

# 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

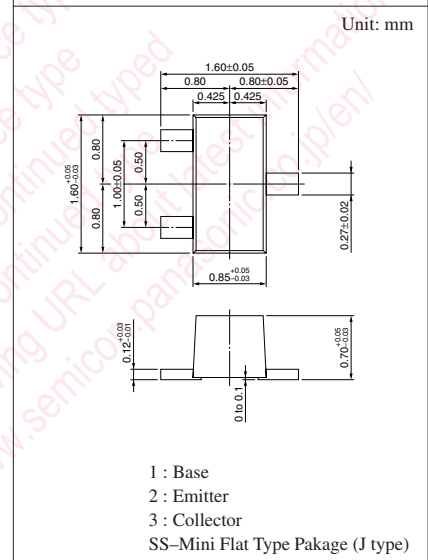
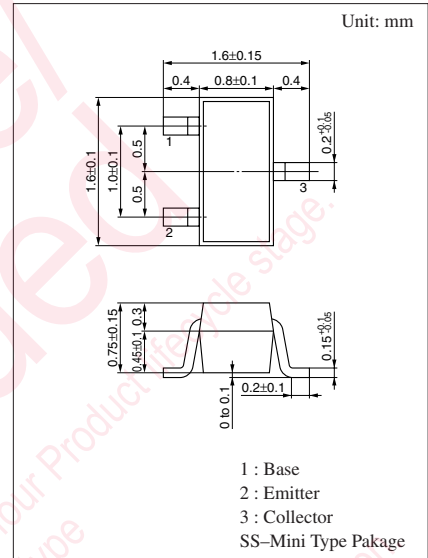
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SS-Mini type package, allowing automatic insertion through tape packing and magazine packing.

## Resistance by Part Number

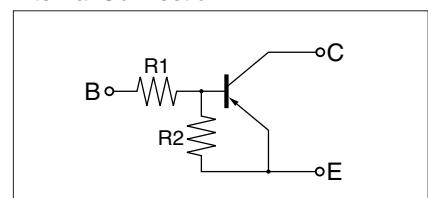
	Marking	Symbol	(R <sub>1</sub> )	(R <sub>2</sub> )
●	UNR9111	6A	10kΩ	10kΩ
●	UNR9112	6B	22kΩ	22kΩ
●	UNR9113	6C	47kΩ	47kΩ
●	UNR9114	6D	10kΩ	47kΩ
●	UNR9115	6E	10kΩ	—
●	UNR9116	6F	4.7kΩ	—
●	UNR9117	6H	22kΩ	—
●	UNR9118	6I	0.51kΩ	5.1kΩ
●	UNR9119	6K	1kΩ	10kΩ
●	UNR9110	6L	47kΩ	—
●	UNR911D	6M	47kΩ	10kΩ
●	UNR911E	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 (T<sub>a</sub>=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V <sub>CBO</sub>	-50	V
Collector to emitter voltage	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** ( $T_a=25^\circ\text{C}$ )

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		$I_{CBO}$	$V_{CB} = -50\text{V}, I_E = 0$			-0.1	$\mu\text{A}$
		$I_{CEO}$	$V_{CE} = -50\text{V}, I_B = 0$			-0.5	$\mu\text{A}$
Emitter cutoff current	UNR9111	$I_{EBO}$	$V_{EB} = -6\text{V}, I_C = 0$			-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		$V_{CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-50			V
Collector to emitter voltage		$V_{CEO}$	$I_C = -2\text{mA}, I_B = 0$	-50			V
Forward current transfer ratio	UNR9111	$h_{FE}$	$V_{CE} = -10\text{V}, I_C = -5\text{mA}$	35			V
	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		$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.3\text{mA}$			-0.25	V
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		$V_{OL}$	$V_{CC} = -5\text{V}, V_B = -10\text{V}, R_L = 1\text{k}\Omega$	$V_{CC} = -5\text{V}, V_B = -2.5\text{V}, R_L = 1\text{k}\Omega$		-0.2	V
				$V_{CC} = -5\text{V}, V_B = -3.5\text{V}, R_L = 1\text{k}\Omega$		-0.2	
				$V_{CC} = -5\text{V}, V_B = -6\text{V}, R_L = 1\text{k}\Omega$		-0.2	
				$V_{CC} = -5\text{V}, V_B = -5.0\text{V}, R_L = 1\text{k}\Omega$		-0.2	
				UNR9113/UNR911BJ		-0.2	
				UNR911D		-0.2	
Transition frequency		$f_T$	$V_{CB} = -10\text{V}, I_E = 2\text{mA}, f = 200\text{MHz}$		150		MHz
				UNR911AJ		80	
Input resistance	UNR9111/9114/9115	$R_i$			10		k $\Omega$
	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)

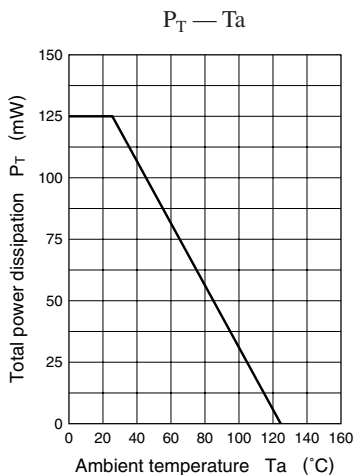
Rank	Q	R	S
$h_{FE}$	160 to 260	210 to 340	290 to 460

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

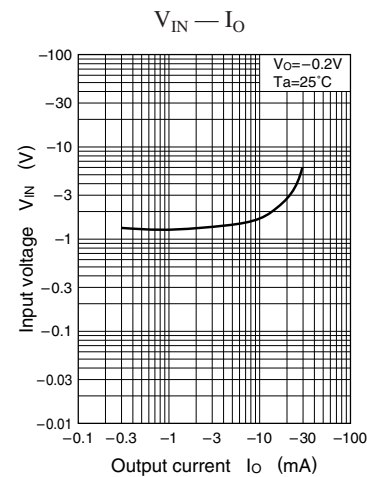
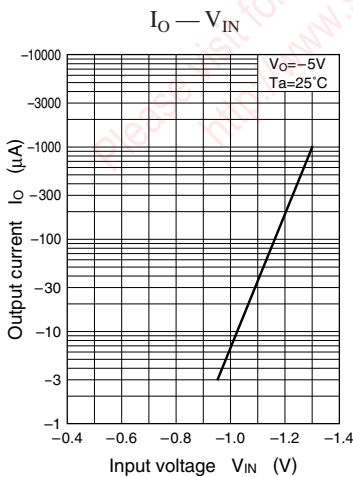
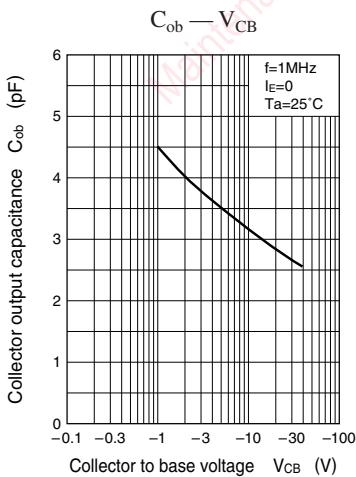
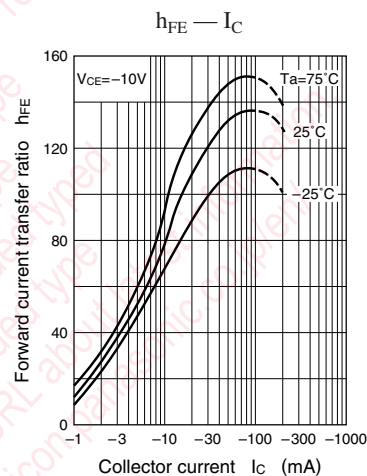
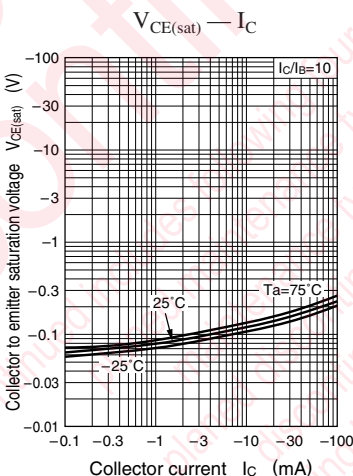
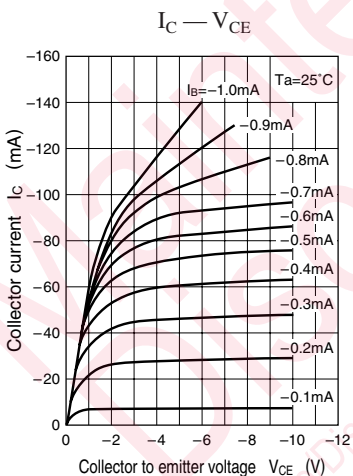
Parameter		Symbol	Conditions	min	typ	max	Unit
Resis- tance ratio	UNR9111/9112/9113/911L	R <sub>1</sub> /R <sub>2</sub>		0.8	1.0	1.2	
	UNR9114			0.17	0.21	0.25	
	UNR9118/9119			0.08	0.1	0.12	
	UNR911D				4.7		
	UNR911E				2.14		
	UNR911F				0.47		
	UNR911H			0.17	0.22	0.27	
	UNR911AJ				1.0		
Resistance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

Maintenance/Discontinued includes following four Product lifecycle stages:  
 Discontinued type  
 planned maintenance type  
 maintenance type  
 planned discontinued type  
 discontinued type  
 Please visit following URL about latest information.  
<http://www.semicon.panasonic.co.jp/en/>

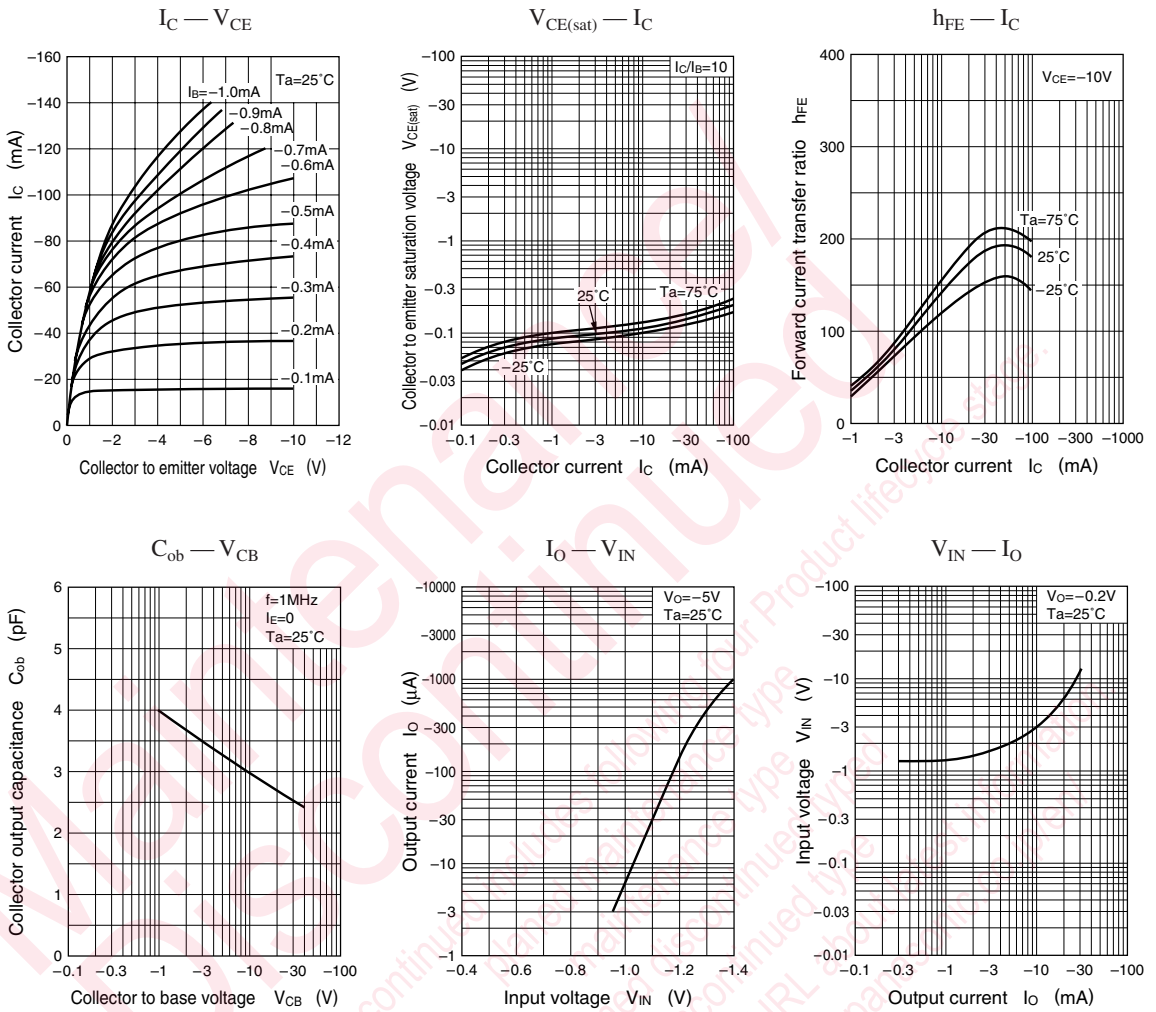
Common characteristics chart



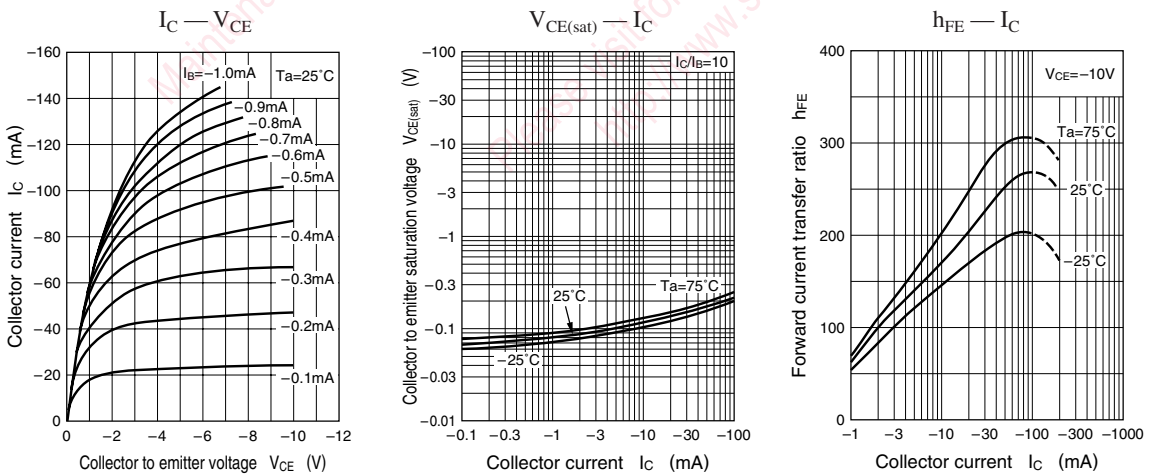
Characteristics charts of UNR9111

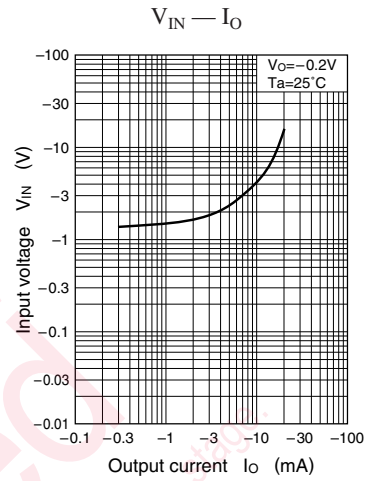
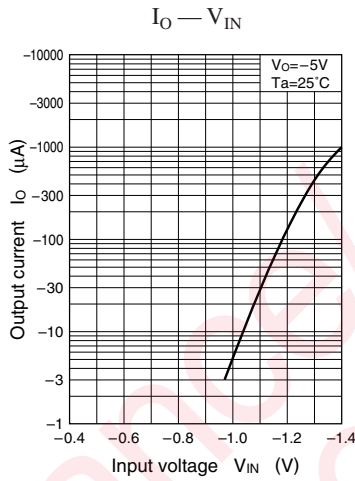
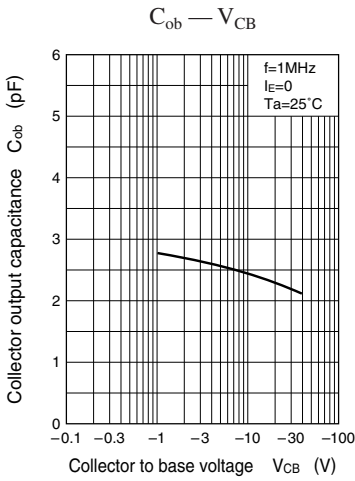


Characteristics charts of UNR9112

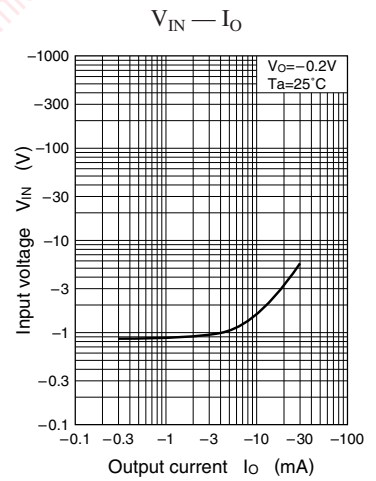
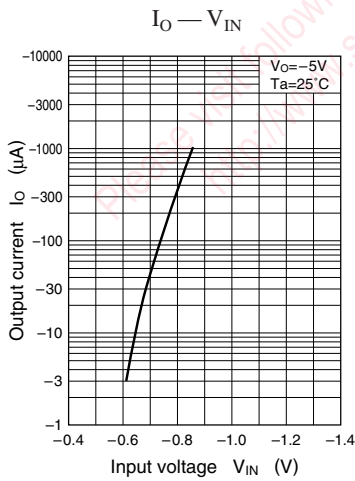
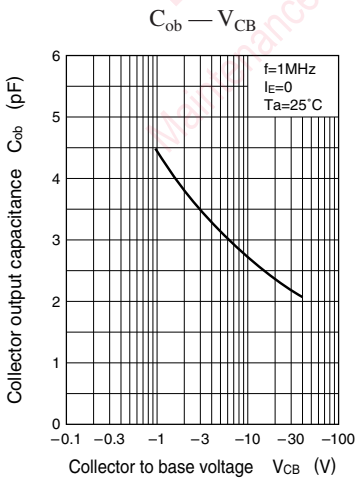
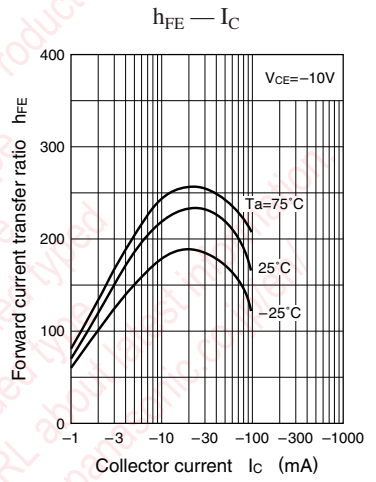
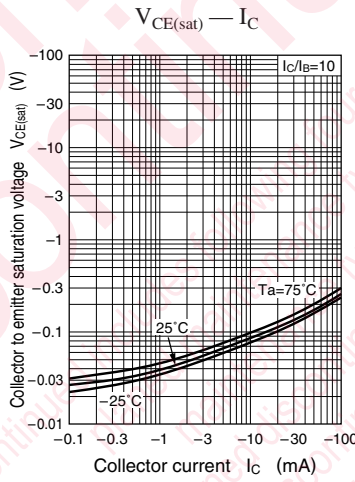
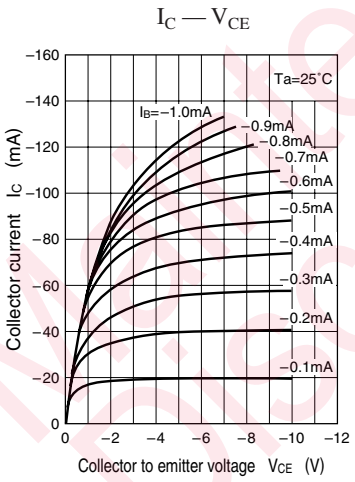


Characteristics charts of UNR9113

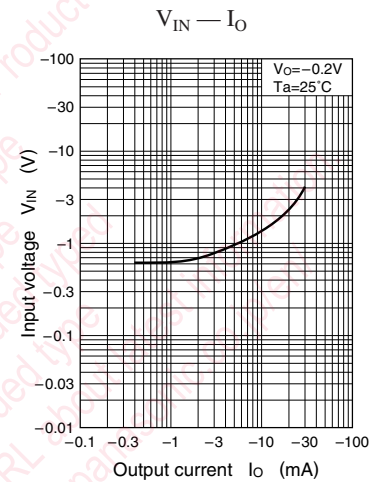
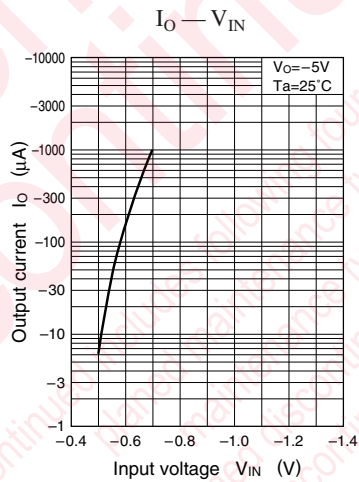
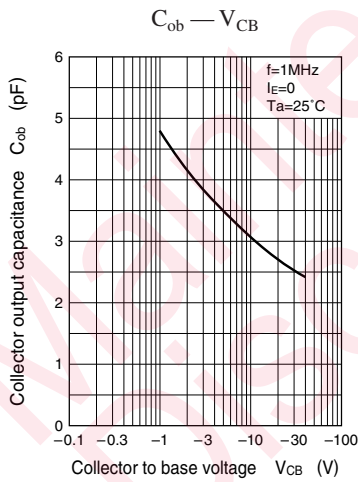
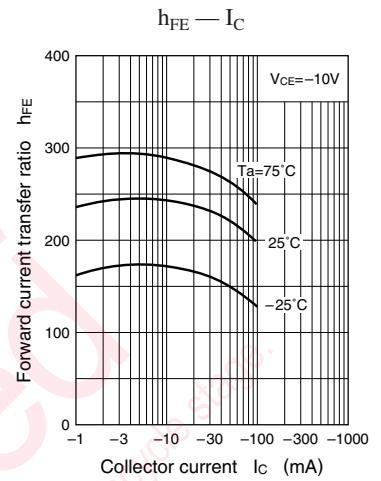
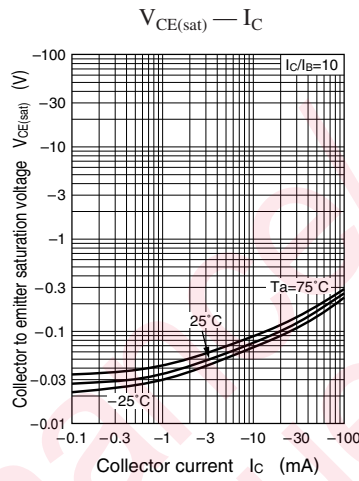
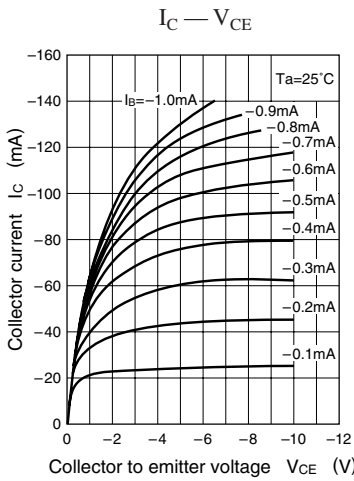




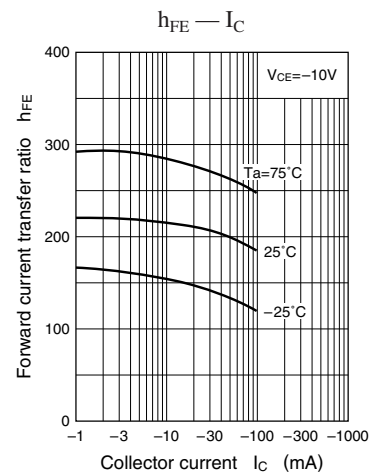
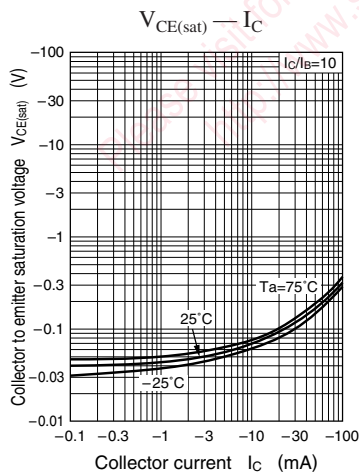
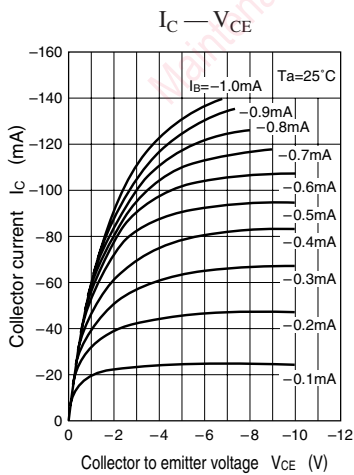
Characteristics charts of UNR9114

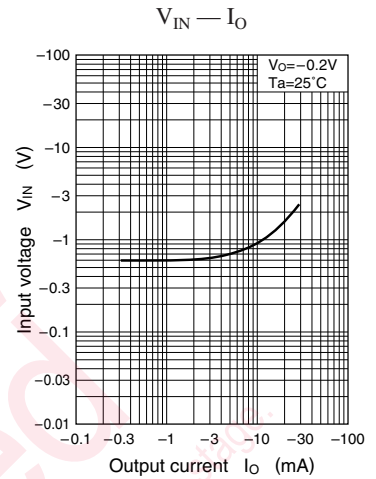
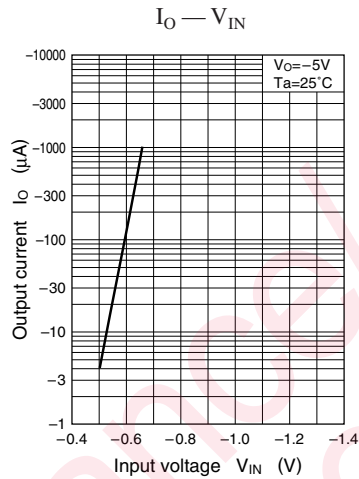
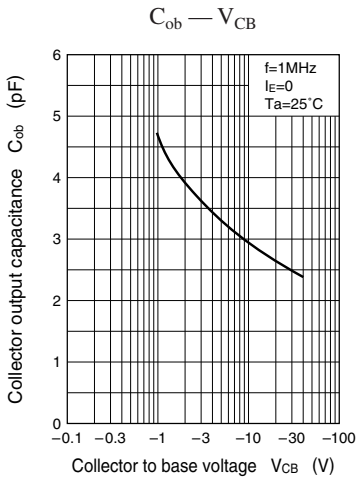


Characteristics charts of UNR9115

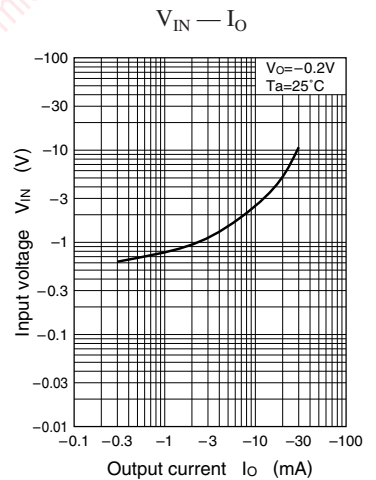
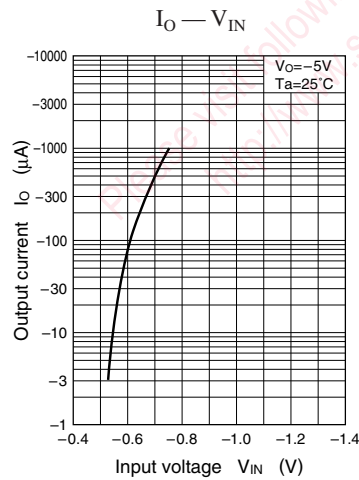
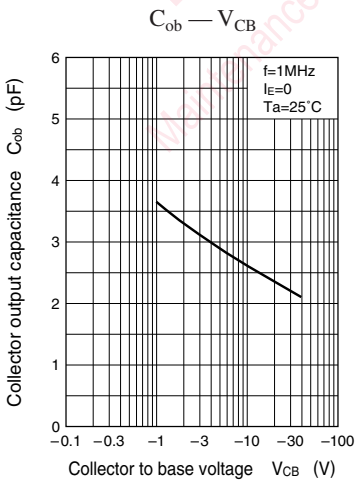
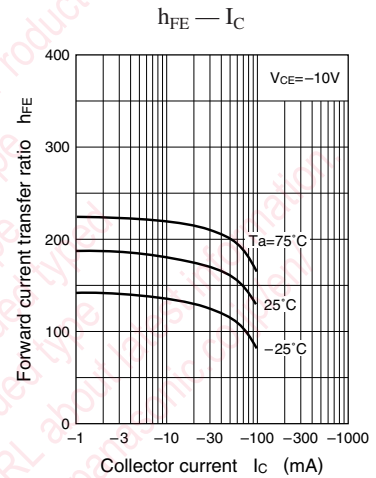
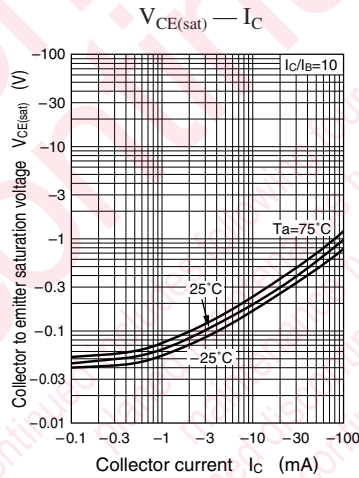
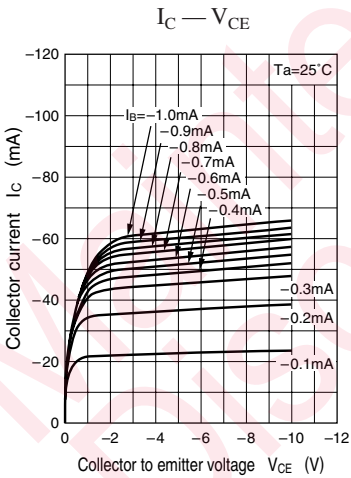


Characteristics charts of UNR9116



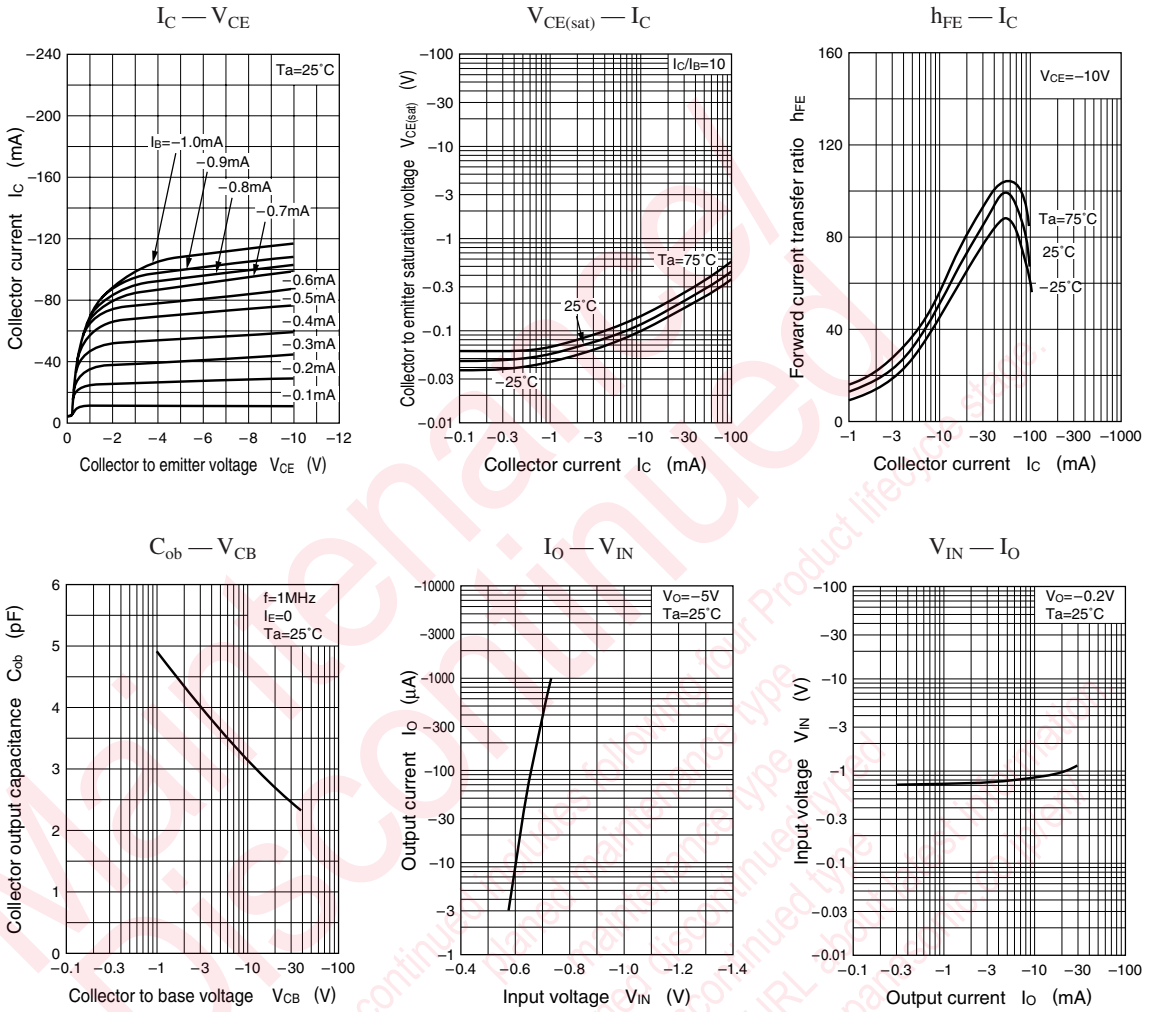


Characteristics charts of UNR9117

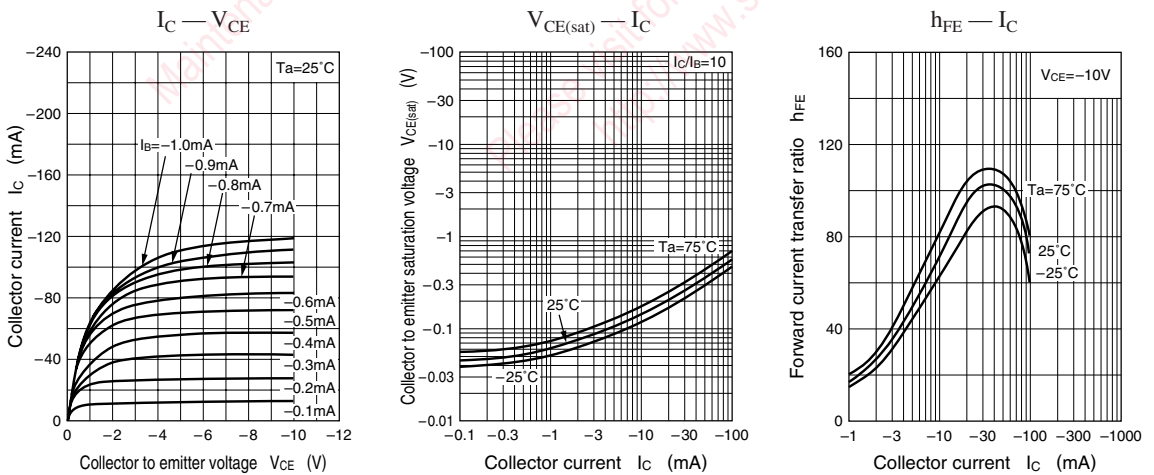


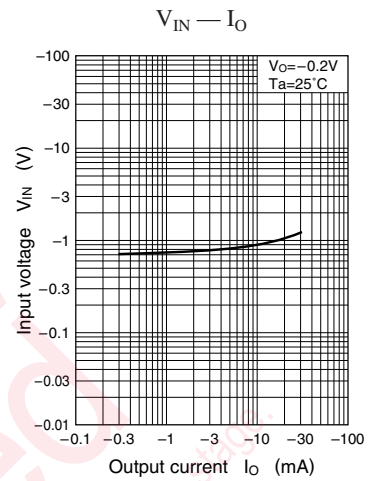
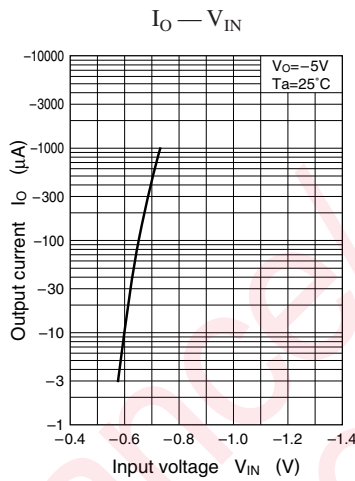
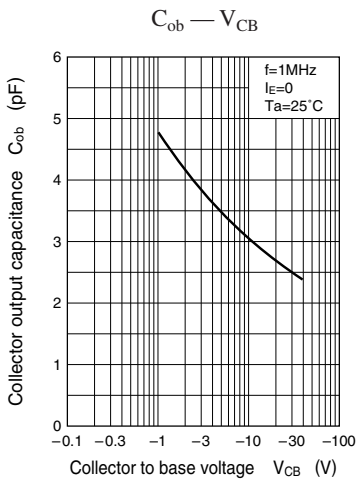


Characteristics charts of UNR9118

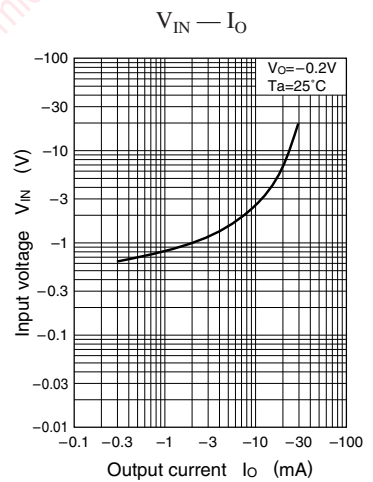
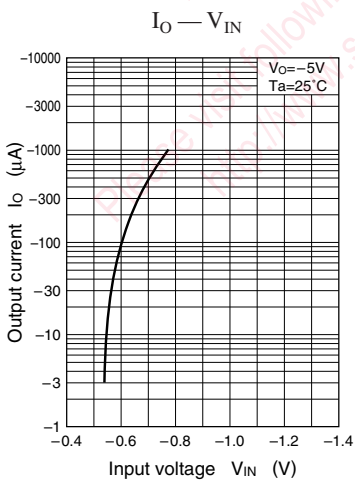
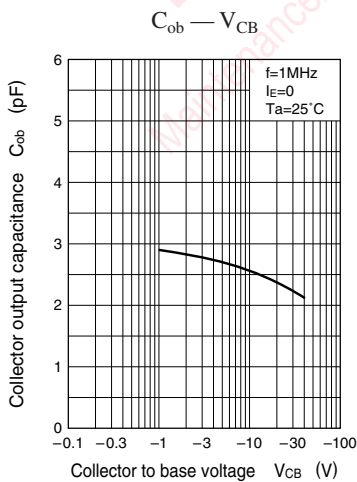
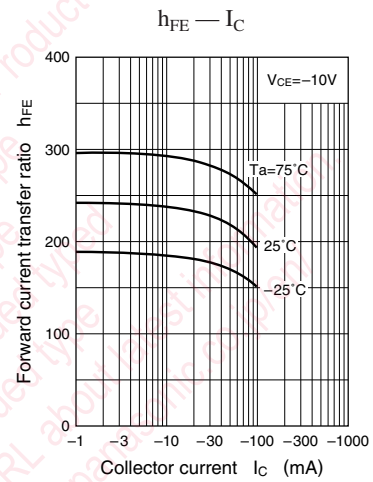
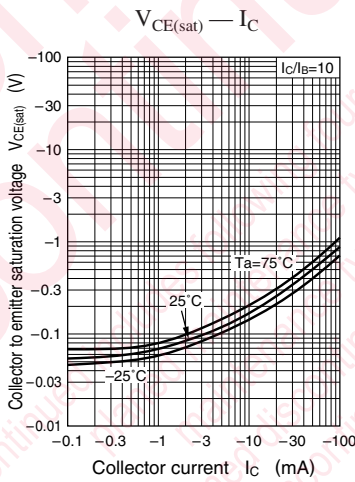
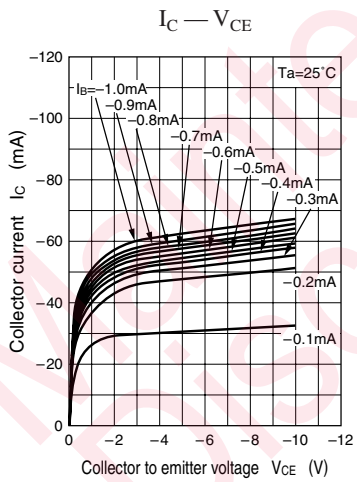


Characteristics charts of UNR9119

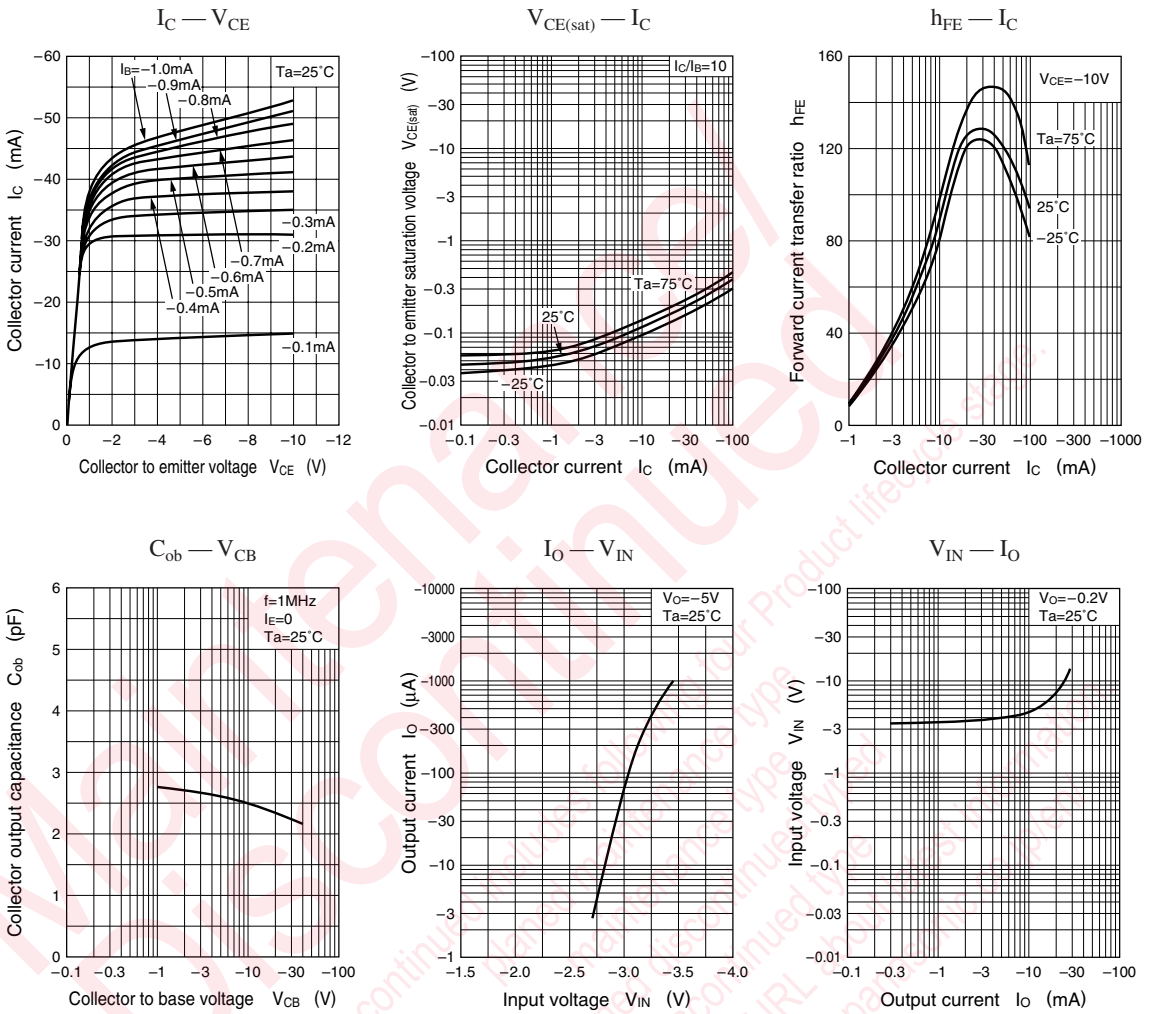




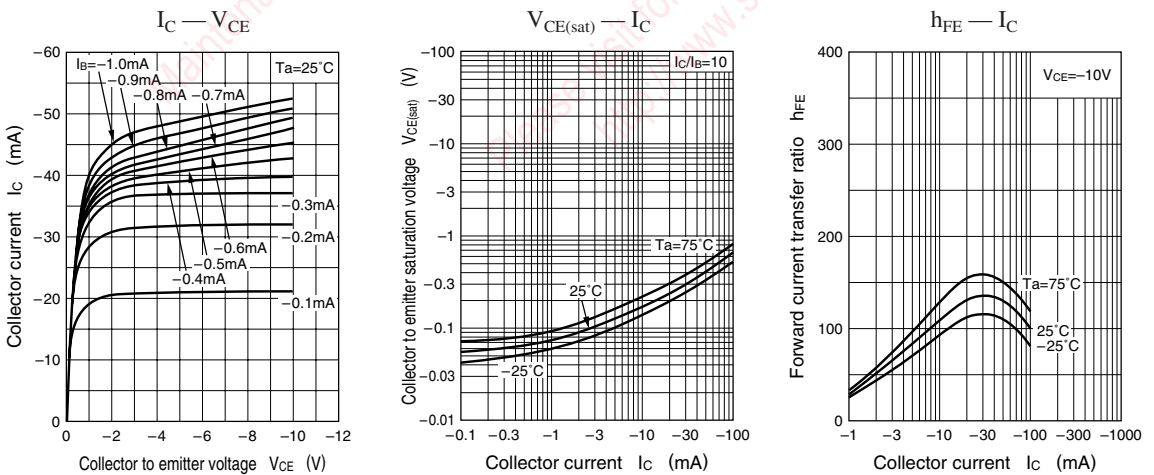
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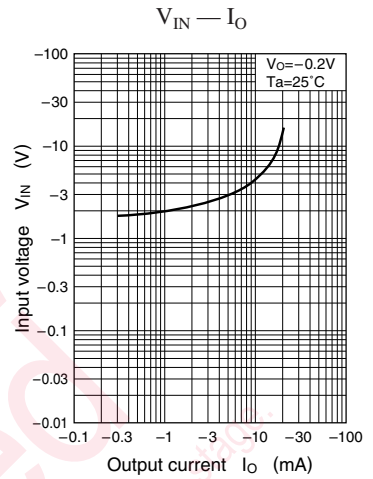
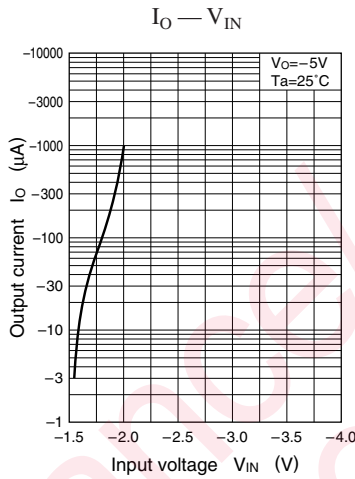
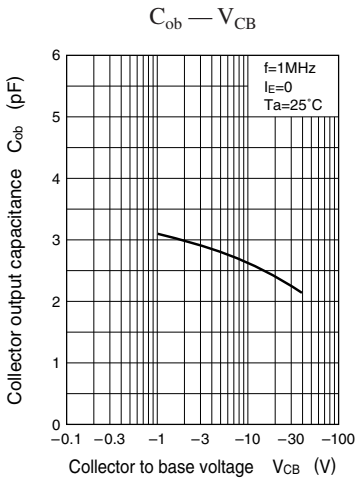


Characteristics charts of UNR911D

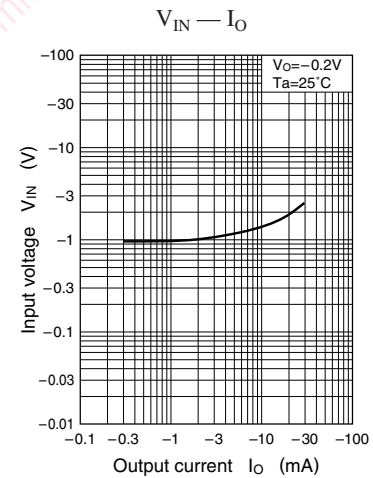
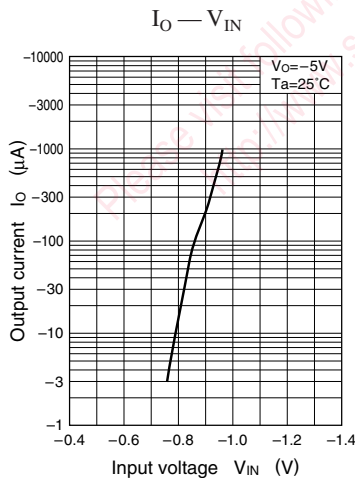
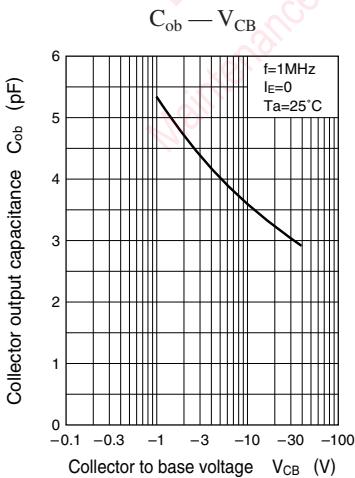
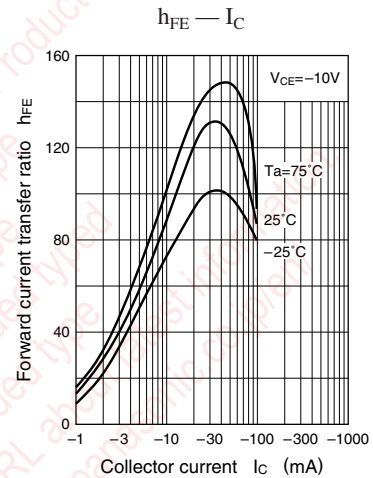
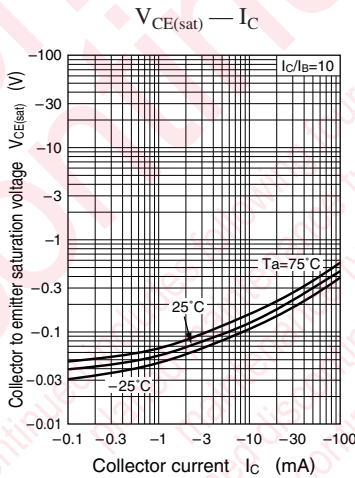
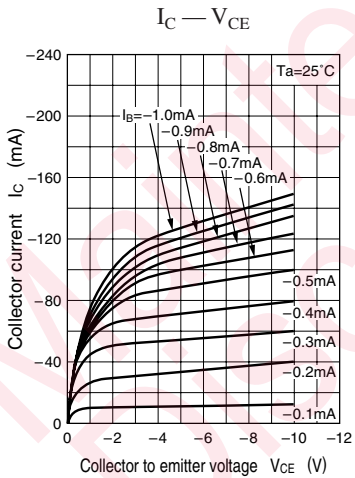


Characteristics charts of UNR911E

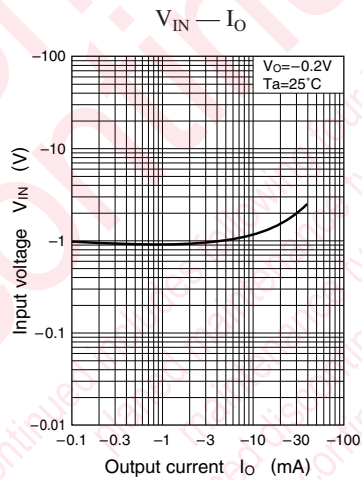
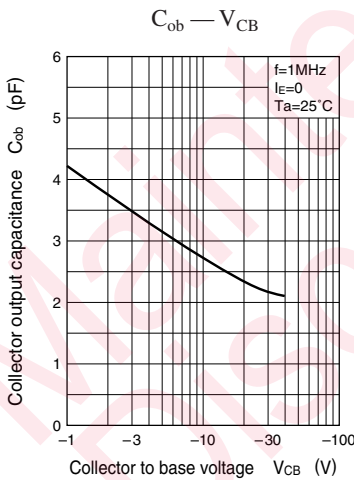
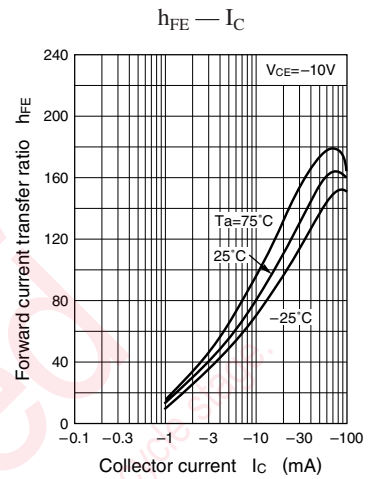
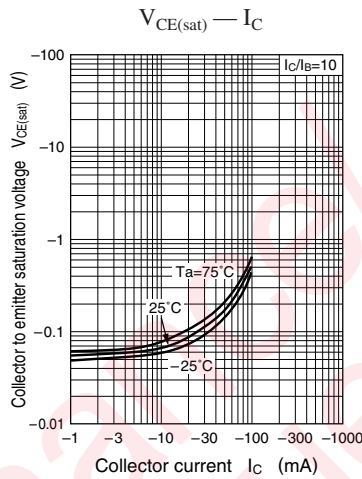
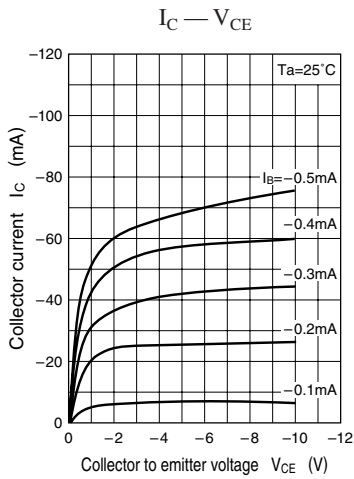




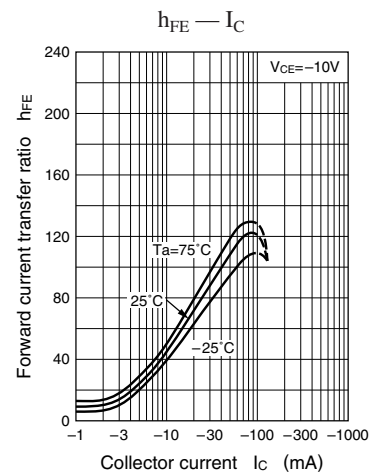
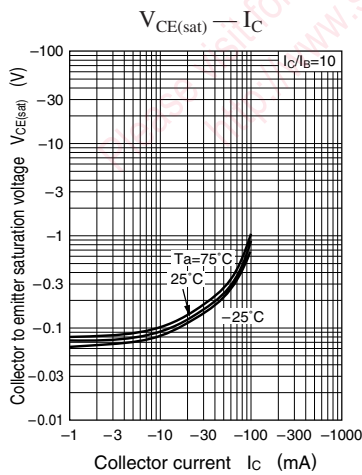
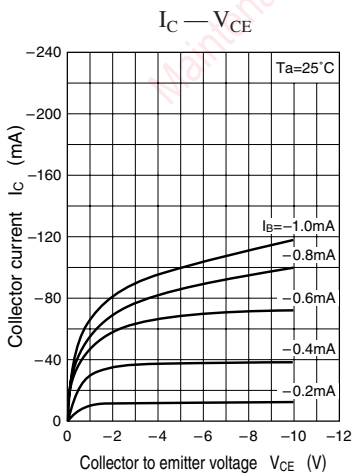
Characteristics charts of UNR911F

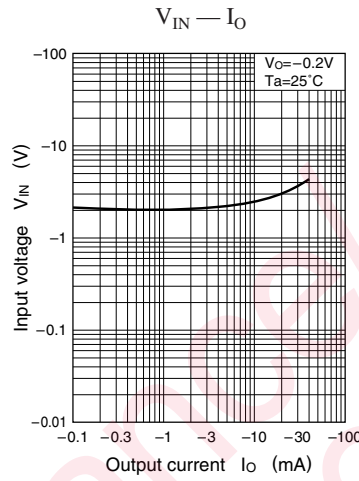
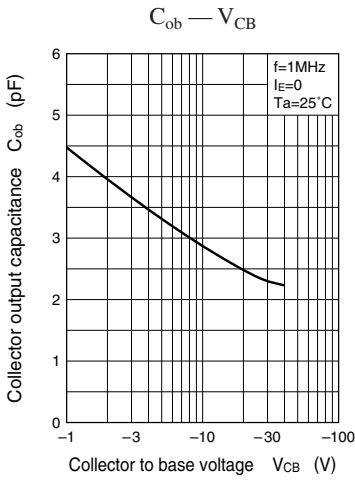


Characteristics charts of UNR911H



Characteristics charts of UNR911L





Maintenance/Discontinued

includes following four Product lifecycle stage.

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

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