

UNR511xG 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
- S-Mini type package, allowing automatic insertion through the tape/magazine packing

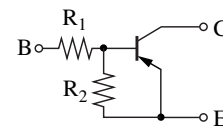
■ Resistance by Part Number

	Marking symbol	(R ₁)	(R ₂)
• UNR5110G	6L	47 kΩ	—
• UNR5111G	6A	10 kΩ	10 kΩ
• UNR5112G	6B	22 kΩ	22 kΩ
• UNR5113G	6C	47 kΩ	47 kΩ
• UNR5114G	6D	10 kΩ	47 kΩ
• UNR5115G	6E	10 kΩ	—
• UNR5116G	6F	4.7 kΩ	—
• UNR5117G	6H	22 kΩ	—
• UNR5118G	6I	0.51 kΩ	5.1 kΩ
• UNR5119G	6K	1 kΩ	10 kΩ
• UNR511DG	6M	47 kΩ	10 kΩ
• UNR511EG	6N	47 kΩ	22 kΩ
• UNR511FG	6O	4.7 kΩ	10 kΩ
• UNR511HG	6P	2.2 kΩ	10 kΩ
• UNR511LG	6Q	4.7 kΩ	4.7 kΩ
• UNR511MG	EI	2.2 kΩ	47 kΩ
• UNR511NG	EW	4.7 kΩ	47 kΩ
• UNR511TG	EY	22 kΩ	47 kΩ
• UNR511VG	FC	2.2 kΩ	2.2 kΩ
• UNR511ZG	FE	4.7 kΩ	22 kΩ

■ Package

- Code
SMini3-F2
- Pin Name
1: Base
2: Emitter
3: Collector

■ Internal Connection



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

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	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

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

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)		V_{CBO}	$I_C = -10 \mu\text{A}, I_E = 0$	-50			V
Collector-emitter voltage (Base open)		V_{CEO}	$I_C = -2 \text{mA}, I_B = 0$	-50			V
Collector-base cutoff current (Emitter open)		I_{CBO}	$V_{CB} = -50 \text{V}, I_E = 0$			-0.1	μA
Collector-emitter cutoff current (Base open)		I_{CEO}	$V_{CE} = -50 \text{V}, I_B = 0$			-0.5	μA
Emitter-base cutoff current (Collector open)	UNR5110G/5115G/5116G/5117G	I_{EBO}	$V_{EB} = -6 \text{V}, I_C = 0$			-0.01	mA
	UNR5113G					-0.1	
	UNR5112G/5114G/511DG/ 511EG/511MG/511NG/511TG					-0.2	
	UNR511ZG					-0.4	
	UNR5111G					-0.5	
	UNR511FG/511HG					-1.0	
	UNR5119G					-1.5	
	UNR5118G/511LG/511VG					-2.0	
Forward current transfer ratio	UNR511VG	h_{FE}	$V_{CE} = -10 \text{V}, I_C = -5 \text{mA}$	6		20	—
	UNR5118G/511LG			20			
	UNR5119G/511DG/511FG/511HG			30			
	UNR5111G			35			
	UNR5112/511EG			60			
	UNR511ZG			60	200		
	UNR5113/5114/511MG			80			
	UNR511N/511TG			80	400		
	UNR5110G */5115G */ 5116G */5117G *			160		460	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -10 \text{mA}, I_B = -0.3 \text{mA}$			-0.25	V
	UNR511VG					$I_C = -10 \text{mA}, I_B = -1.5 \text{mA}$	
Output voltage high-level		V_{OH}	$V_{CC} = -5 \text{V}, V_B = -0.5 \text{V}, R_L = 1 \text{k}\Omega$	-4.9			V
Output voltage low-level		V_{OL}	$V_{CC} = -5 \text{V}, V_B = -2.5 \text{V}, R_L = 1 \text{k}\Omega$			-0.2	V
	UNR5113G				$V_{CC} = -5 \text{V}, V_B = -3.5 \text{V}, R_L = 1 \text{k}\Omega$		
	UNR511DG				$V_{CC} = -5 \text{V}, V_B = -10 \text{V}, R_L = 1 \text{k}\Omega$		
	UNR511EG				$V_{CC} = -5 \text{V}, V_B = -6 \text{V}, R_L = 1 \text{k}\Omega$		
Transition frequency		f_T	$V_{CB} = -10 \text{V}, I_E = 1 \text{mA}, f = 200 \text{MHz}$		80		MHz
Input resistance	UNR5118G	R_1		-30%	0.51	+30%	k Ω
	UNR5119G				1.0		
	UNR511HG/511MG/511VG				2.2		
	UNR5116G/511FG/511LG 511NG/511ZG				4.7		
	UNR5111G/5114G/5115G				10		
	UNR5112G/5117G/511TG				22		
	UNR5110G/5113G/511DG/511EG				47		
Resistance ratio	UNR511MG	R_1/R_2			0.047		—
	UNR511NG				0.1		
	UNR5118G/5119G			0.08	0.10	0.12	
	UNR511ZG				0.21		

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

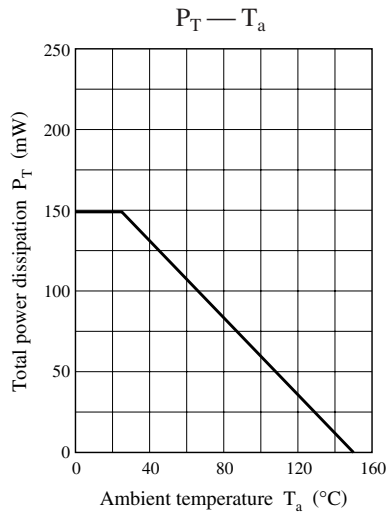
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Resistance ratio	UNR5114G			0.17	0.21	0.25	
	UNR511HG			0.17	0.22	0.27	
	UNR511TG				0.47		
	UNR511FG			0.37	0.47	0.57	
	UNR511VG				1.0		
	UNR511G/5112G/5113G/511LG			0.8	1.0	1.2	
	UNR511EG			1.70	2.14	2.60	
	UNR511DG			3.7	4.7	5.7	

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

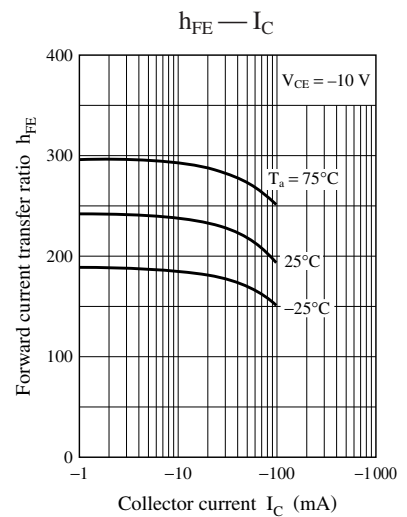
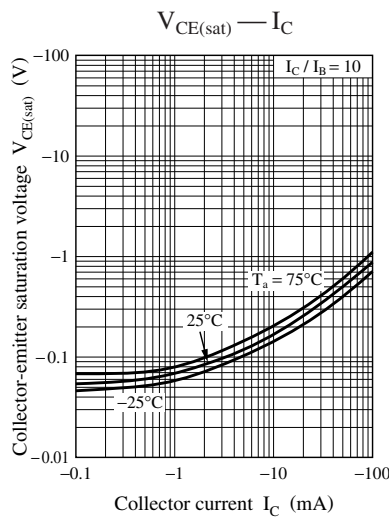
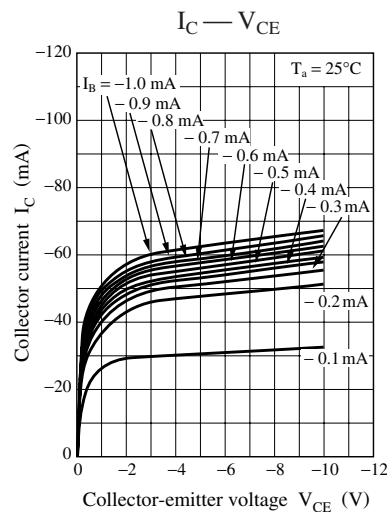
2. *: Rank classification

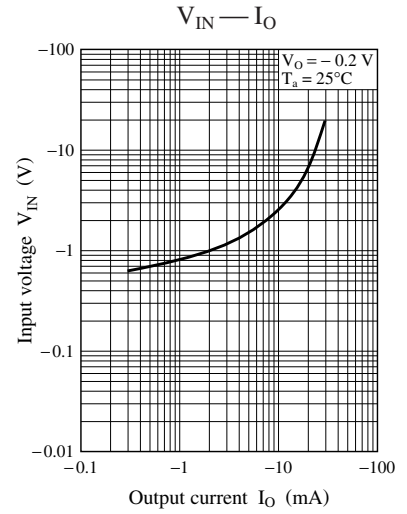
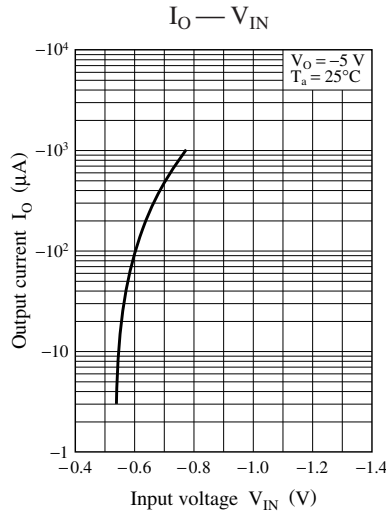
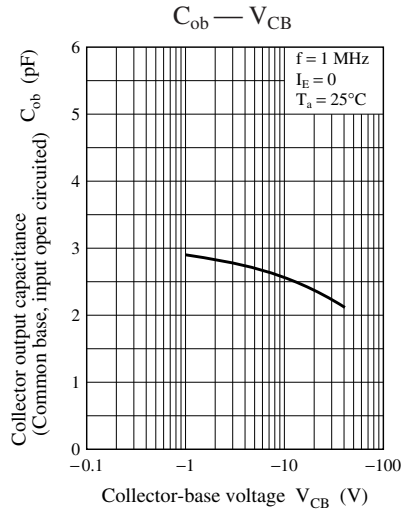
Rank	Q	R	S	No-rank
h_{FE}	160 to 260	210 to 340	290 to 460	160 to 460

Common characteristics chart

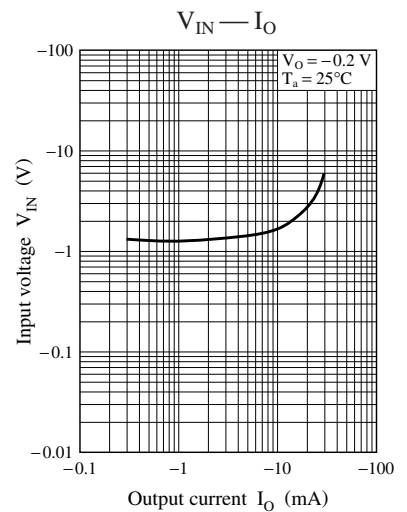
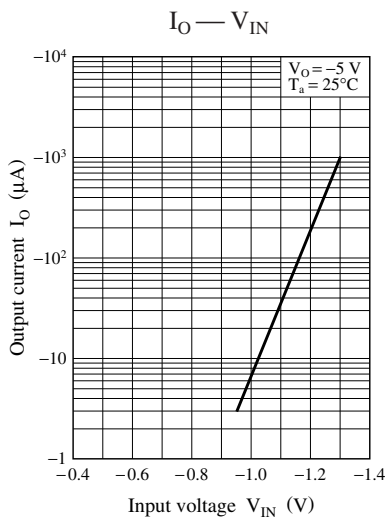
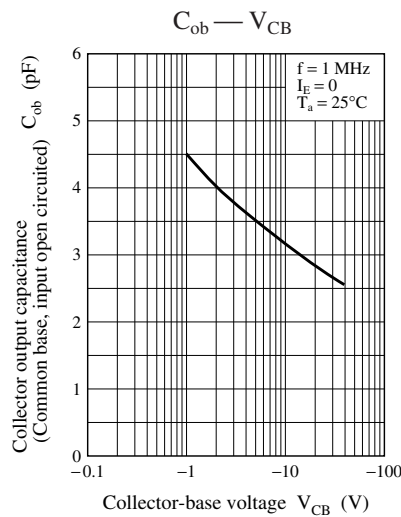
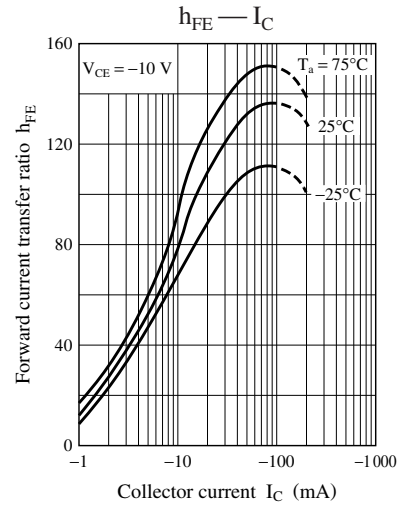
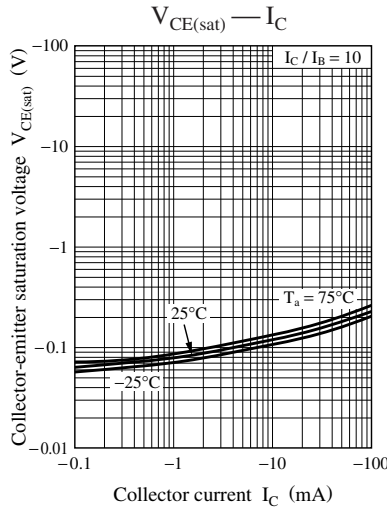
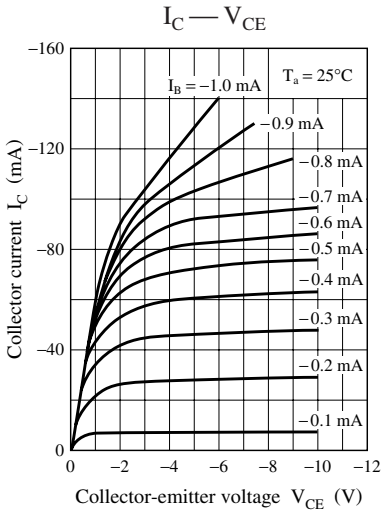


Characteristics charts of UNR5110G

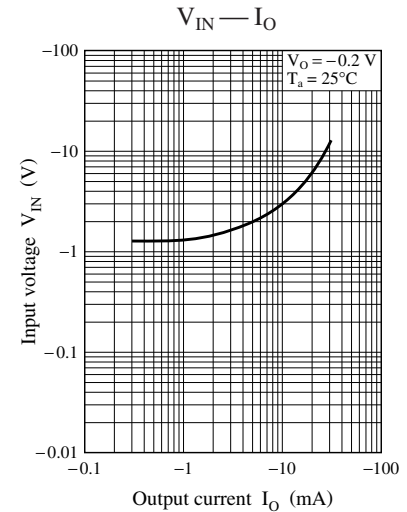
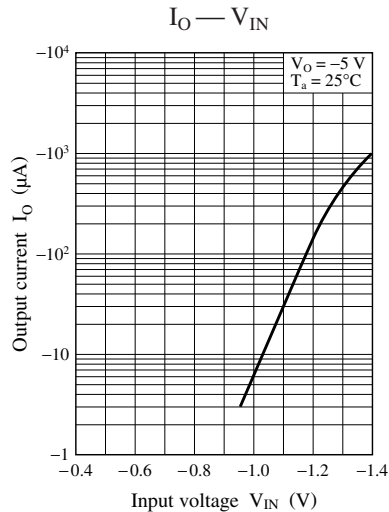
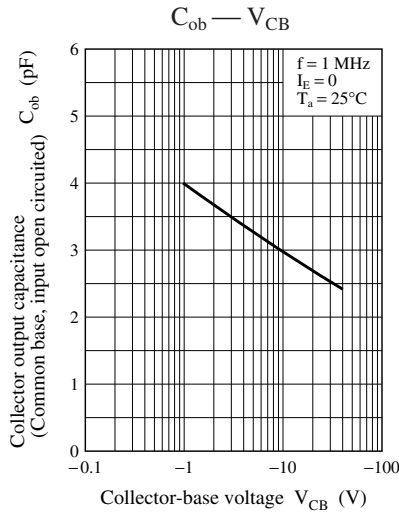
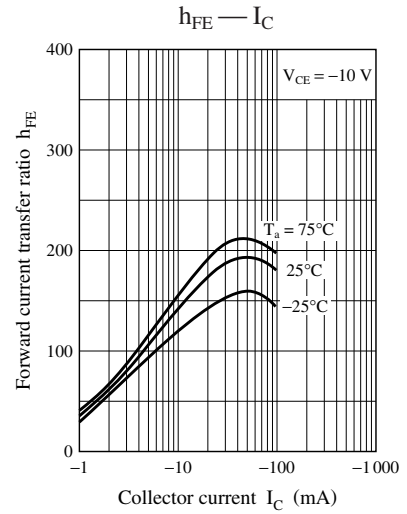
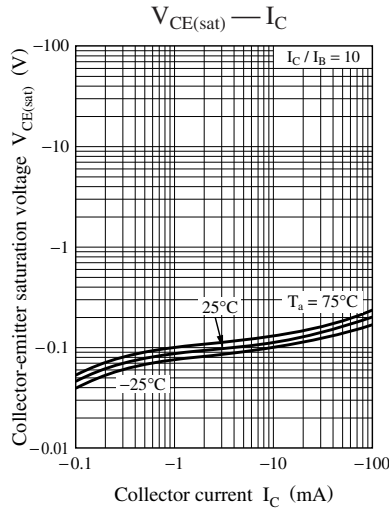
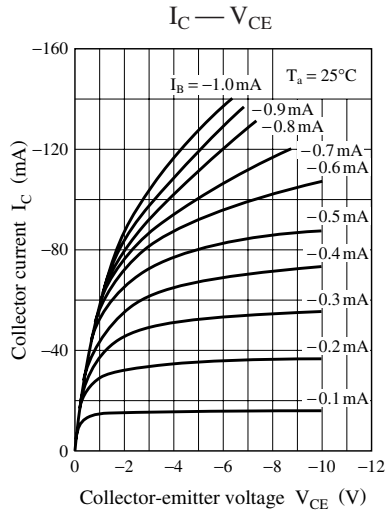




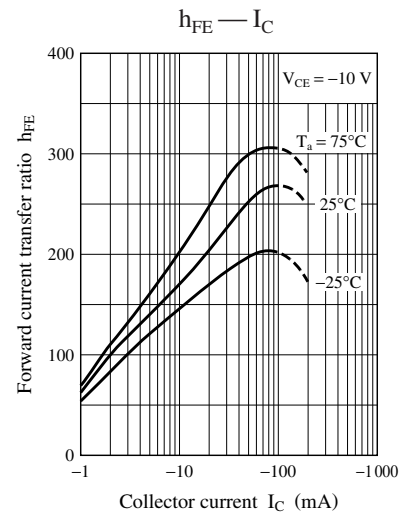
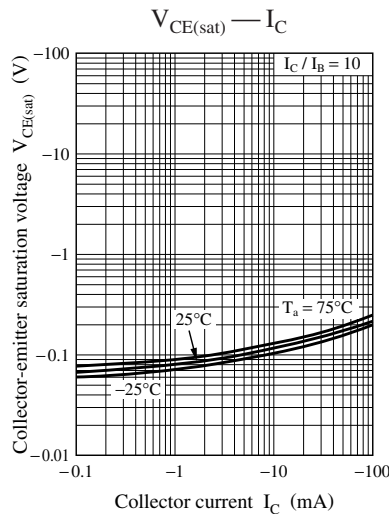
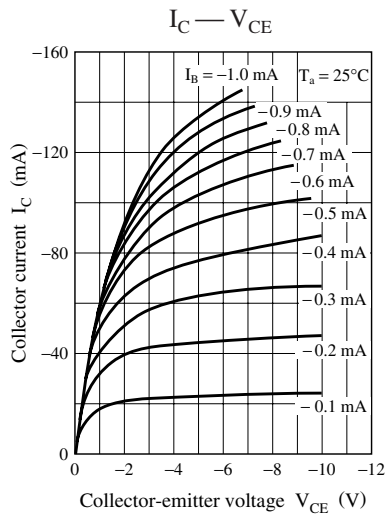
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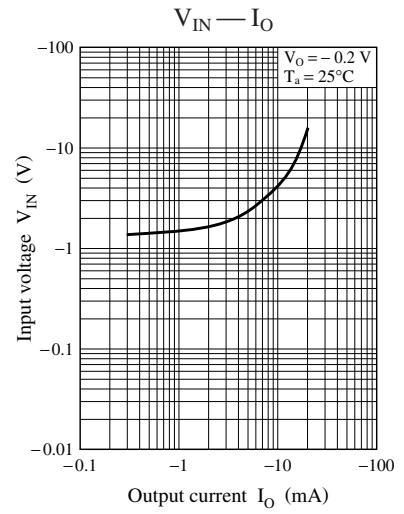
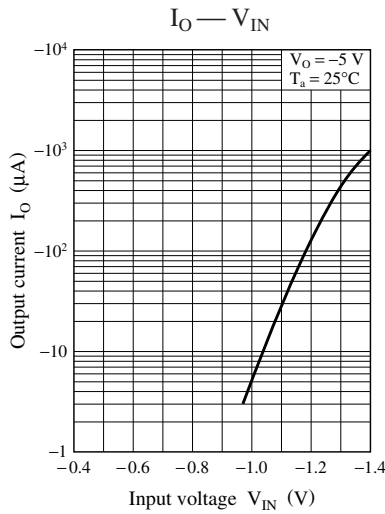
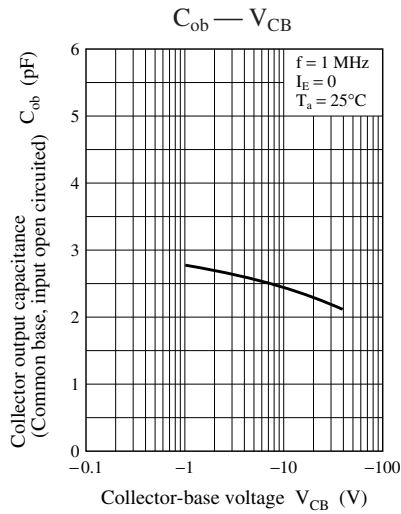


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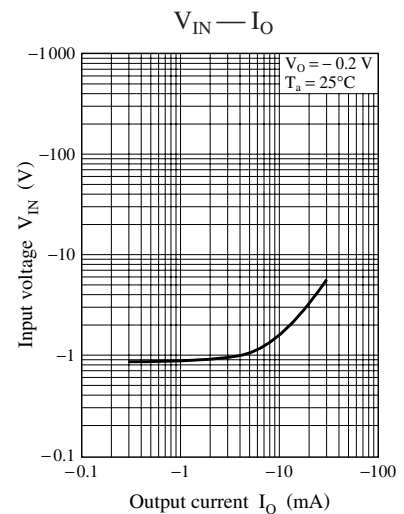
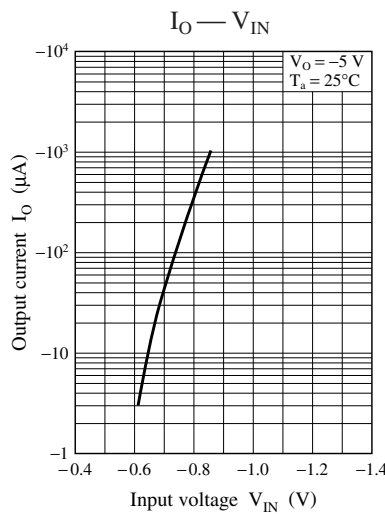
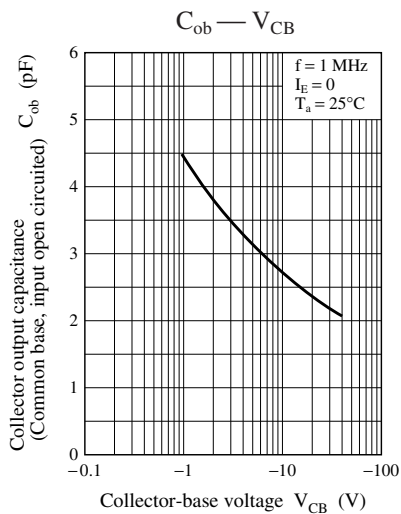
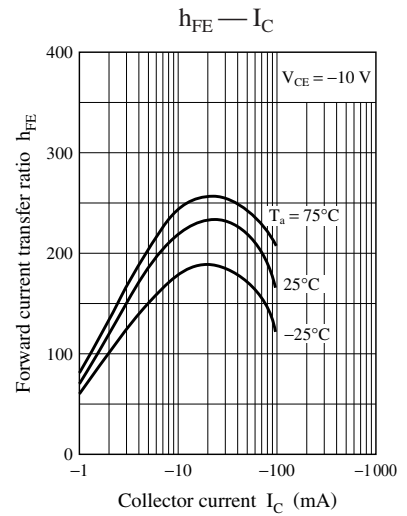
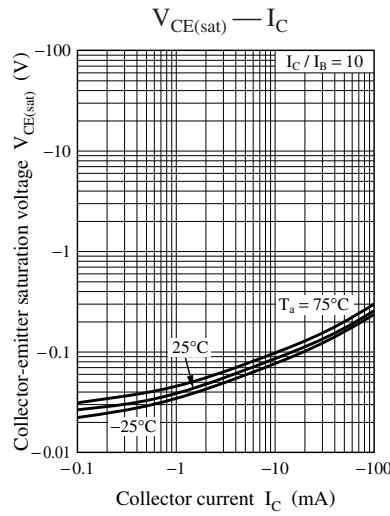
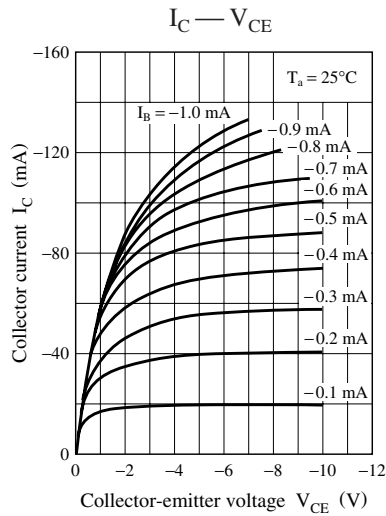


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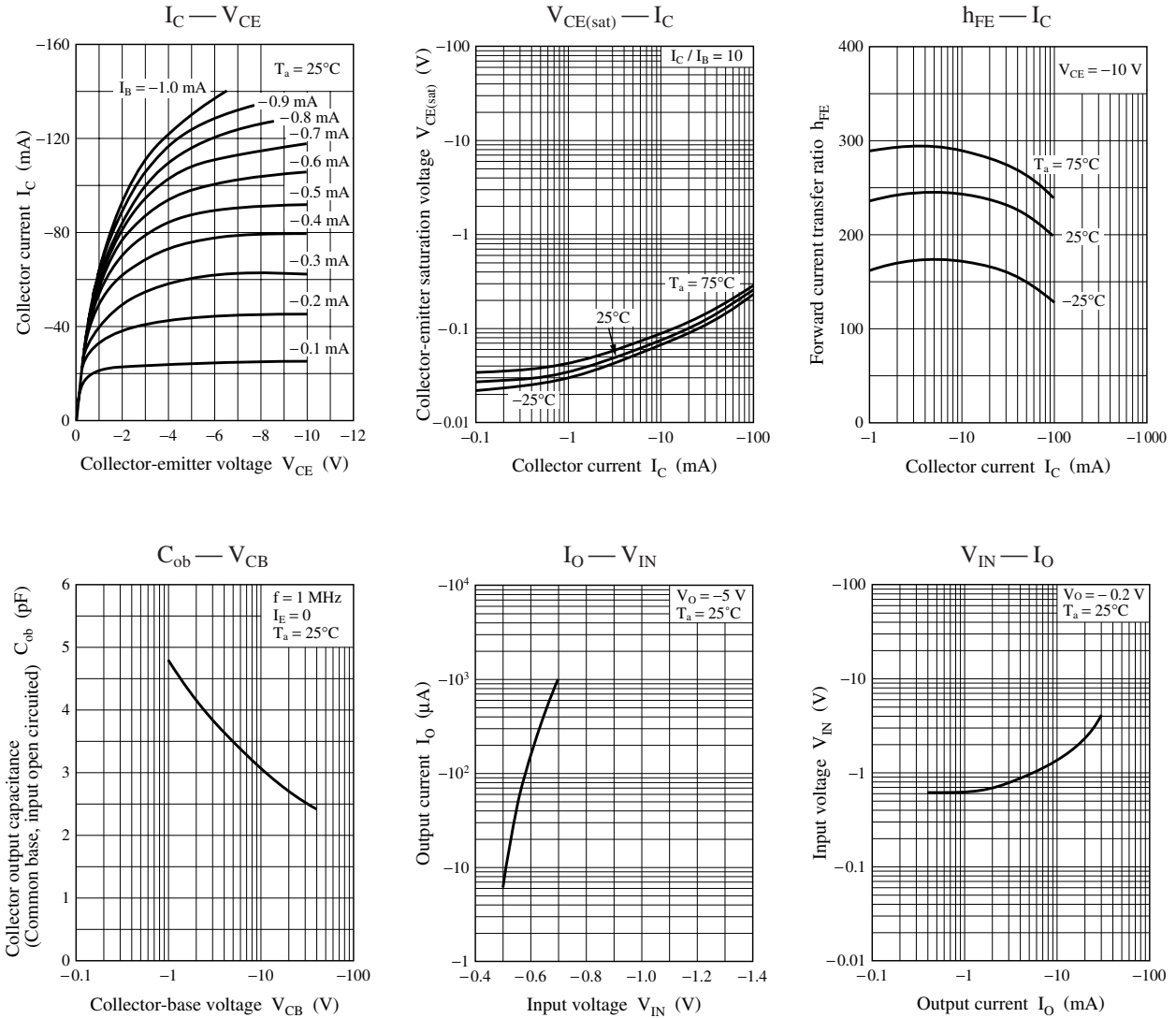




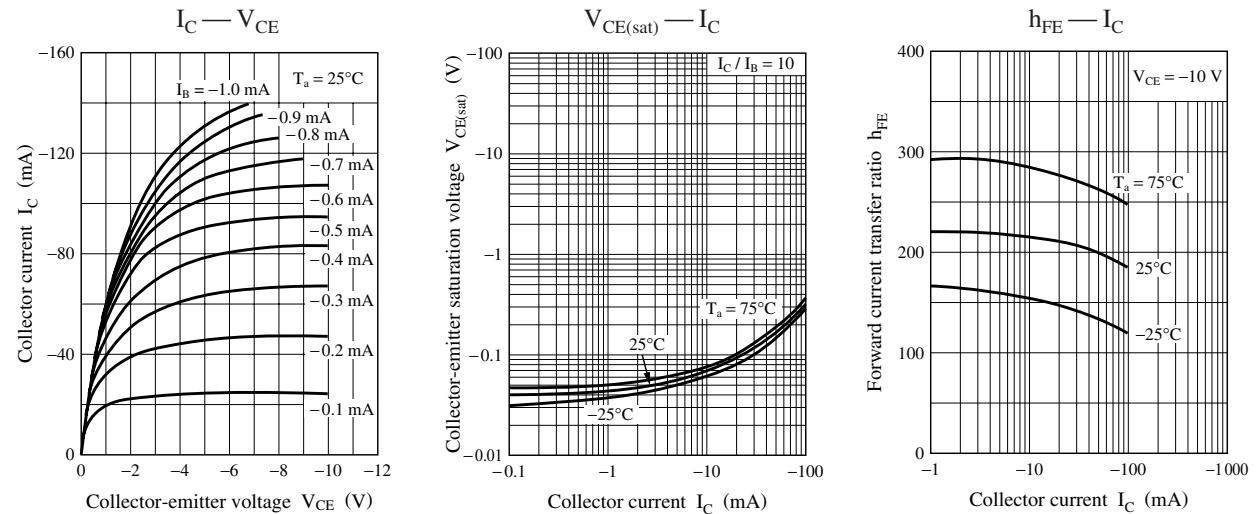
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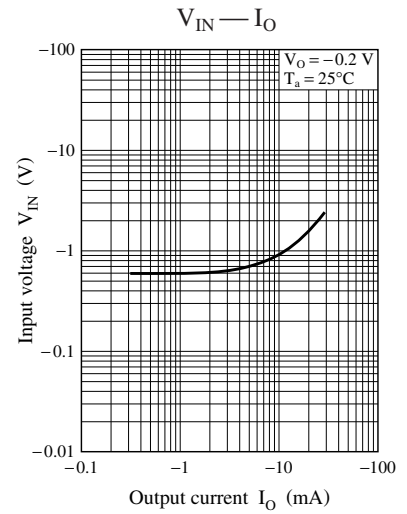
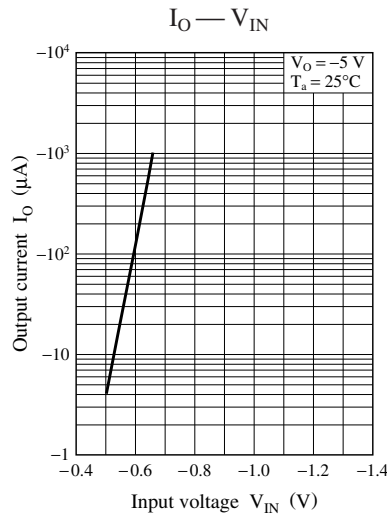
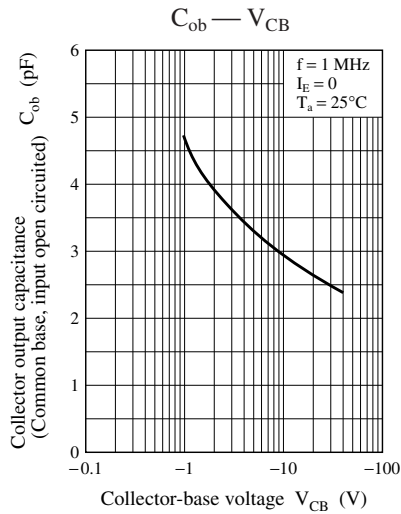


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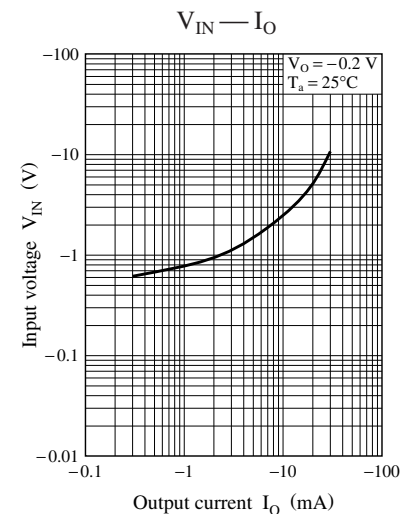
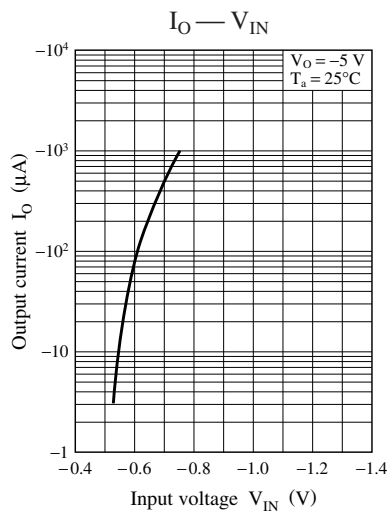
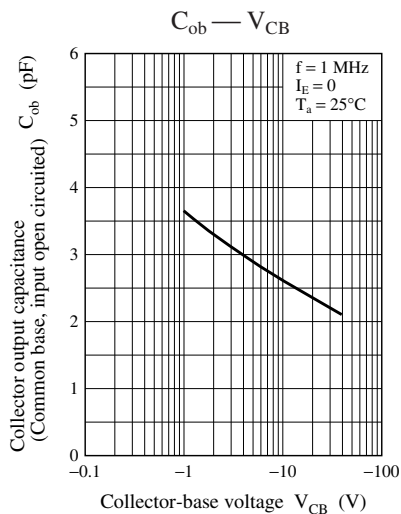
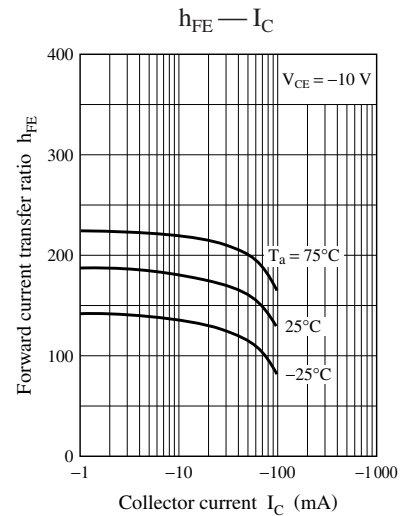
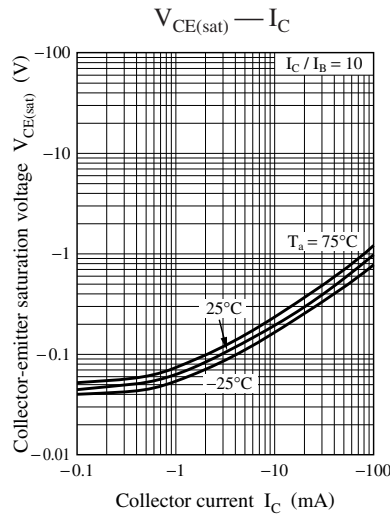
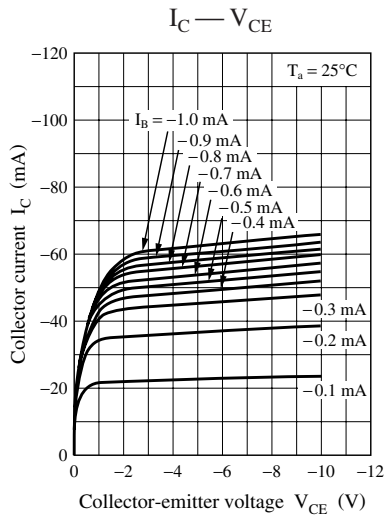


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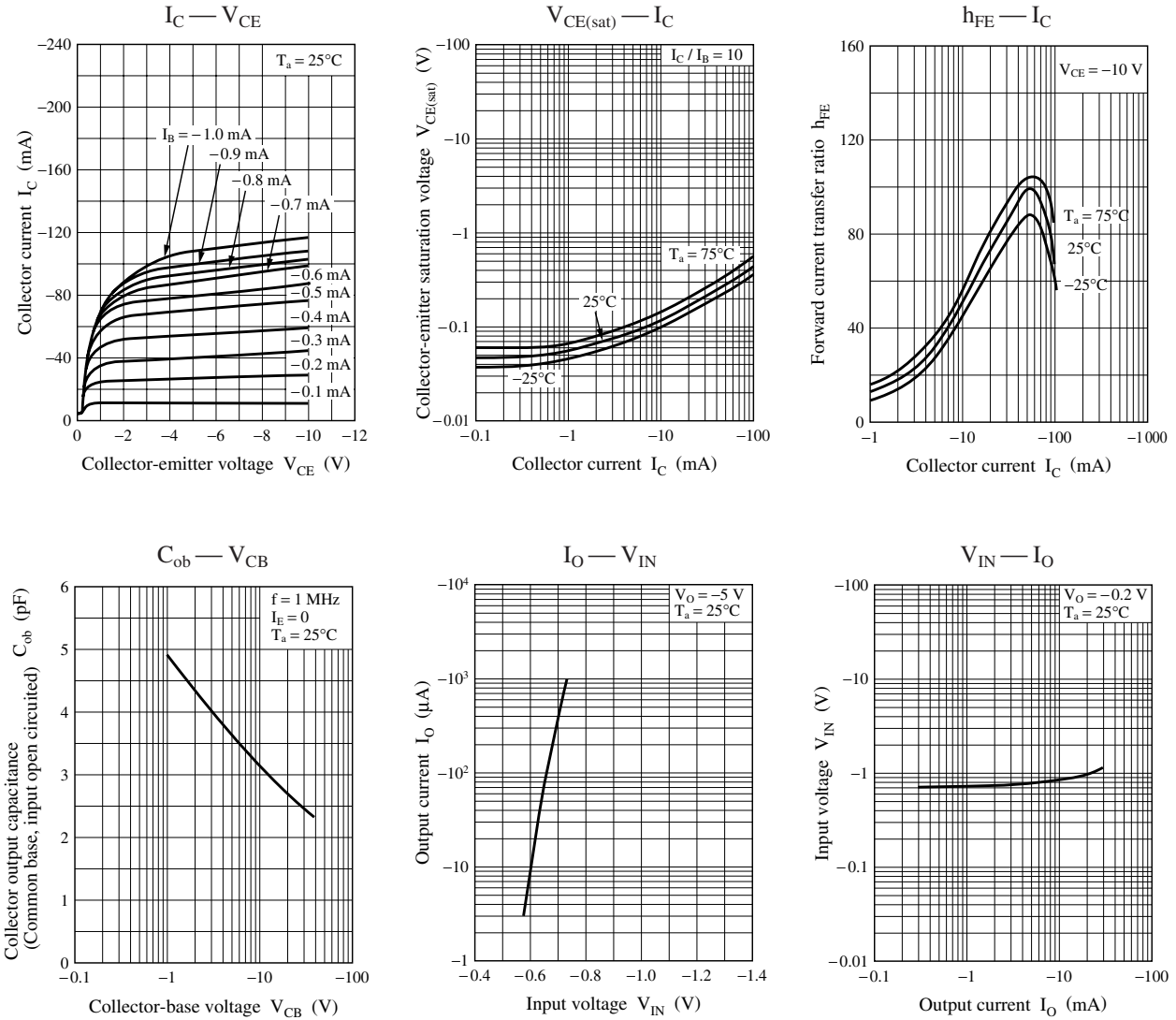




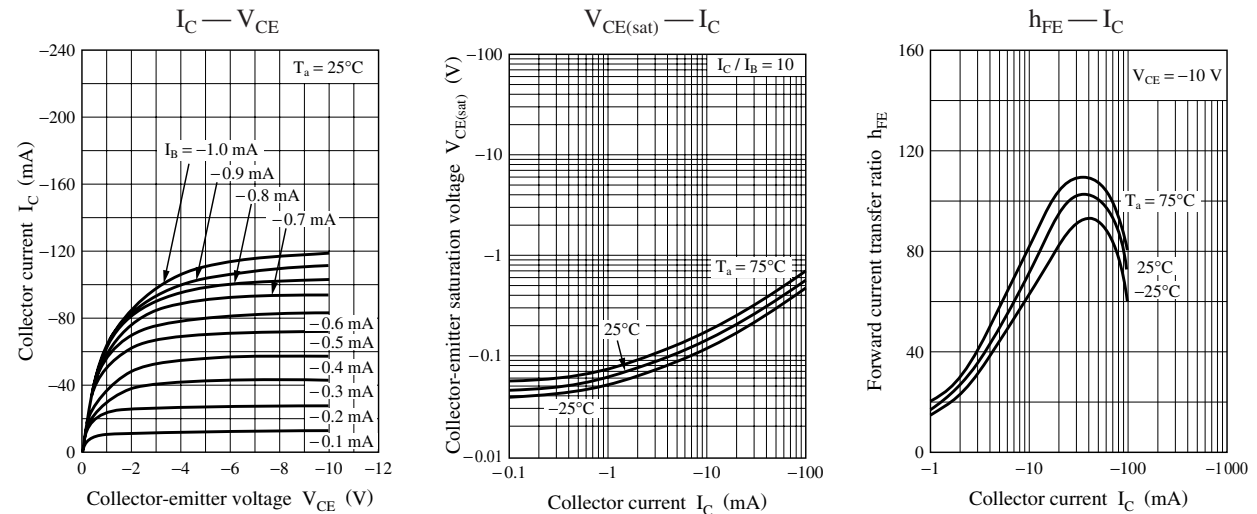
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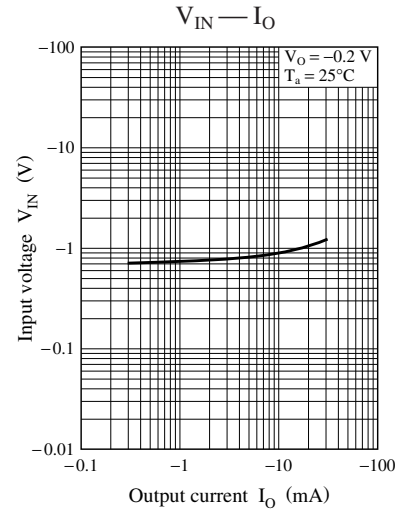
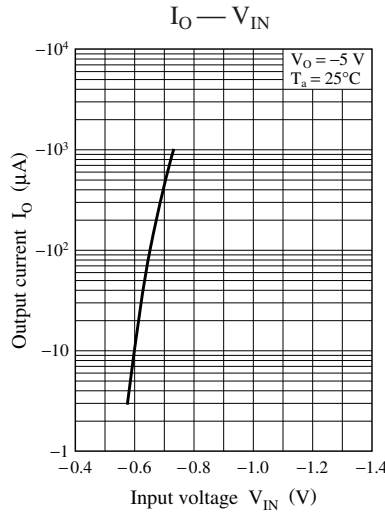
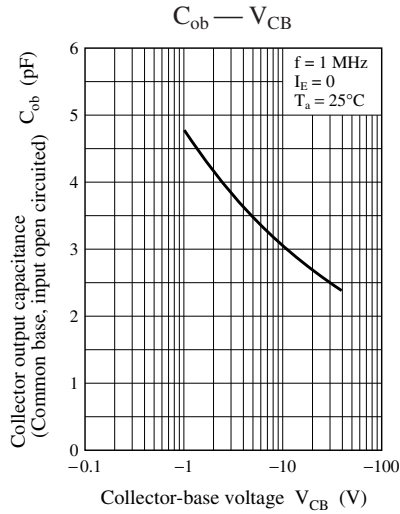


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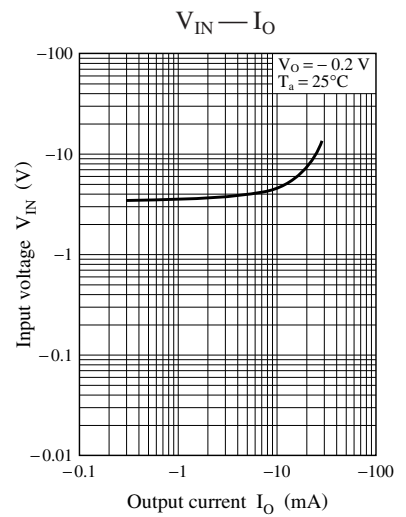
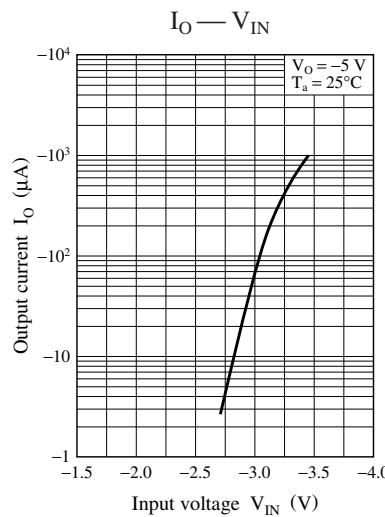
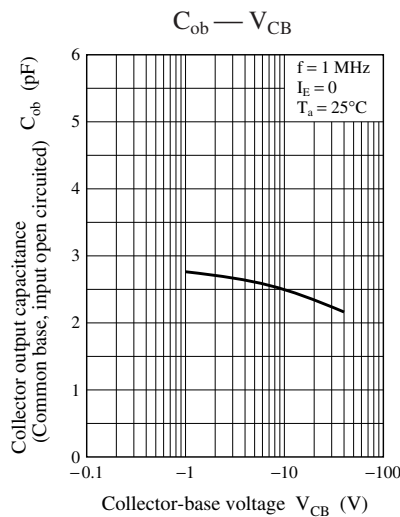
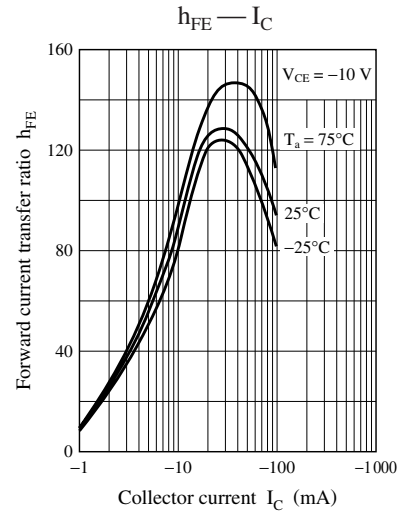
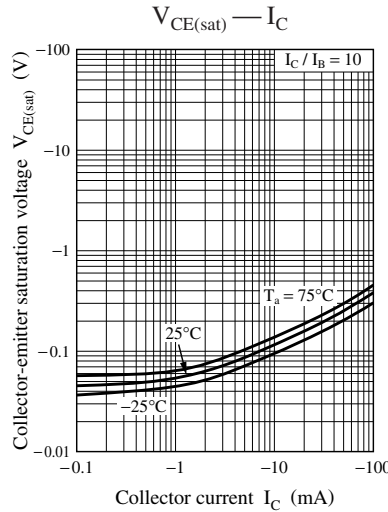
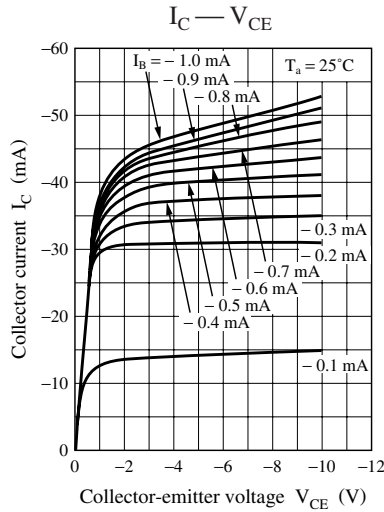


Characteristics charts of UNR5119G

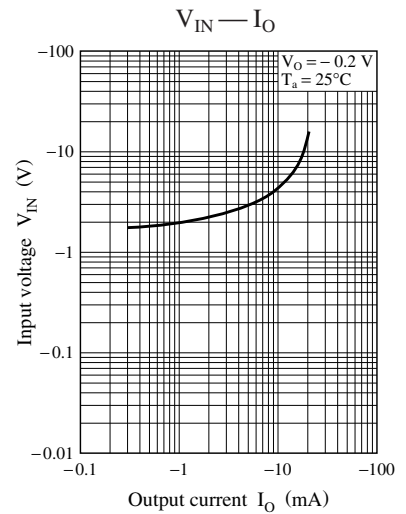
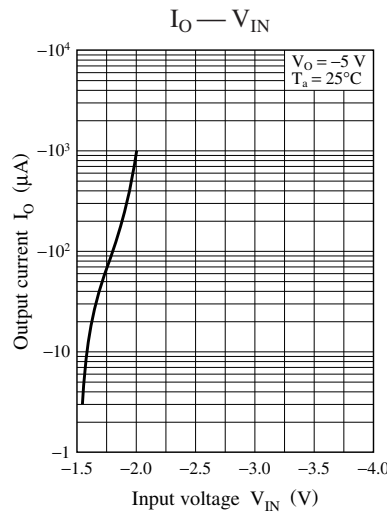
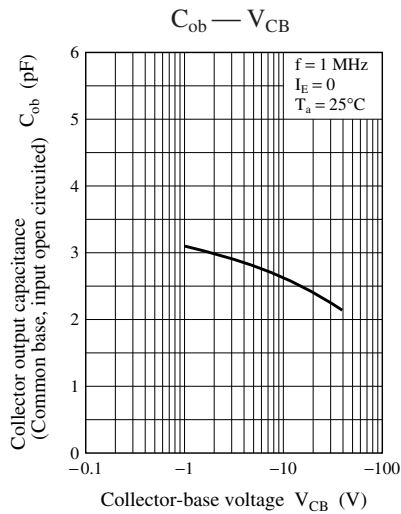
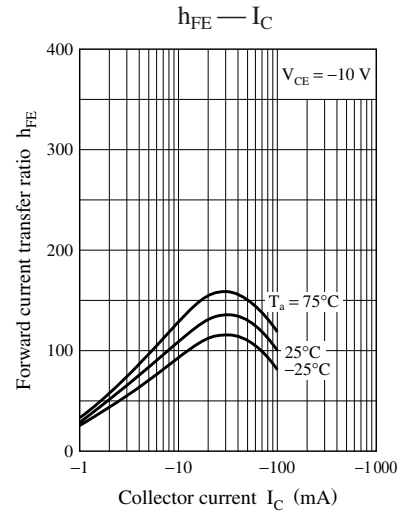
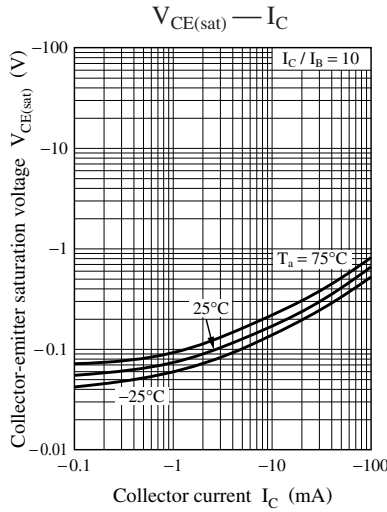
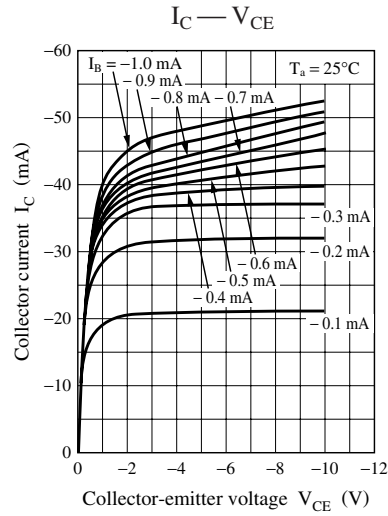




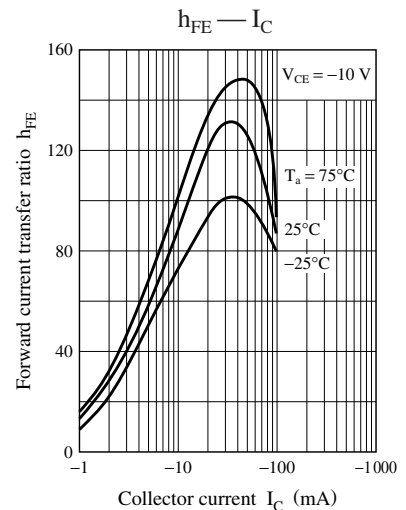
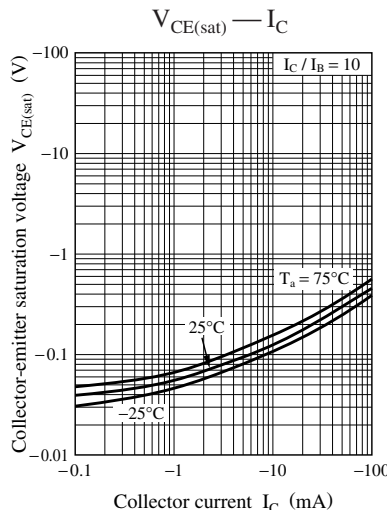
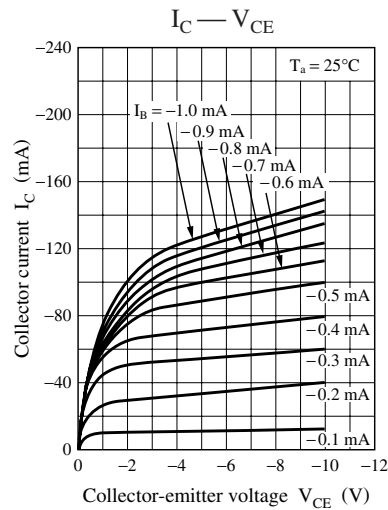
Characteristics charts of UNR511DG

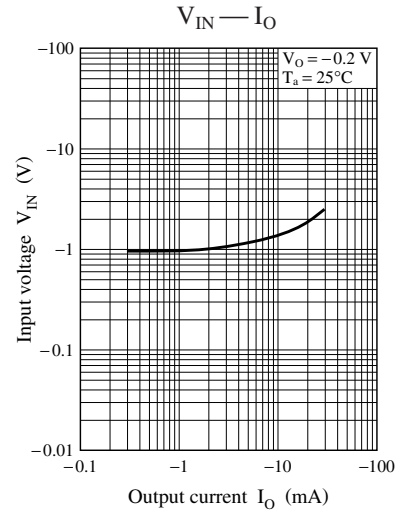
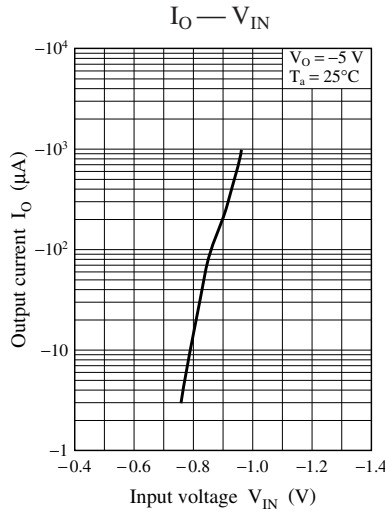
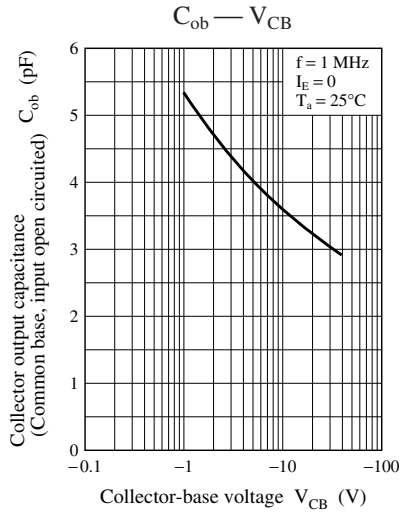


Characteristics charts of UNR511EG

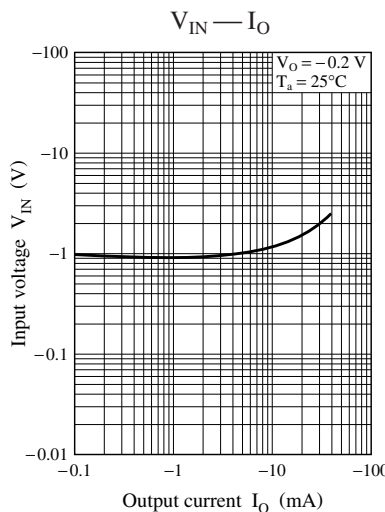
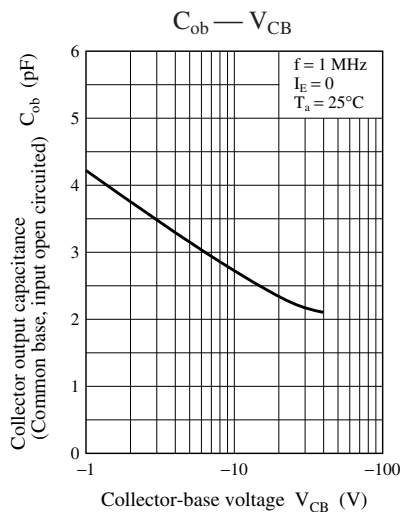
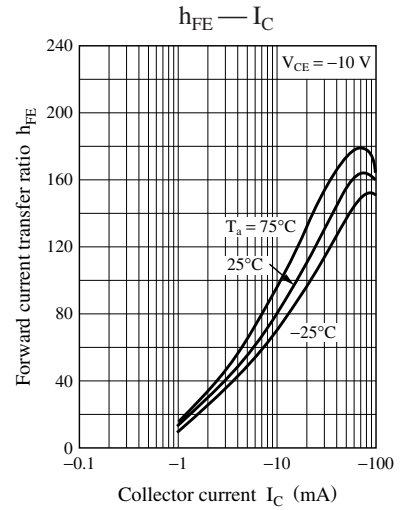
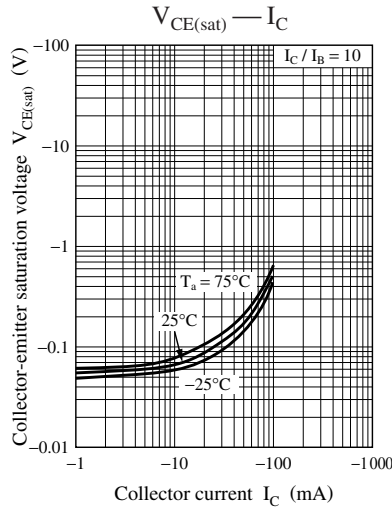
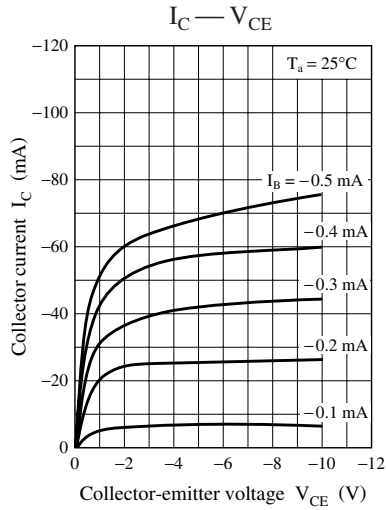


Characteristics charts of UNR511FG

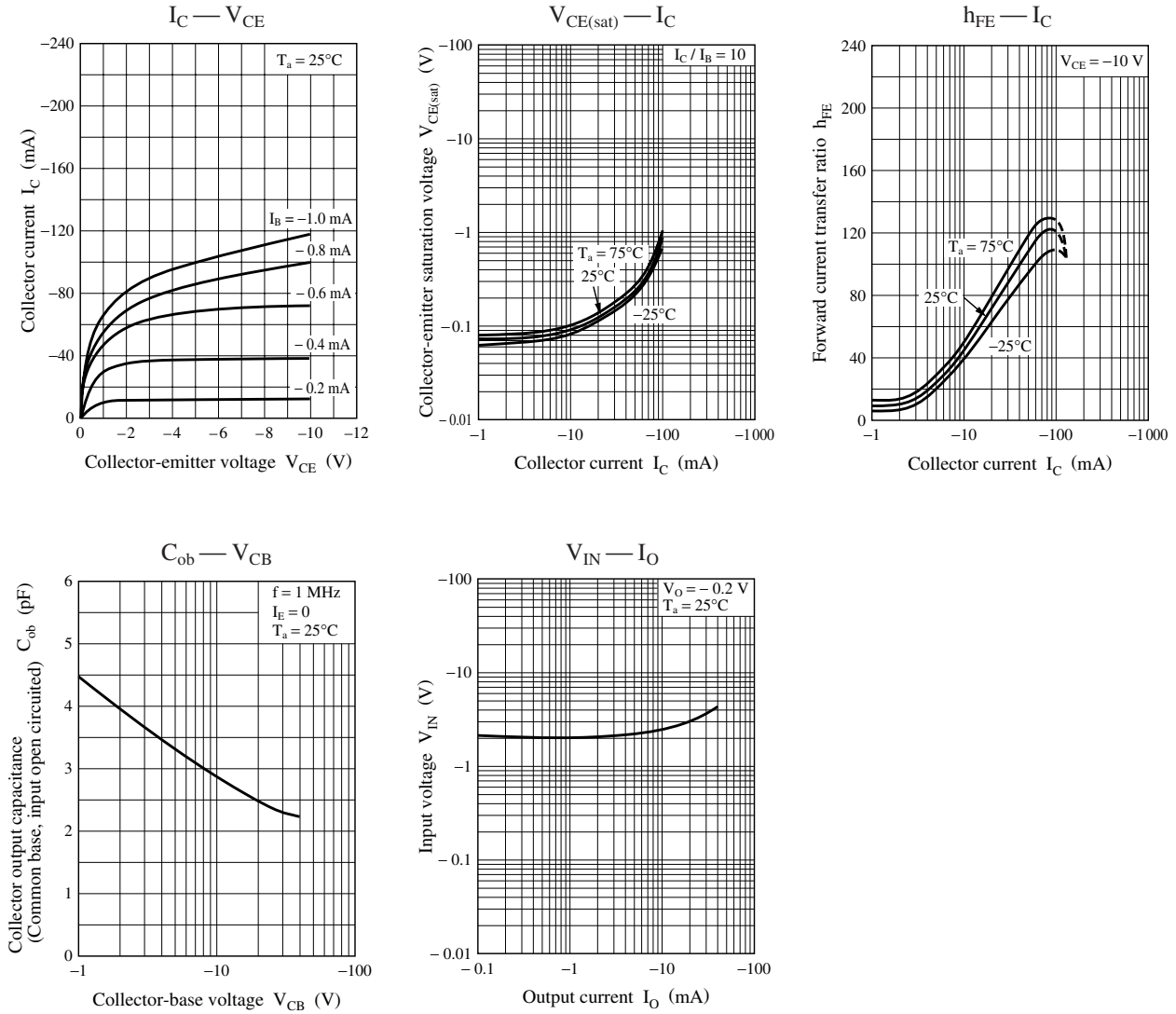




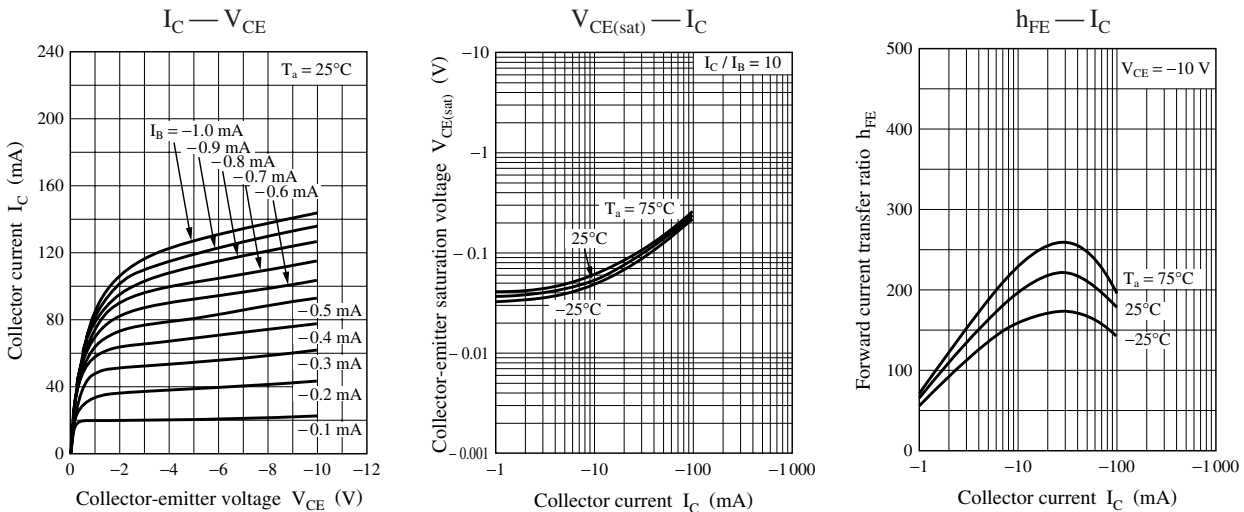
Characteristics charts of UNR511HG

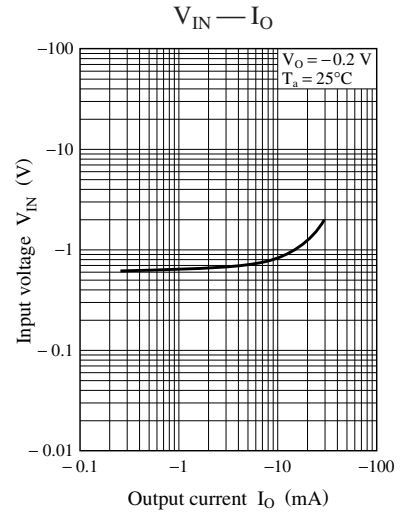
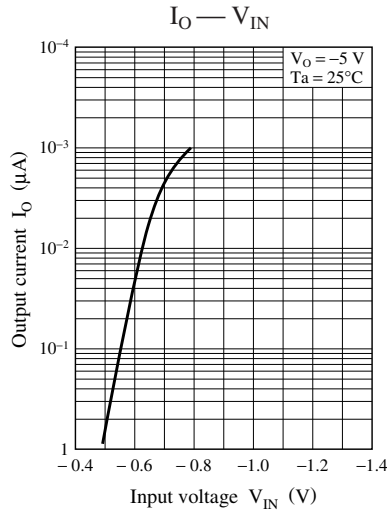
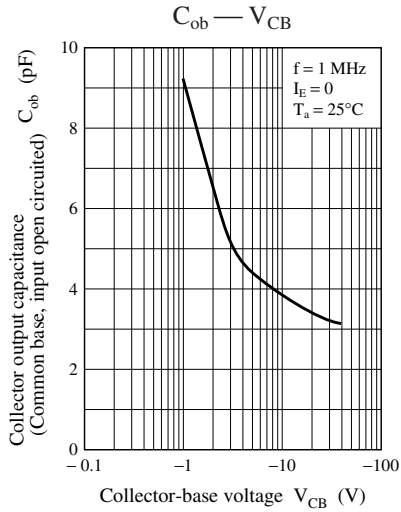


Characteristics charts of UNR511LG

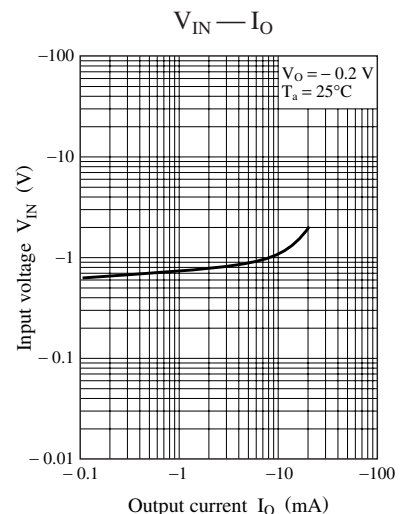
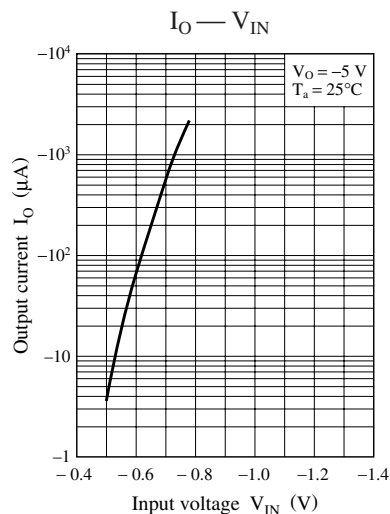
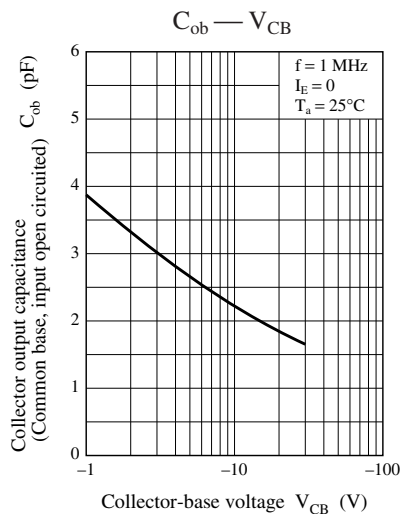
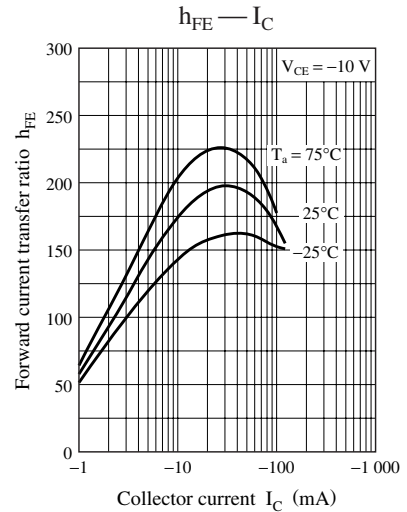
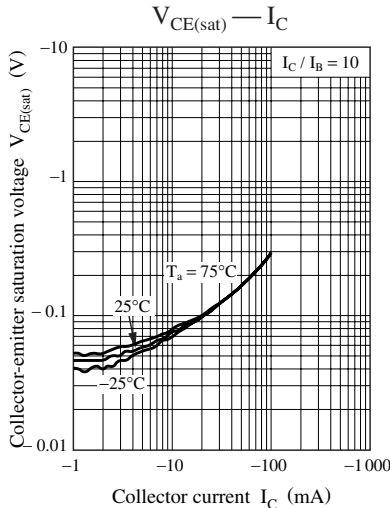
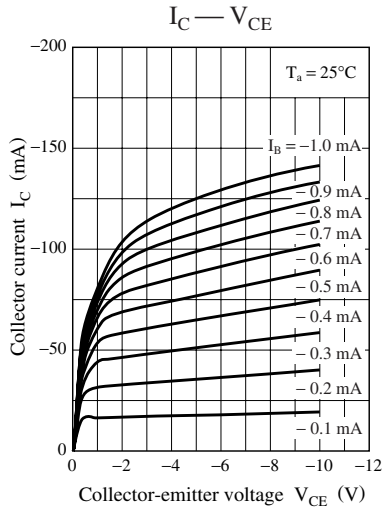


Characteristics charts of UNR511MG

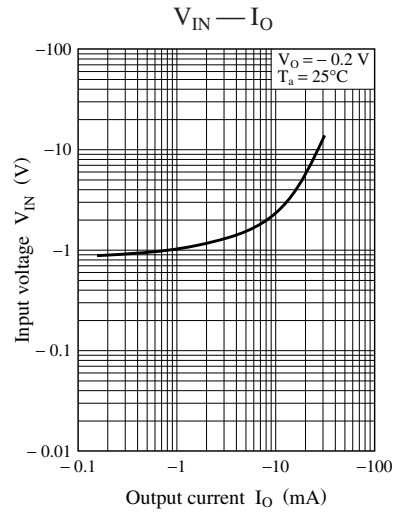
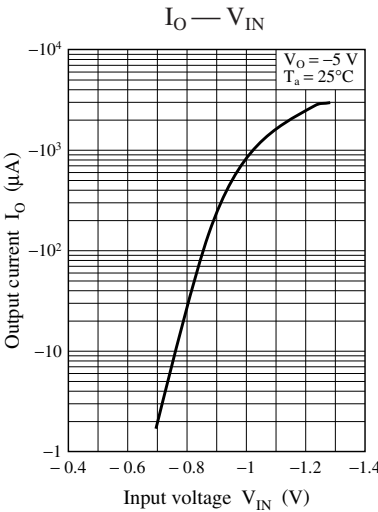
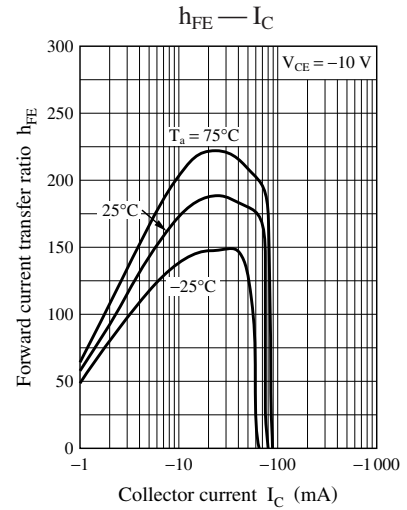
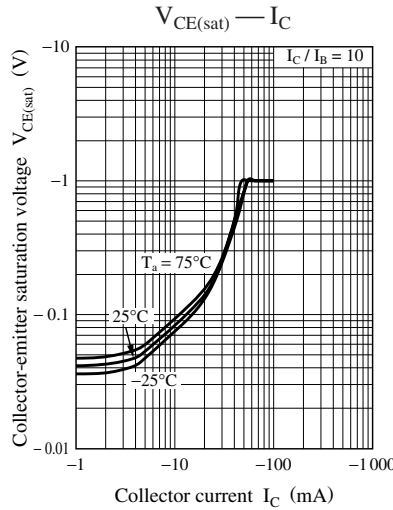
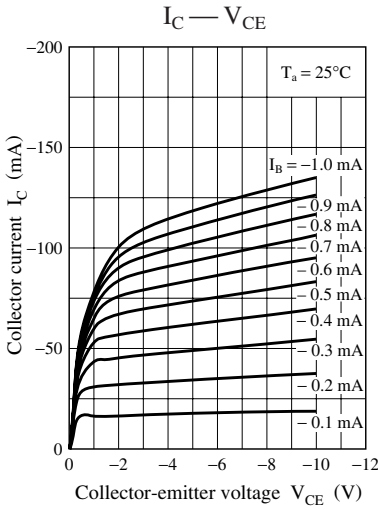




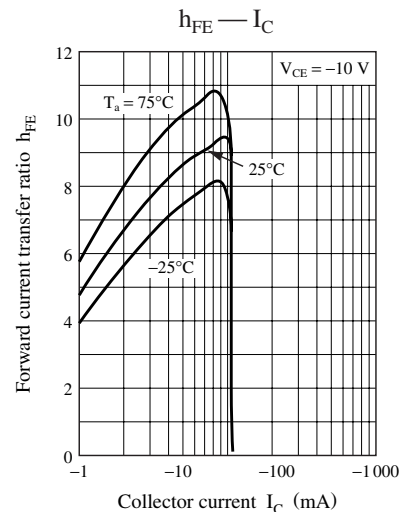
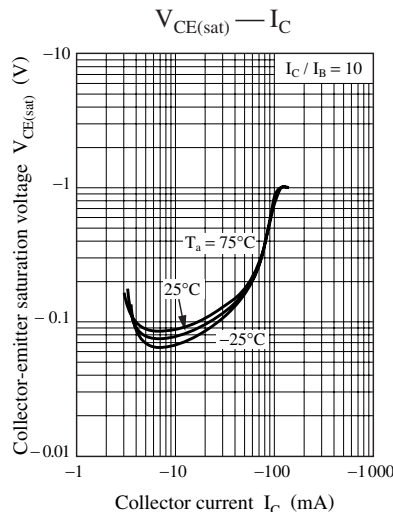
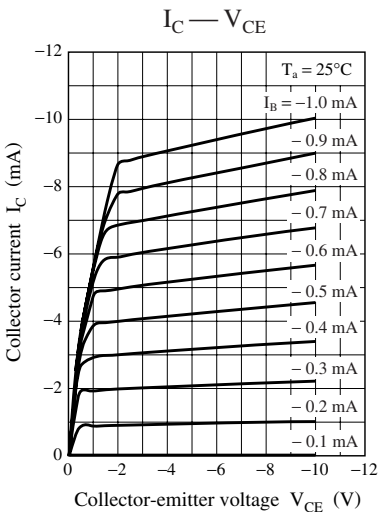
Characteristics charts of UNR511NG

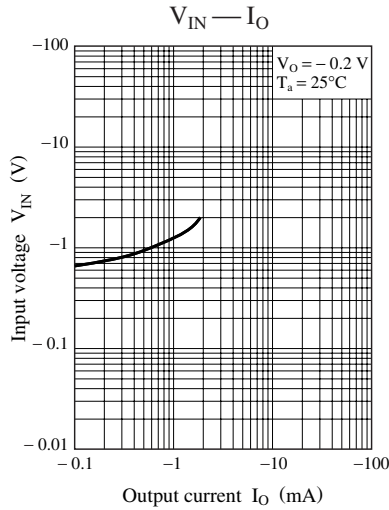
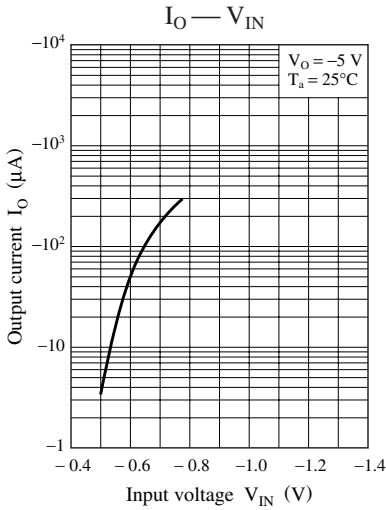


Characteristics charts of UNR511TG

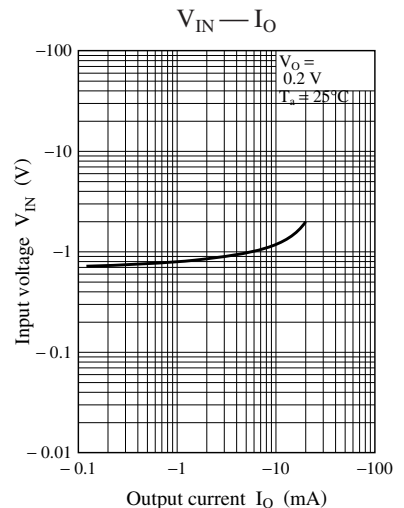
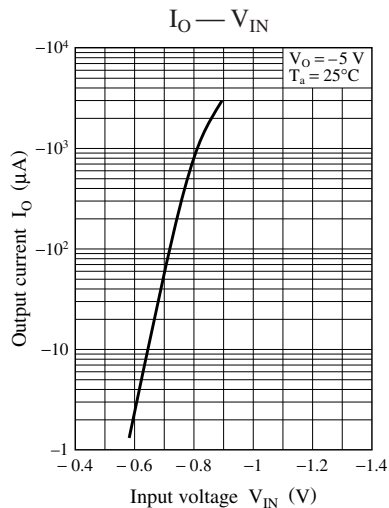
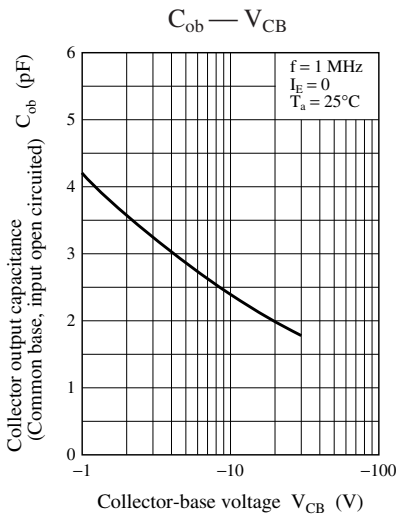
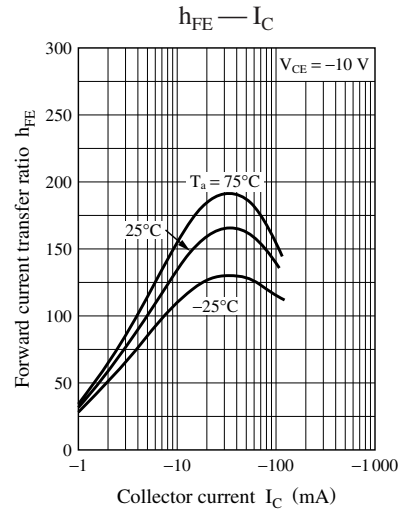
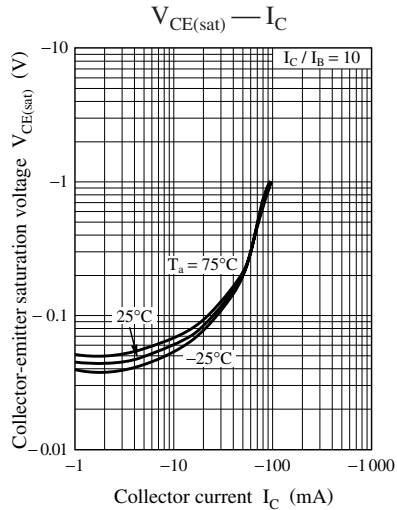
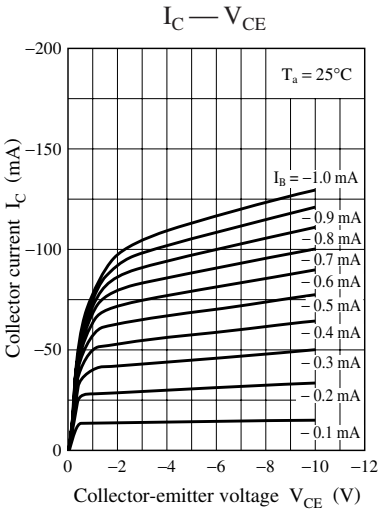


Characteristics charts of UNR511VG



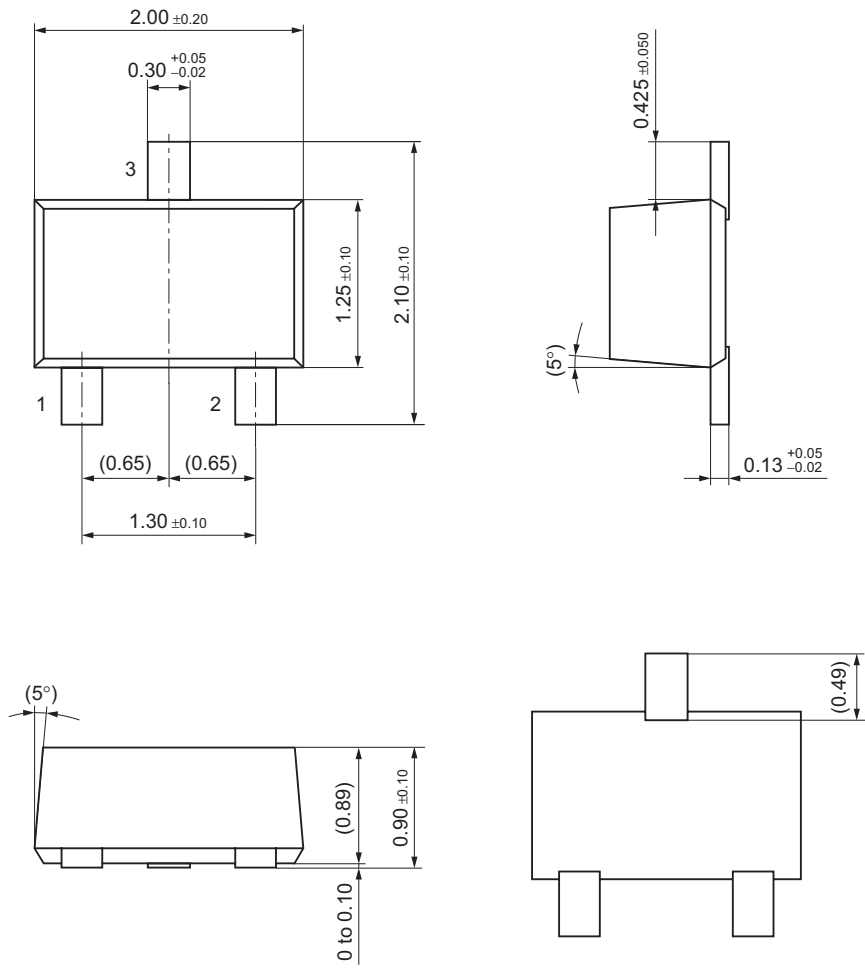
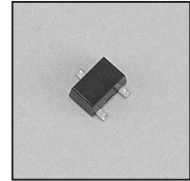


Characteristics charts of UNR511ZG



SMini3-F2

Unit: mm



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