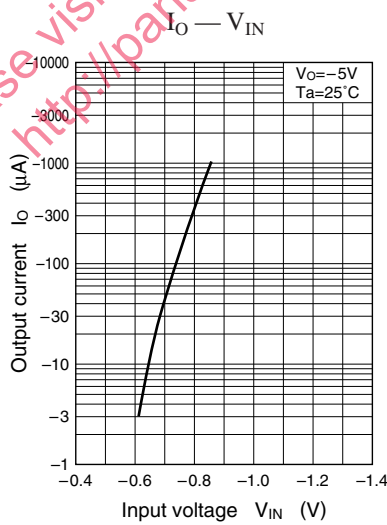
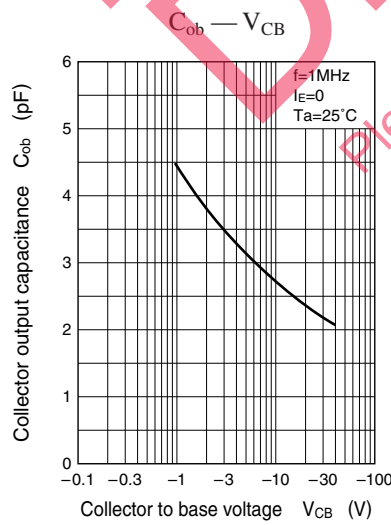
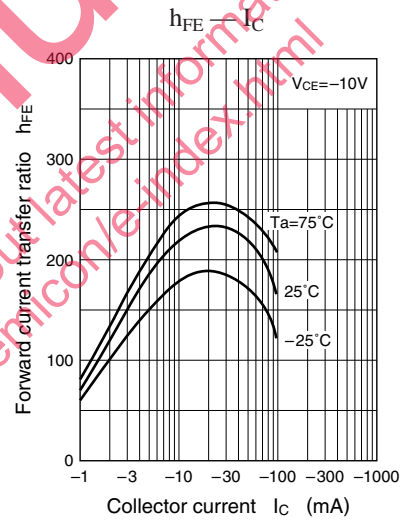
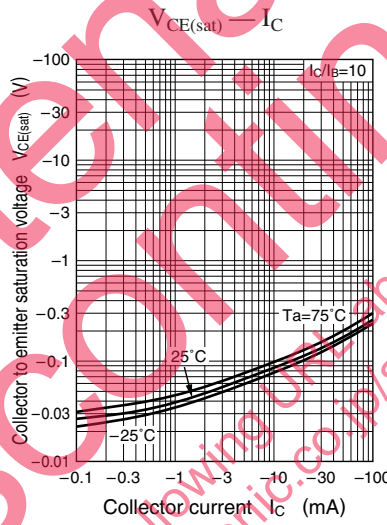
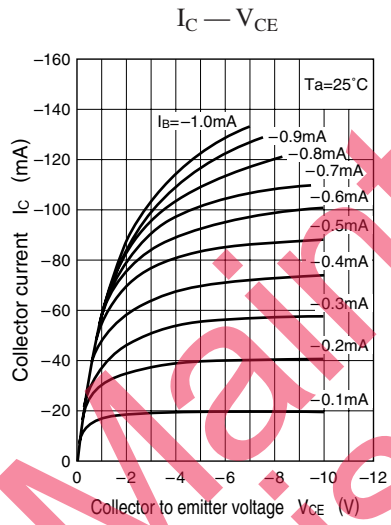


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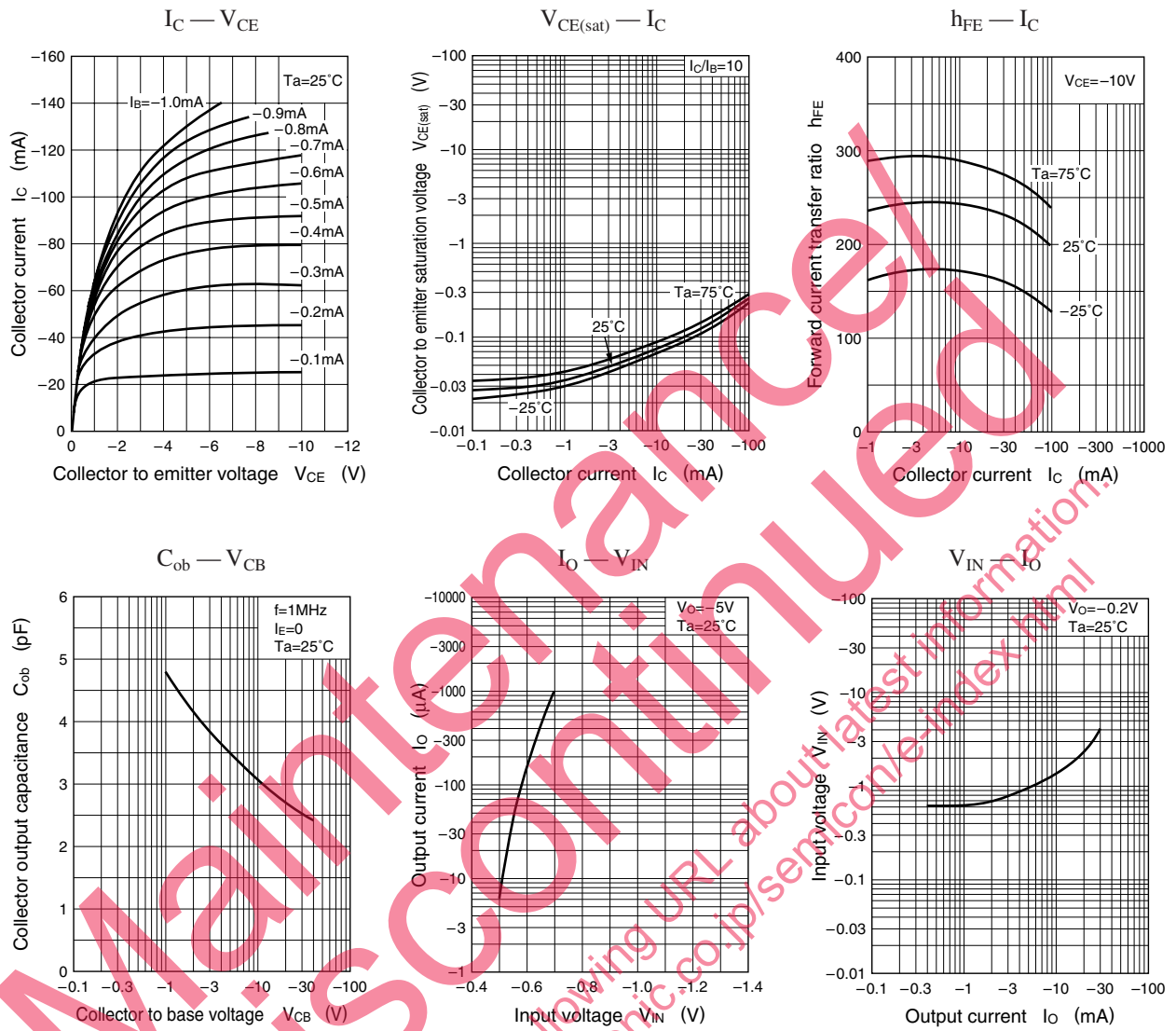




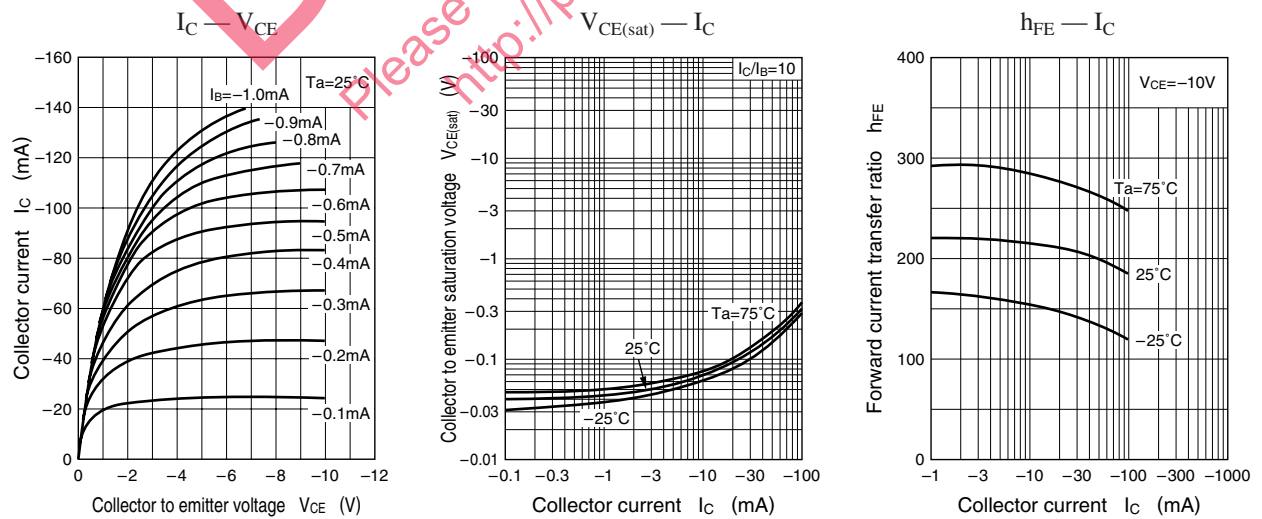
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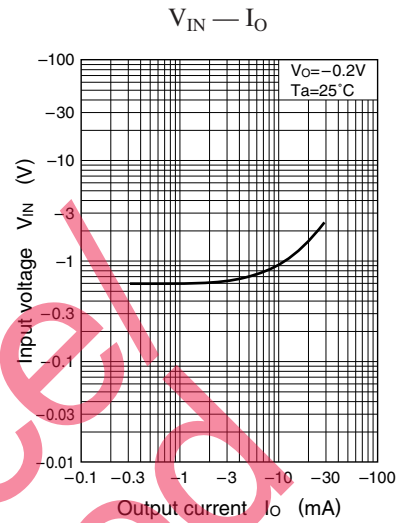
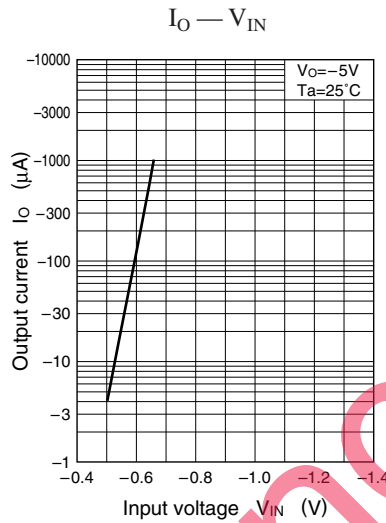
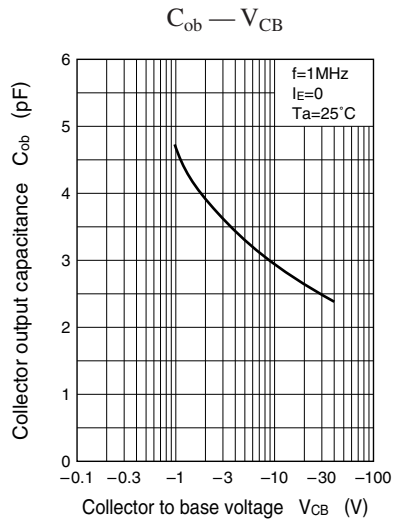


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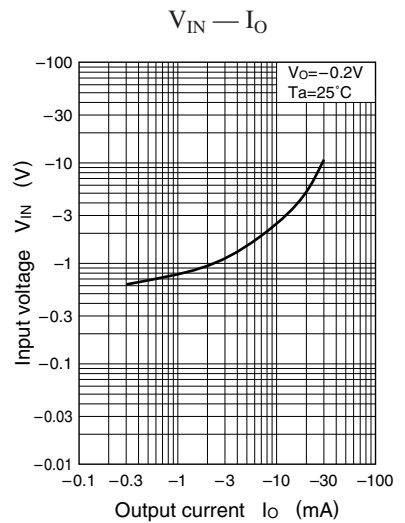
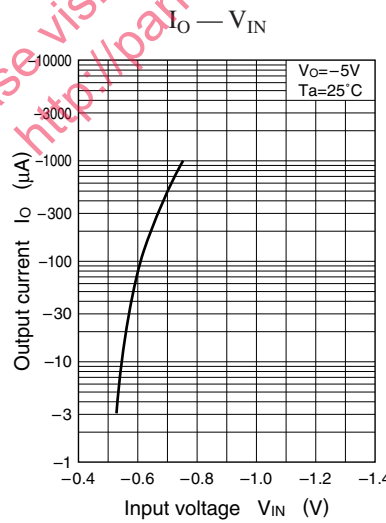
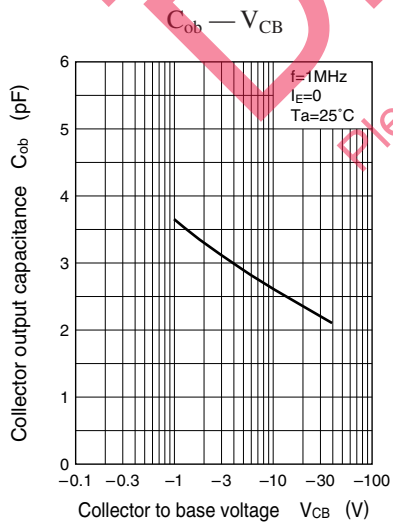
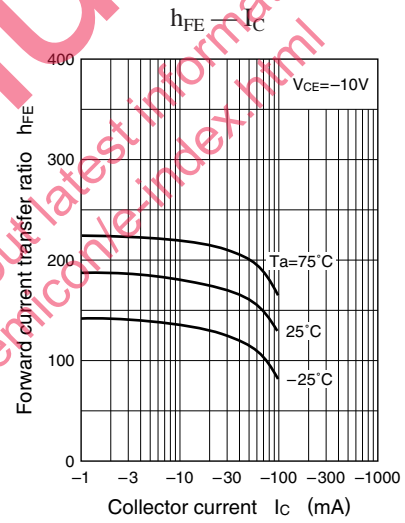
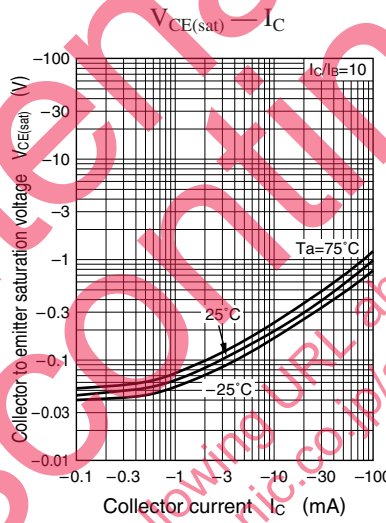
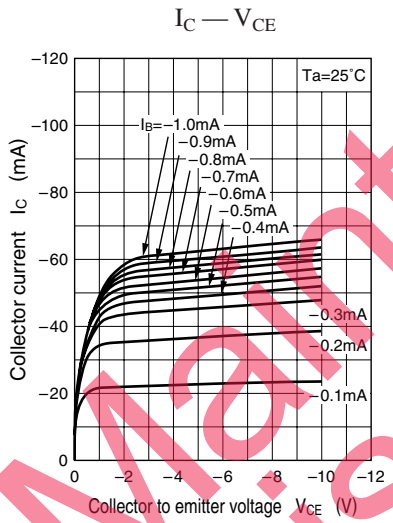


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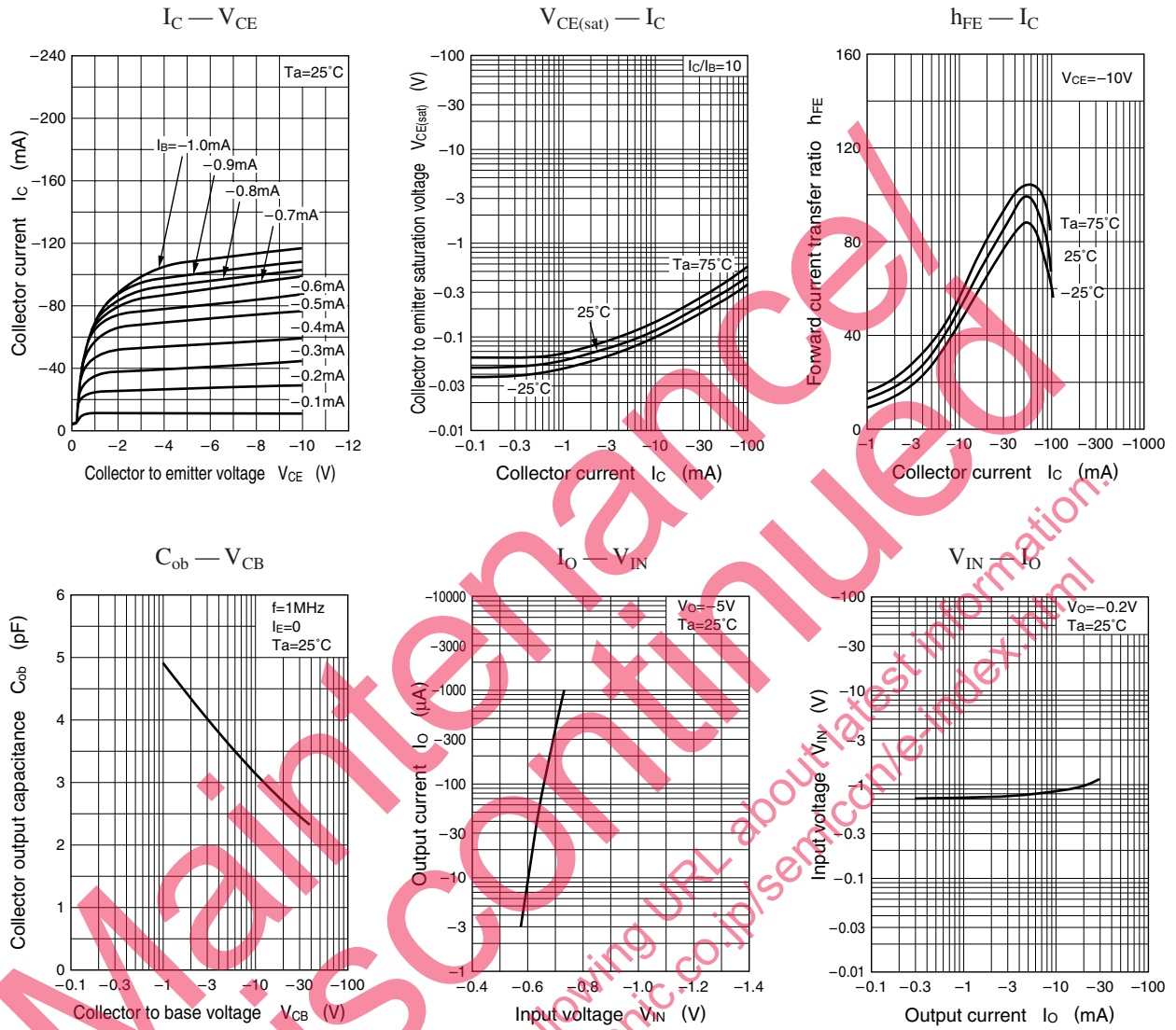




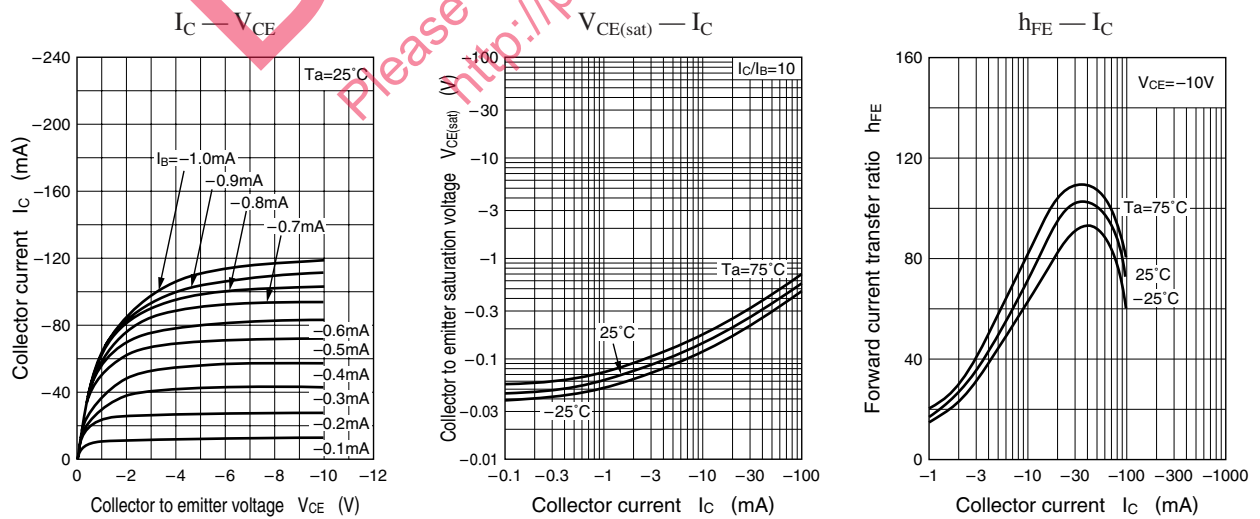
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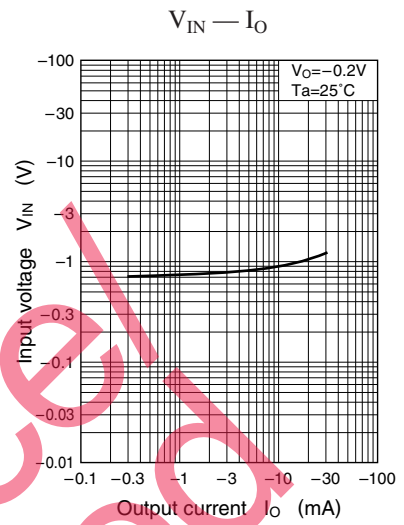
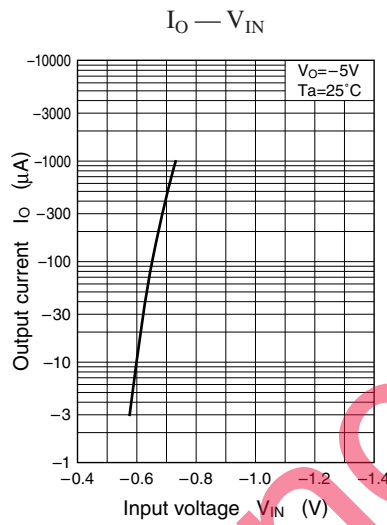
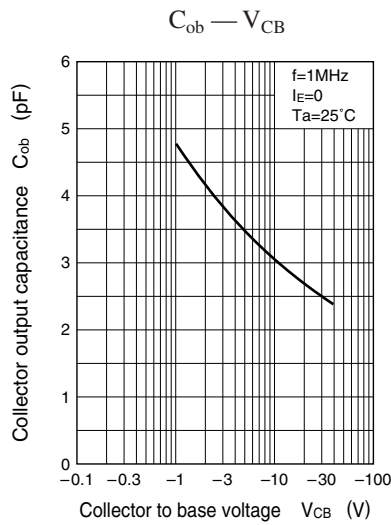


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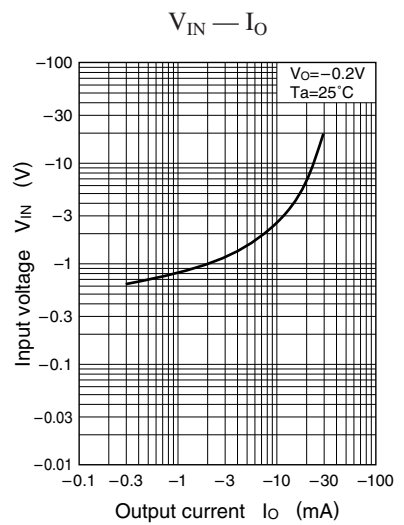
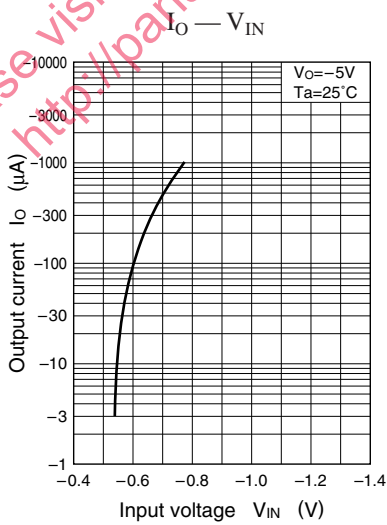
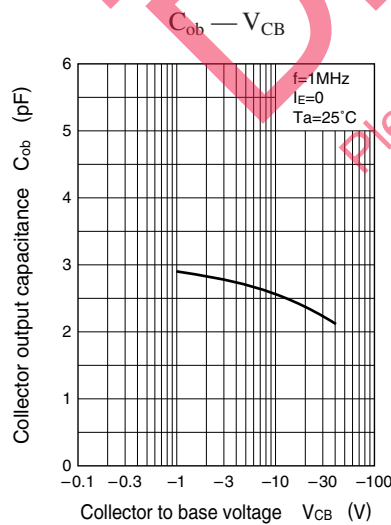
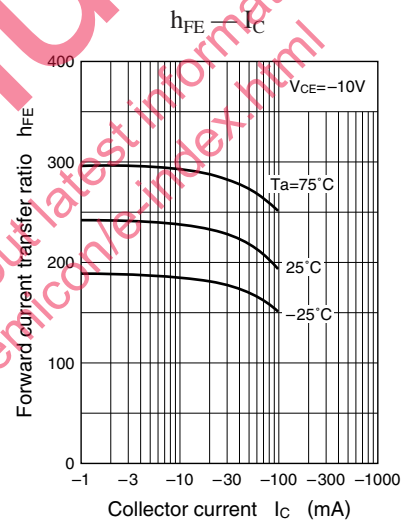
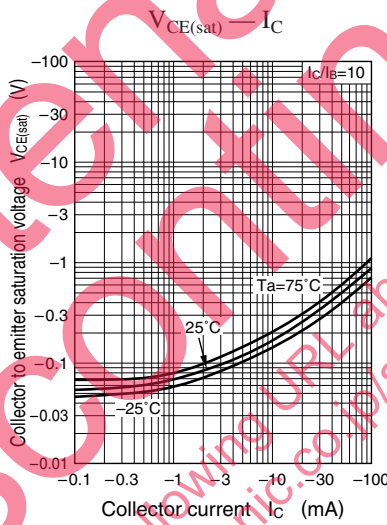
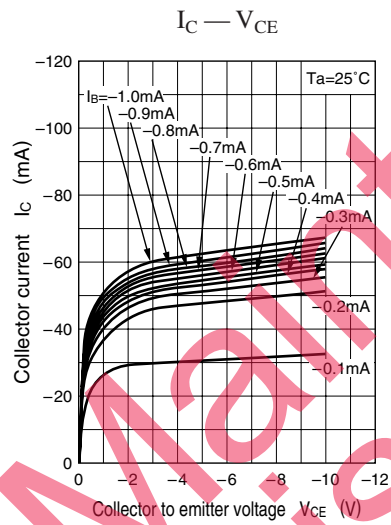


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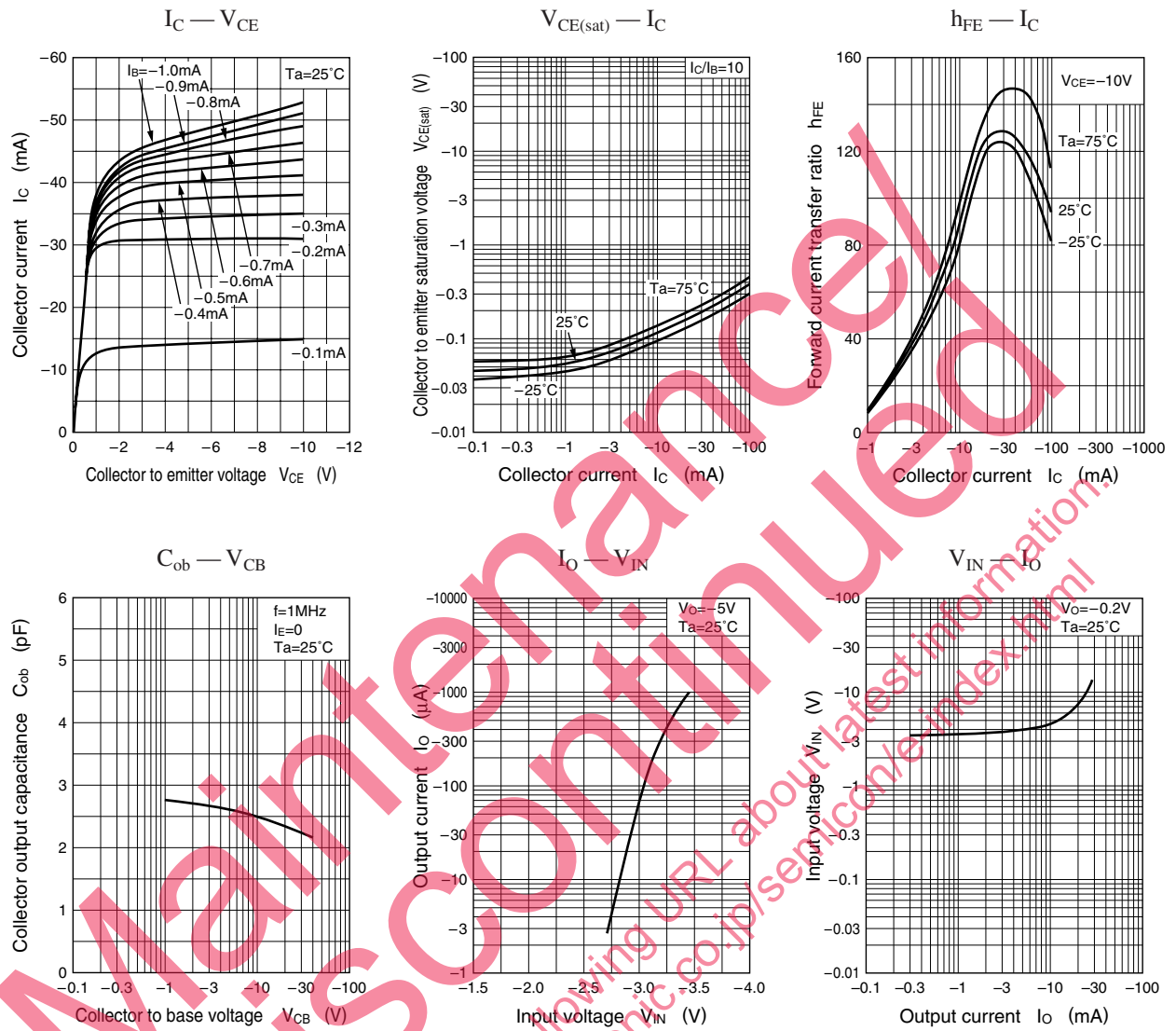




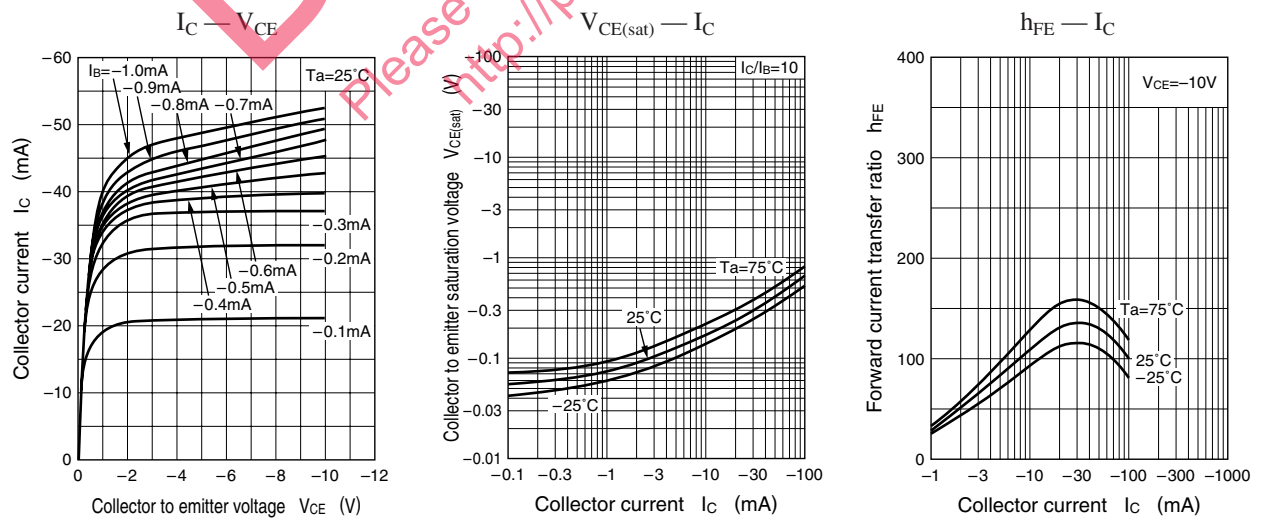
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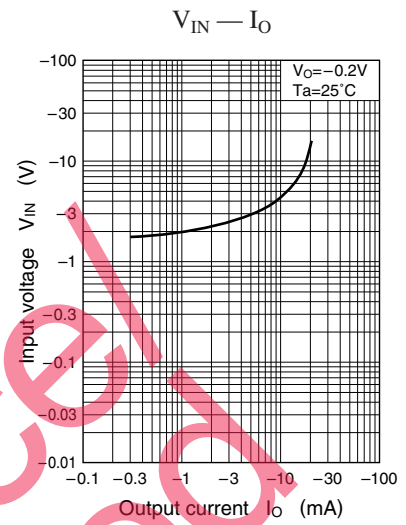
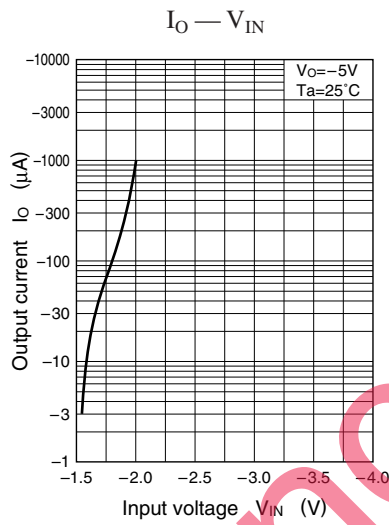
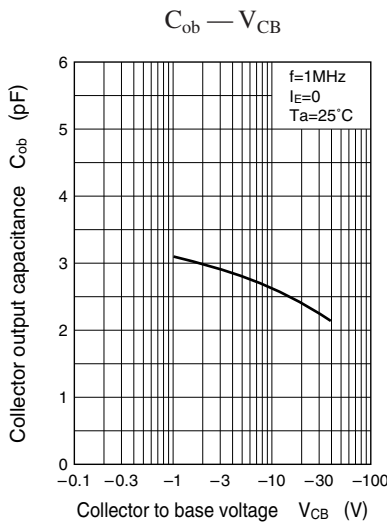


Characteristics charts of UNR911D

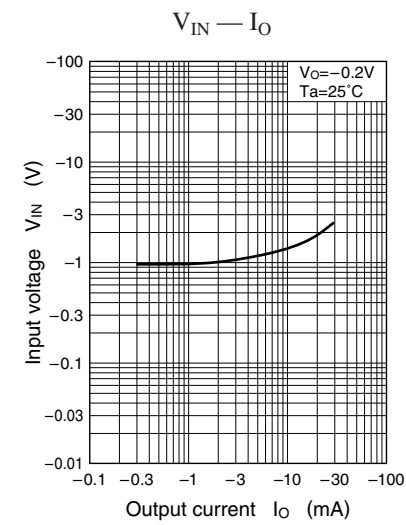
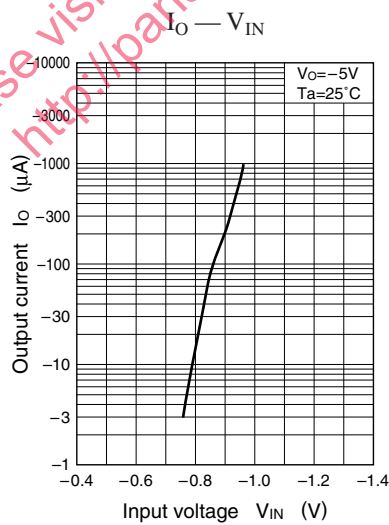
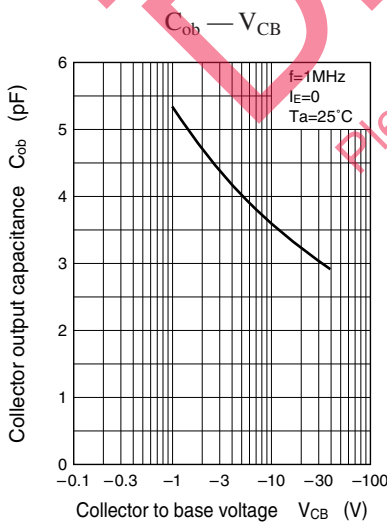
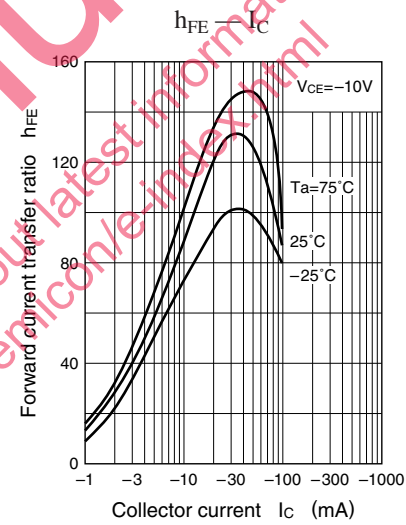
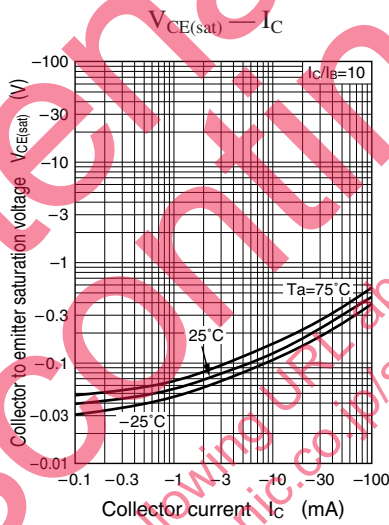
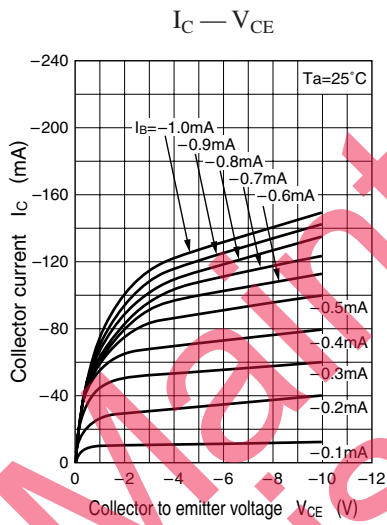


Characteristics charts of UNR911E

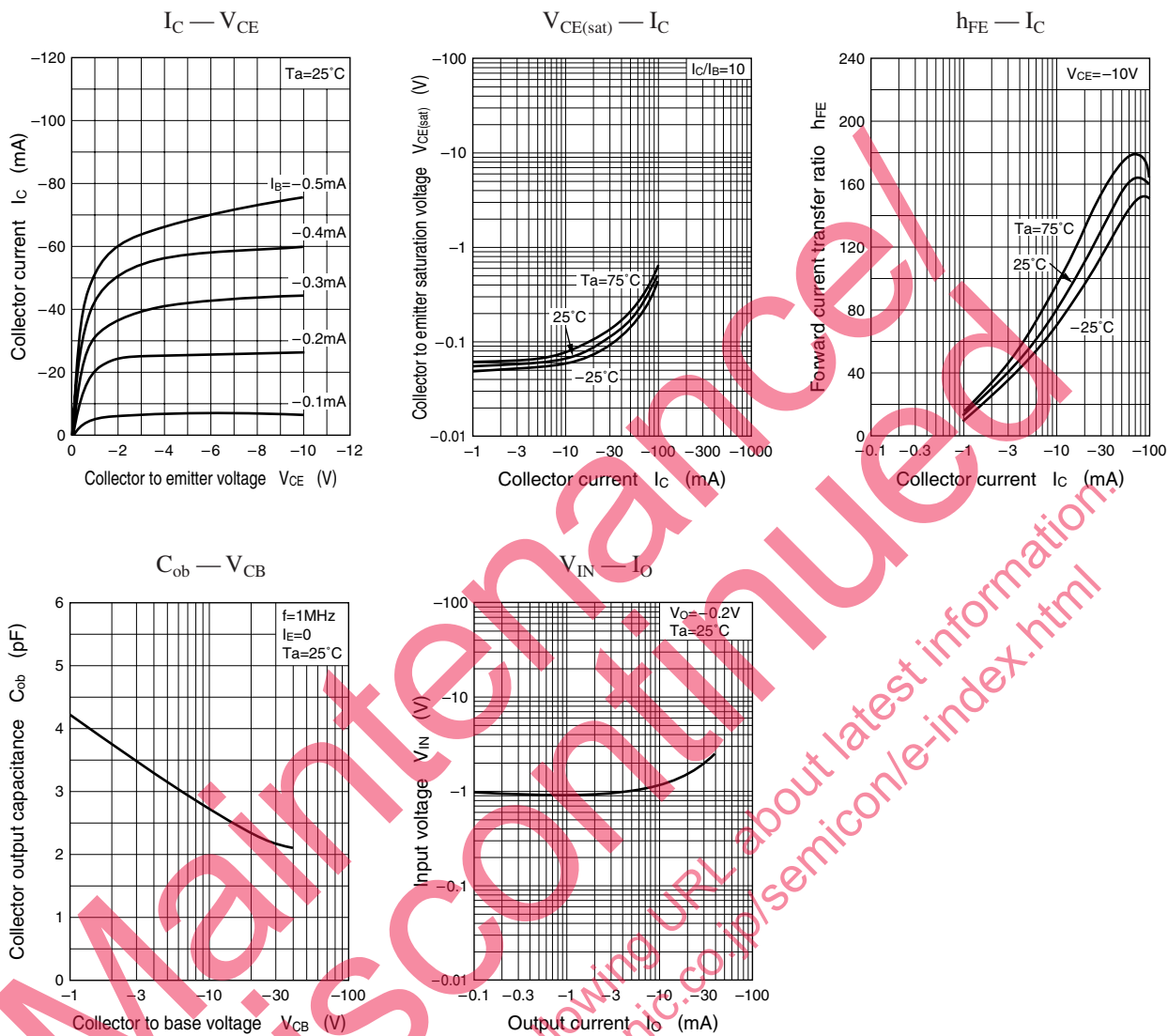




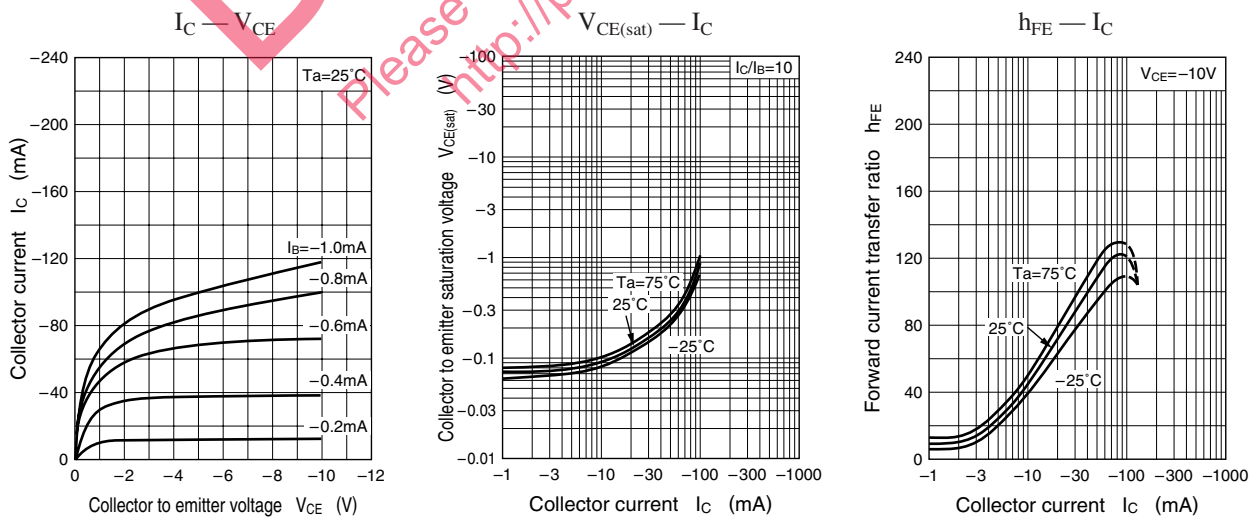
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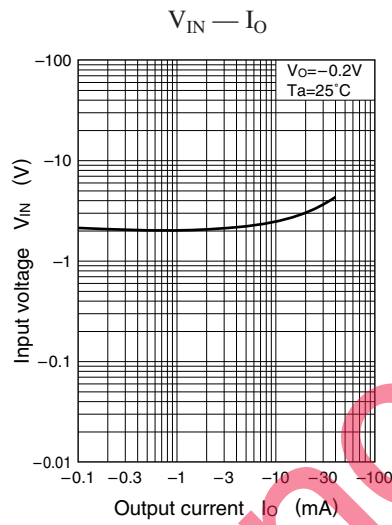
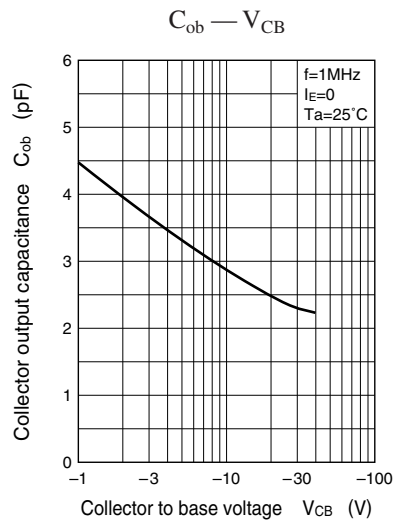


Characteristics charts of UNR911H



Characteristics charts of UNR911L





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