

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

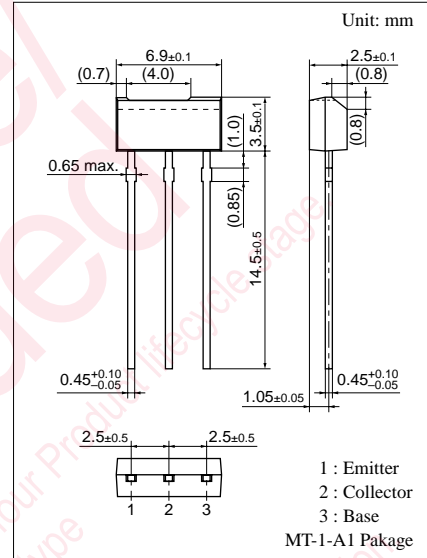
For digital circuits

Features

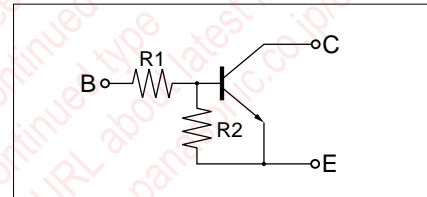
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- MT-1 type package, allowing supply with the radial taping.

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



Internal Connection



Absolute Maximum Ratings (T_a=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	400	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

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

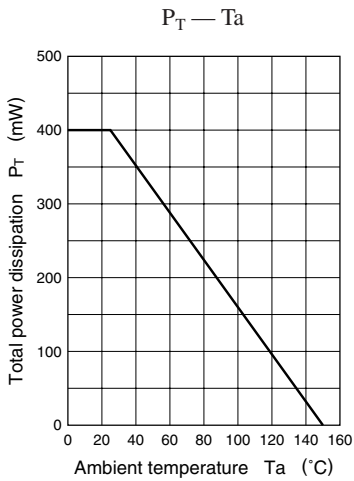
■ Electrical Characteristics (T_a=25°C)

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

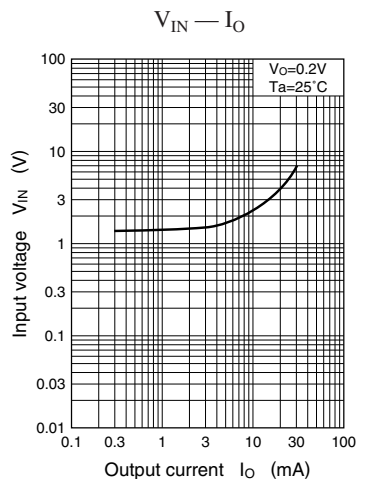
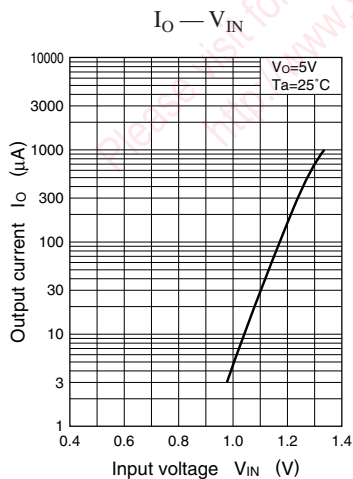
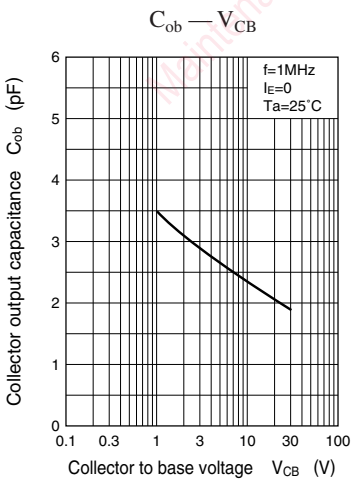
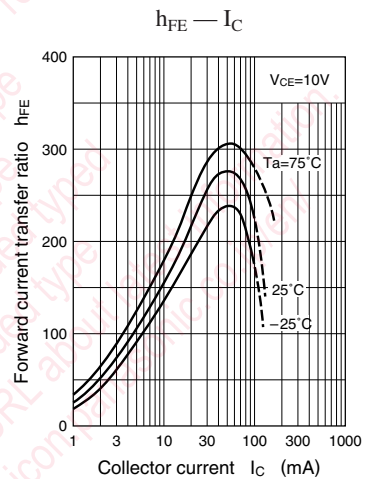
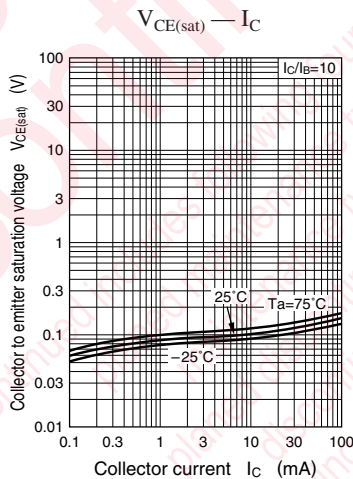
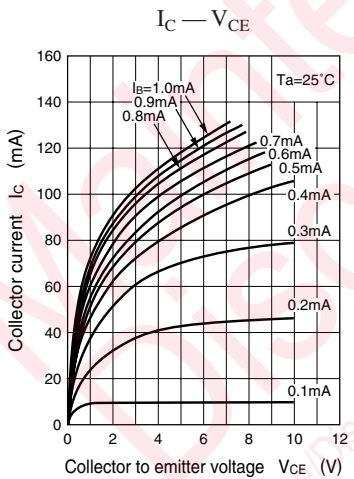
* h_{FE} rank classification (UNR6215/6216/6217/6210)

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

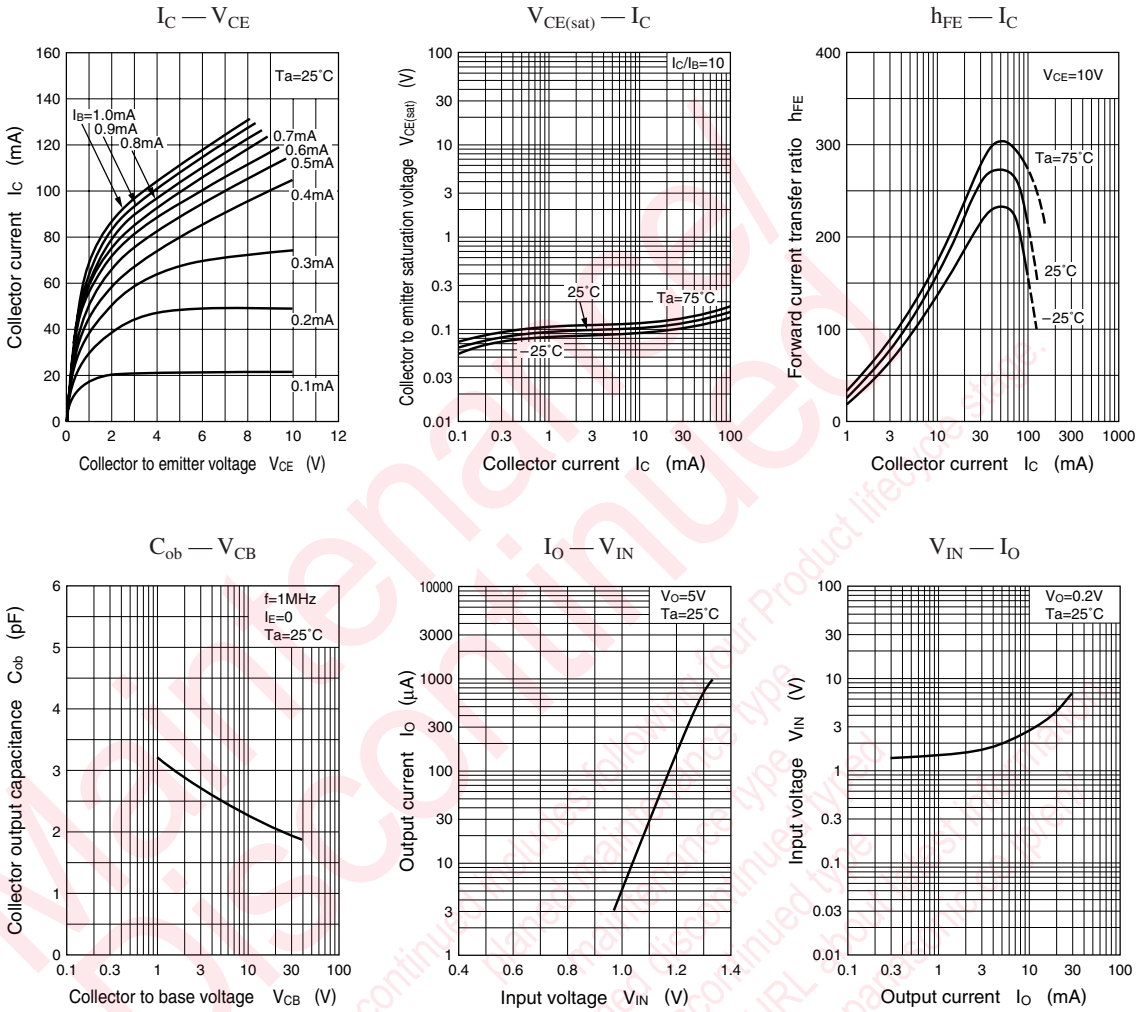
Common characteristics chart



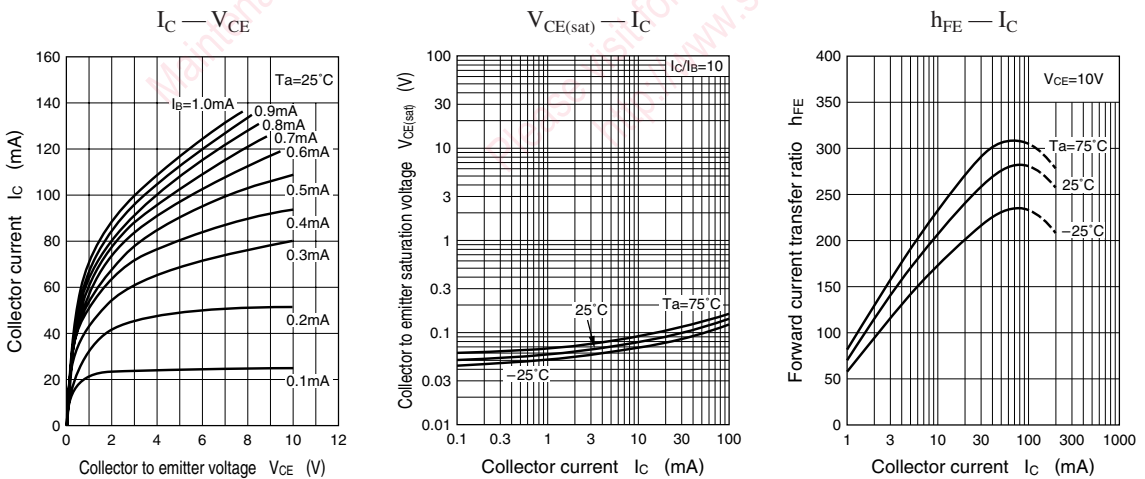
Characteristics charts of UNR6211

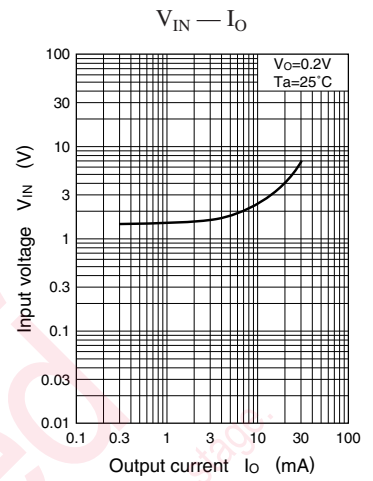
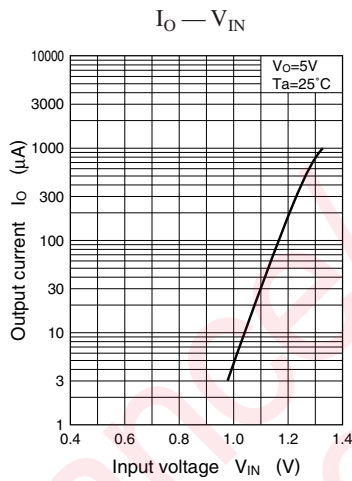
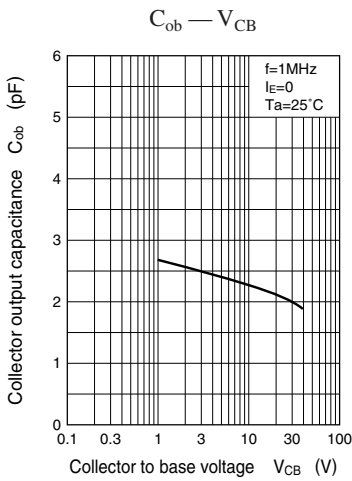


Characteristics charts of UNR6212

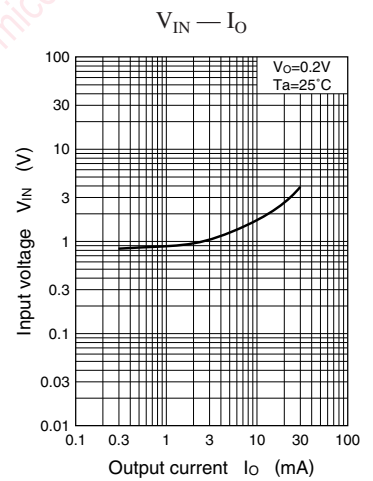
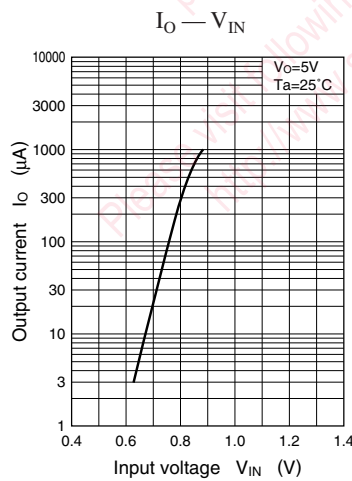
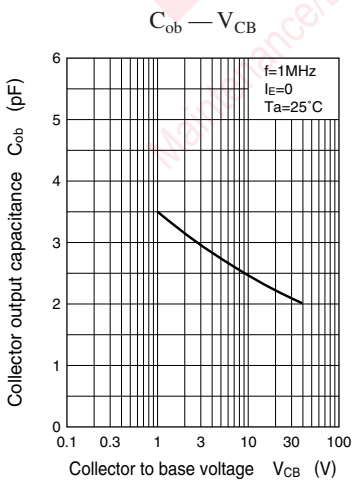
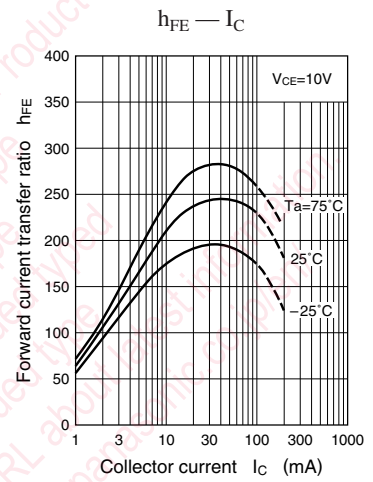
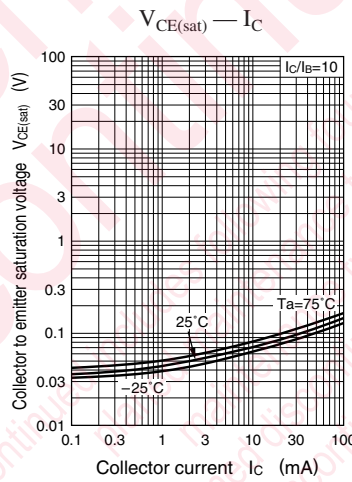
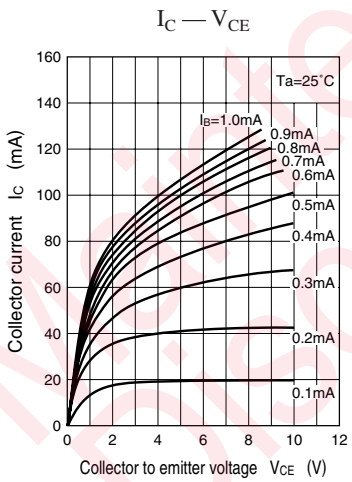


Characteristics charts of UNR6213

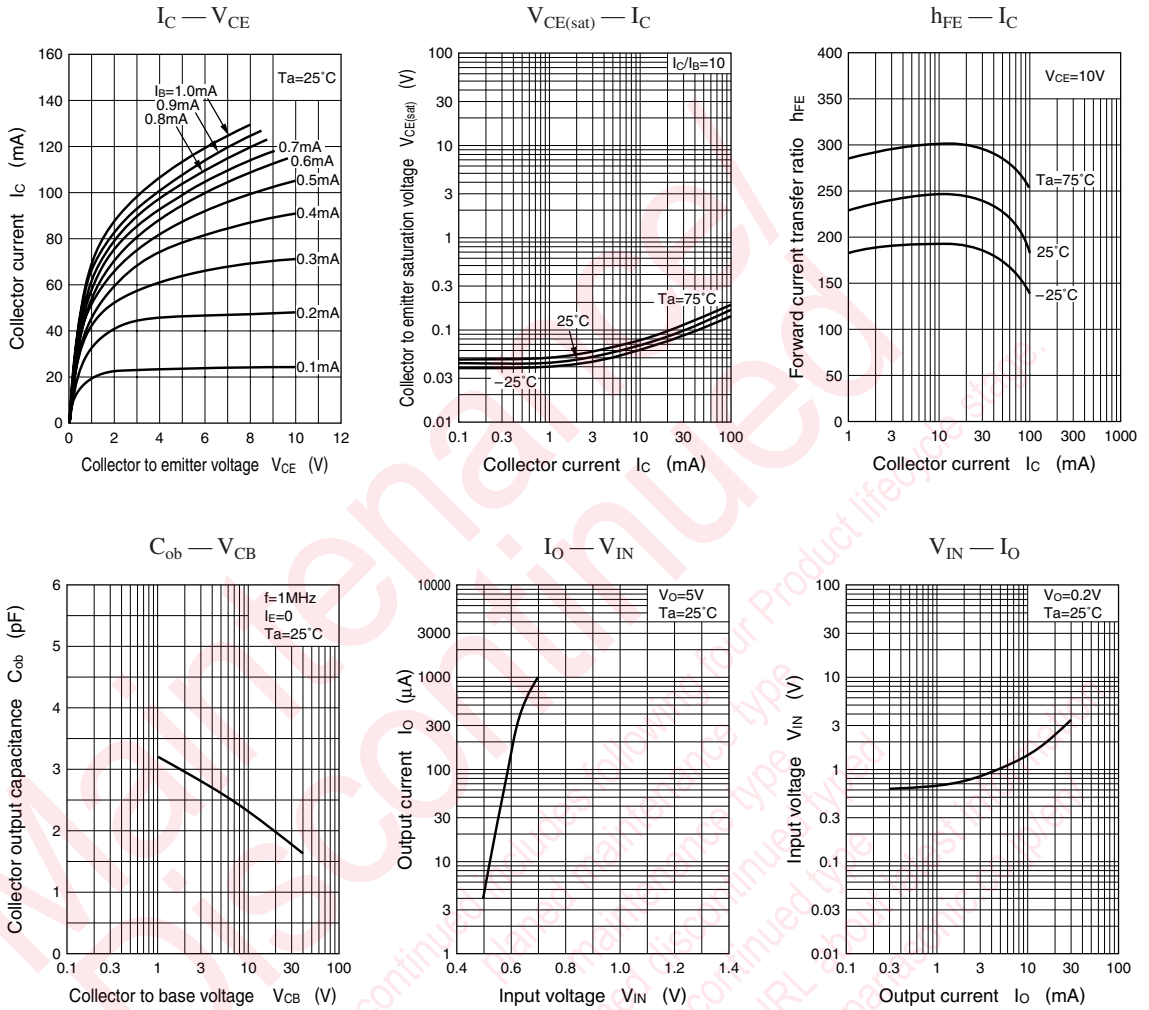




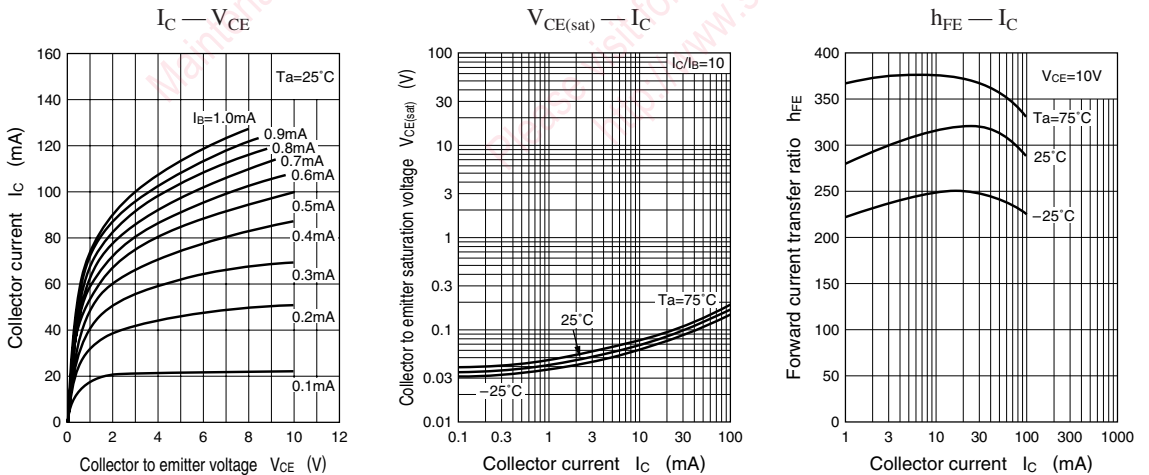
Characteristics charts of UNR6214

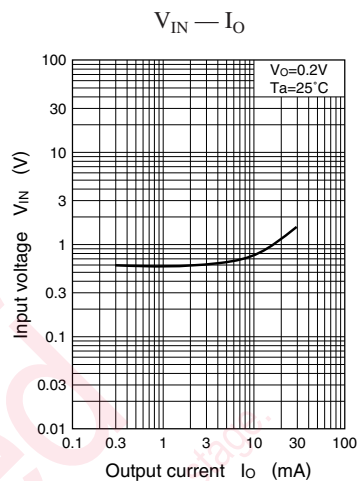
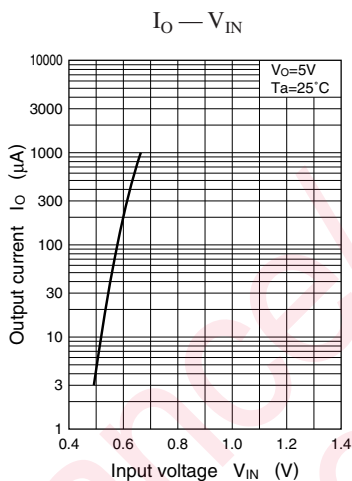
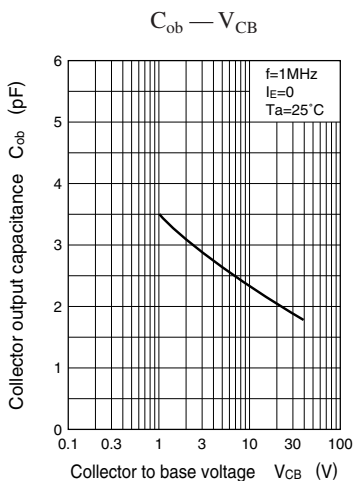


Characteristics charts of UNR6215

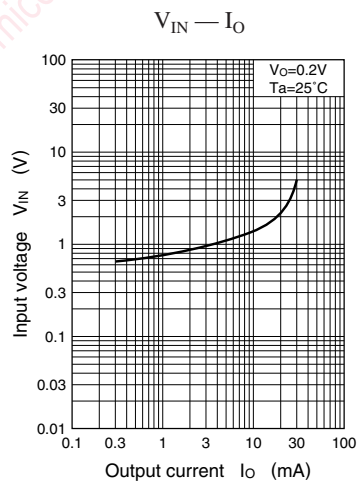
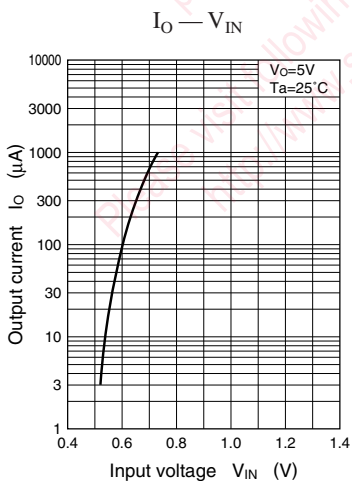
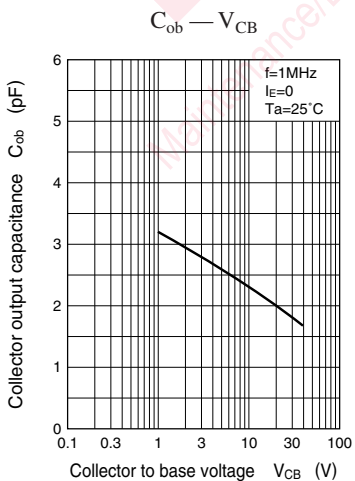
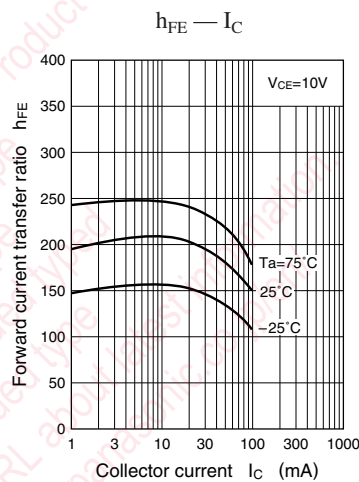
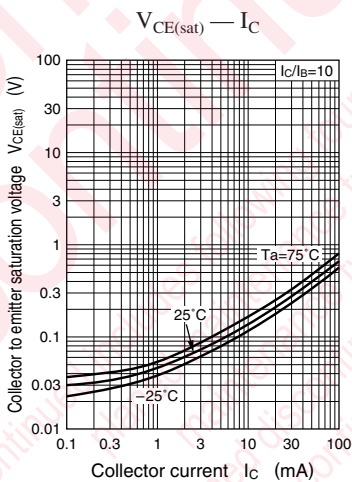
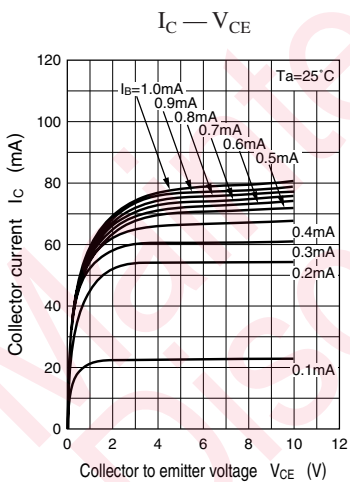


Characteristics charts of UNR6216

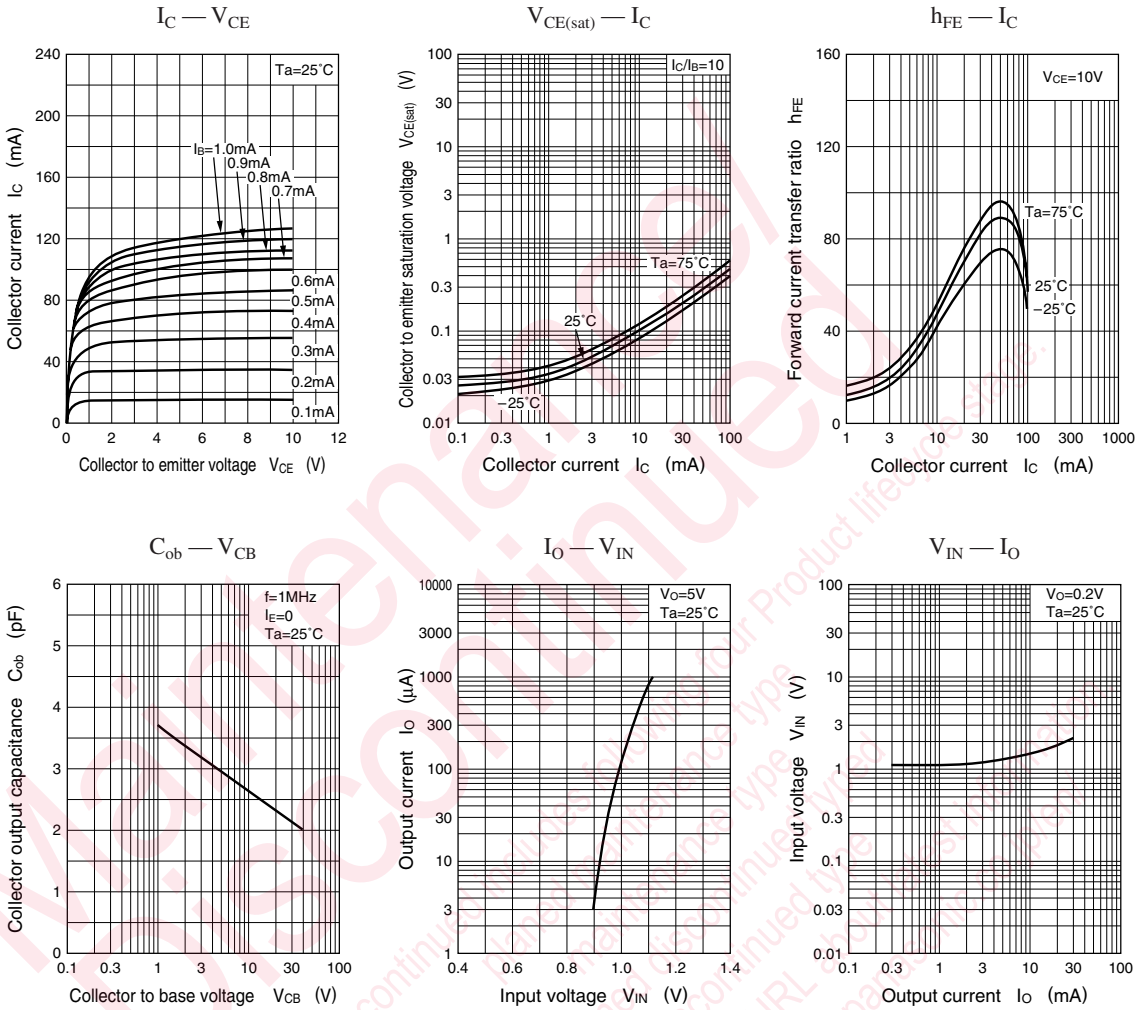




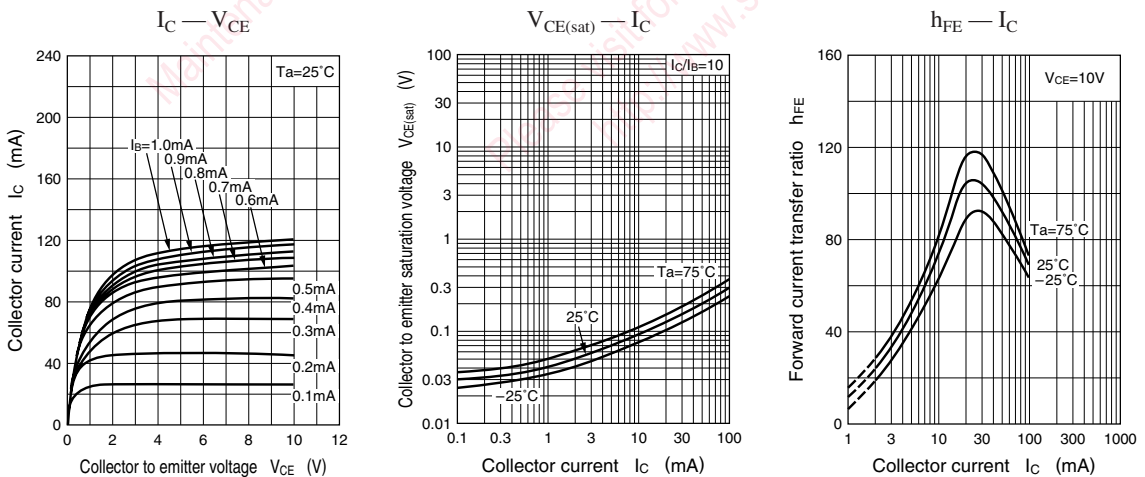
Characteristics charts of UNR6217

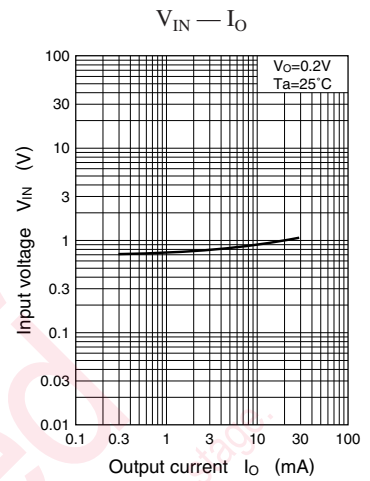
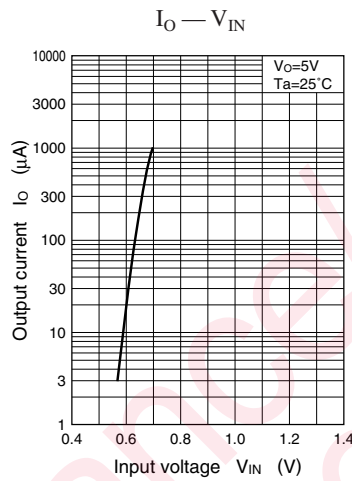
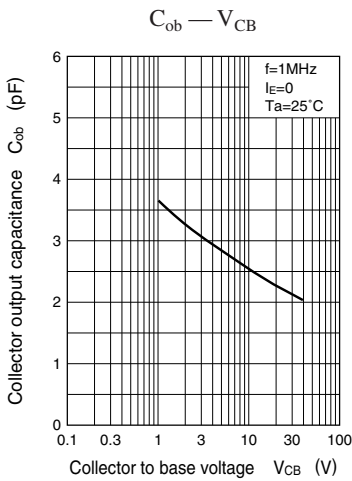


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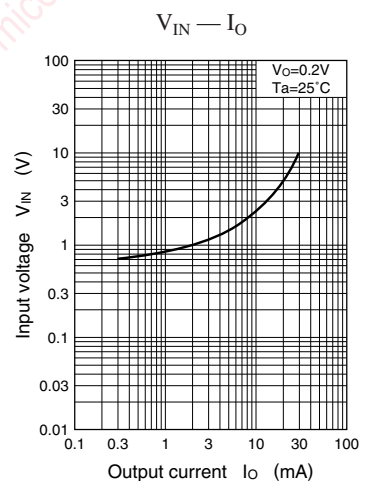
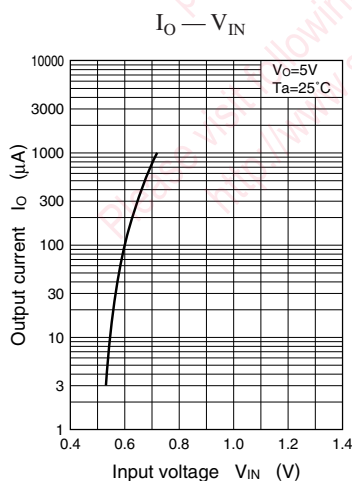
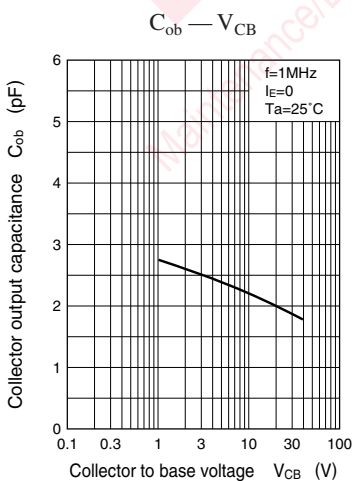
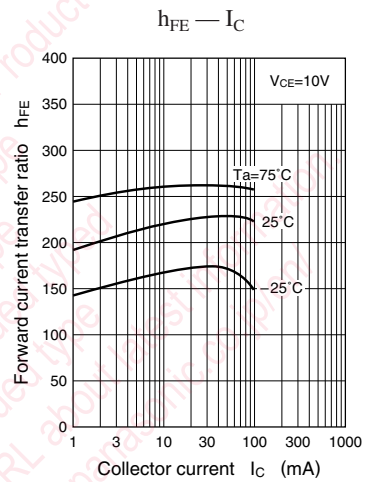
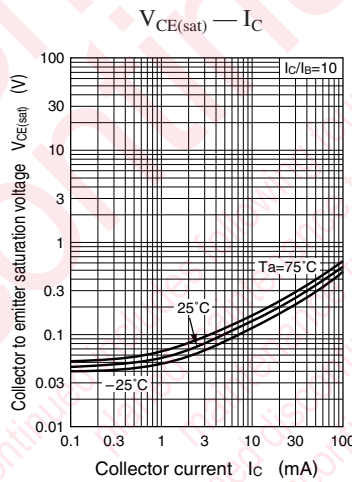
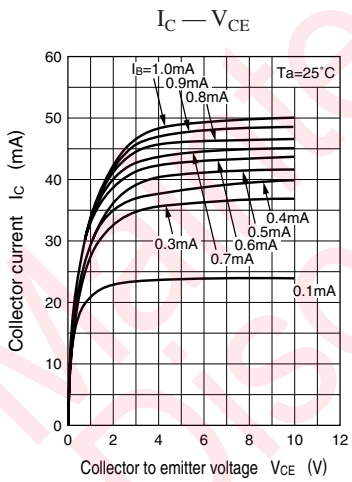


Characteristics charts of UNR6219

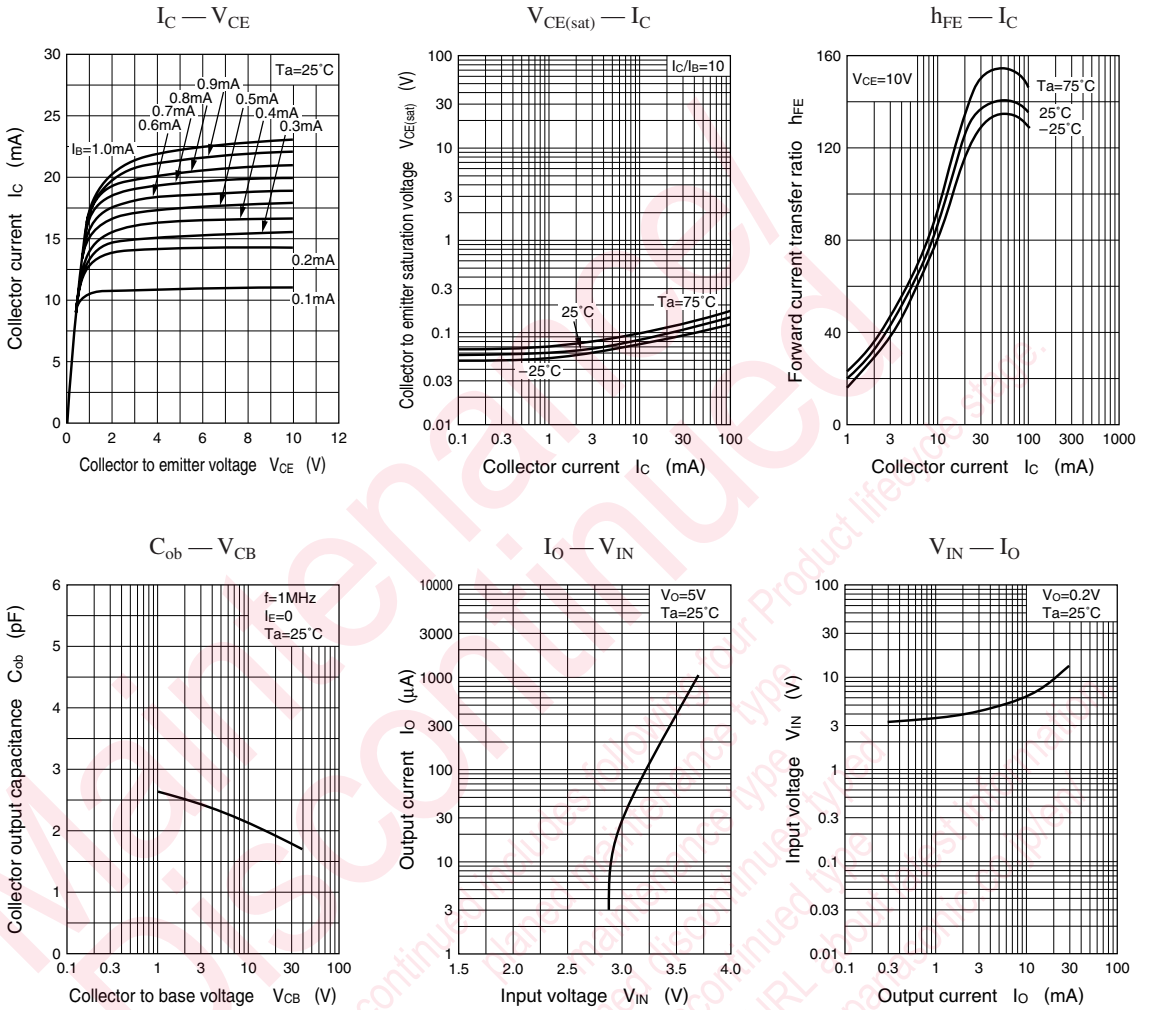




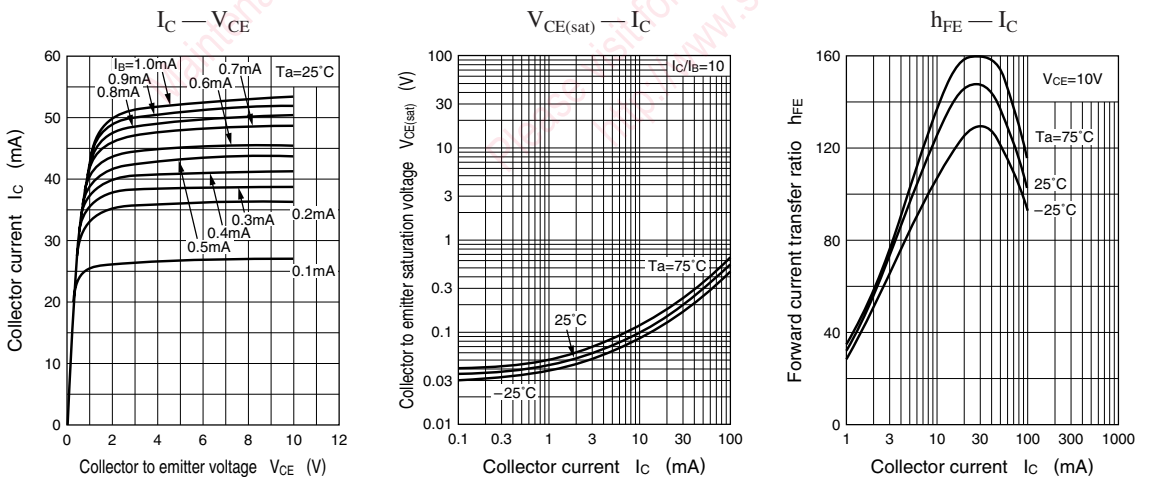
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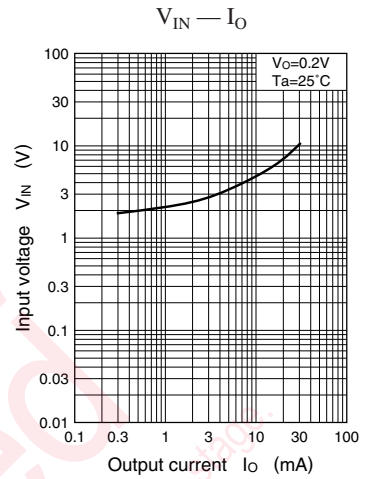
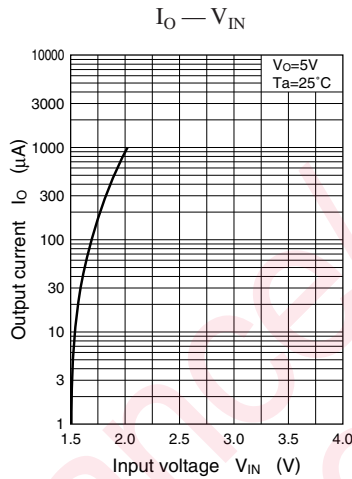
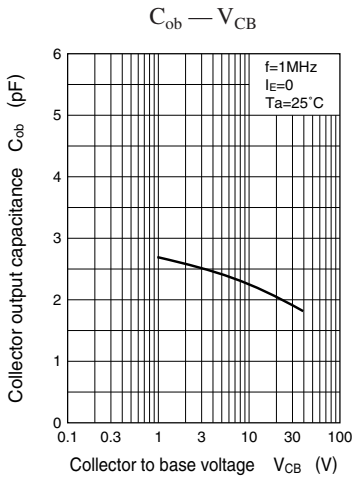


Characteristics charts of UNR621D

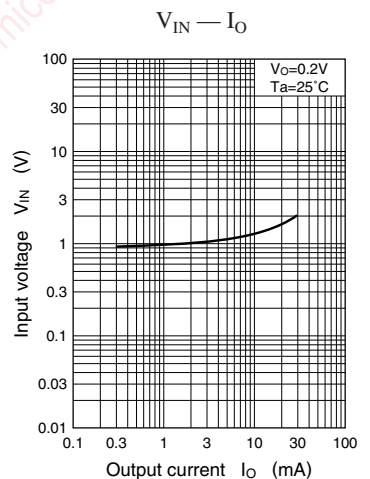
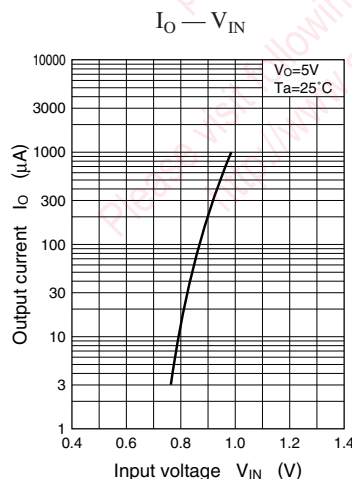
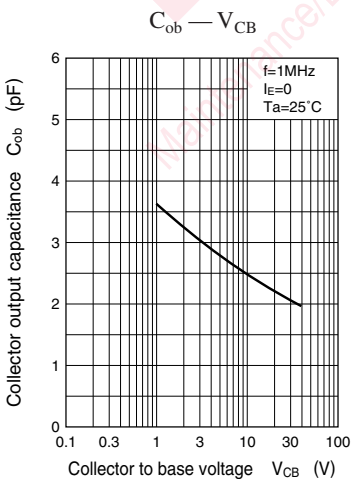
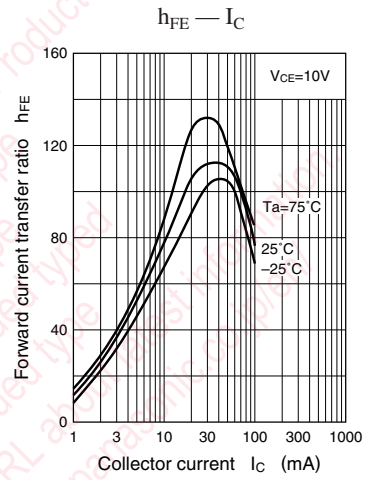
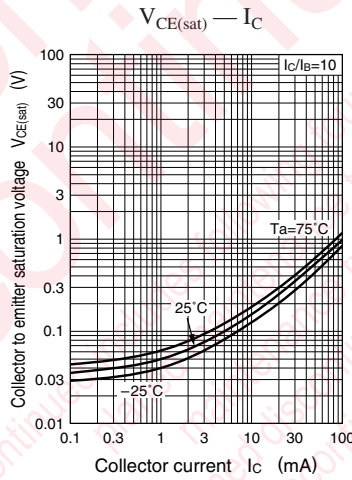
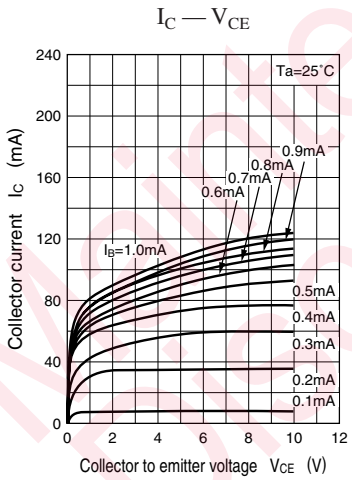


Characteristics charts of UNR621E

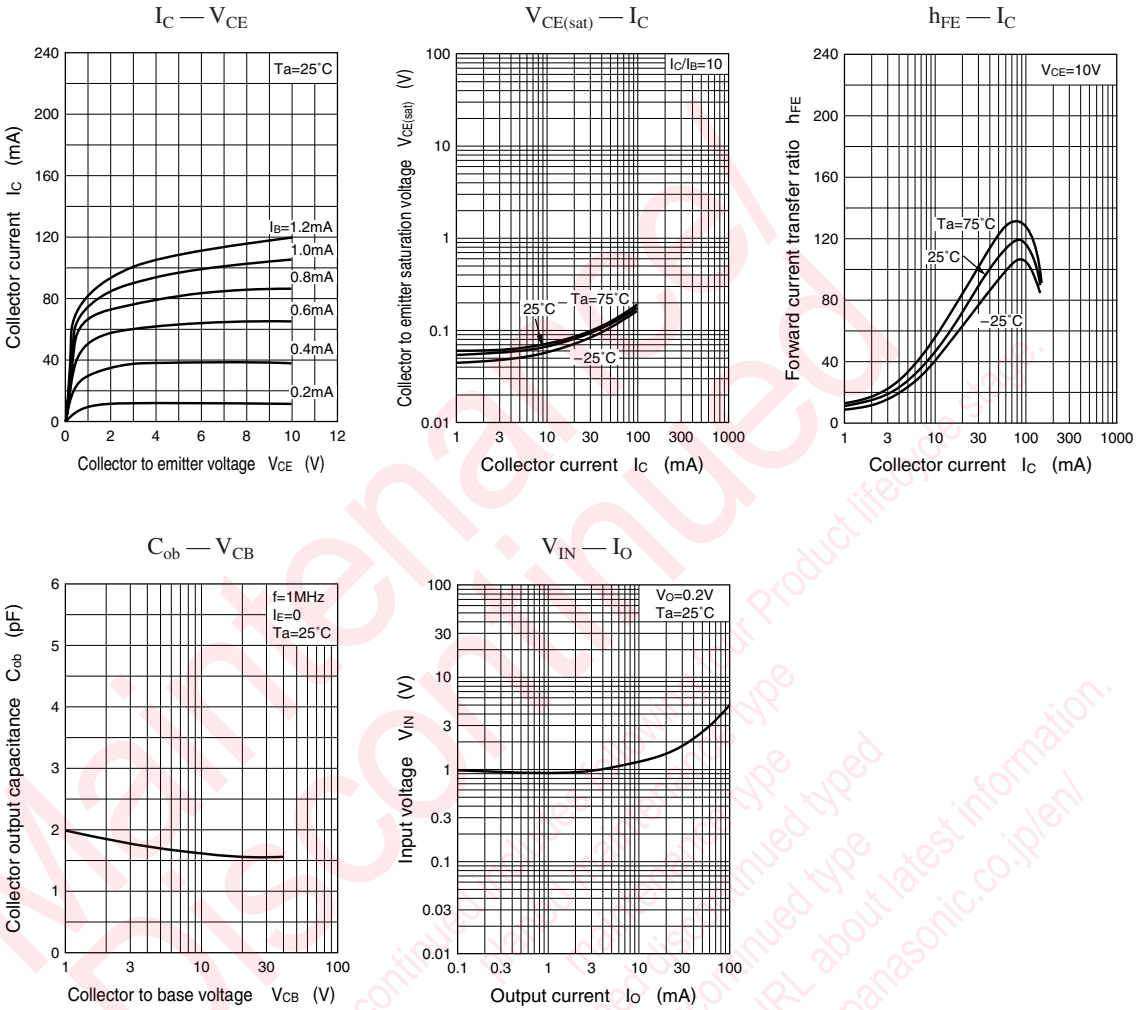




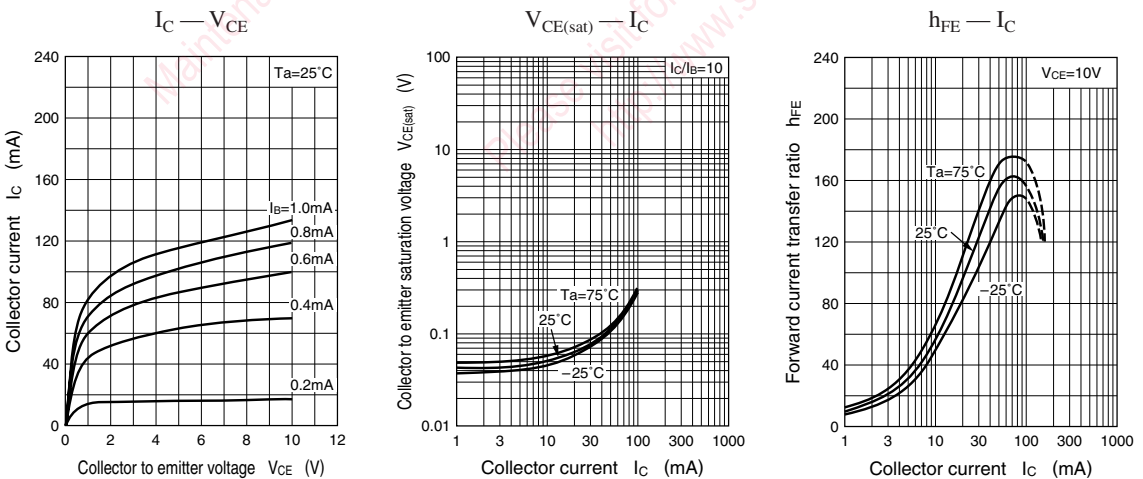
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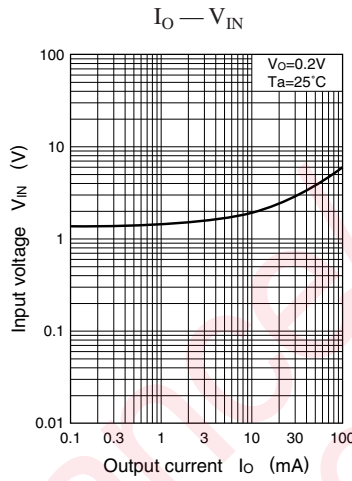
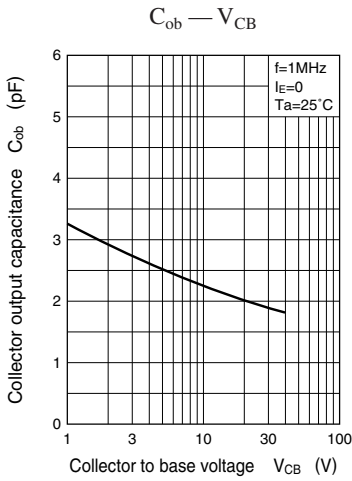


Characteristics charts of UNR621K



Characteristics charts of UNR621L





Maintenance/Discontinued

includes following four Product lifecycle stage.

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

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