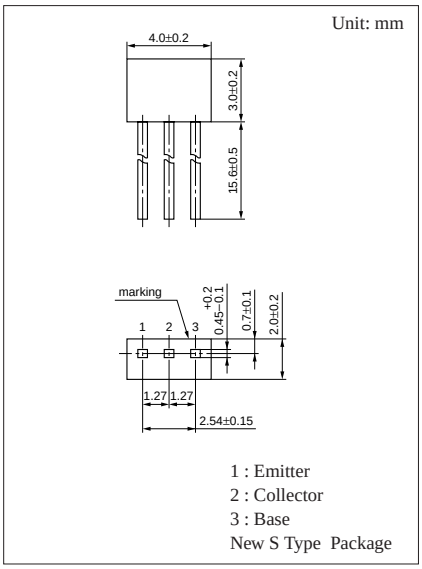
UN4211/4212/4213/4214/4215/4216/4217/4218/4219/4210/421D/421E/421F/421K/421L

Silicon NPN epitaxial planer transistor

For digital circuits



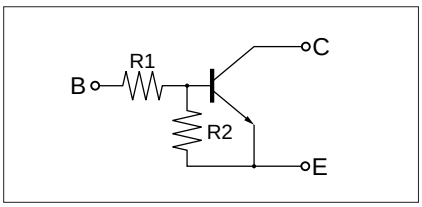
Features

- 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 (Ta=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

Electrical Characteristics (Ta=25˚C)

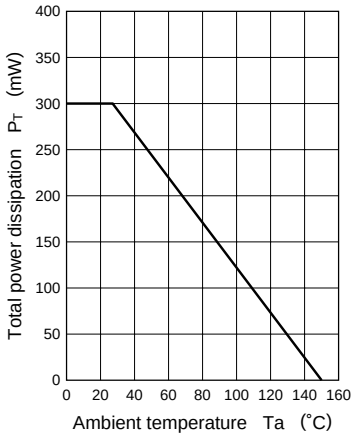
Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 50V, I_E = 0			0.1	μA
		I_{CEO}	V_{CE} = 50V, I_B = 0			0.5	μA
Emitter cutoff current	UN4211	I_{EBO}	V_{EB} = 6V, I_C = 0			0.5	mA
	UN4212/4214/421E/421D					0.2	
	UN4213					0.1	
	UN4215/4216/4217/4210					0.01	
	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			
	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
	UN4213/421K		V_{CC} = 5V, V_B = 3.5V, R_L = 1kΩ			0.2	
	UN421D		V_{CC} = 5V, V_B = 10V, R_L = 1kΩ			0.2	
	UN421E		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_1		(–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

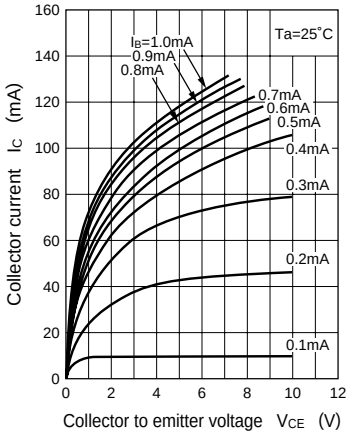
Common characteristics chart

P_T — Ta

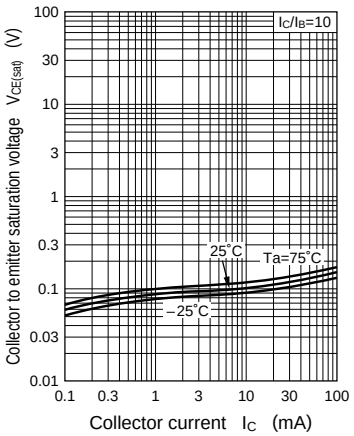


Characteristics charts of UN4211

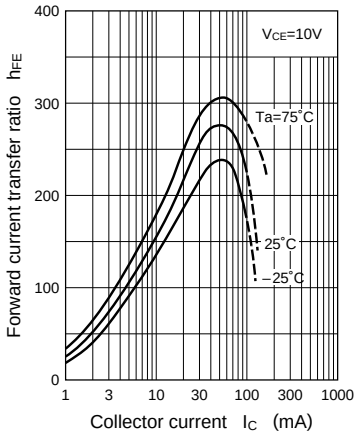
I_C — V_{CE}



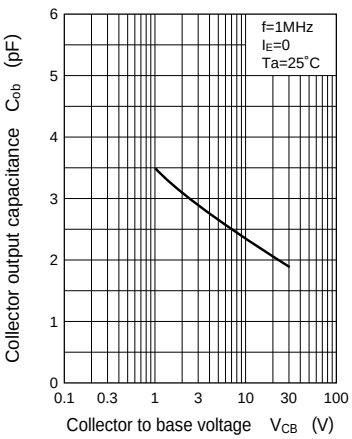
$V_{CE(sat)}$ — I_C



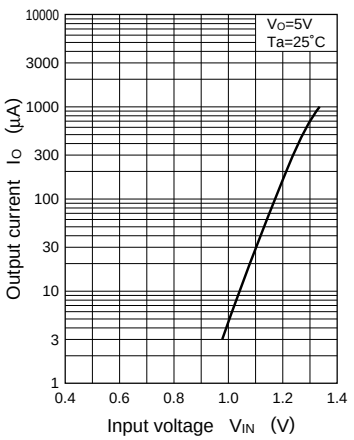
h_{FE} — I_C



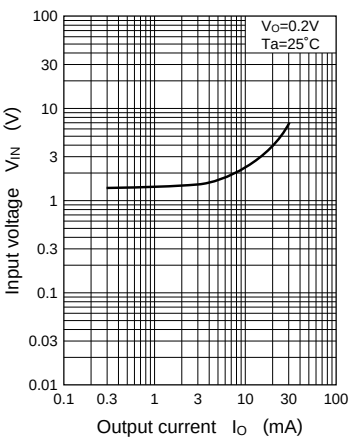
C_{ob} — V_{CB}



I_O — V_{IN}

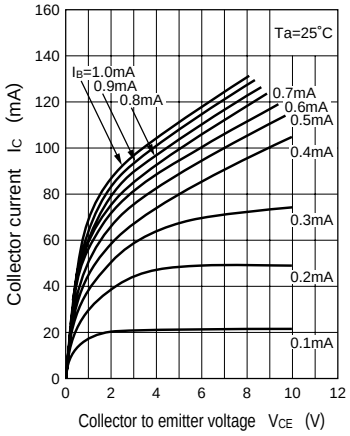


V_{IN} — I_O

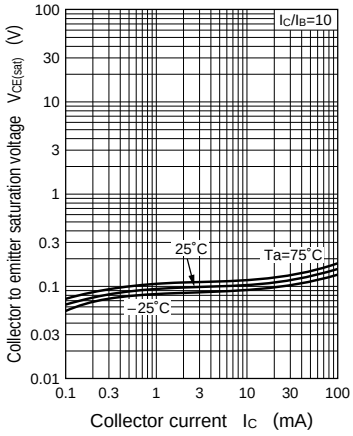


Characteristics charts of UN4212

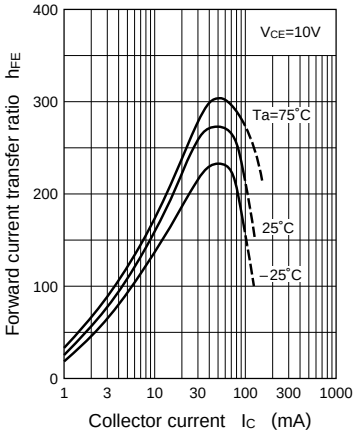
I_C — V_{CE}



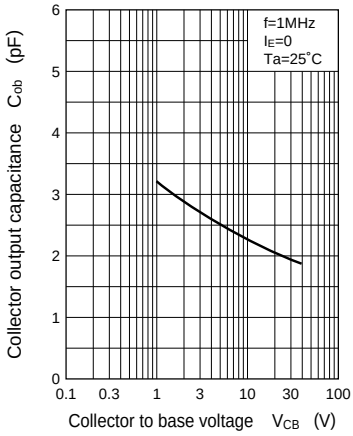
$V_{CE(sat)}$ — I_C



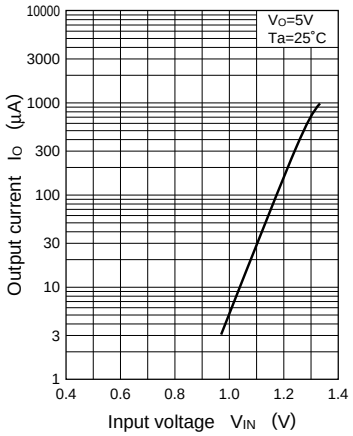
h_{FE} — I_C



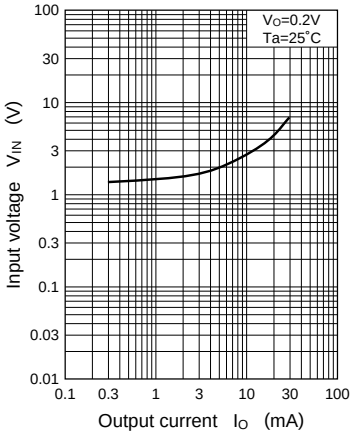
C_{ob} — V_{CB}



I_O — V_{IN}

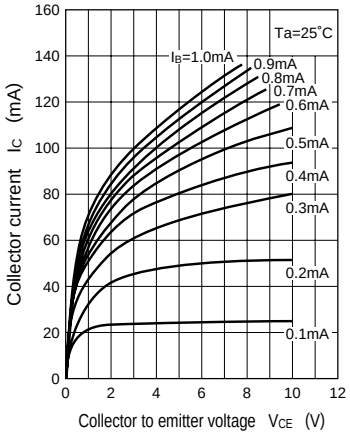


V_{IN} — I_O

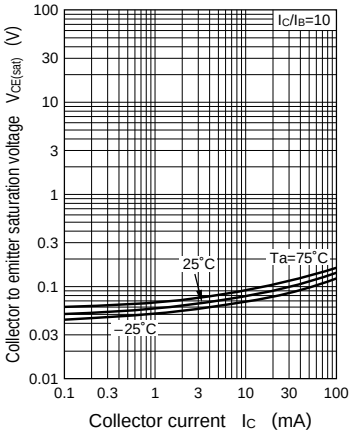


Characteristics charts of UN4213

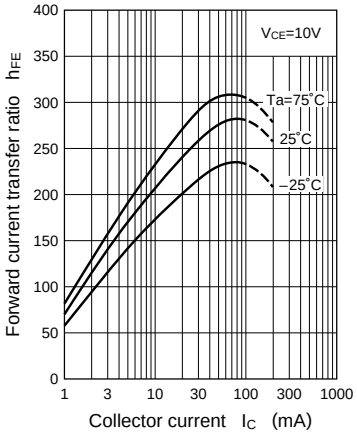
I_C — V_{CE}



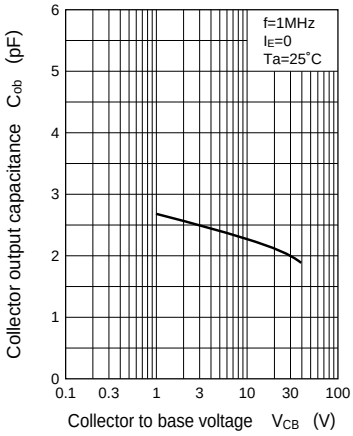
$V_{CE(sat)}$ — I_C



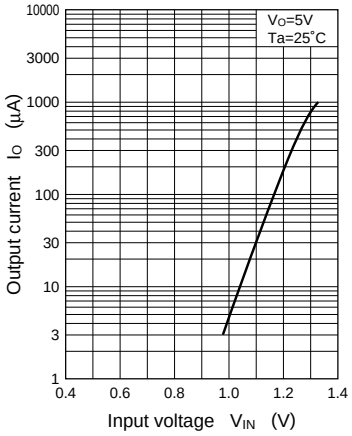
h_{FE} — I_C



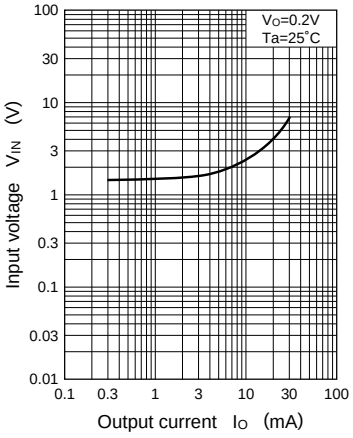
C_{ob} — V_{CB}



I_O — V_{IN}

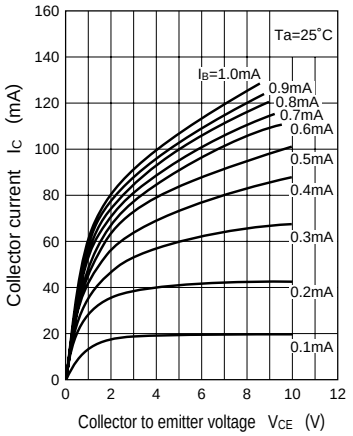


V_{IN} — I_O

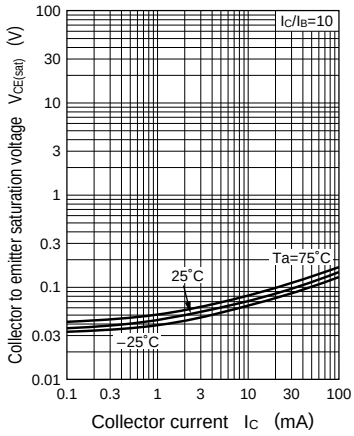


Characteristics charts of UN4214

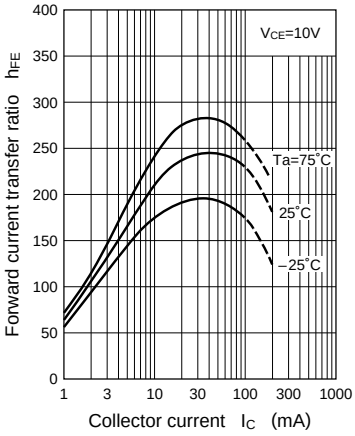
I_C — V_{CE}



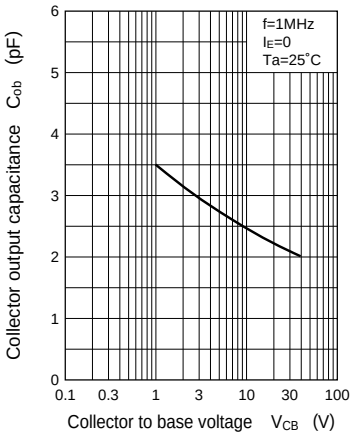
$V_{CE(sat)}$ — I_C



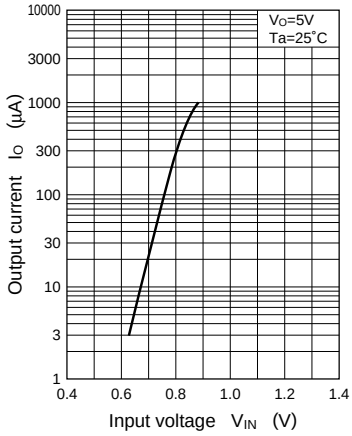
h_{FE} — I_C



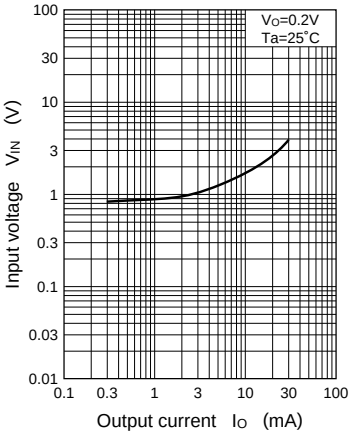
C_{ob} — V_{CB}



I_O — V_{IN}

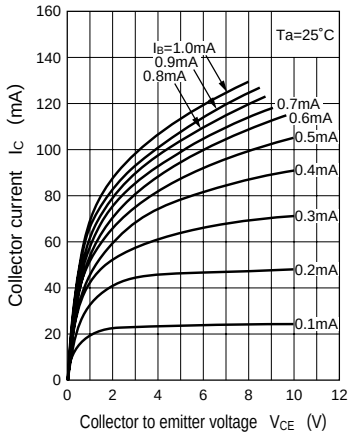


V_{IN} — I_O

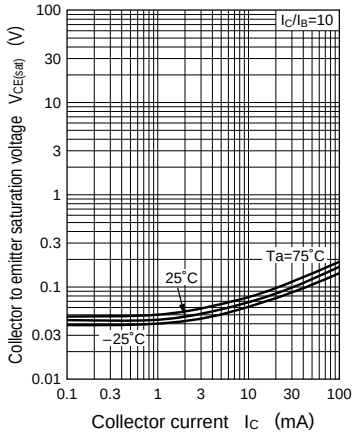


Characteristics charts of UN4215

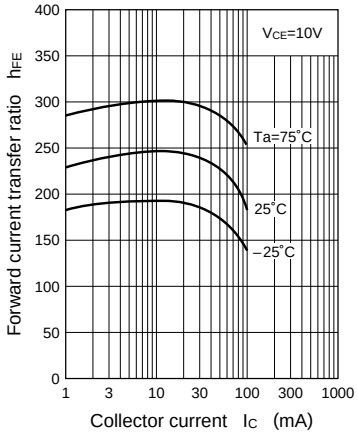
I_C — V_{CE}



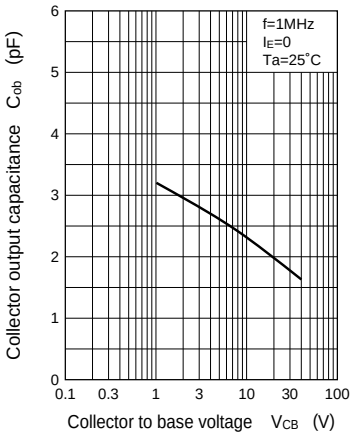
$V_{CE(sat)}$ — I_C



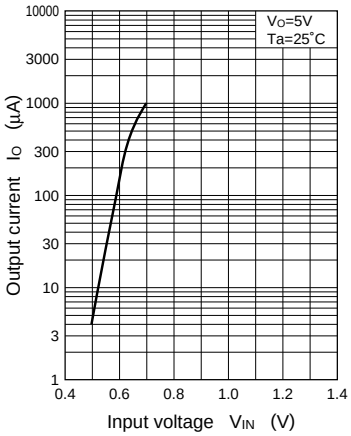
h_{FE} — I_C



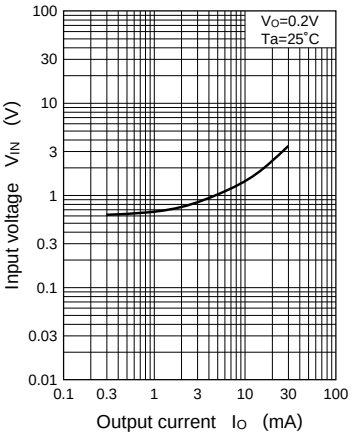
C_{ob} — V_{CB}



I_O — V_{IN}

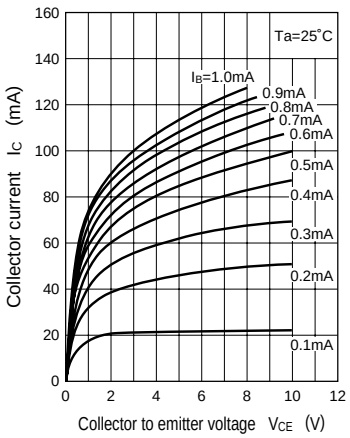


V_{IN} — I_O

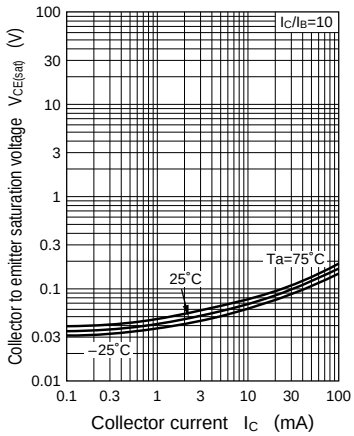


Characteristics charts of UN4216

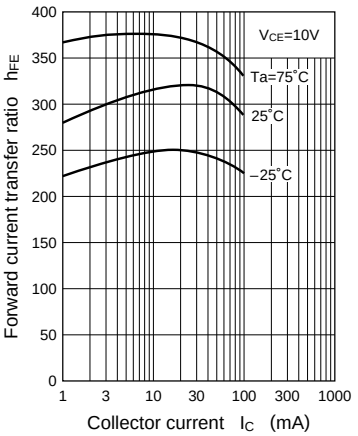
I_C — V_{CE}



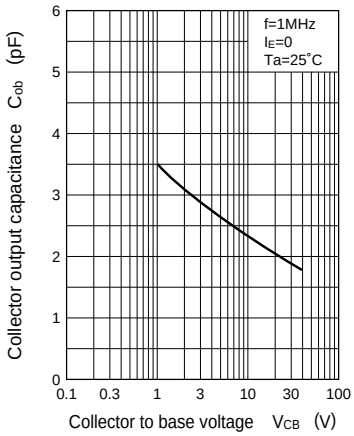
$V_{CE(sat)}$ — I_C



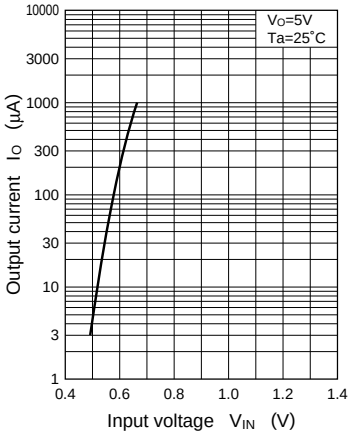
h_{FE} — I_C



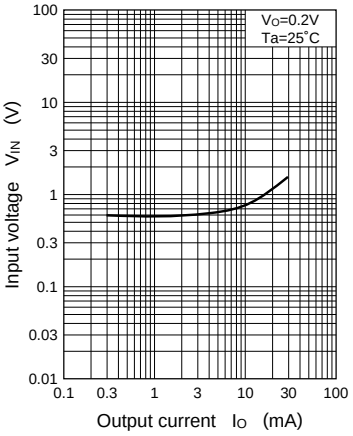
C_{ob} — V_{CB}



I_O — V_{IN}

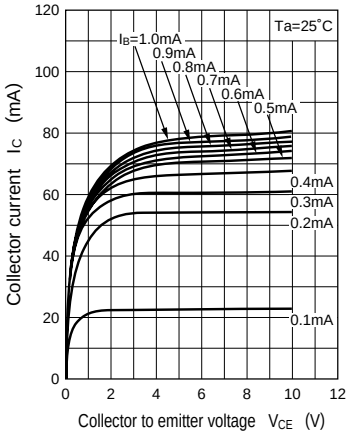


V_{IN} — I_O

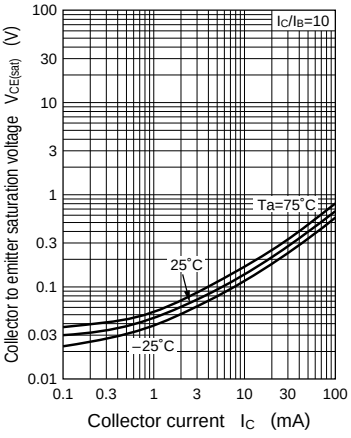


Characteristics charts of UN4217

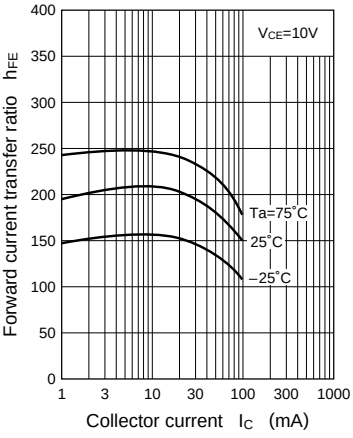
I_C — V_{CE}



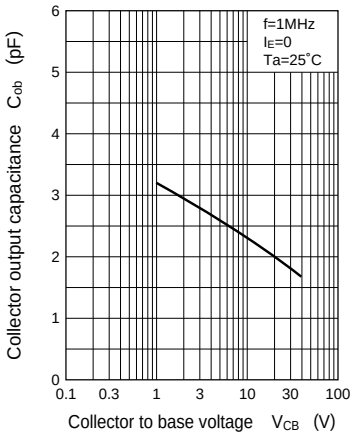
$V_{CE(sat)}$ — I_C



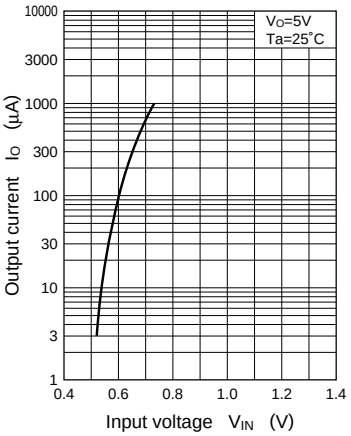
h_{FE} — I_C



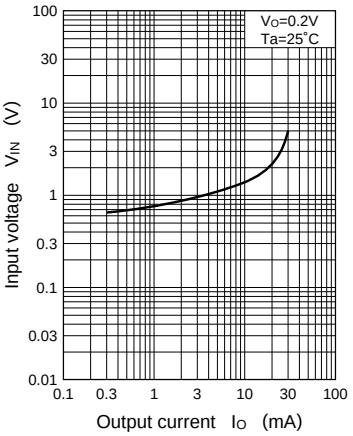
C_{ob} — V_{CB}



I_O — V_{IN}

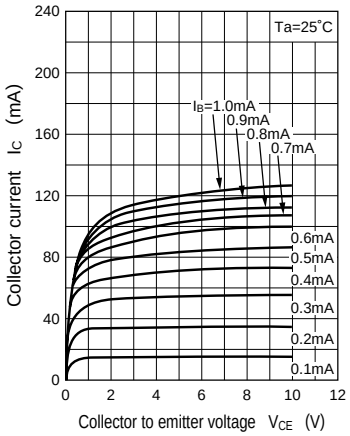


V_{IN} — I_O

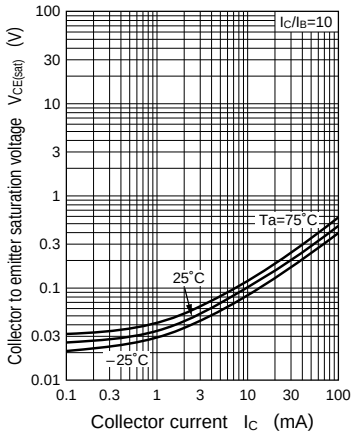


Characteristics charts of UN4218

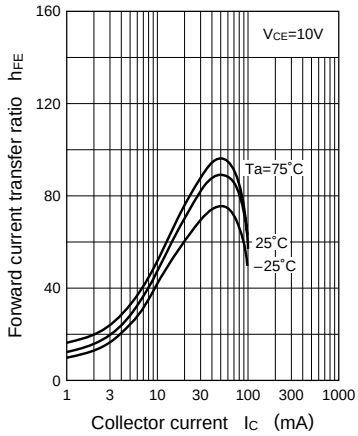
I_C — V_{CE}



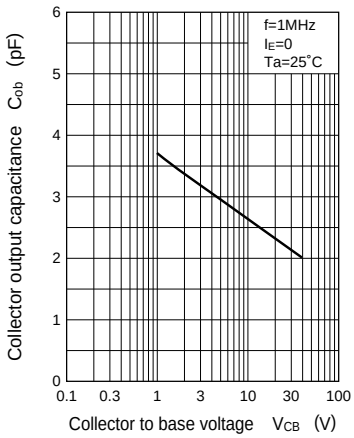
$V_{CE(sat)}$ — I_C



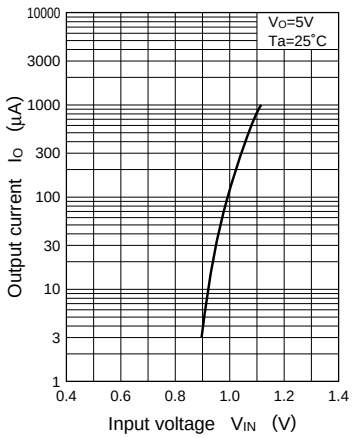
h_{FE} — I_C



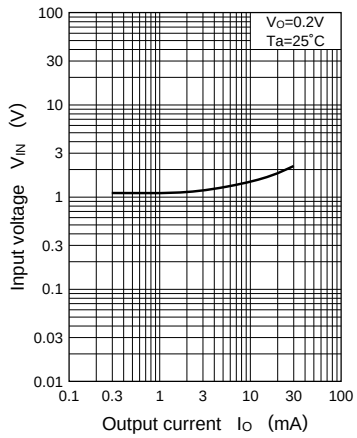
C_{ob} — V_{CB}



I_O — V_{IN}

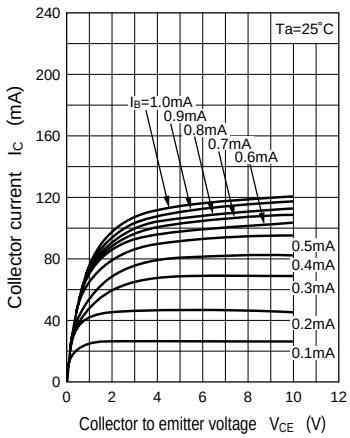


V_{IN} — I_O

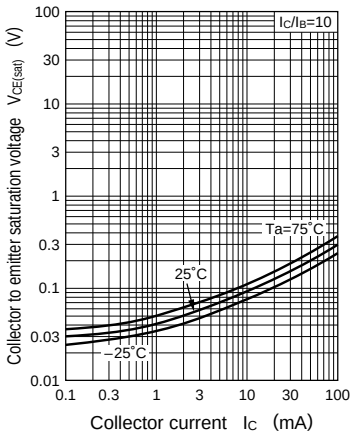


Characteristics charts of UN4219

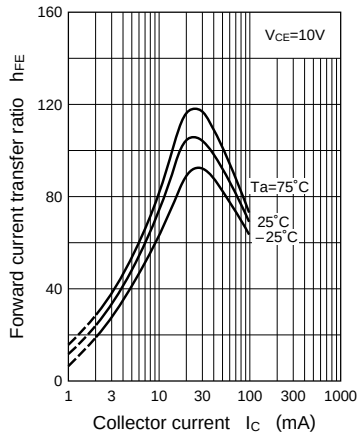
I_C — V_{CE}



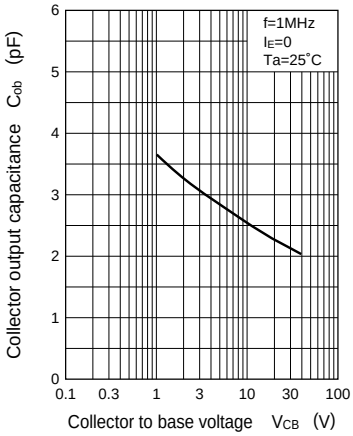
$V_{CE(sat)}$ — I_C



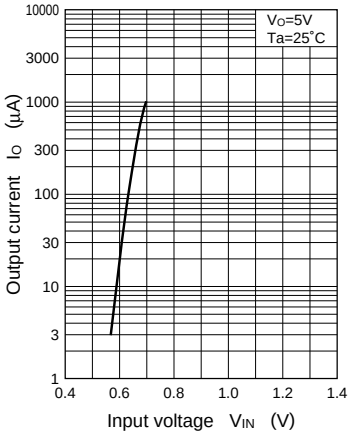
h_{FE} — I_C



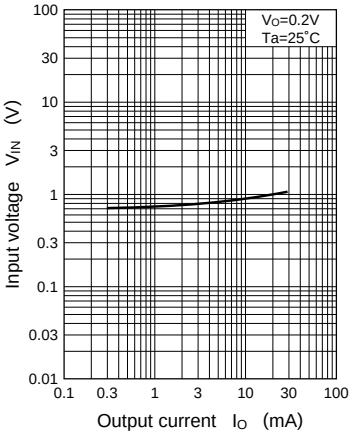
C_{ob} — V_{CB}



I_O — V_{IN}

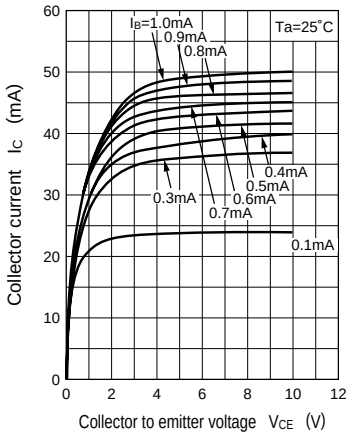


V_{IN} — I_O

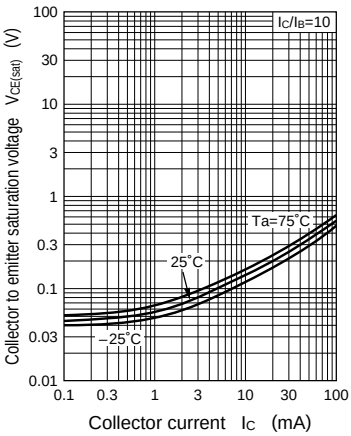


Characteristics charts of UN4210

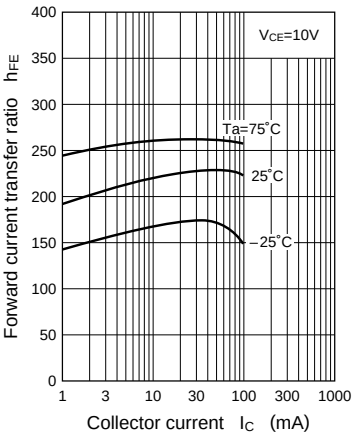
I_C — V_{CE}



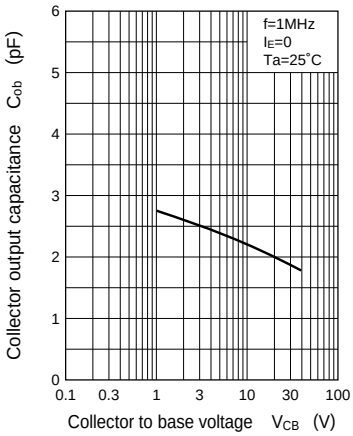
$V_{CE(sat)}$ — I_C



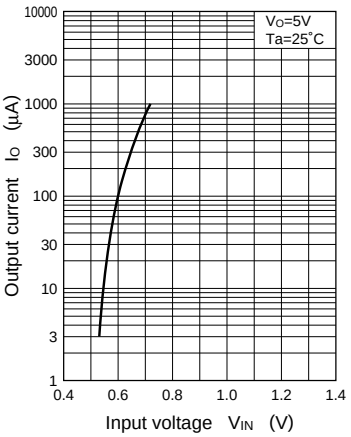
h_{FE} — I_C



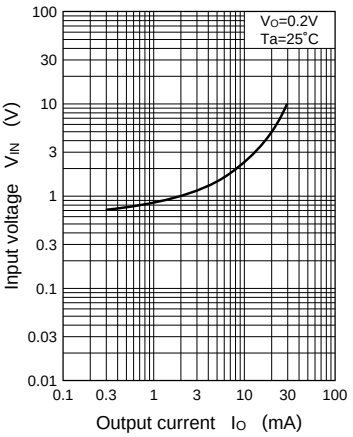
C_{ob} — V_{CB}



I_O — V_{IN}

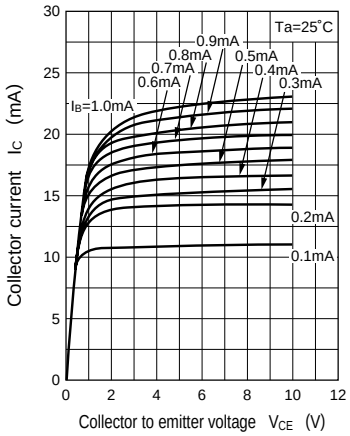


V_{IN} — I_O

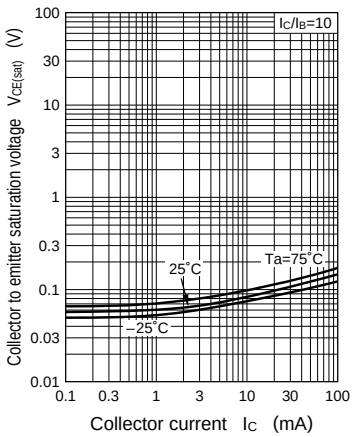


Characteristics charts of UN421D

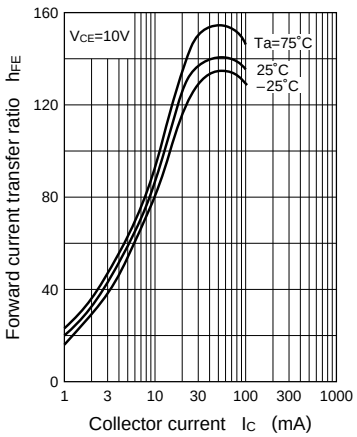
I_C — V_{CE}



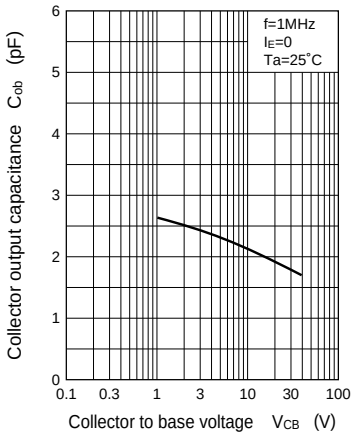
$V_{CE(sat)}$ — I_C



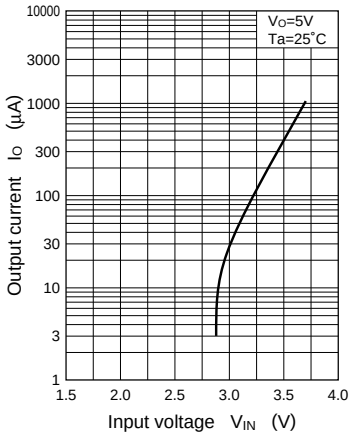
h_{FE} — I_C



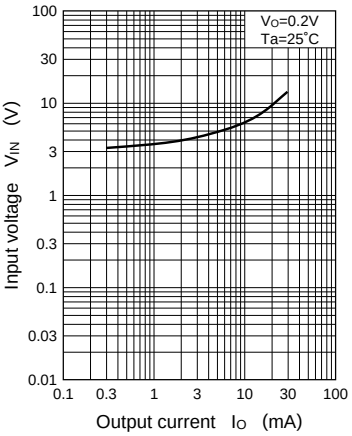
C_{ob} — V_{CB}



I_O — V_{IN}

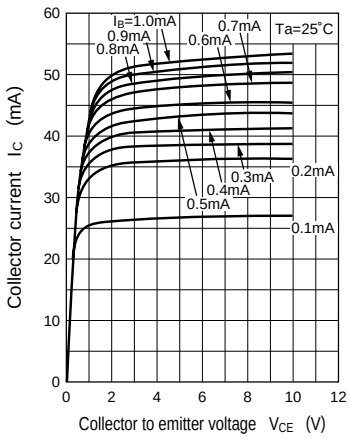


V_{IN} — I_O

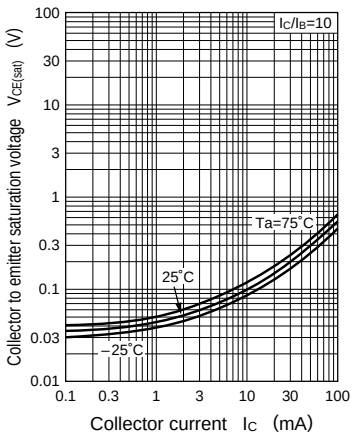


Characteristics charts of UN421E

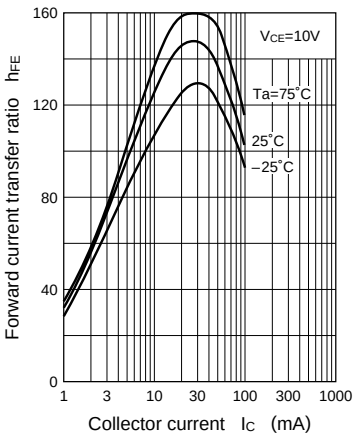
I_C — V_{CE}



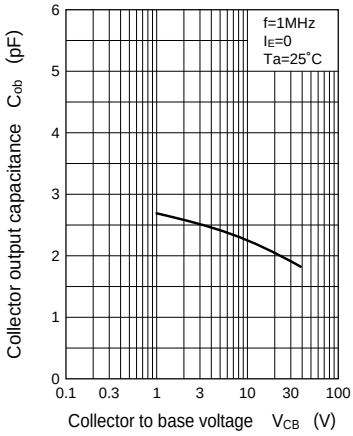
$V_{CE(sat)}$ — I_C



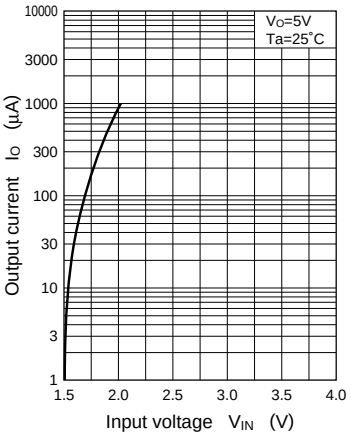
h_{FE} — I_C



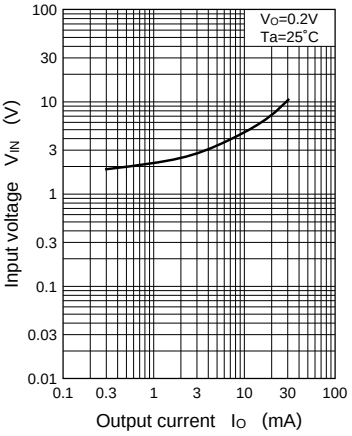
C_{ob} — V_{CB}



I_O — V_{IN}

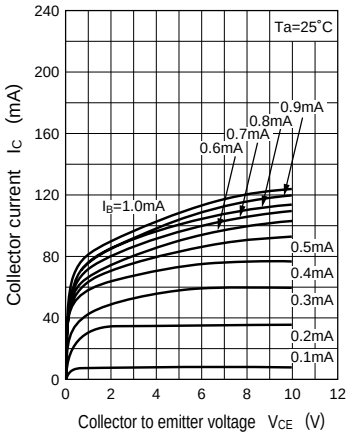


V_{IN} — I_O

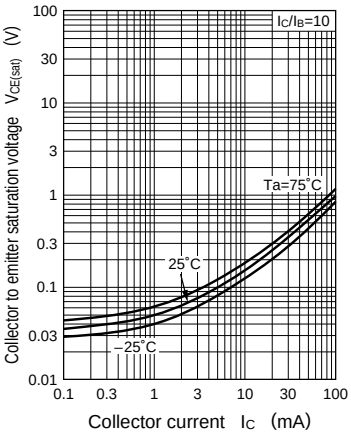


Characteristics charts of UN421F

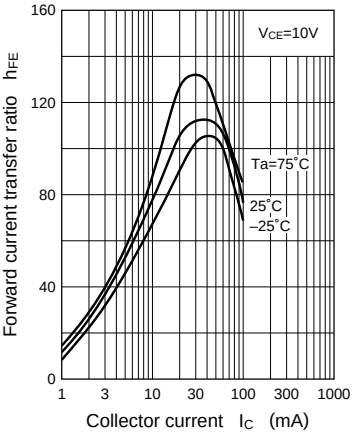
I_C — V_{CE}



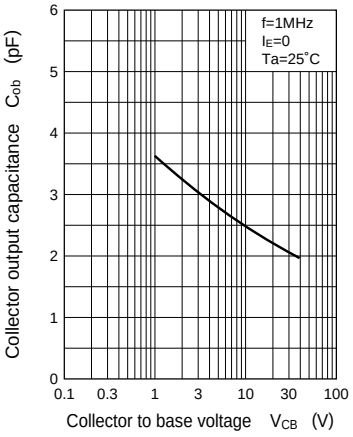
$V_{CE(sat)}$ — I_C



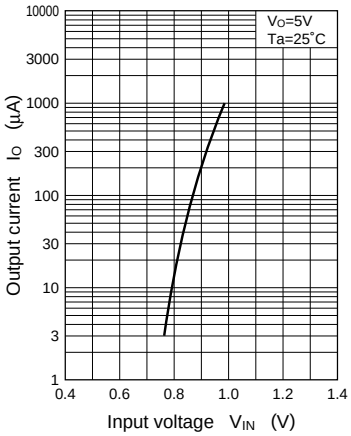
h_{FE} — I_C



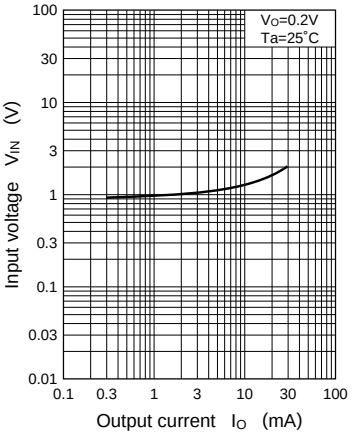
C_{ob} — V_{CB}



I_O — V_{IN}

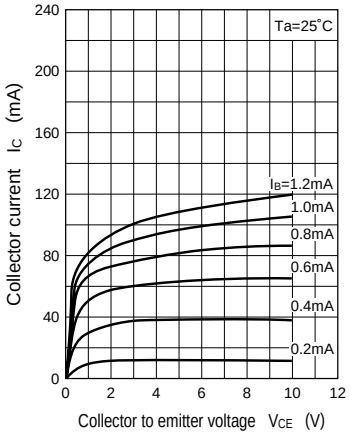


V_{IN} — I_O

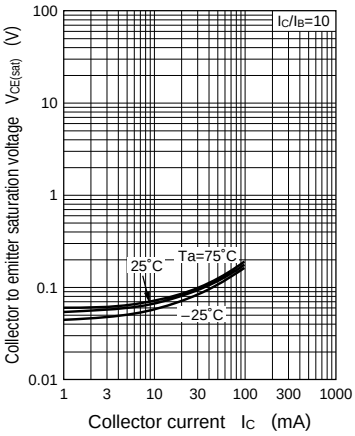


Characteristics charts of UN421K

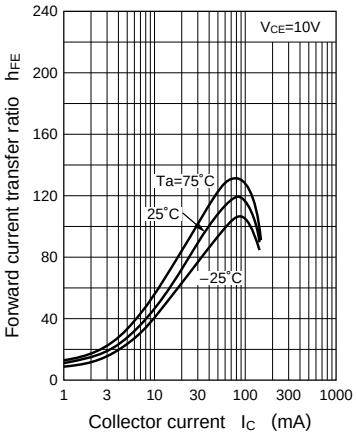
I_C — V_{CE}



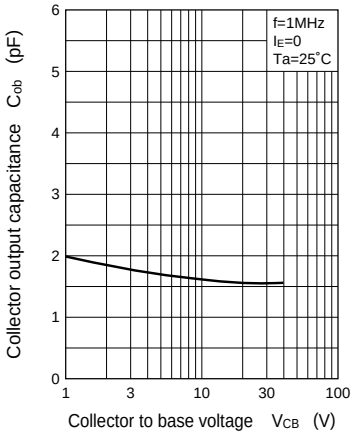
$V_{CE(sat)}$ — I_C



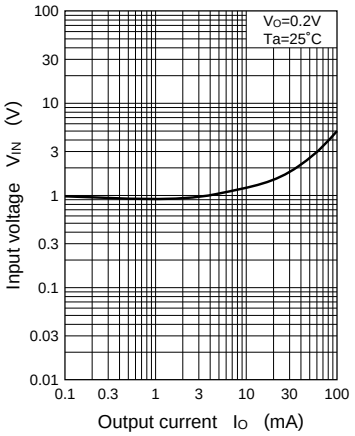
h_{FE} — I_C



C_{ob} — V_{CB}

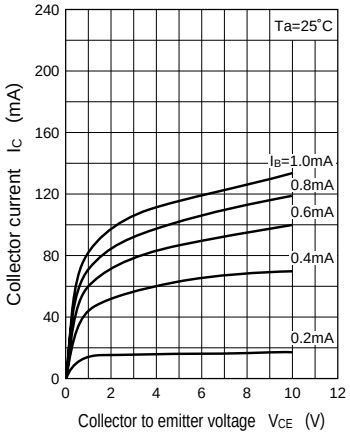


V_{IN} — I_O

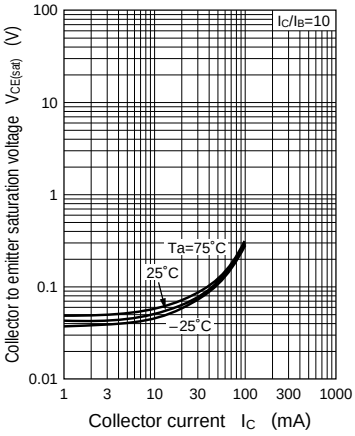


Characteristics charts of UN421L

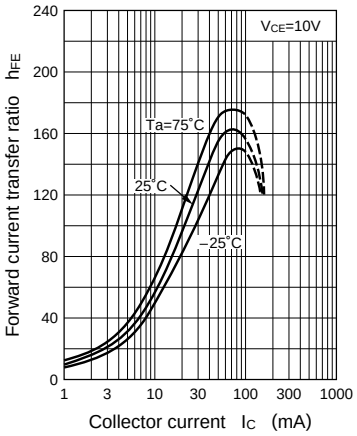
I_C — V_{CE}



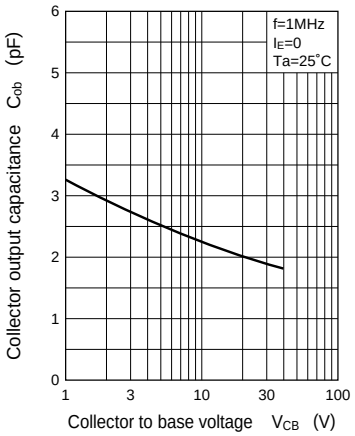
$V_{CE(sat)}$ — I_C



h_{FE} — I_C



$C_{ob} — V_{CB}$



$I_O — V_{IN}$