

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

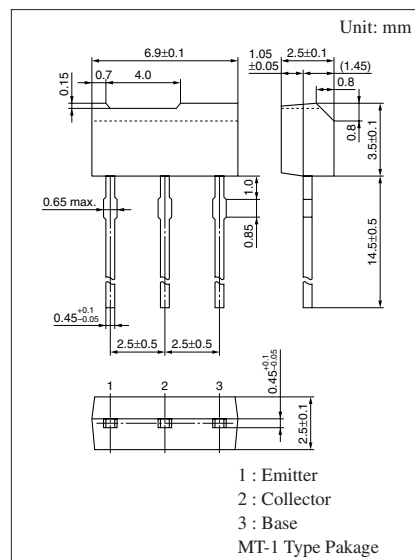
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- MT-1 type package, allowing supply with the radial taping.

Resistance by Part Number

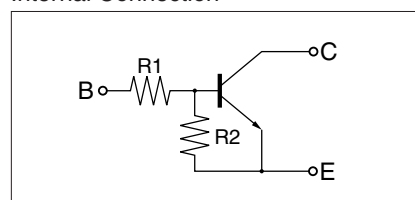
	(R ₁)	(R ₂)
• UNR6211	10kΩ	10kΩ
• UNR6212	22kΩ	22kΩ
• UNR6213	47kΩ	47kΩ
• UNR6214	10kΩ	47kΩ
• UNR6215	10kΩ	—
• UNR6216	4.7kΩ	—
• UNR6217	22kΩ	—
• UNR6218	0.51kΩ	5.1kΩ
• UNR6219	1kΩ	10kΩ
• UNR6210	47kΩ	—
• UNR621D	47kΩ	10kΩ
• UNR621E	47kΩ	22kΩ
• UNR621F	4.7kΩ	10kΩ
• UNR621K	10kΩ	4.7kΩ
• UNR621L	4.7kΩ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

Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	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



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**

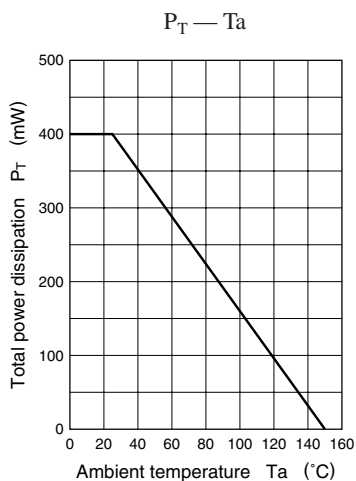
Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I _{CBO}	V _{CB} = 50V, I _E = 0			0.1	μA
		I _{CEO}	V _{CE} = 50V, I _B = 0			0.5	μA
Emitter cutoff current	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			
	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	

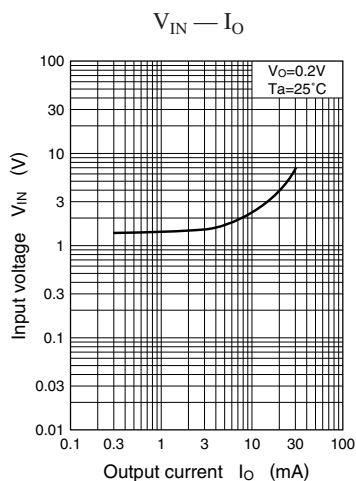
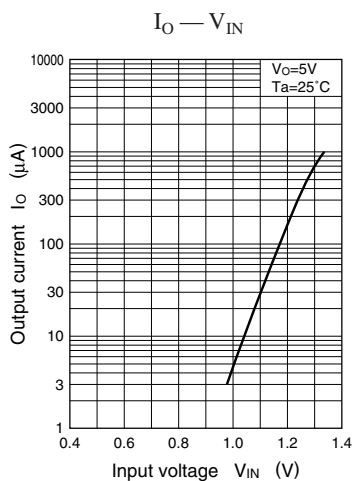
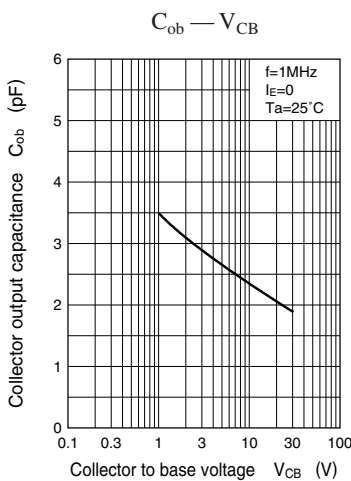
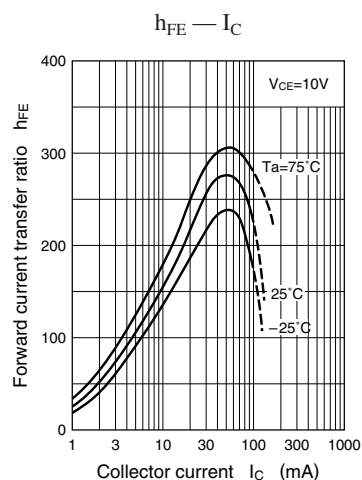
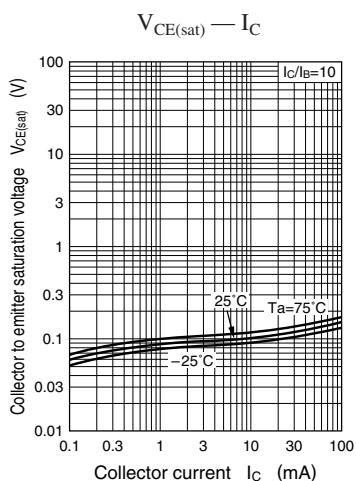
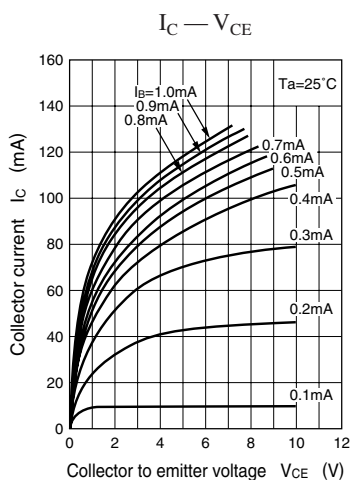
* h_{FE} rank classification (UNR6215/6216/6217/6210)

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

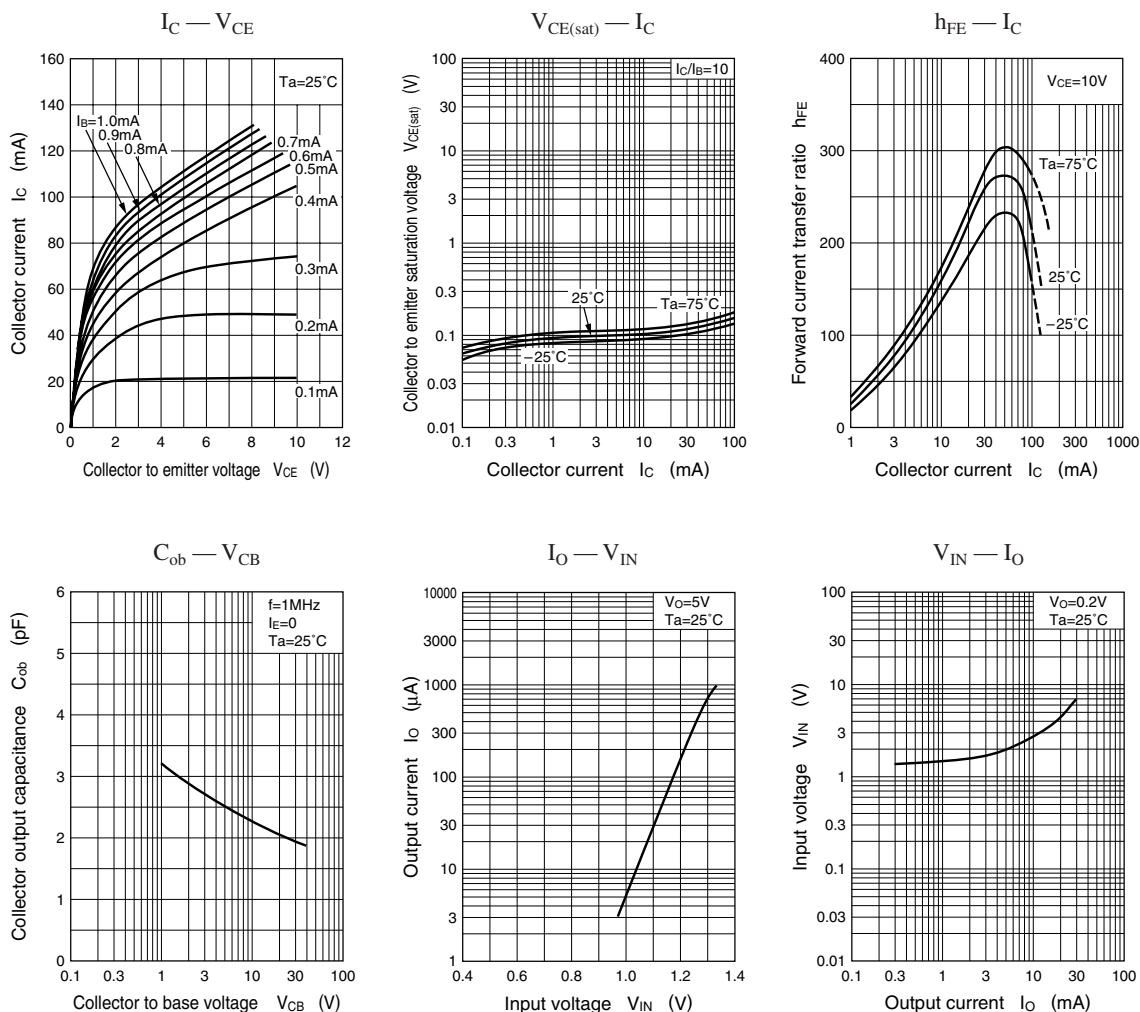
Common characteristics chart



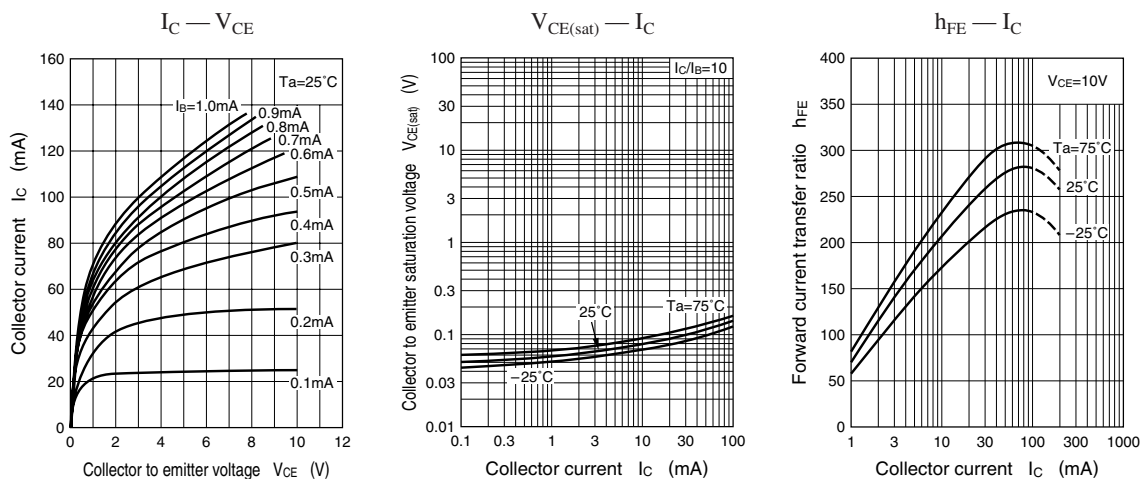
Characteristics charts of UNR6211

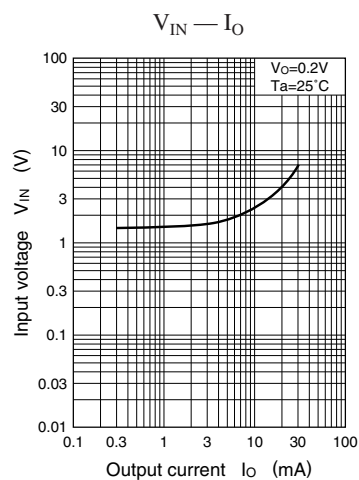
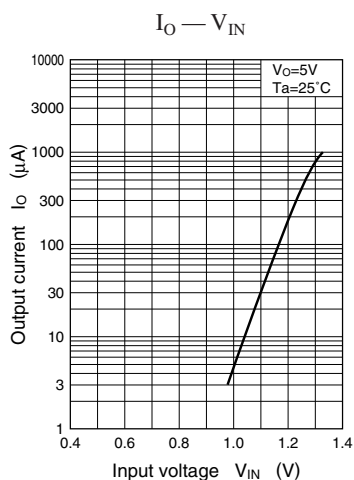
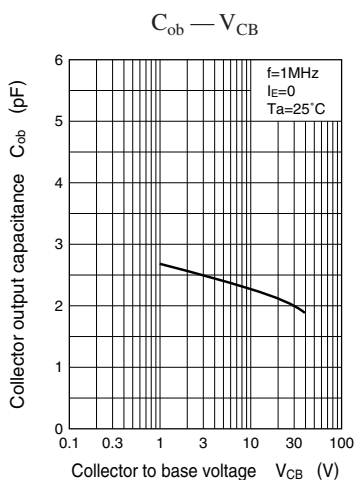


Characteristics charts of UNR6212

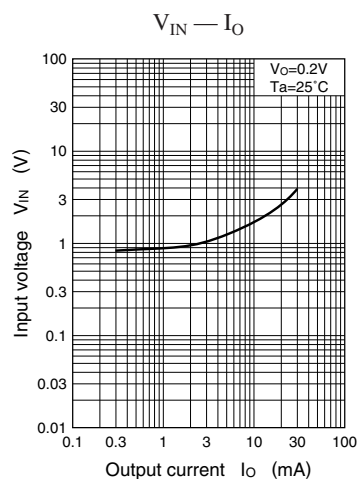
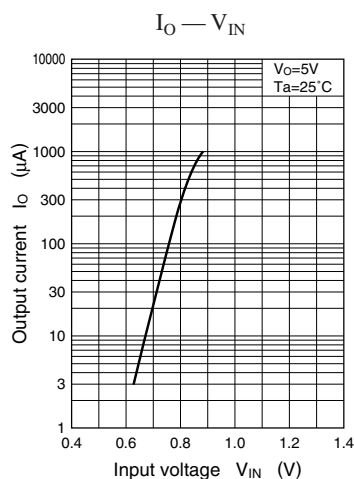
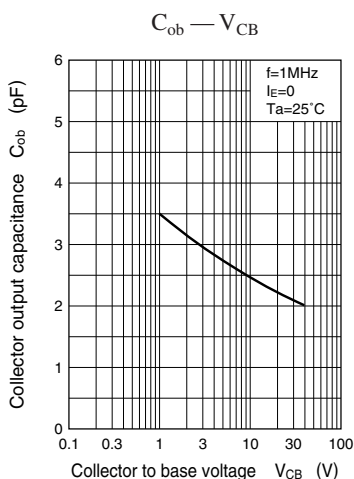
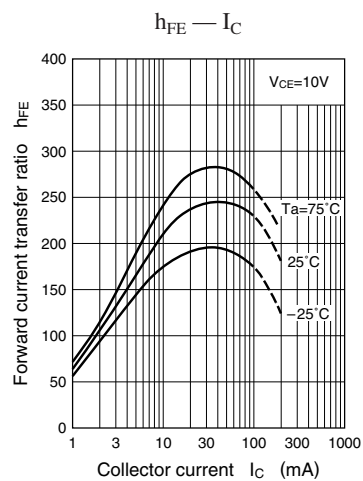
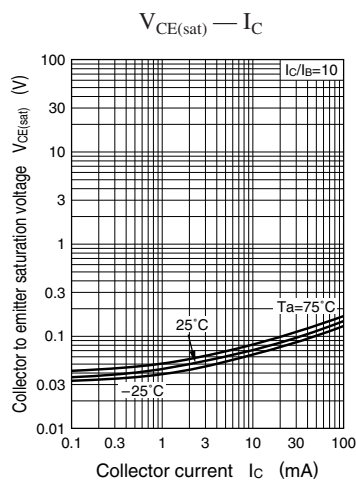
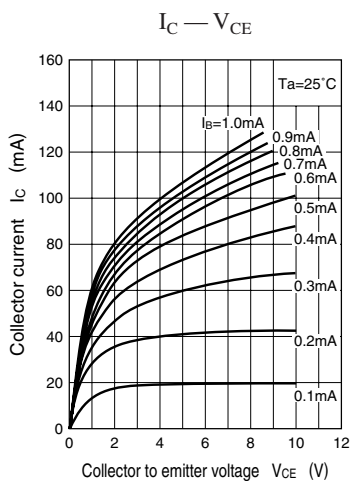


Characteristics charts of UNR6213

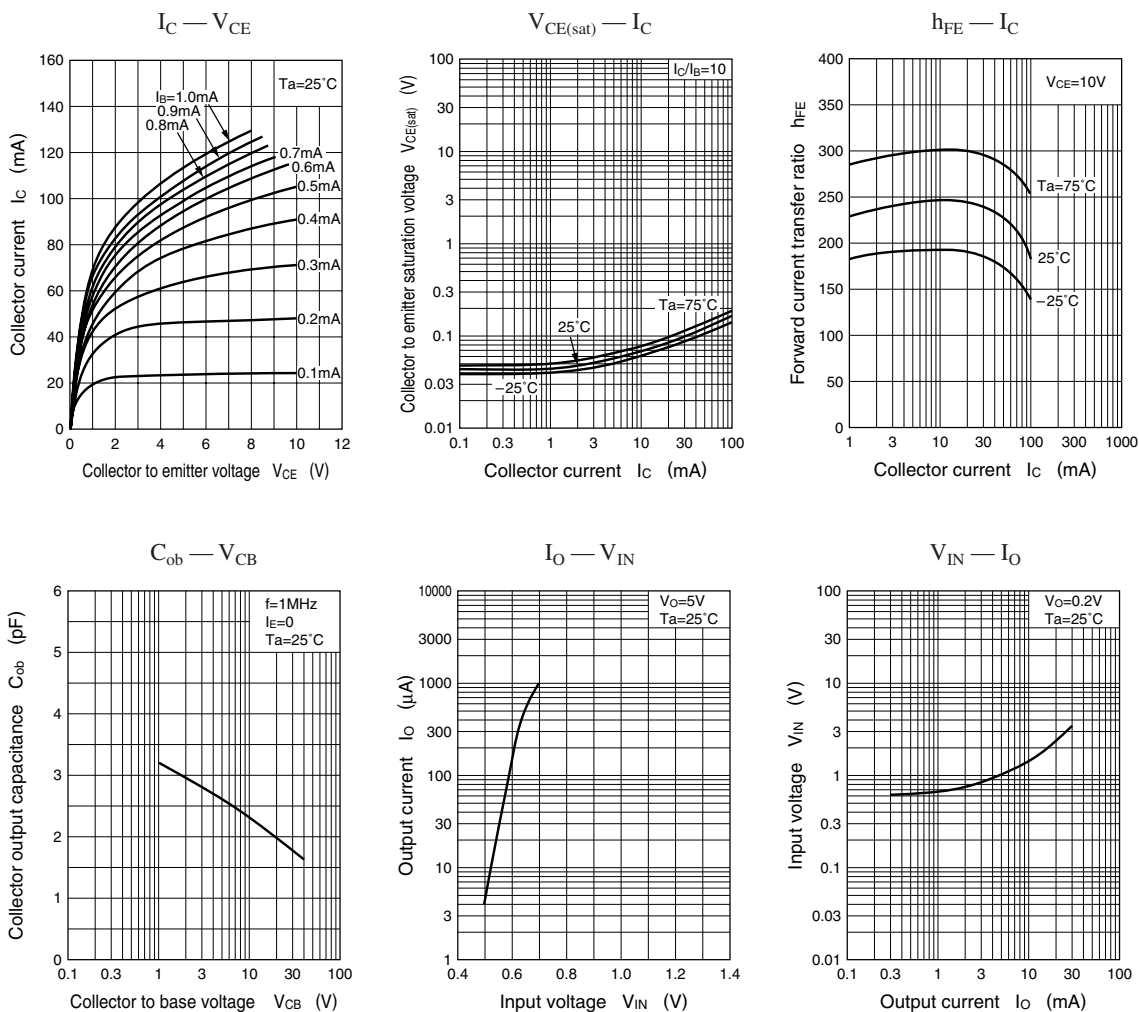




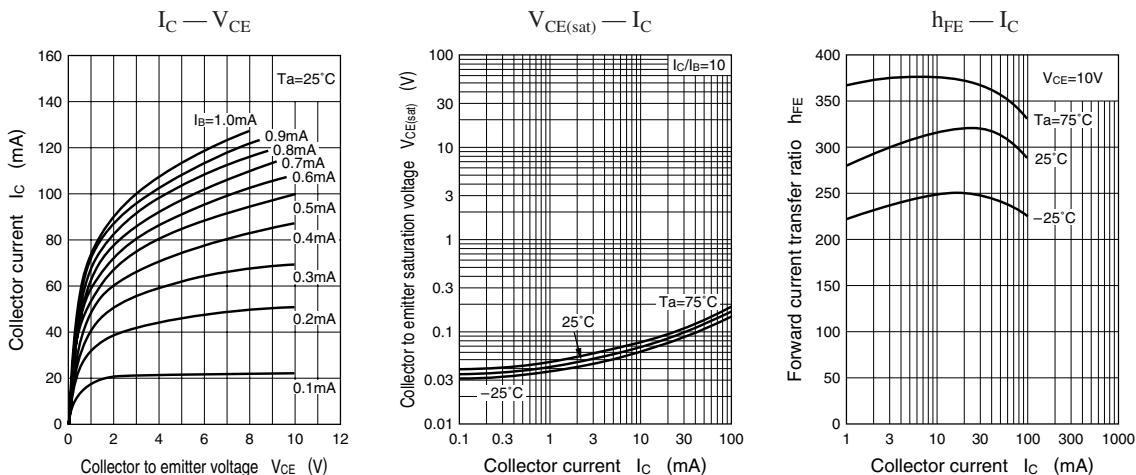
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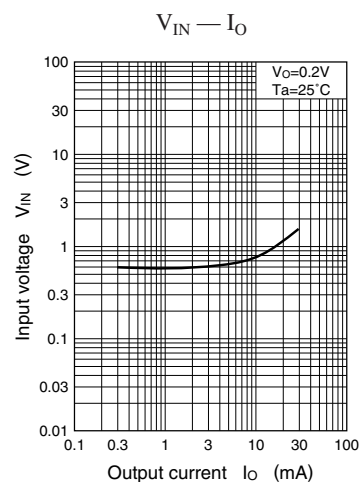
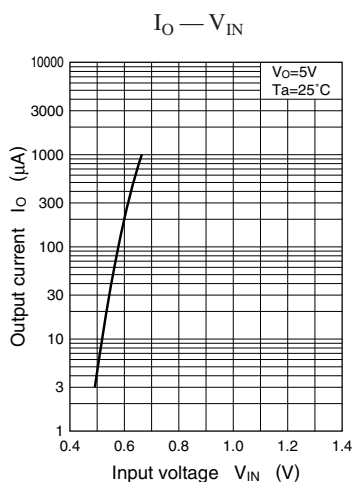
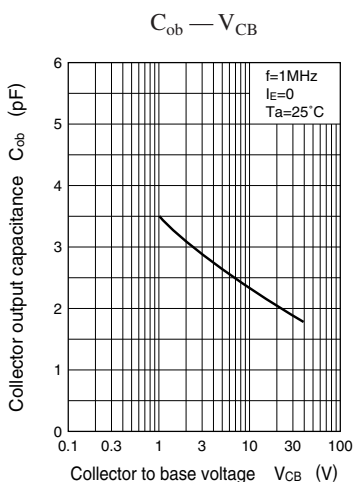


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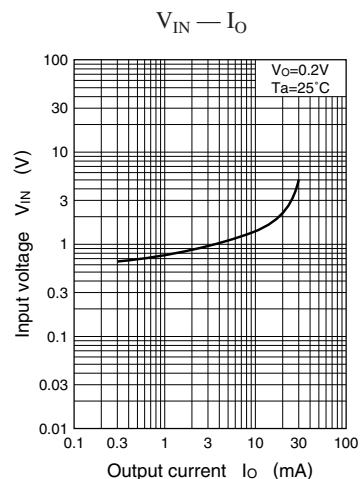
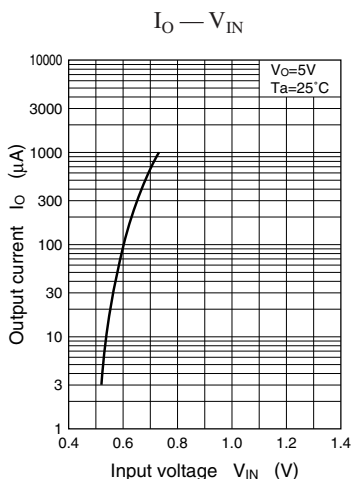
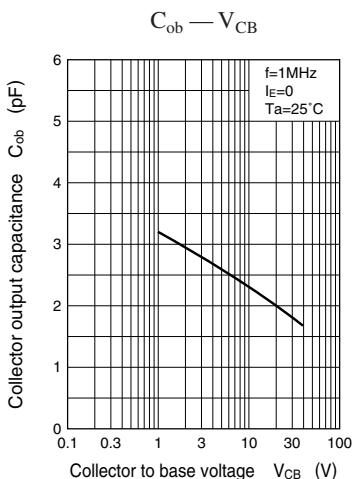
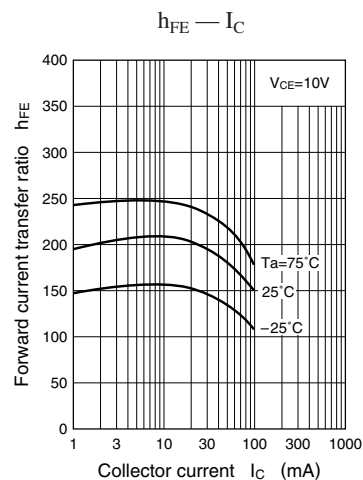
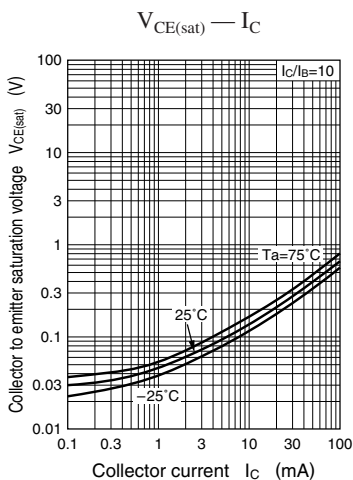
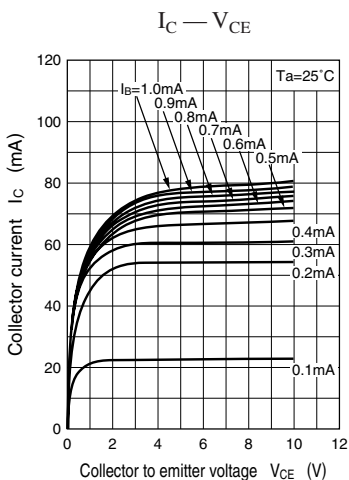


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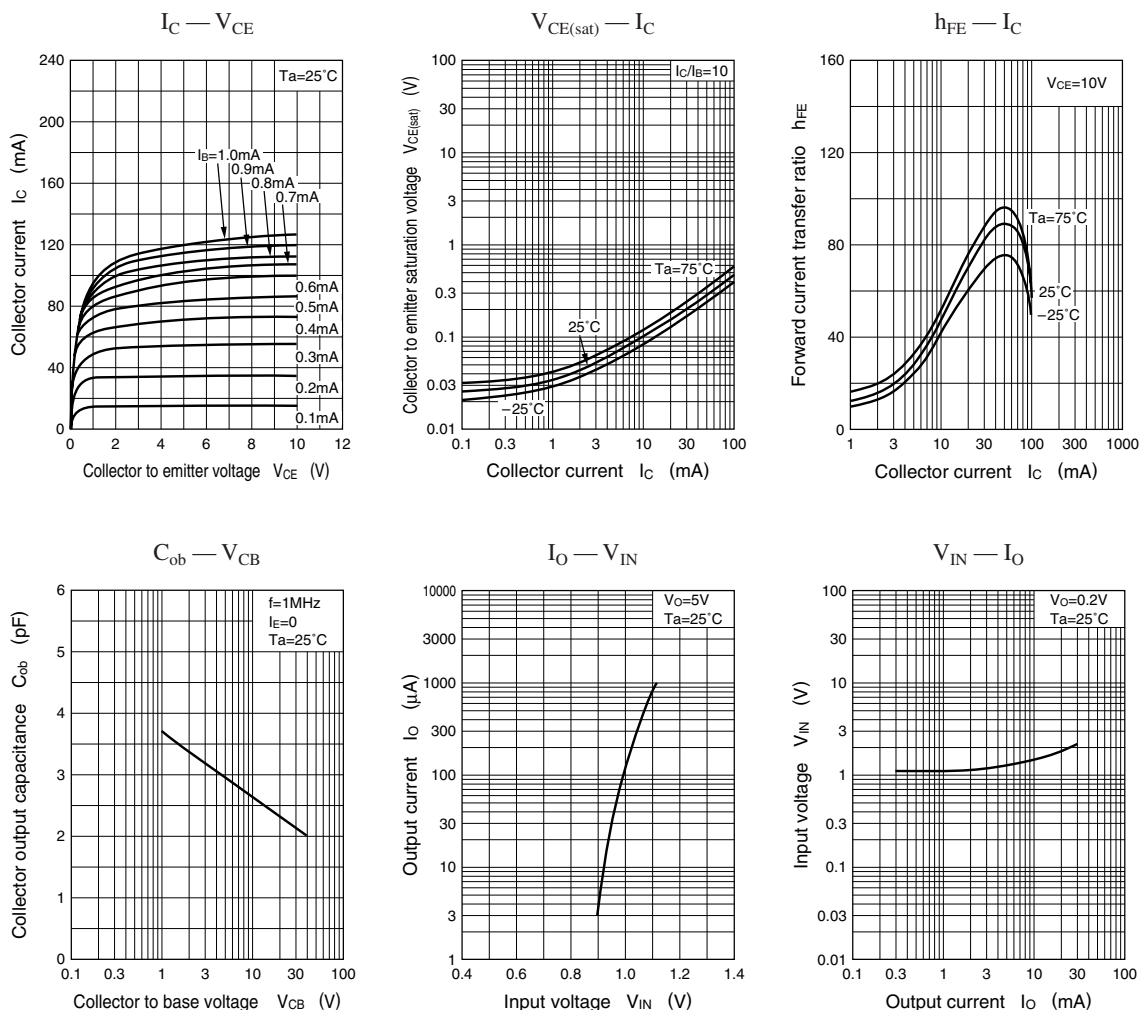




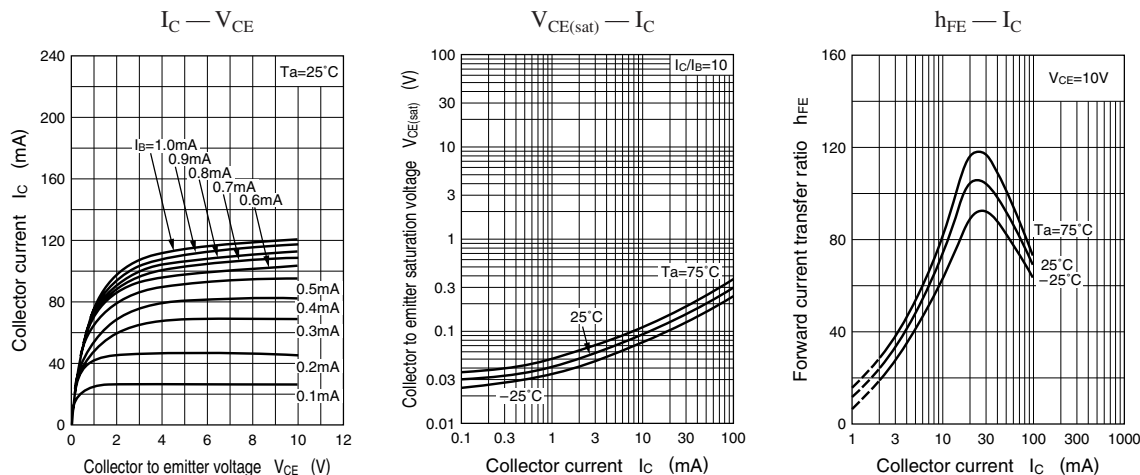
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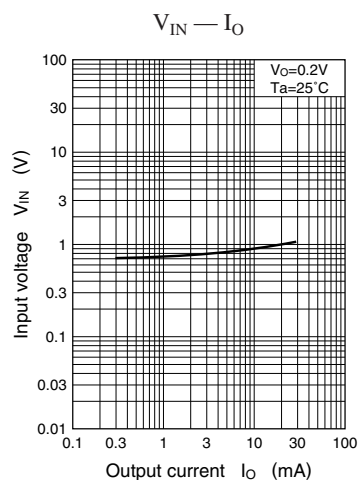
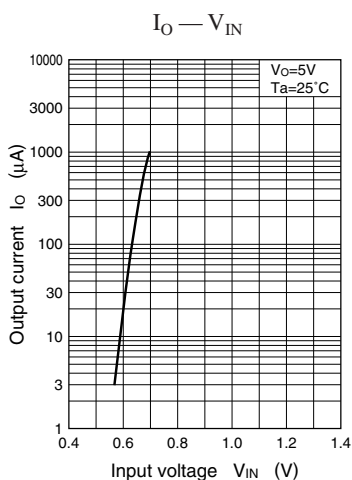
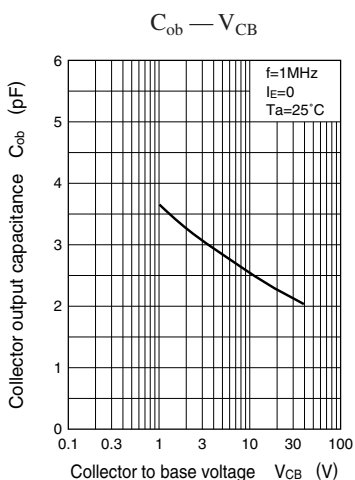


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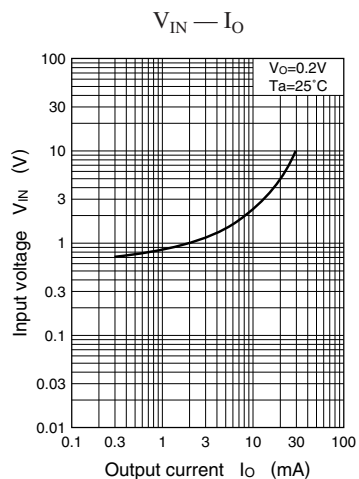
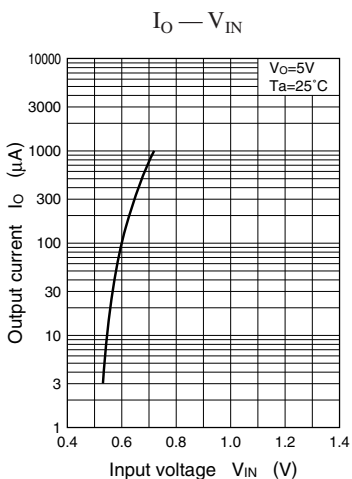
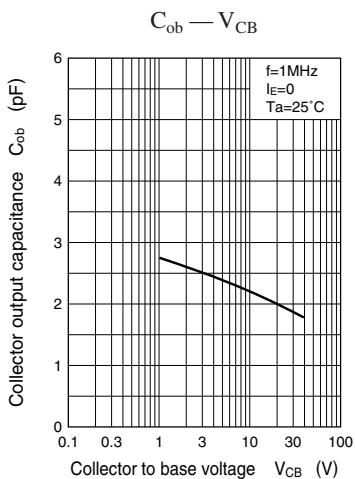
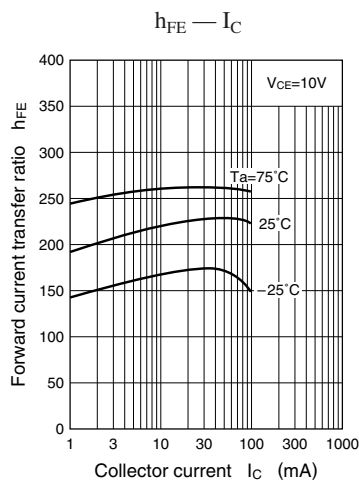
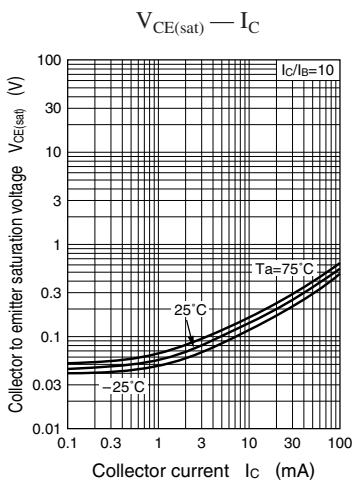
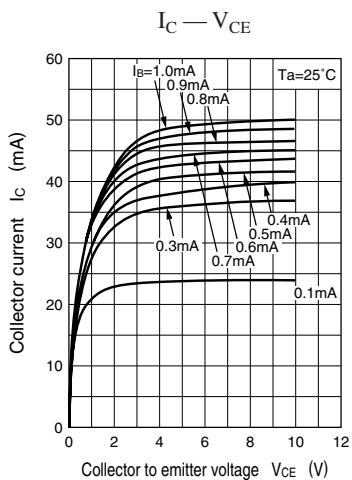


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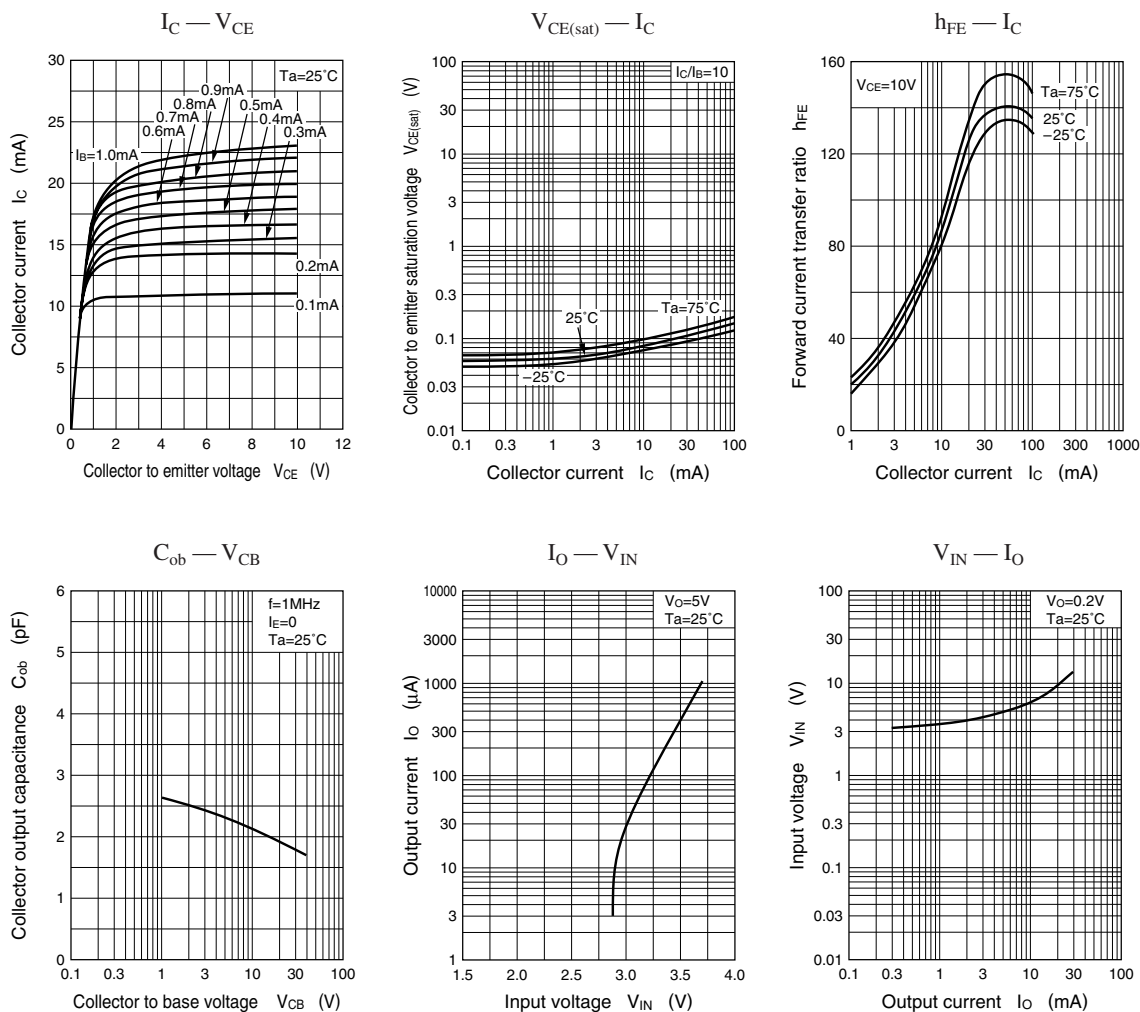




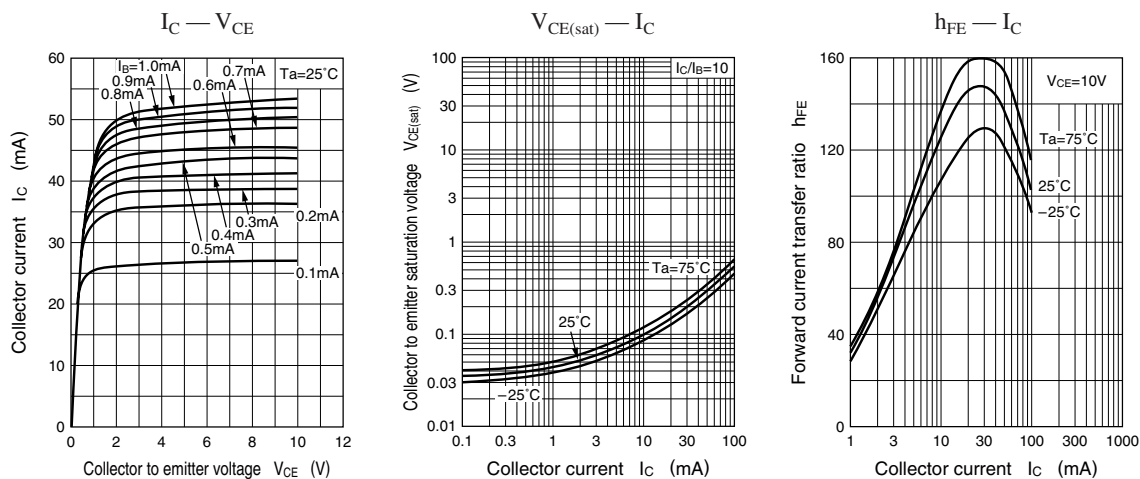
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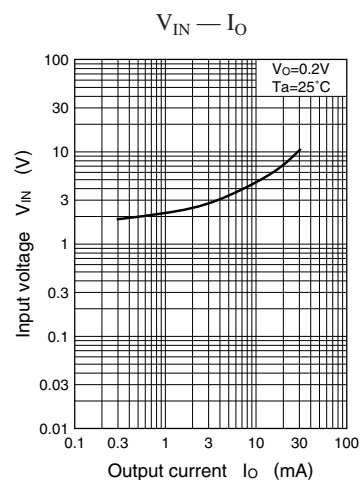
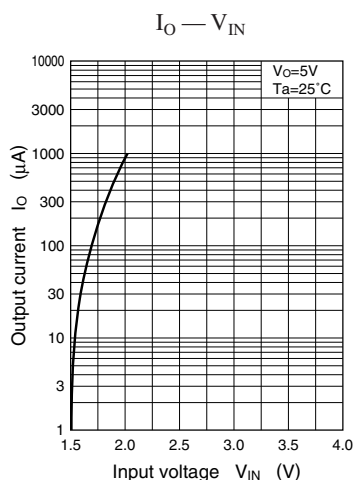
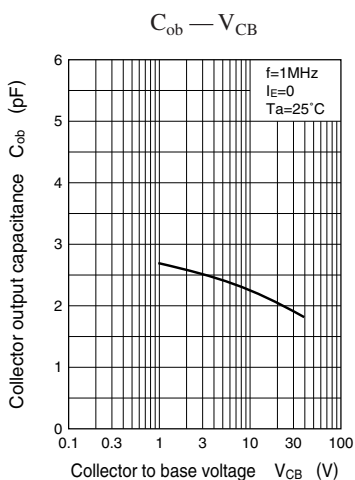


Characteristics charts of UNR621D

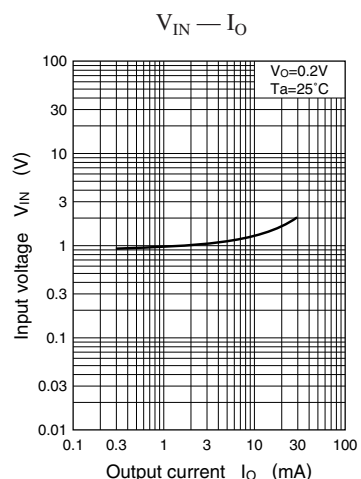
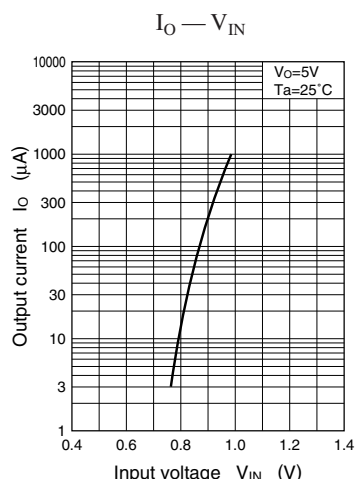
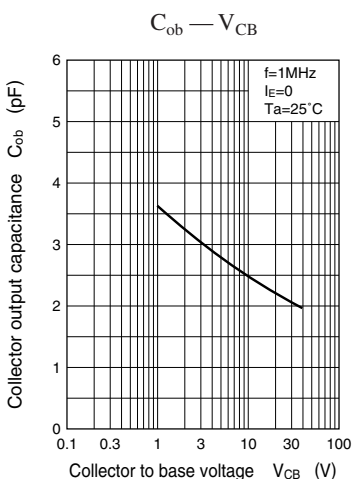
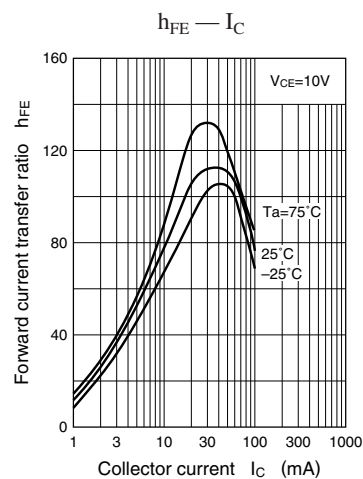
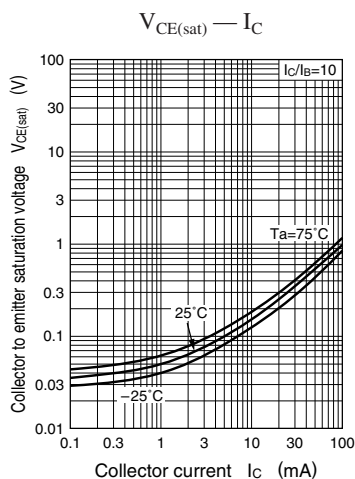
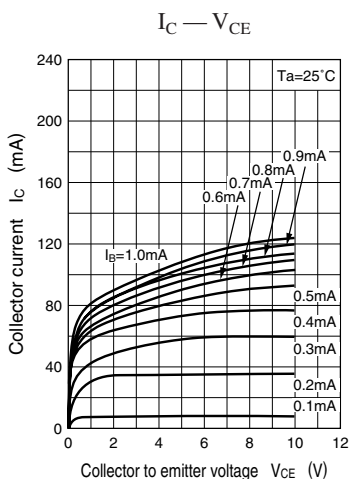


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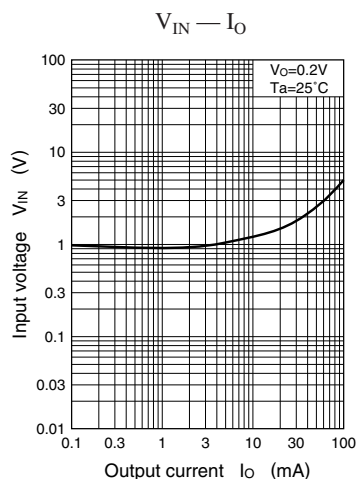
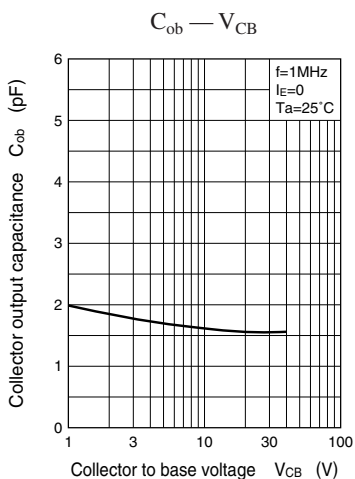
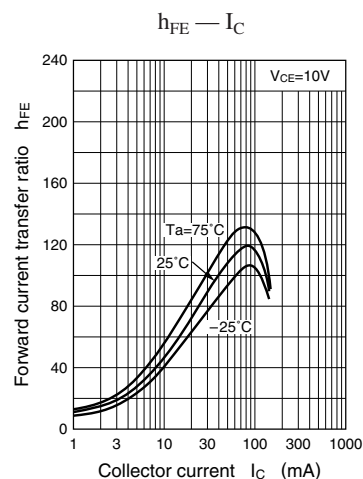
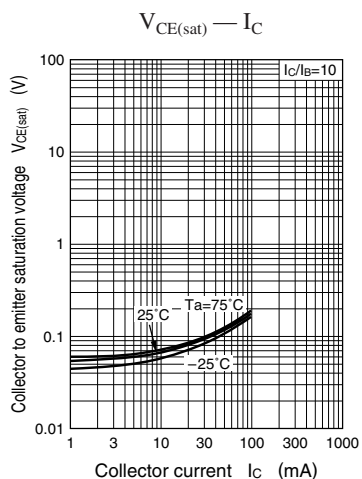
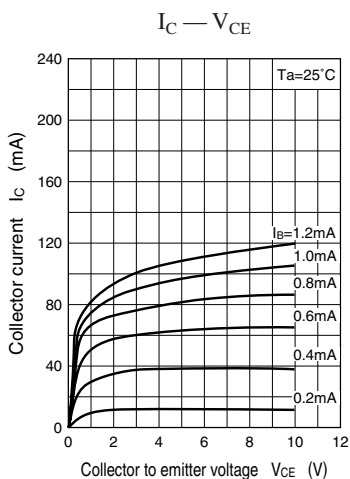




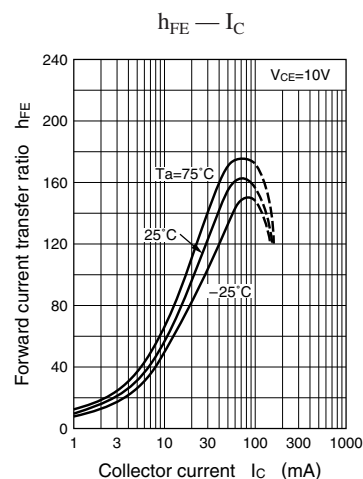
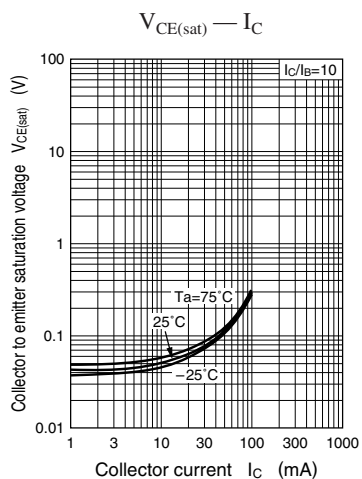
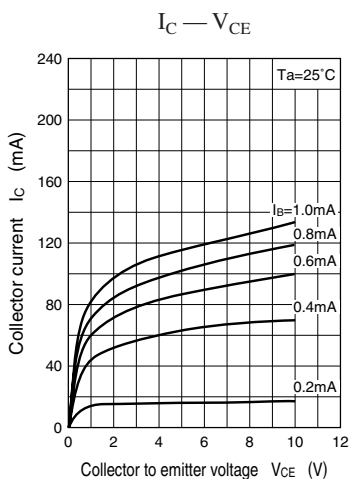
Characteristics charts of UNR621F

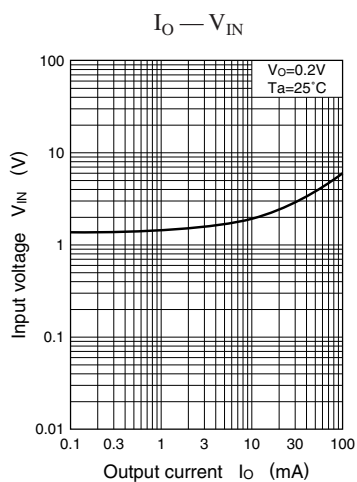
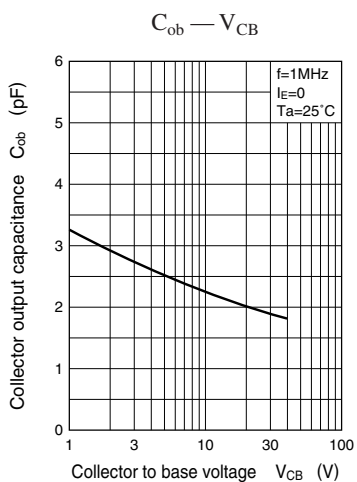


Characteristics charts of UNR621K



Characteristics charts of UNR621L





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