

UN4211/4212/4213/4214/4215/4216/4217/4218/ 4219/4210/421D/421E/421F/421K/421L

Silicon NPN epitaxial planer transistor

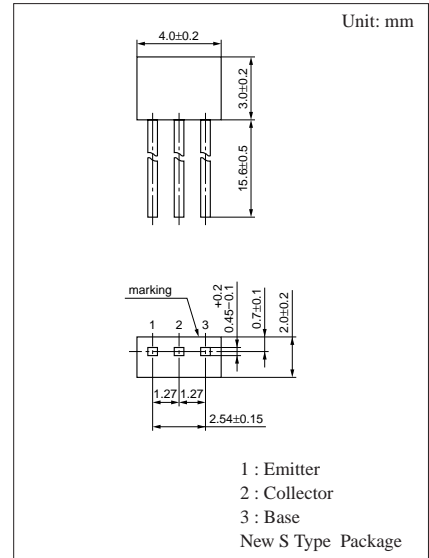
For digital circuits

Features

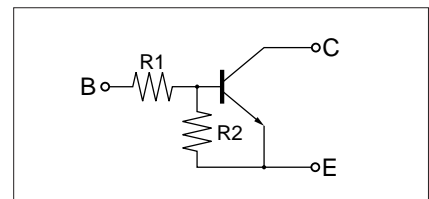
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- New S type package, allowing supply with the radial taping.

Resistance by Part Number

	(R ₁)	(R ₂)
• UN4211	10kΩ	10kΩ
• UN4212	22kΩ	22kΩ
• UN4213	47kΩ	47kΩ
• UN4214	10kΩ	47kΩ
• UN4215	10kΩ	—
• UN4216	4.7kΩ	—
• UN4217	22kΩ	—
• UN4218	0.51kΩ	5.1kΩ
• UN4219	1kΩ	10kΩ
• UN4210	47kΩ	—
• UN421D	47kΩ	10kΩ
• UN421E	47kΩ	22kΩ
• UN421F	4.7kΩ	10kΩ
• UN421K	10kΩ	4.7kΩ
• UN421L	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	300	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

UN4211/4212/4213/4214/4215/4216/4217/
Transistors with built-in Resistor 4218/4219/4210/421D/421E/421F/421K/421L

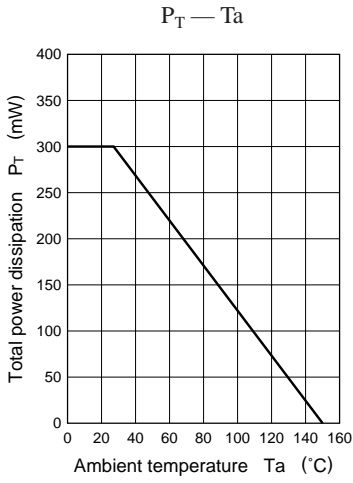
■ Electrical Characteristics (T_a=25°C)

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	UN4211	I _{EBO}	V _{EB} = 6V, I _C = 0			0.5	mA	
	UN4212/4214/421E/421D					0.2		
	UN4213					0.1		
	UN4215/4216/4217/4210					0.01		
	UN421F/421K					1.0		
	UN4219					1.5		
	UN4218/421L					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	UN4211	h _{FE}	V _{CE} = 10V, I _C = 5mA	35			V	
	UN4212/421E			60				
	UN4213/4214			80				
	UN4215*/4216*/4217*/4210*			160		460		
	UN421F/421D/4219			30				
	UN4218/421K/421L			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 _{CC} = 5V, V _B = 3.5V, R _L = 1kΩ			0.2		
			V _{CC} = 5V, V _B = 10V, R _L = 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	UN4211/4214/4215/421K	R _i		(-30%)		10	(+30%)	kΩ
	UN4212/4217					22		
	UN4213/421D/421E/4210					47		
	UN4216/421F/421L					4.7		
	UN4218					0.51		
	UN4219					1		
Resistance ratio	UN4211/4212/4213/421L	R ₁ /R ₂				0.8	1.0	1.2
	UN4214					0.17	0.21	0.25
	UN4218/4219					0.08	0.1	0.12
	UN421D					3.7	4.7	5.7
	UN421E					1.7	2.14	2.6
	UN421F					0.37	0.47	0.57
	UN421K					1.7	2.13	2.6

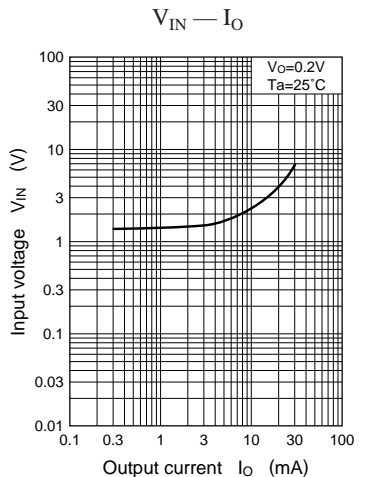
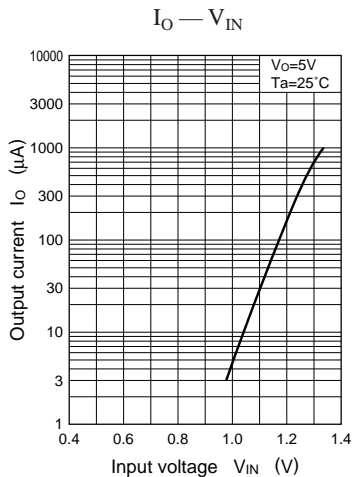
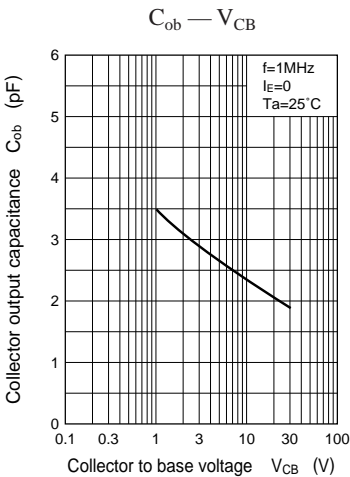
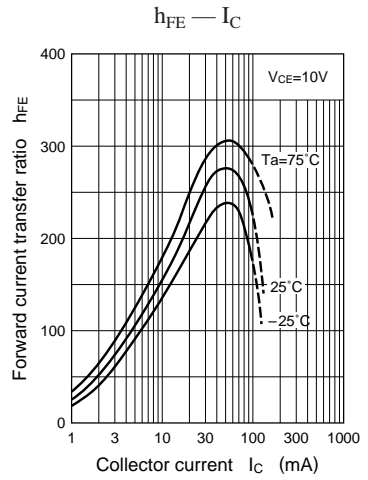
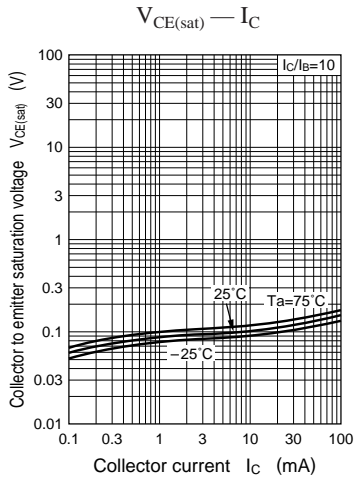
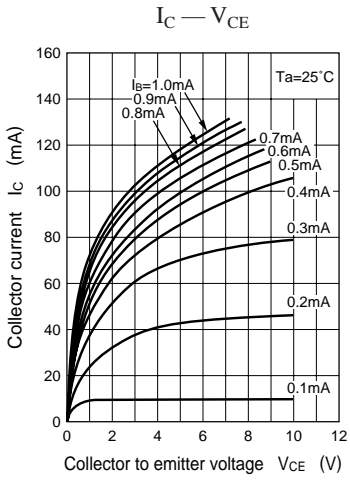
* h_{FE} rank classification (UN4215/4216/4217/4210)

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

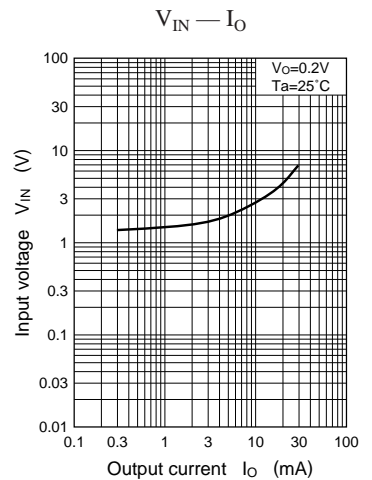
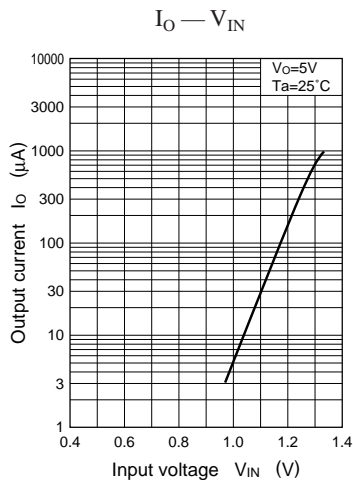
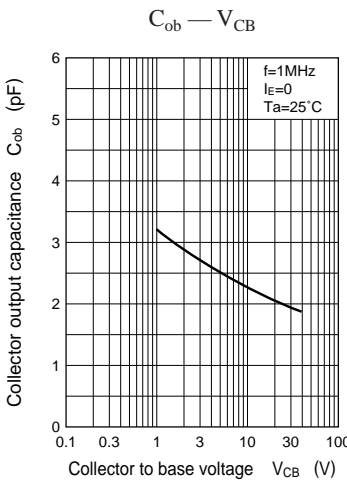
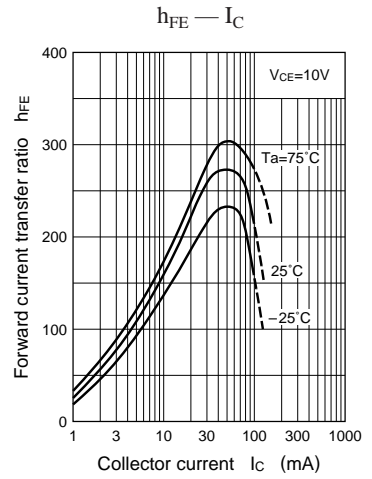
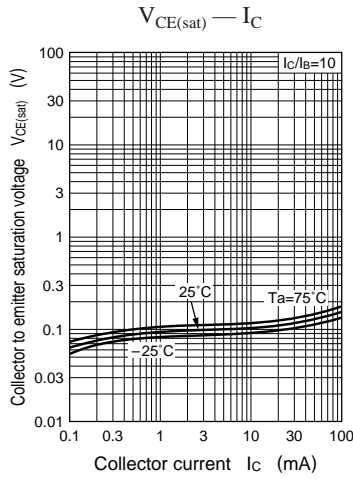
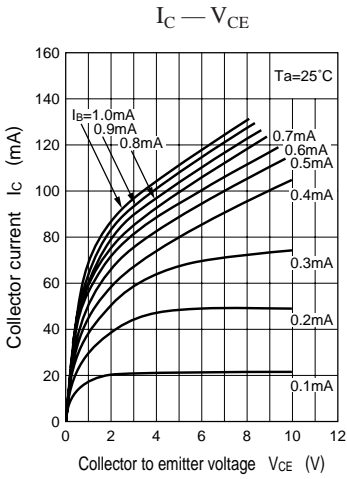
Common characteristics chart



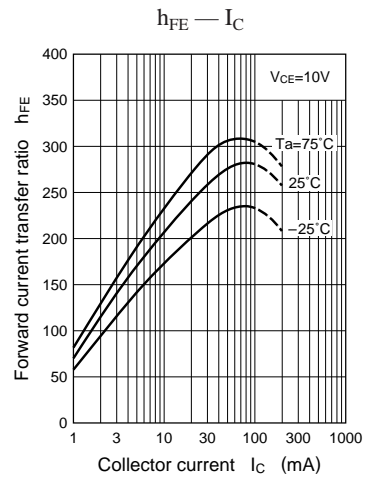
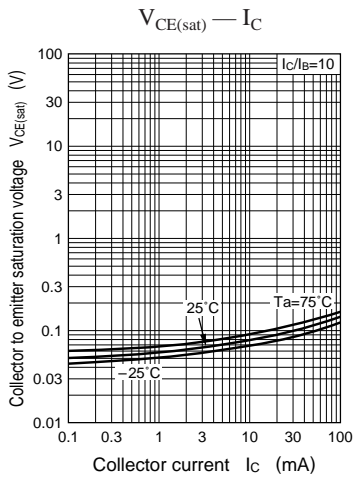
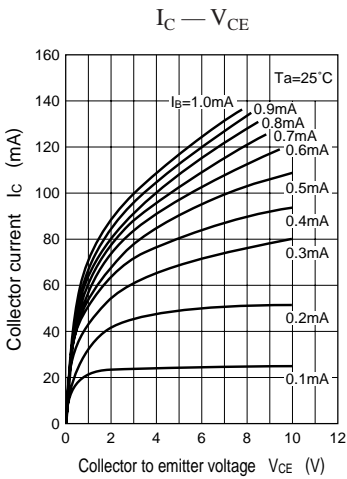
Characteristics charts of UN4211

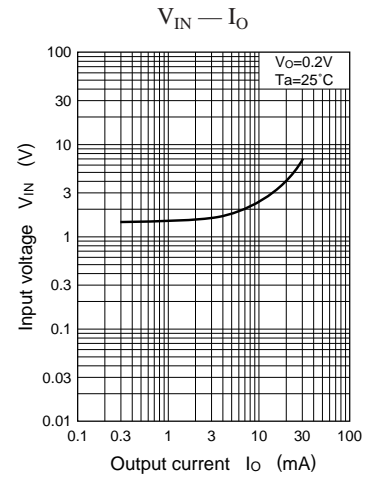
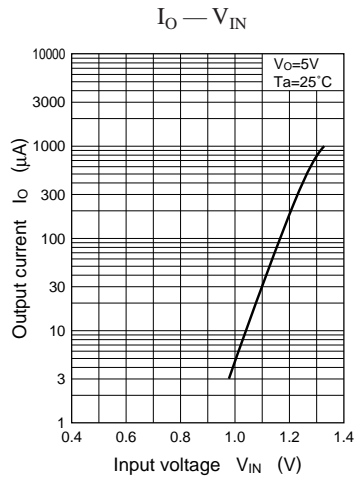
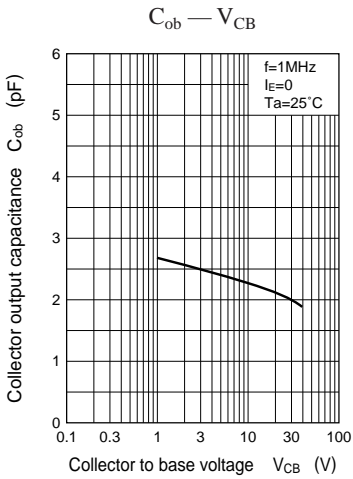


Characteristics charts of UN4212

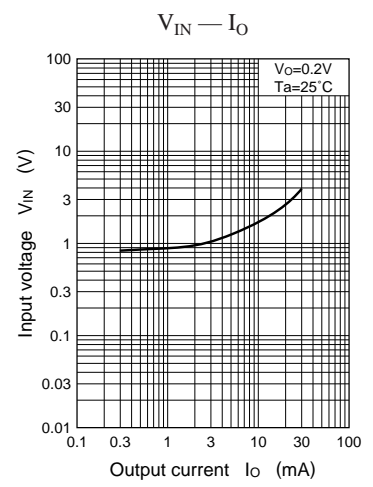
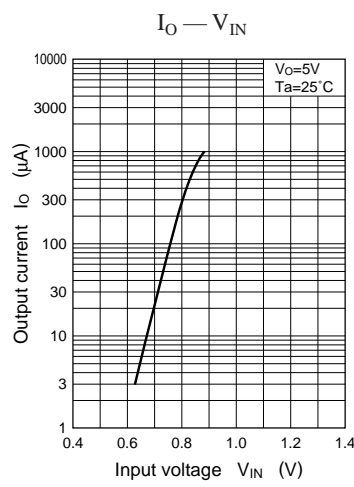
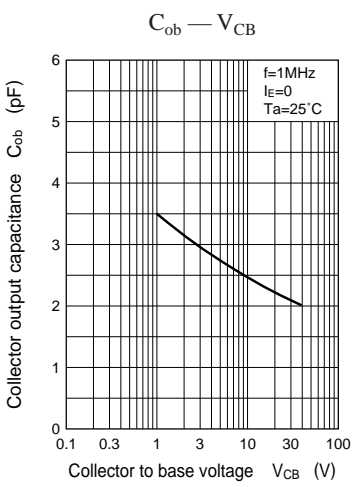
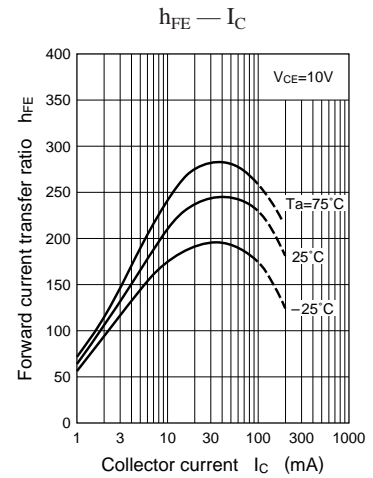
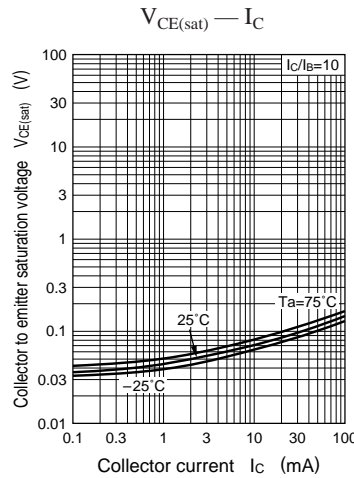
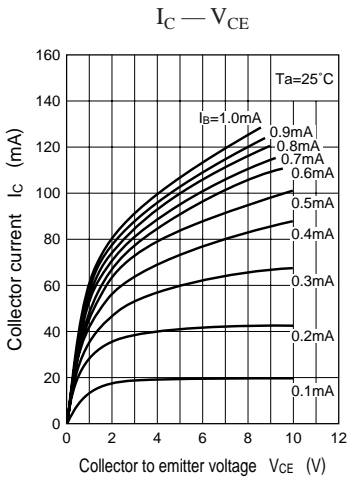


Characteristics charts of UN4213

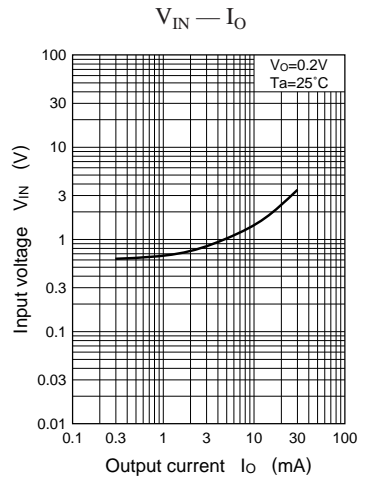
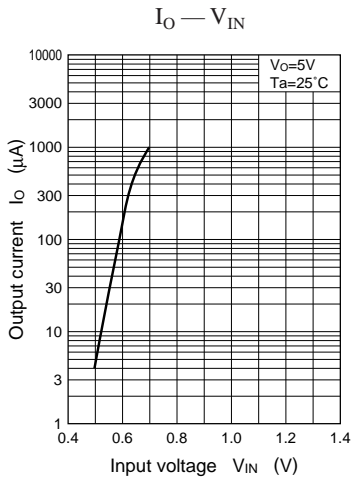
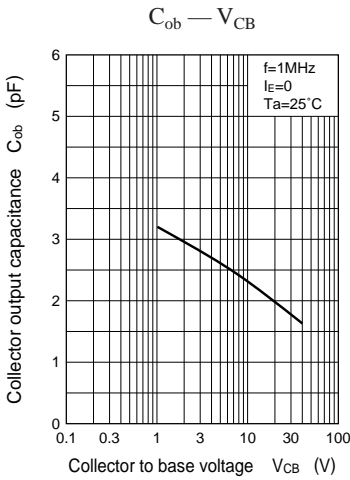
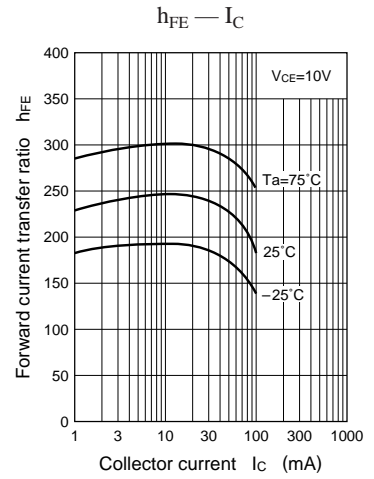
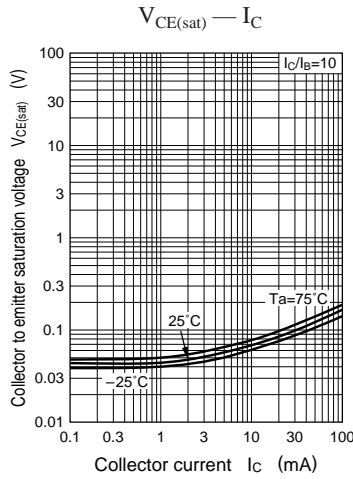
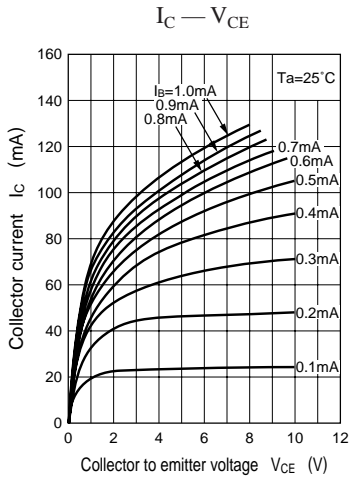




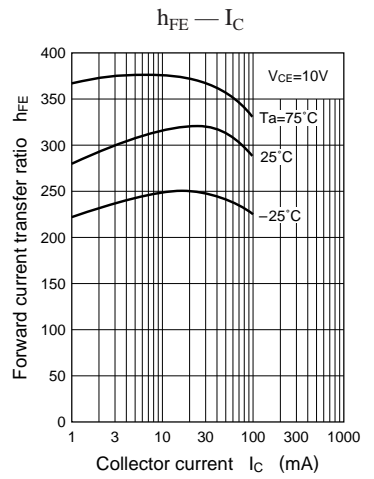
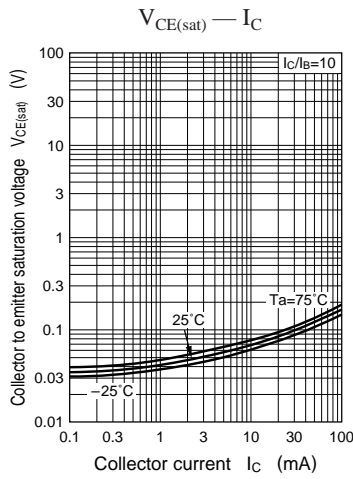
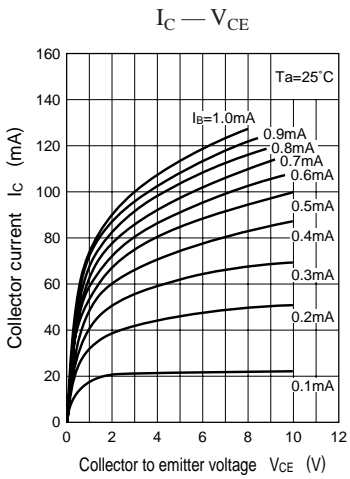
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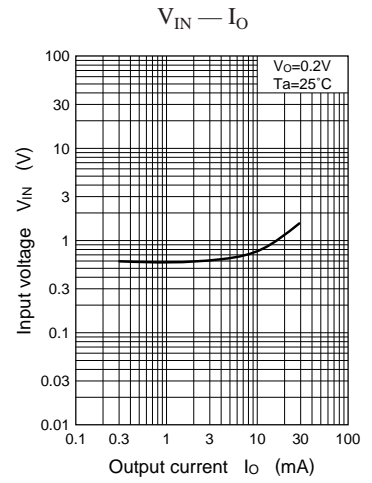
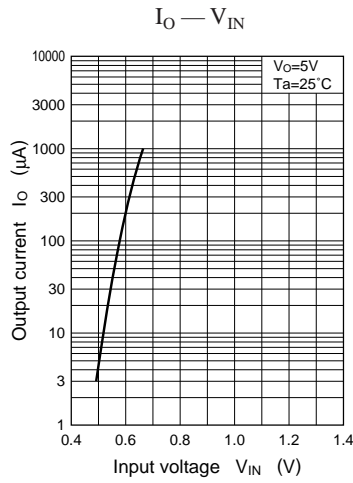
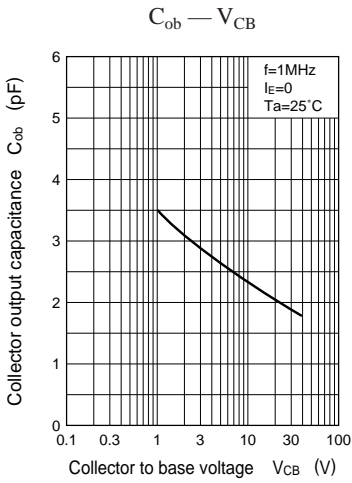


Characteristics charts of UN4215

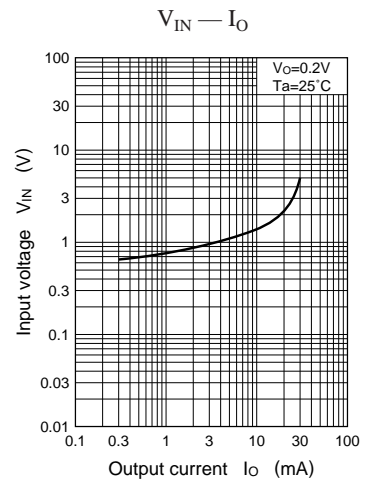
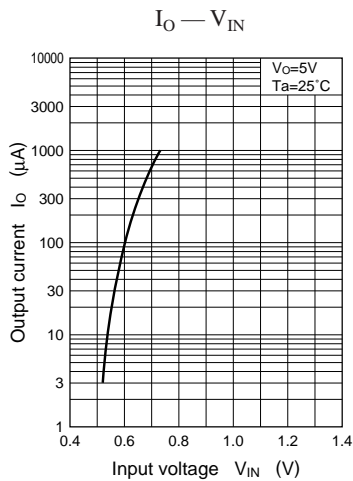
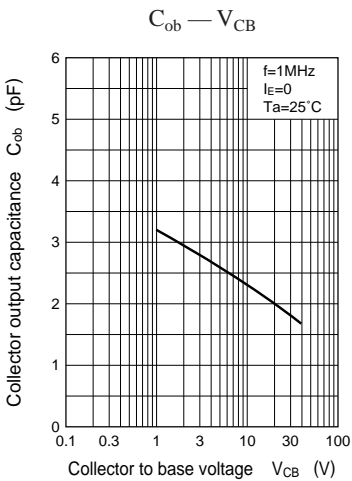
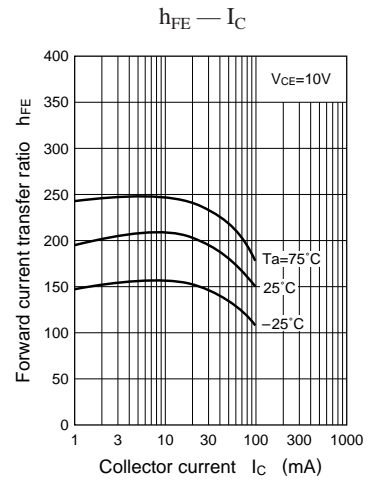
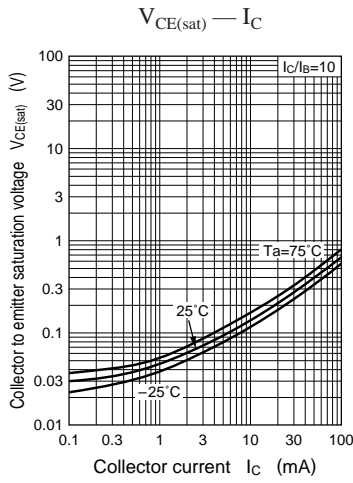
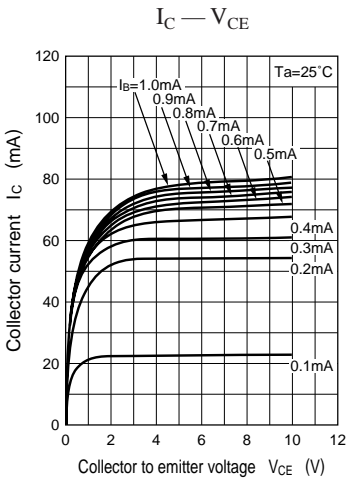


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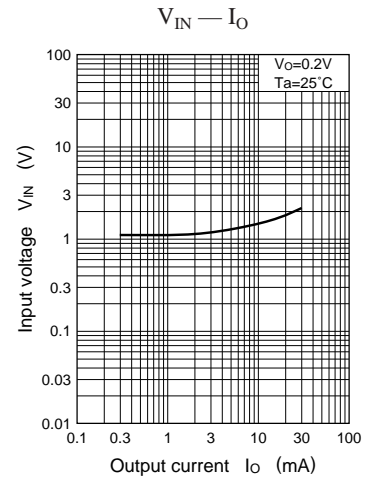
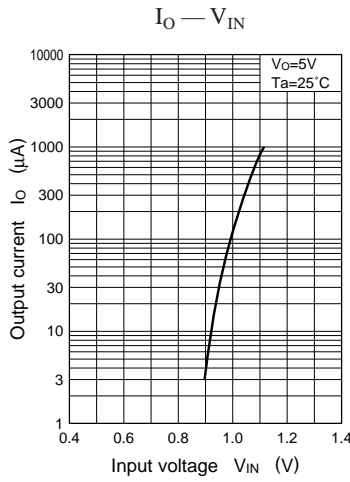
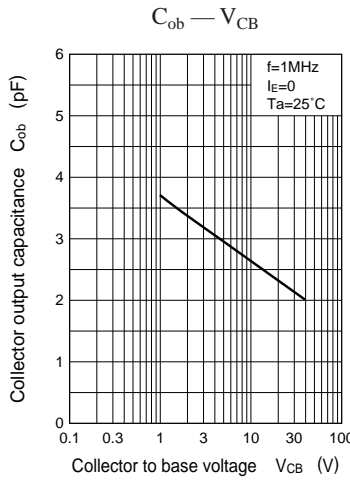
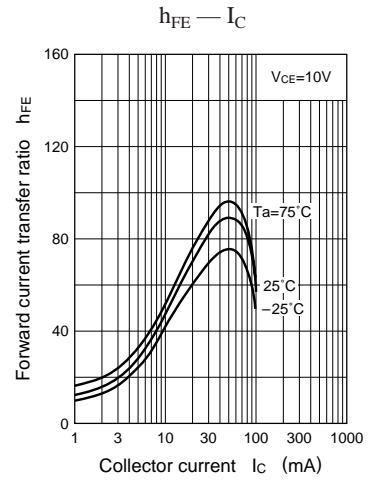
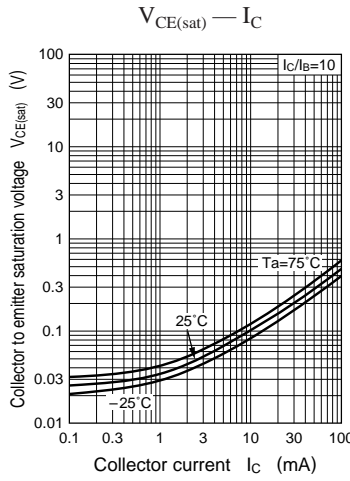
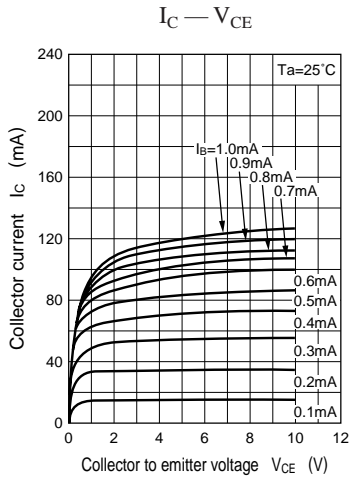




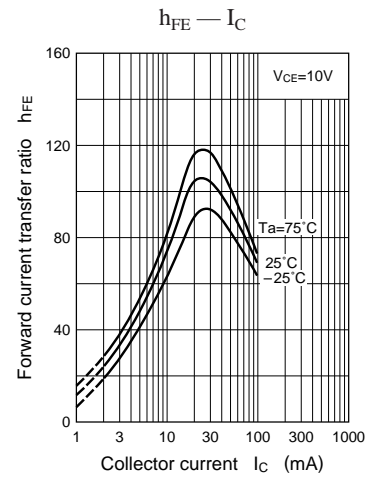
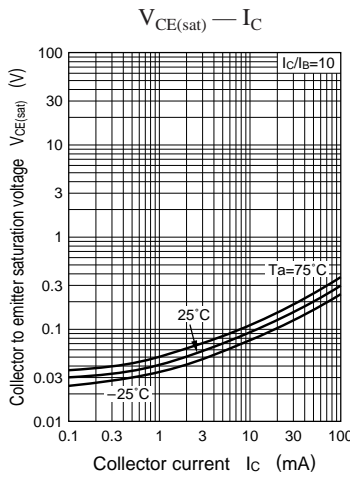
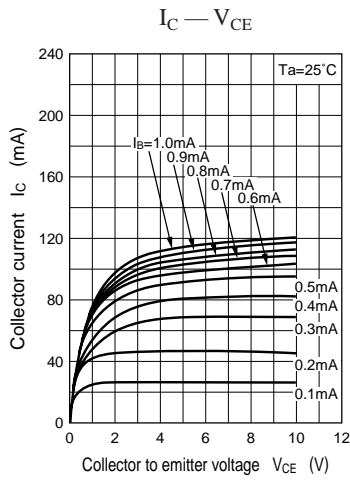
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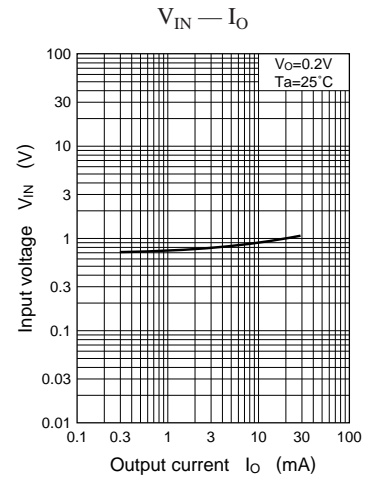
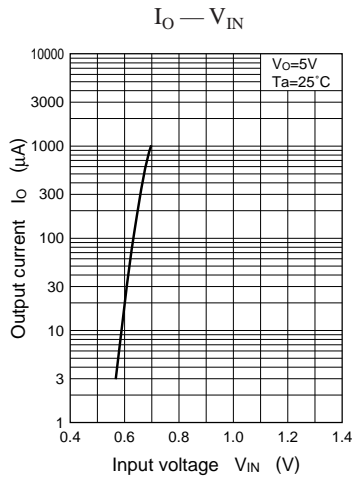
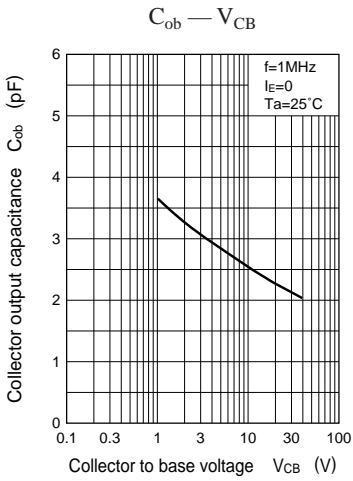


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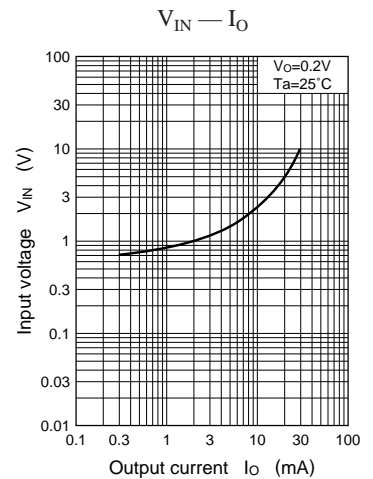
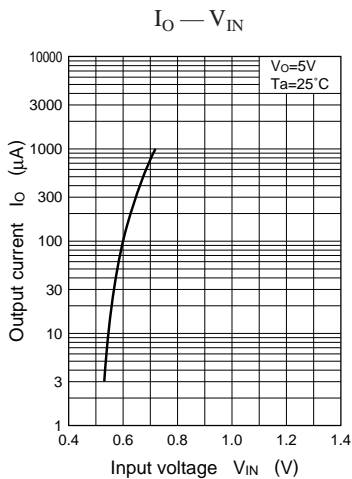
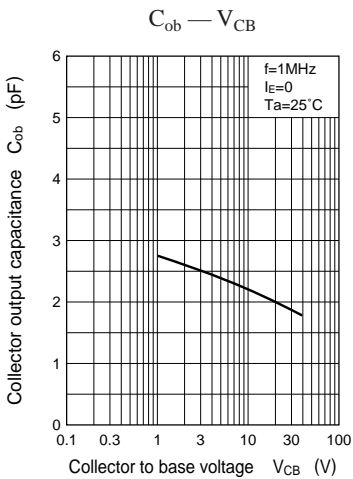
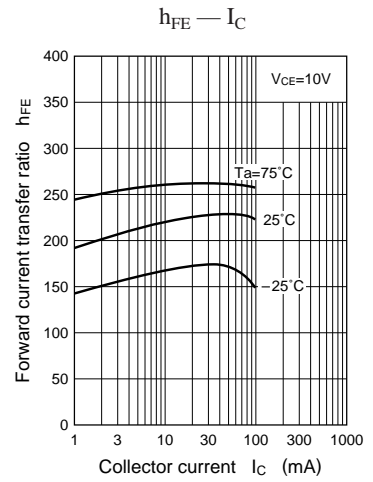
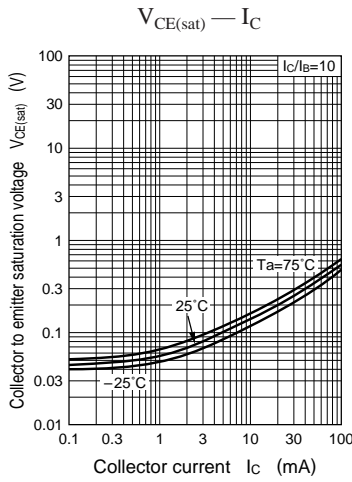
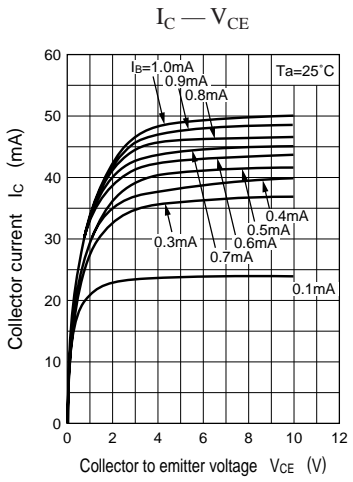


Characteristics charts of UN4219

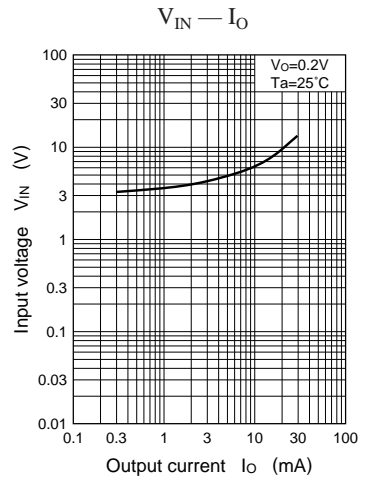
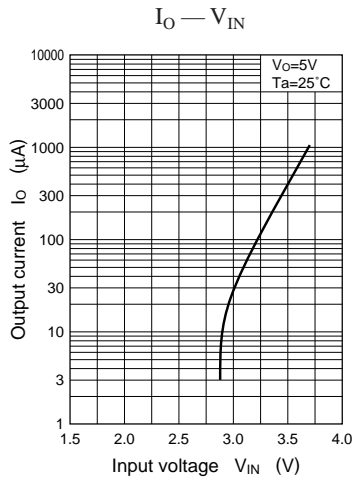
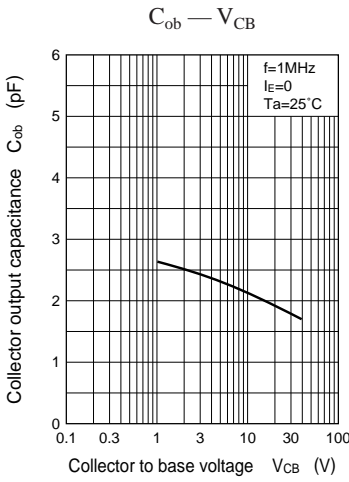
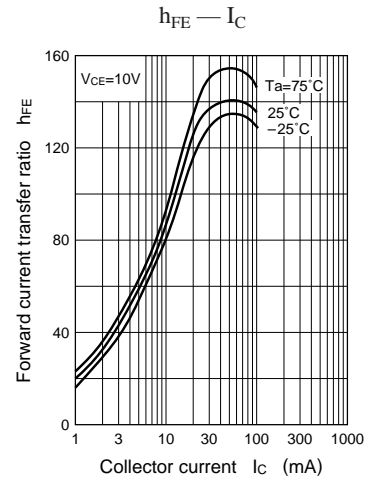
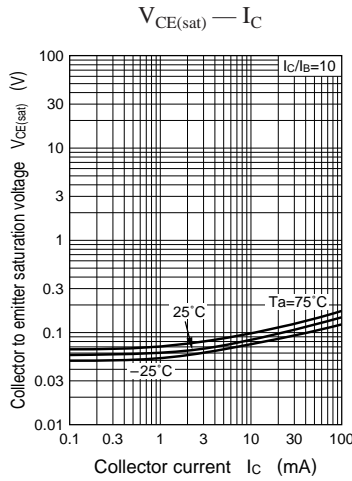
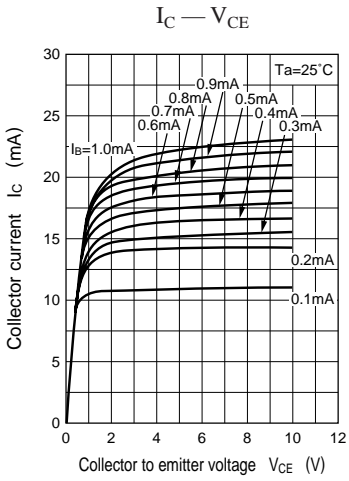




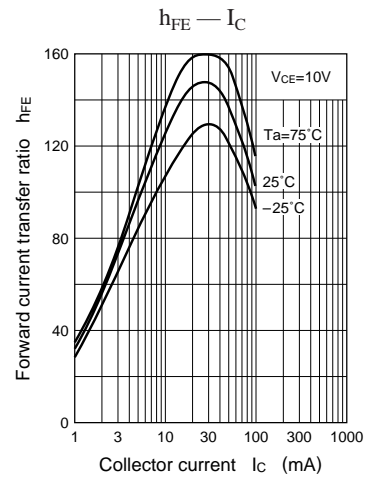
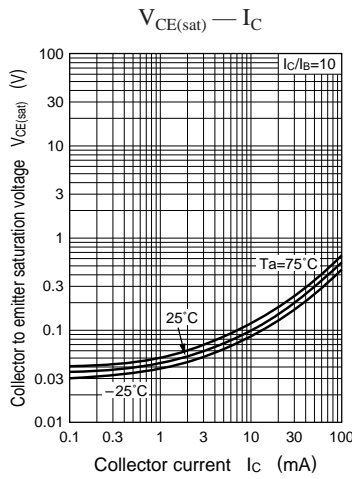
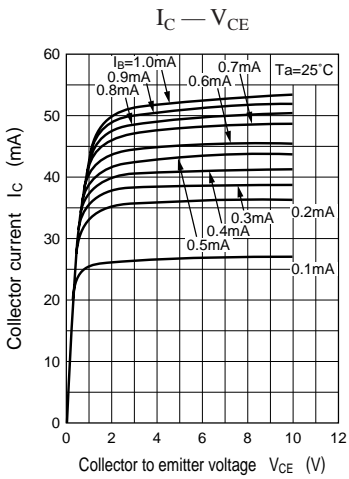
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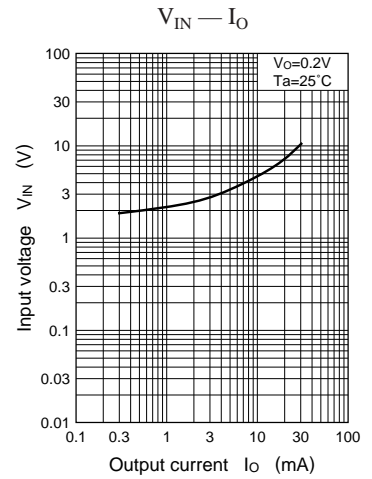
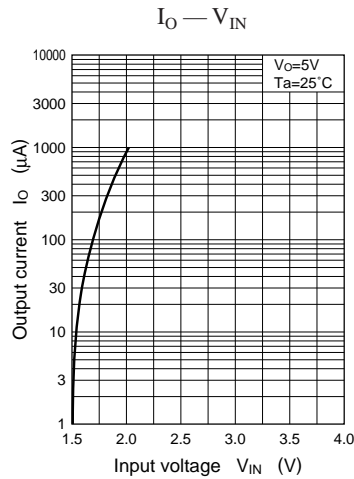
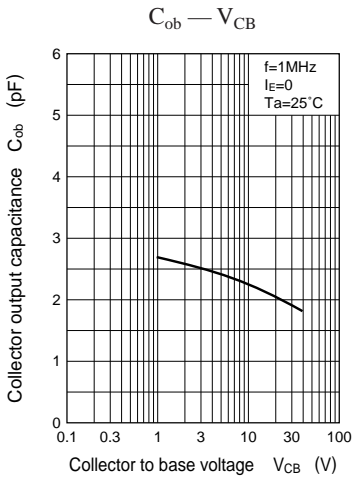


Characteristics charts of UN421D

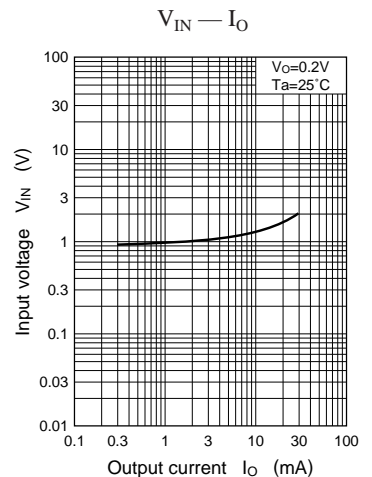
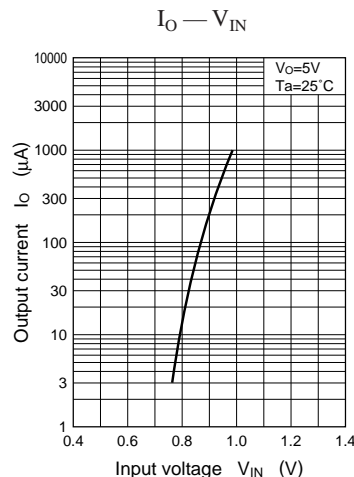
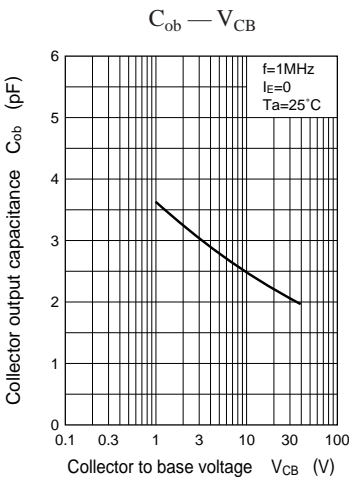
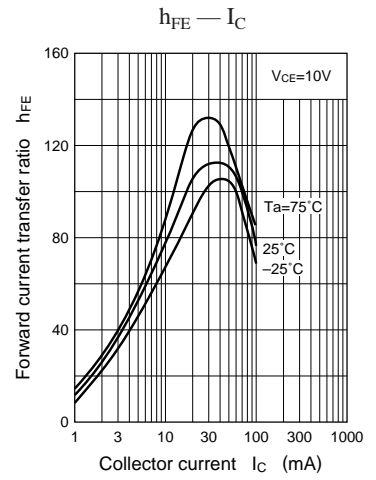
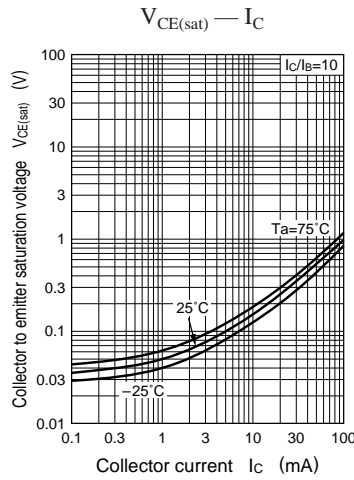
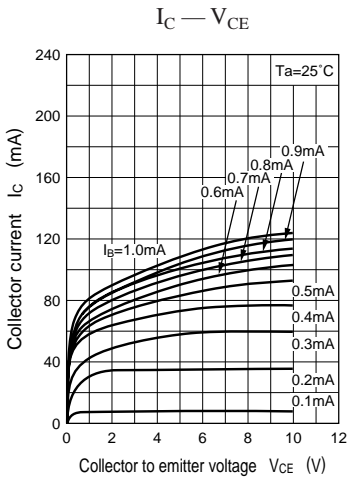


Characteristics charts of UN421E

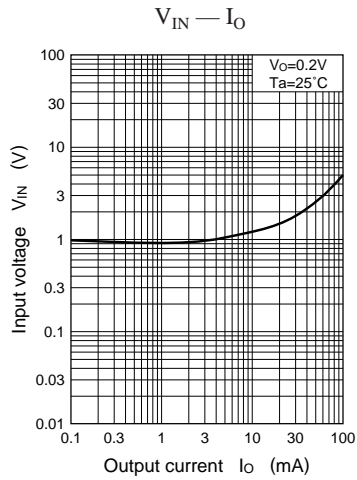
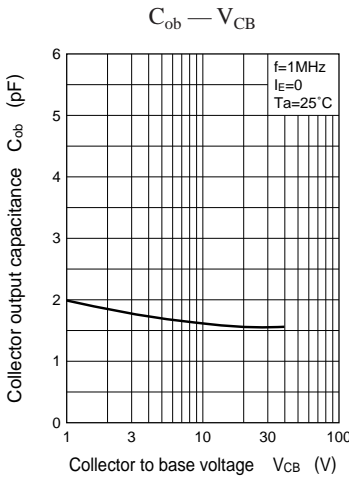
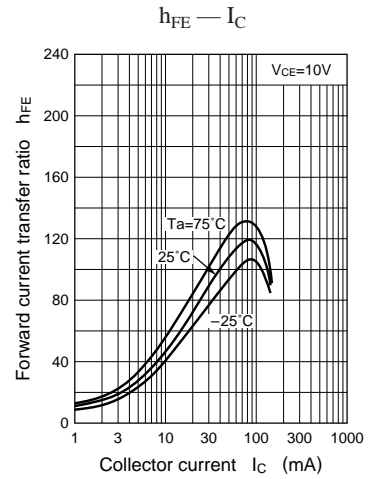
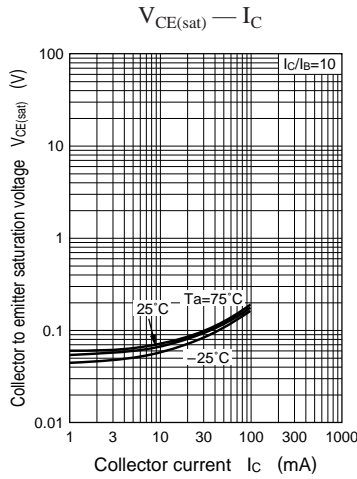
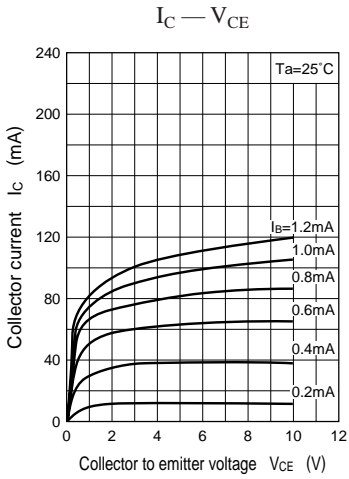




Characteristics charts of UN421F



Characteristics charts of UN421K



Characteristics charts of UN421L

