

UNR6211/6212/6213/6214/6215/6216/6217/ 6218/6219/6210/621D/621E/621F/621K/621L (UN6211/6212/6213/6214/6215/6216/6217/6218/6219/ 6210/621D/621E/621F/621K/621L)

Silicon NPN epitaxial planer transistor

For digital circuits

Features

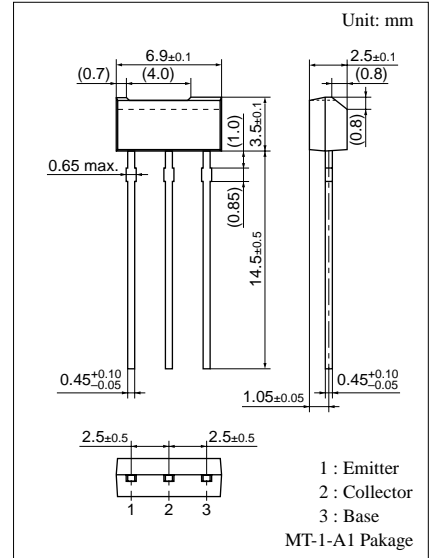
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- MT-1 type package, allowing supply with the radial taping.

Resistance by Part Number

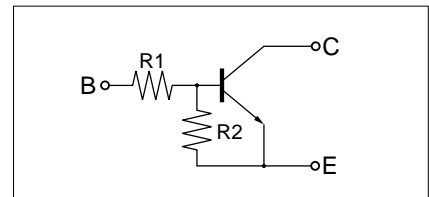
	(R ₁)	(R ₂)
● UNR6211	10kΩ	10kΩ
● UNR6212	22kΩ	22kΩ
● UNR6213	47kΩ	47kΩ
● UNR6214	10kΩ	47kΩ
● UNR6215	10kΩ	—
● UNR6216	4.7kΩ	—
● UNR6217	22kΩ	—
● UNR6218	0.51kΩ	5.1kΩ
● UNR6219	1kΩ	10kΩ
● UNR6210	47kΩ	—
● UNR621D	47kΩ	10kΩ
● UNR621E	47kΩ	22kΩ
● UNR621F	4.7kΩ	10kΩ
● UNR621K	10kΩ	4.7kΩ
● UNR621L	4.7kΩ	4.7kΩ

Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Rated	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	400	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C



Internal Connection



Note) The Part numbers in the Parenthesis show conventional part number.

UNR6211/6212/6213/6214/6215/6216/6217/6218/
Transistors with built-in Resistor 6219/6210/621D/621E/621F/621K/621L

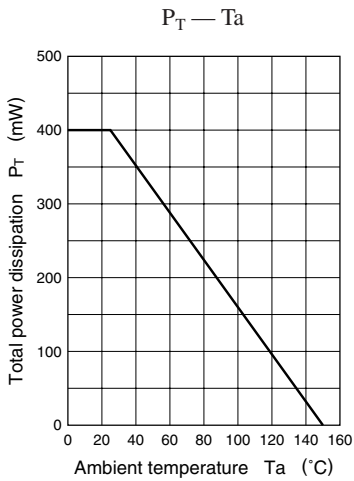
■ Electrical Characteristics (T_a=25°C)

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	UNR6211	I _{EBO}	V _{EB} = 6V, I _C = 0			0.5	mA	
	UNR6212/6214/621E/621D					0.2		
	UNR6213					0.1		
	UNR6215/6216/6217/6210					0.01		
	UNR621F/621K					1.0		
	UNR6219					1.5		
	UNR6218/621L					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	UNR6211	h _{FE}	V _{CE} = 10V, I _C = 5mA	35			V	
	UNR6212/621E			60				
	UNR6213/6214			80				
	UNR6215*/6216*/6217*/6210*			160		460		
	UNR621F/621D/6219			30				
	UNR6218/621K/621L			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	
			V _{OC} = 5V, V _B = 3.5V, R ₁ = 1kΩ			0.2		
			V _{CC} = 5V, V _B = 10V, R ₁ = 1kΩ			0.2		
			V _{CC} = 5V, V _B = 6V, R _L = 1kΩ			0.2		
Transition frequency		f _T	V _{CB} = 10V, I _E = -2mA, f = 200MHz		150		MHz	
Input resistance	UNR6211/6214/6215/621K	R ₁		(-30%)		10	(+30%)	kΩ
	UNR6212/6217					22		
	UNR6213/621D/621E/6210					47		
	UNR6216/621F/621L					4.7		
	UNR6218					0.51		
	UNR6219					1		
Resistance ratio	UNR6211/6212/6213/621L	R ₁ /R ₂				0.8	1.0	1.2
	UNR6214					0.17	0.21	0.25
	UNR6218/6219					0.08	0.1	0.12
	UNR621D					3.7	4.7	5.7
	UNR621E					1.7	2.14	2.6
	UNR621F					0.37	0.47	0.57
	UNR621K					1.7	2.13	2.6

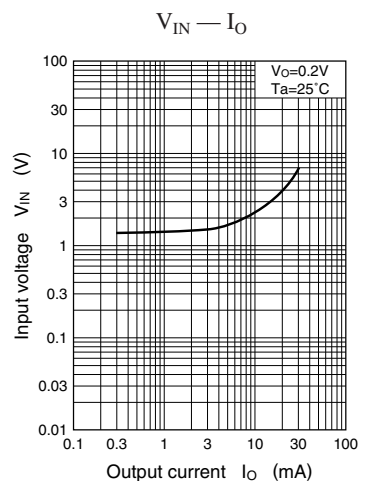
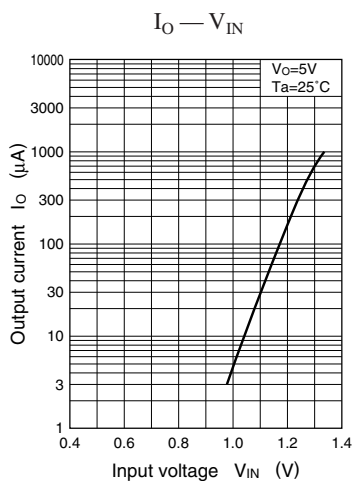
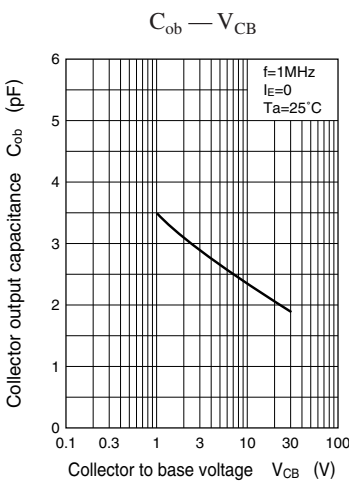
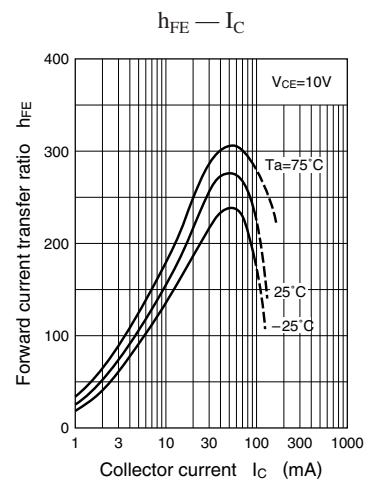
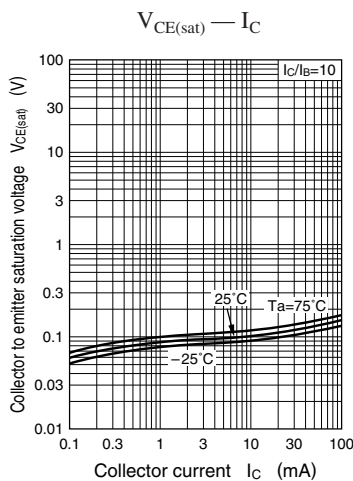
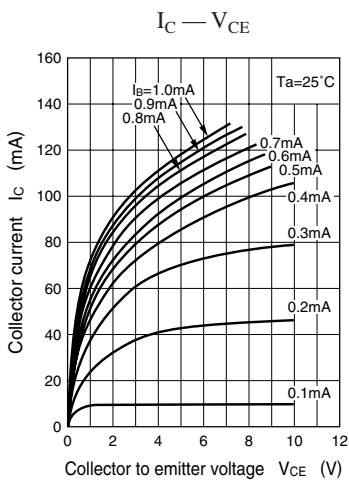
* h_{FE} rank classification (UNR6215/6216/6217/6210)

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

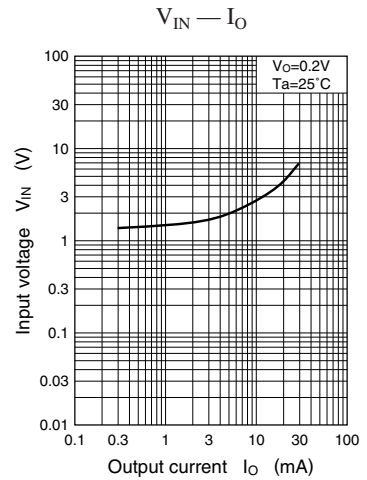
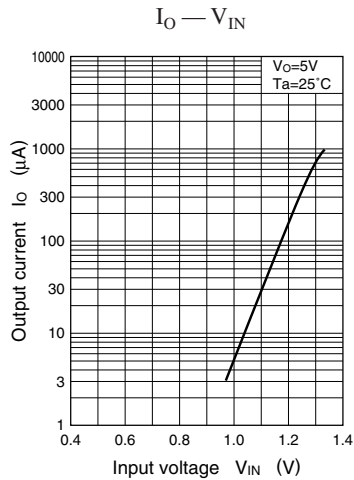
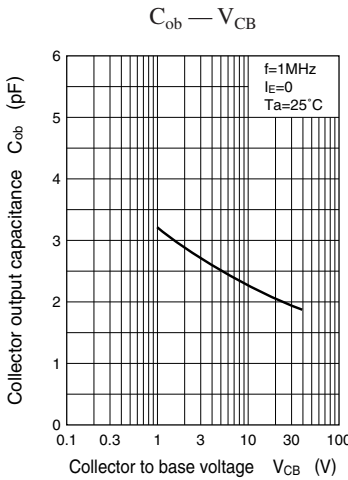
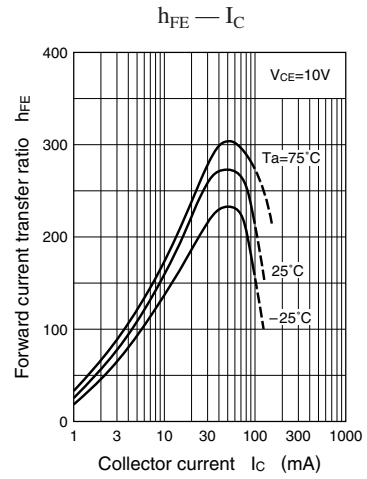
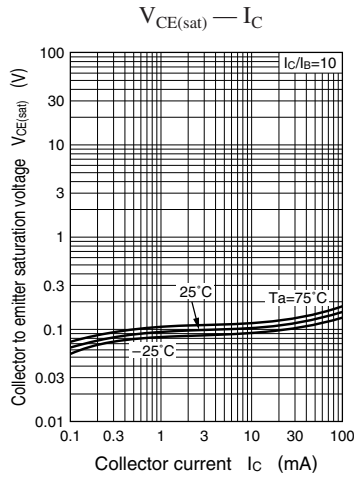
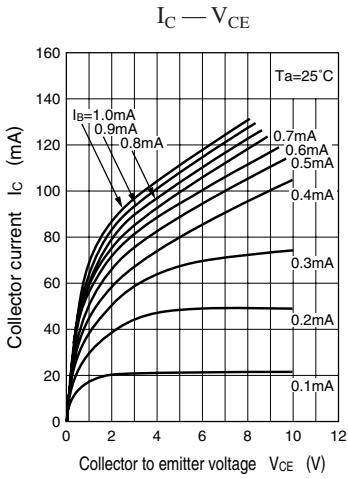
Common characteristics chart



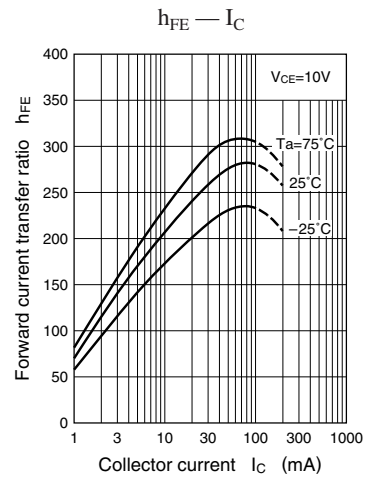
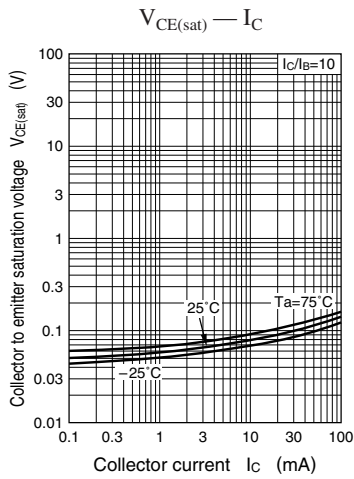
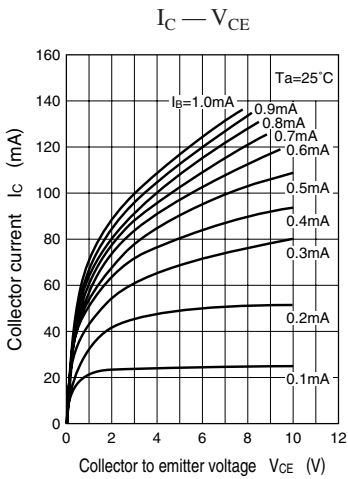
Characteristics charts of UNR6211



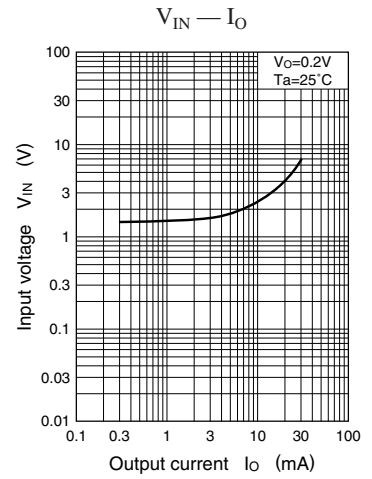
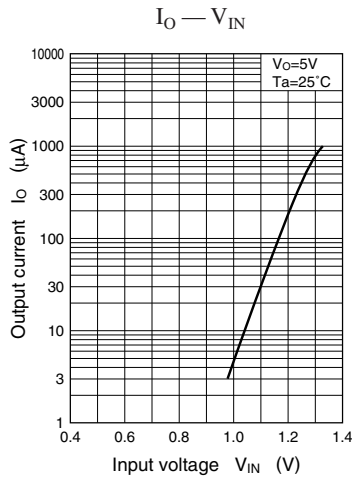
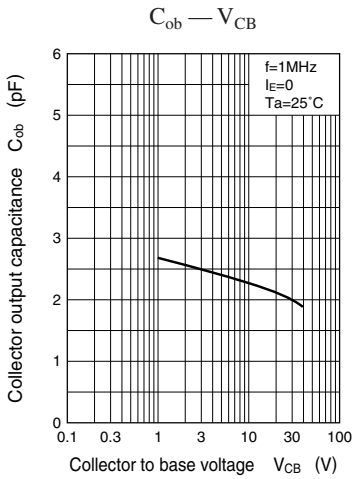
Characteristics charts of UNR6212



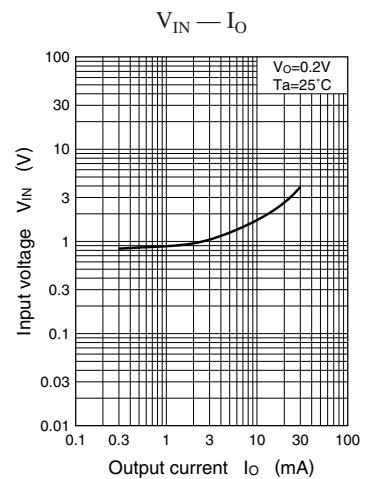
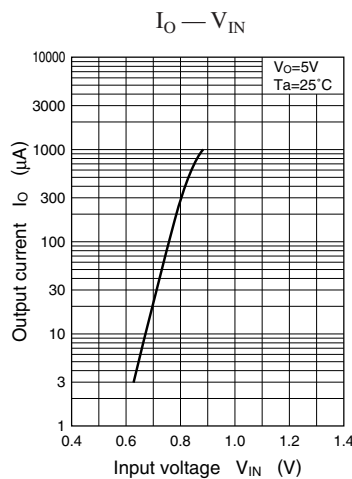
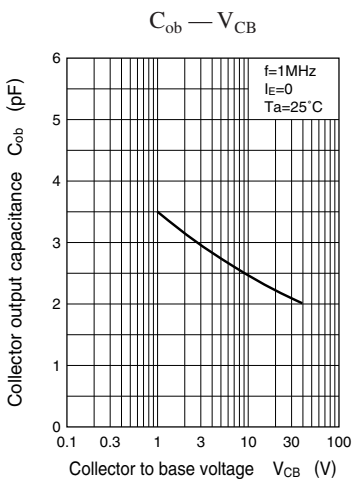
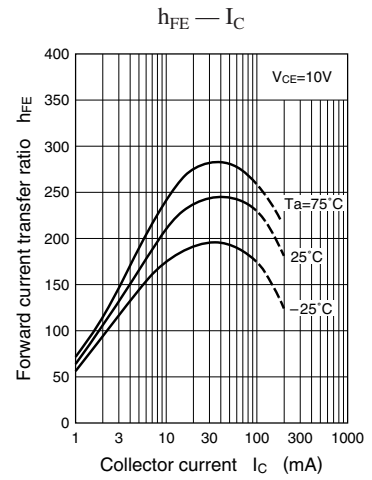
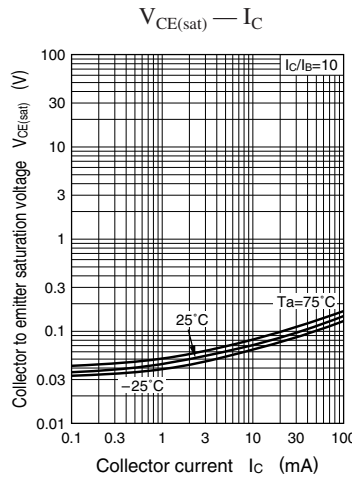
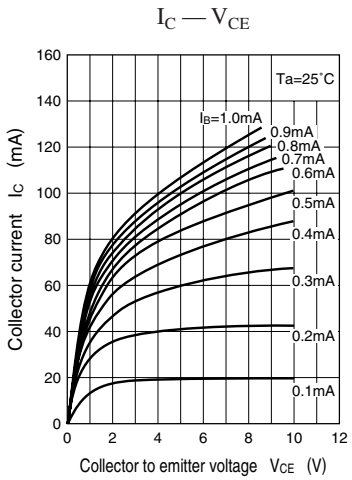
Characteristics charts of UNR6213



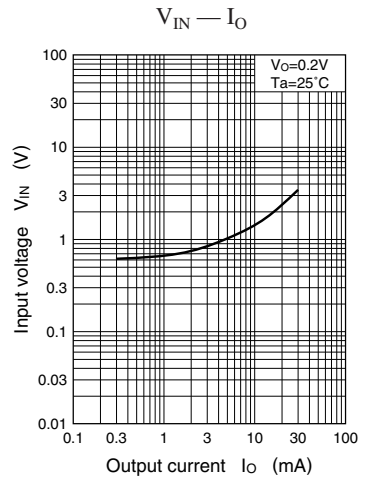
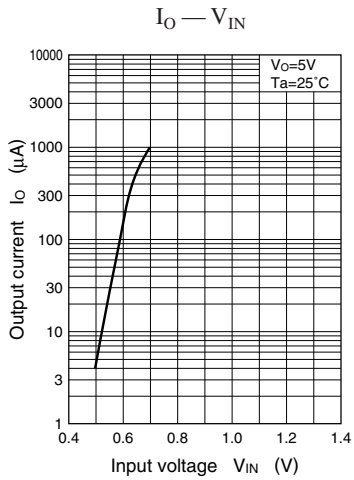
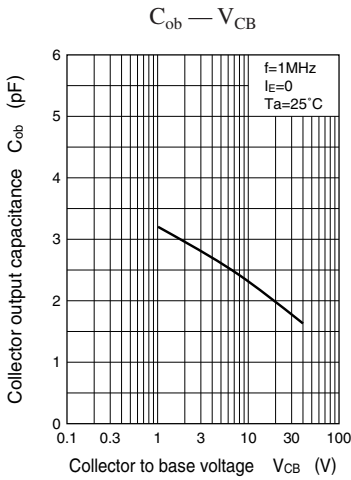
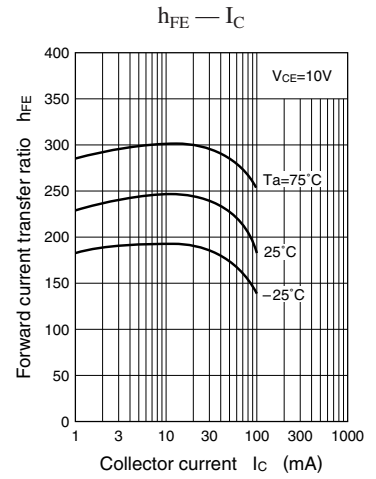
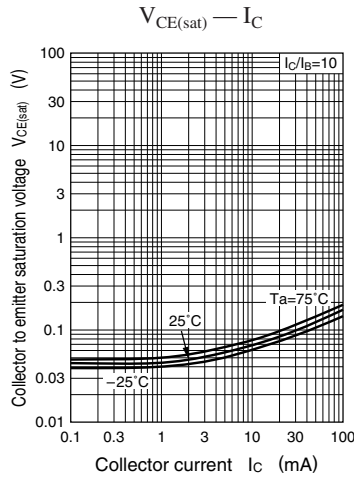
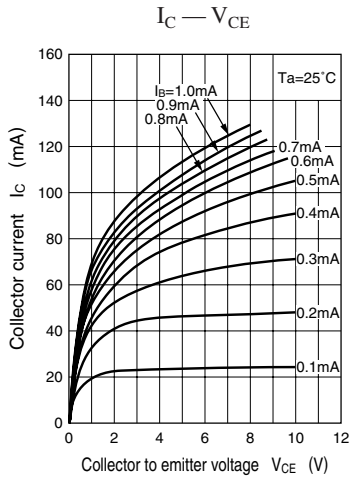
UNR6211/6212/6213/6214/6215/6216/6217/6218/
 Transistors with built-in Resistor 6219/6210/621D/621E/621F/621K/621L



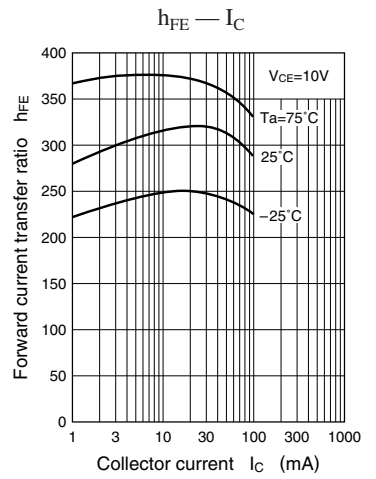
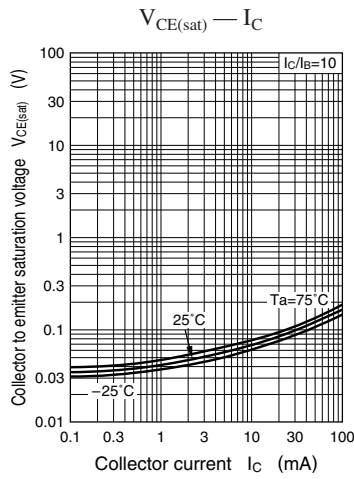
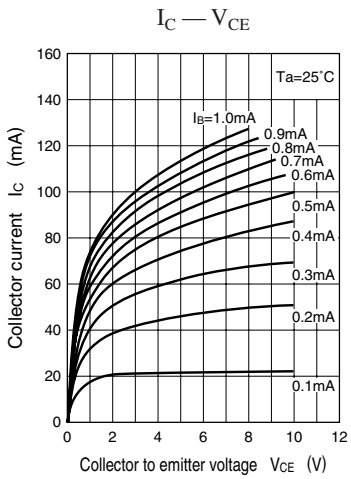
Characteristics charts of UNR6214

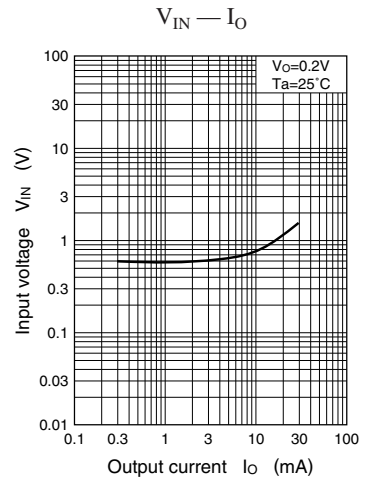
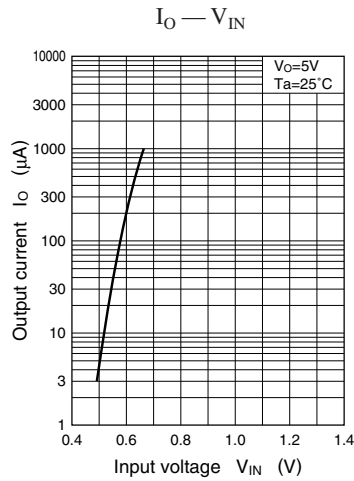
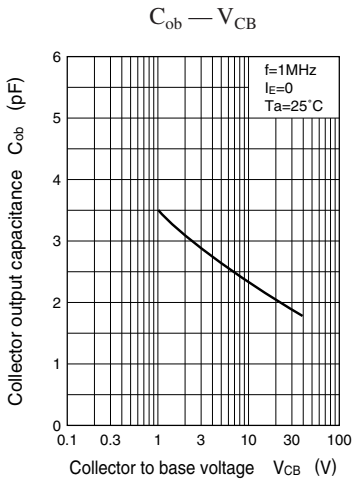


Characteristics charts of UNR6215

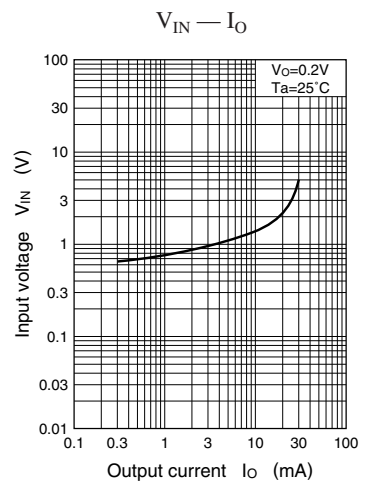
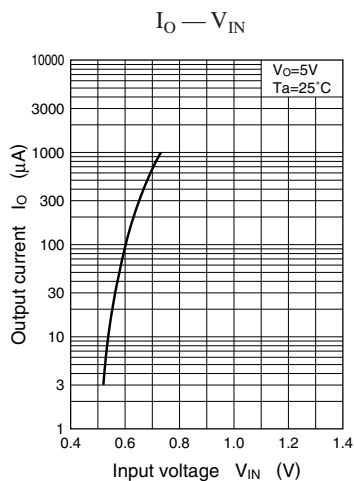
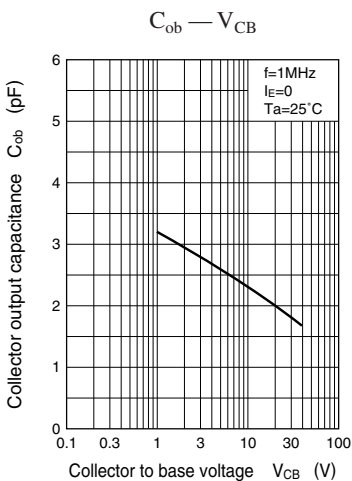
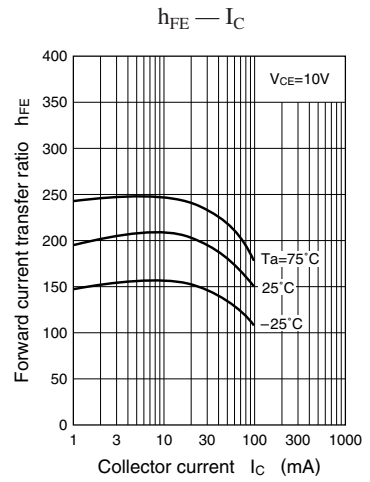
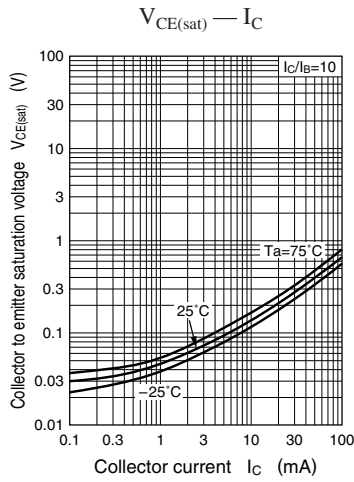
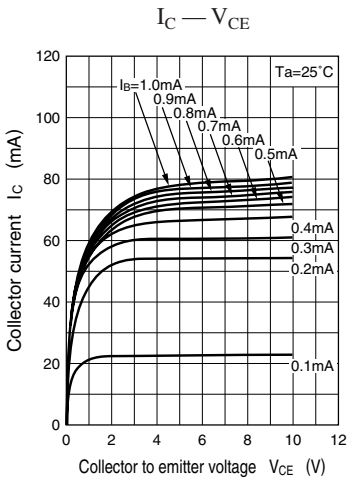


Characteristics charts of UNR6216

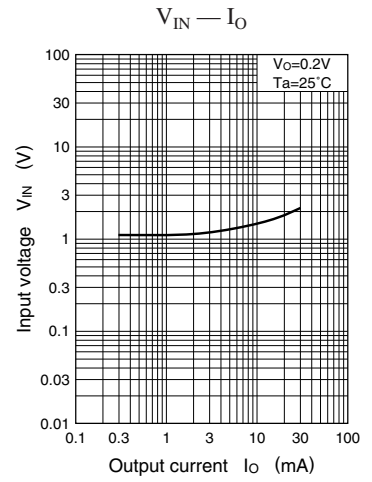
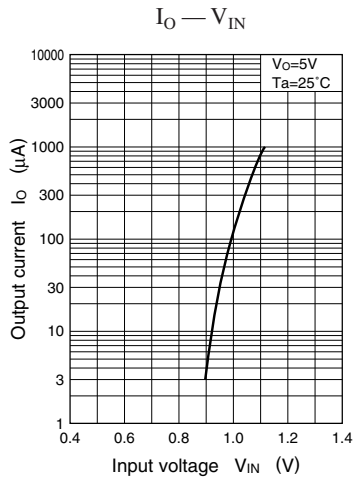
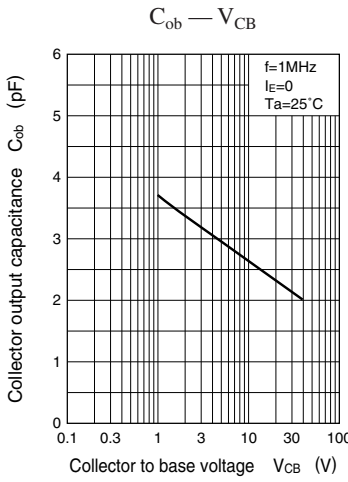
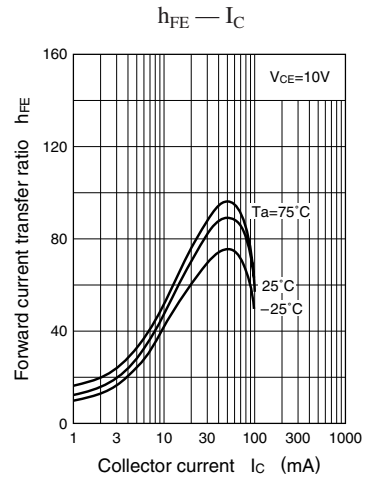
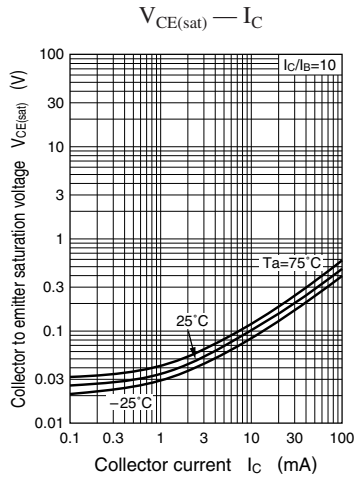
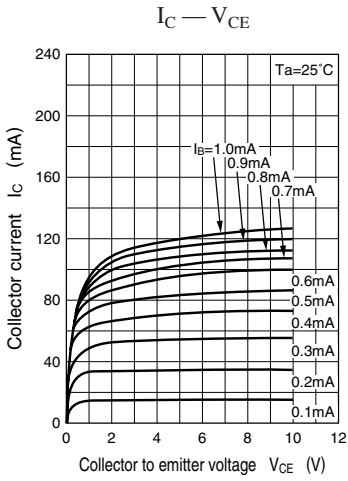




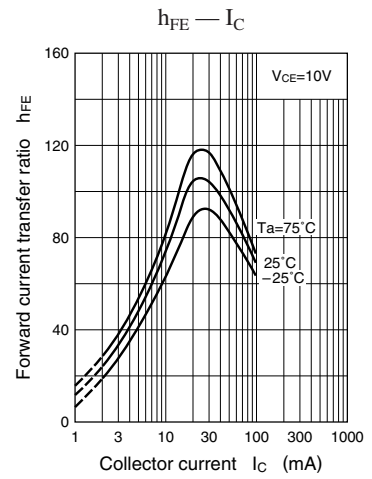
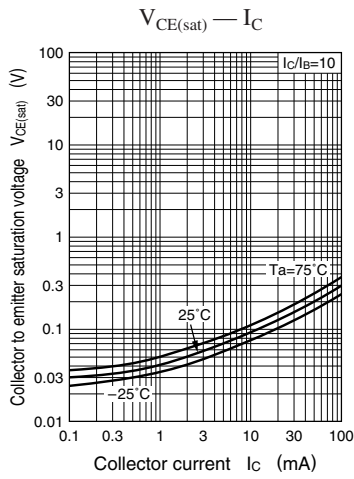
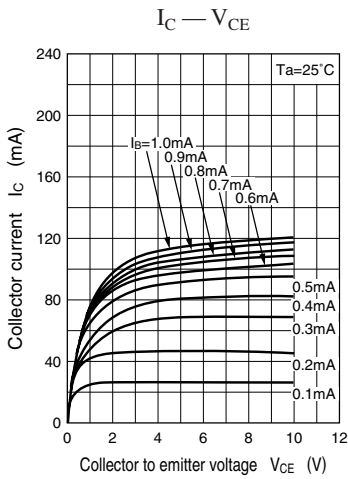
Characteristics charts of UNR6217

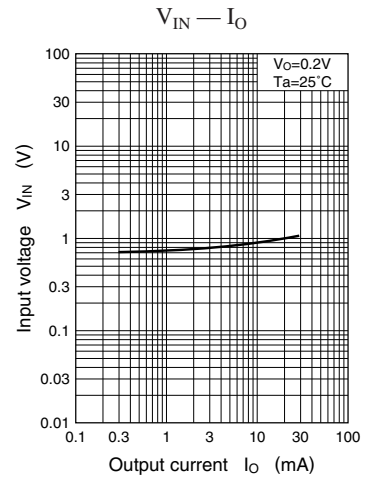
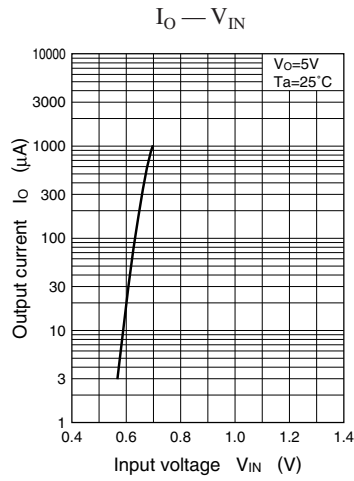
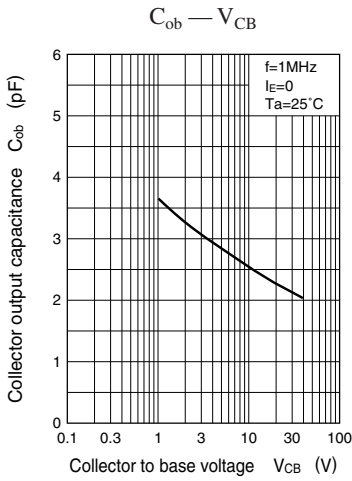


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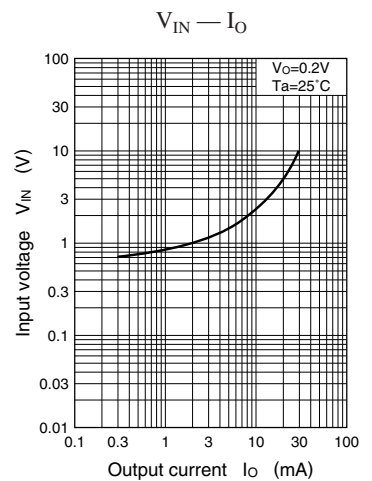
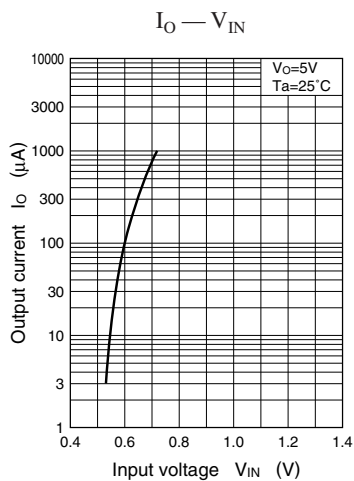
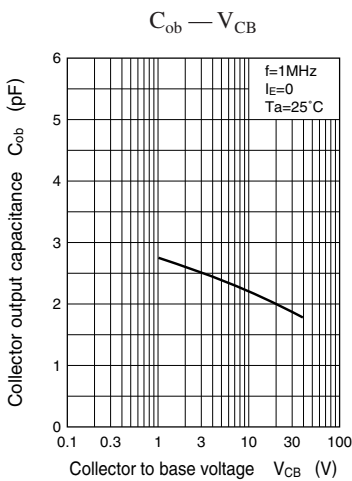
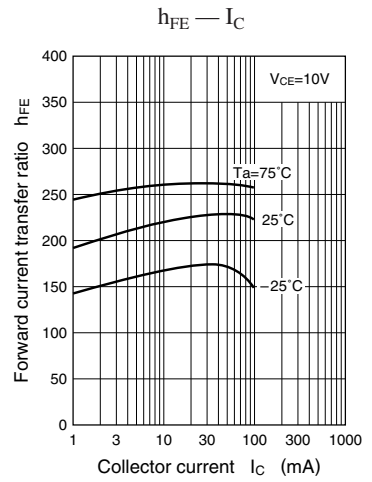
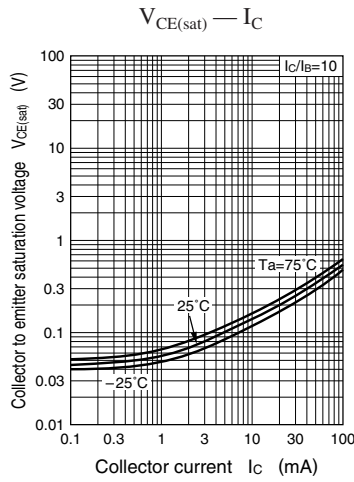
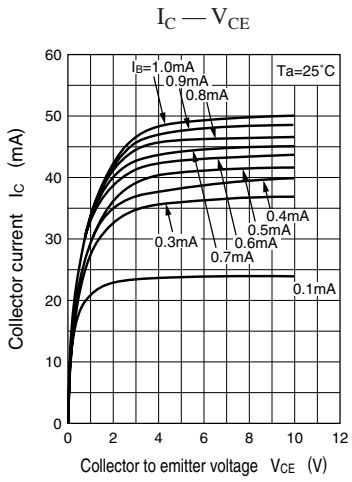


Characteristics charts of UNR6219

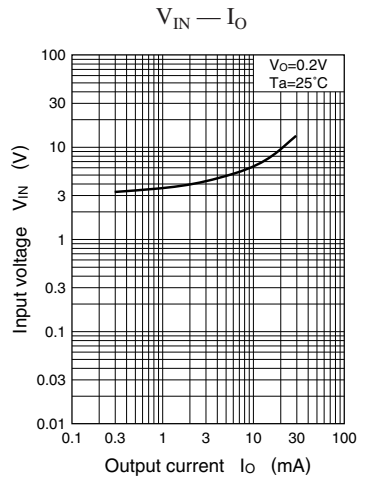
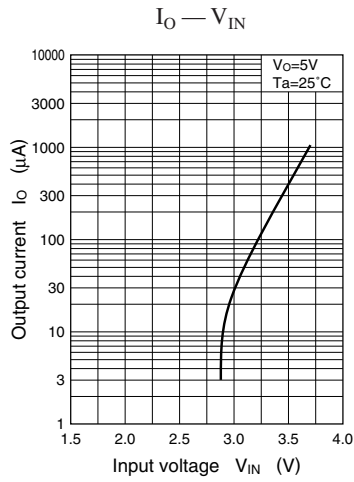
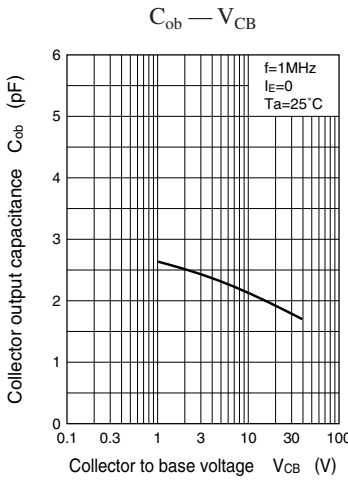
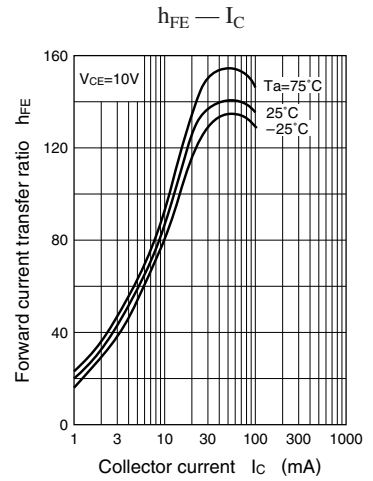
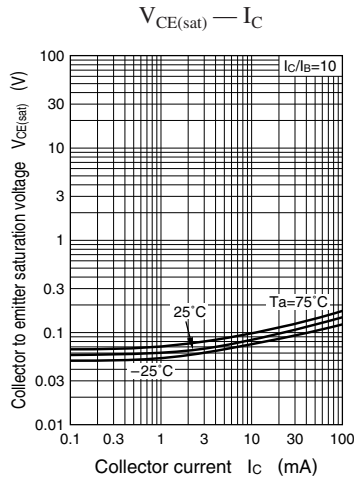
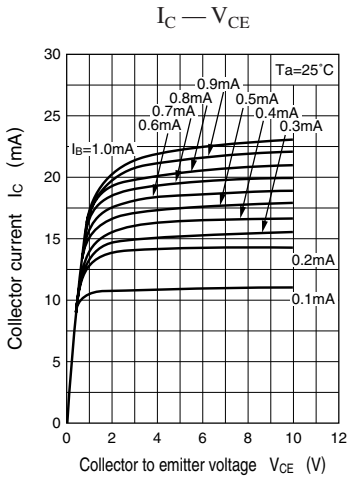




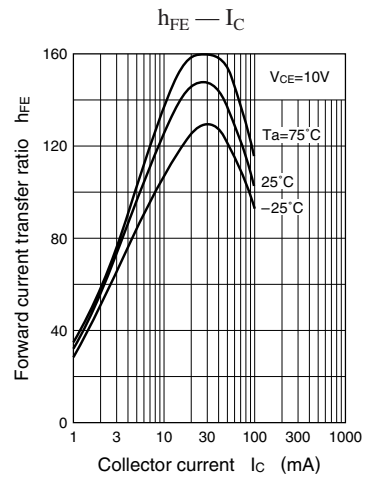
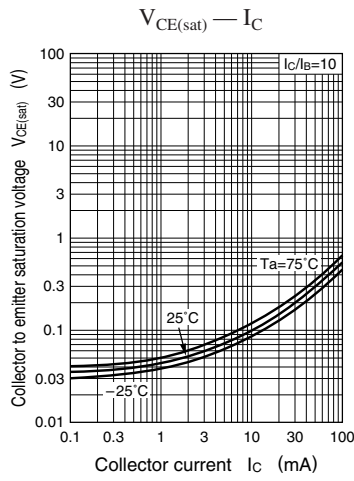
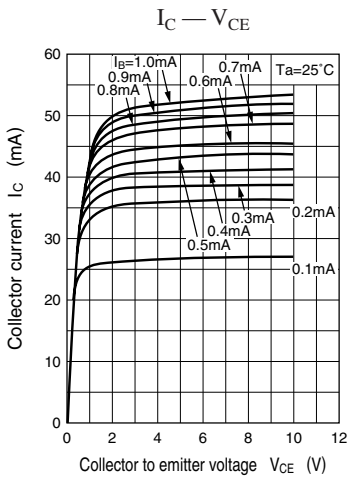
Characteristics charts of UNR6210

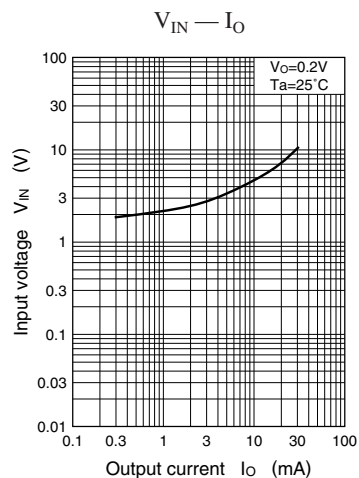
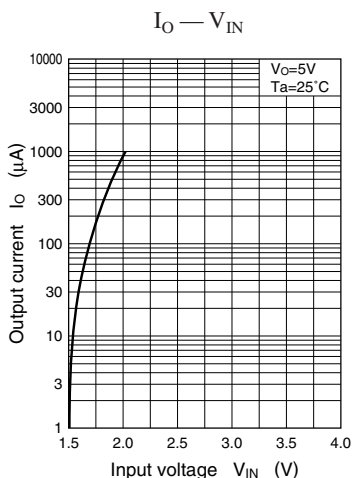
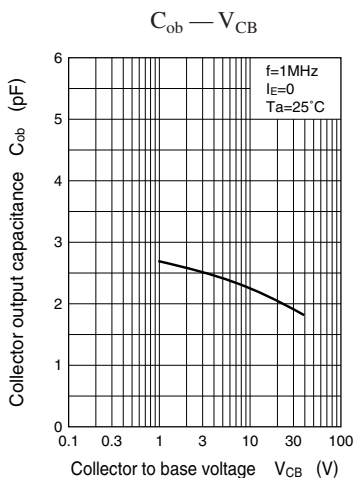


Characteristics charts of UNR621D

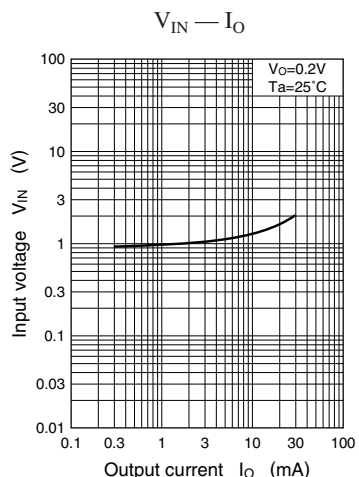
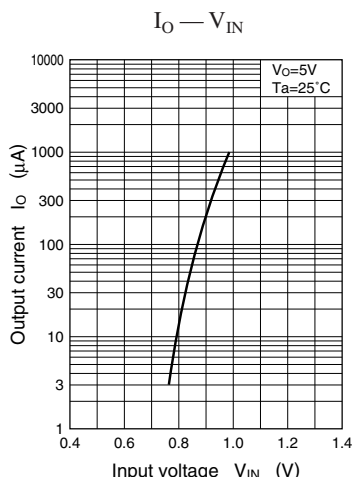
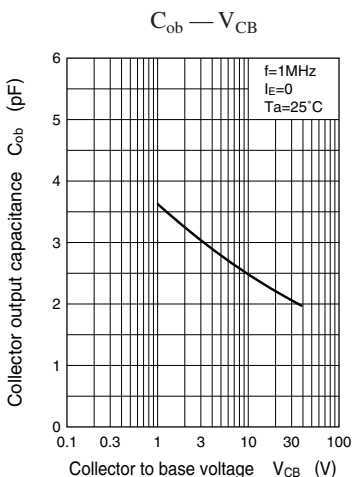
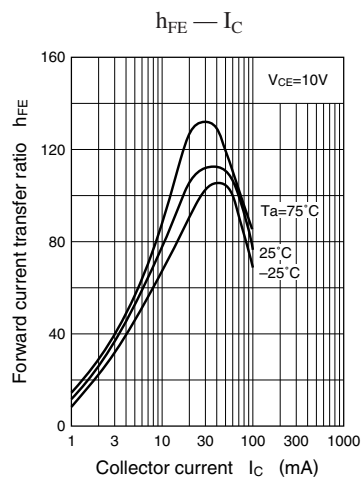
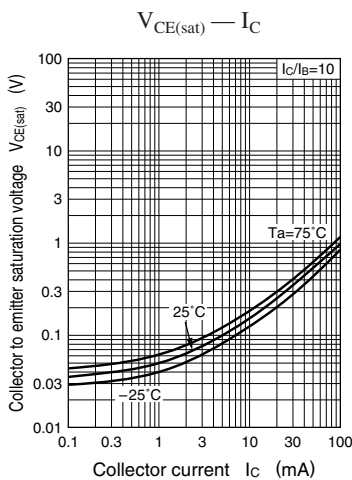
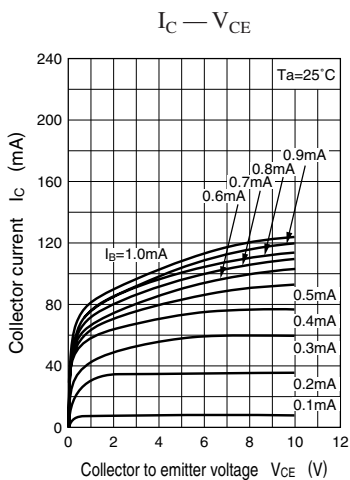


Characteristics charts of UNR621E

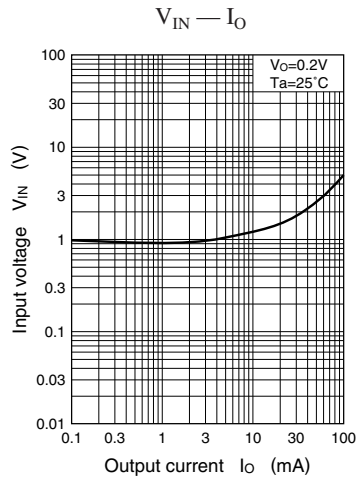
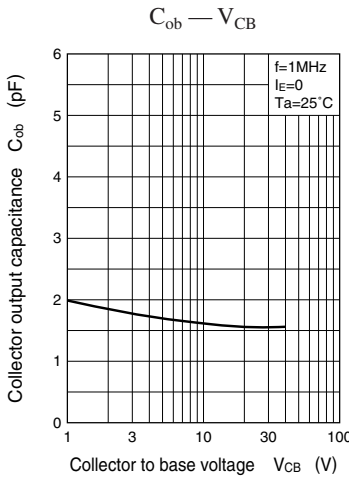
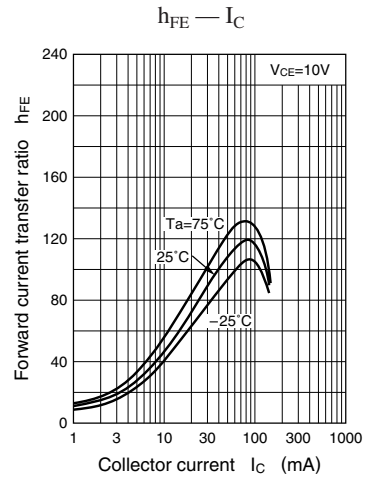
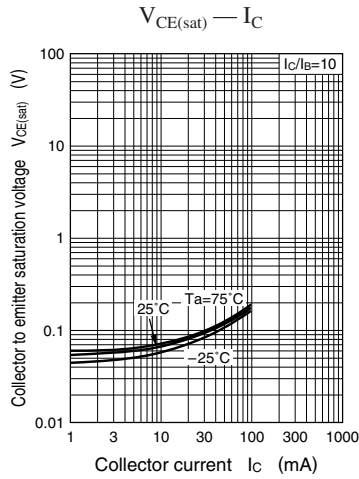
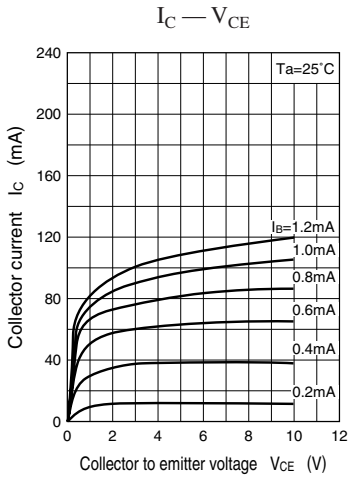




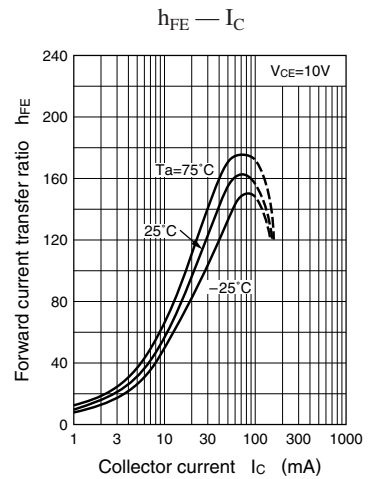
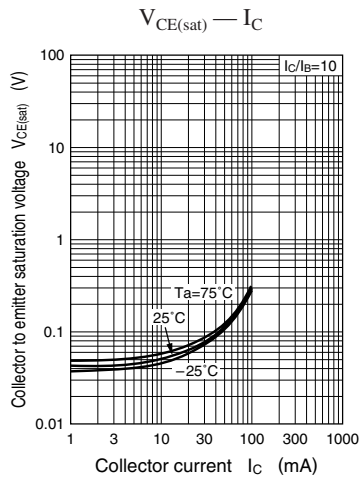
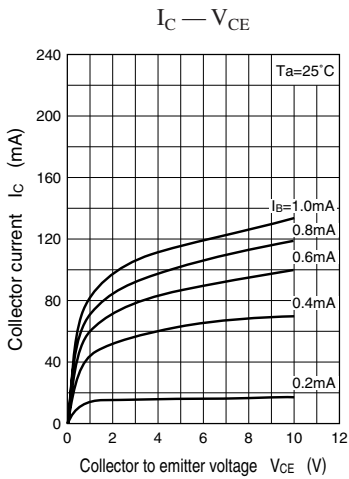
Characteristics charts of UNR621F

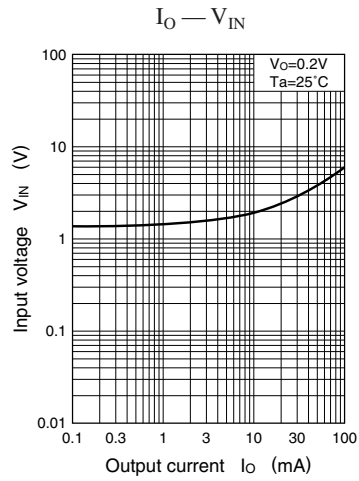
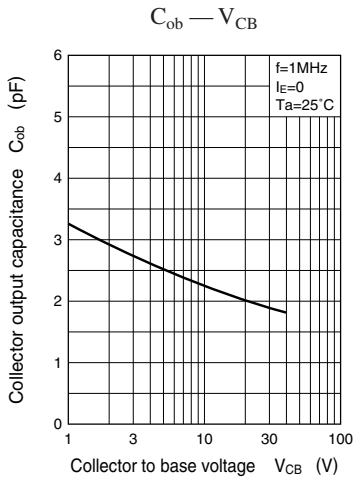


Characteristics charts of UNR621K



Characteristics charts of UNR621L





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