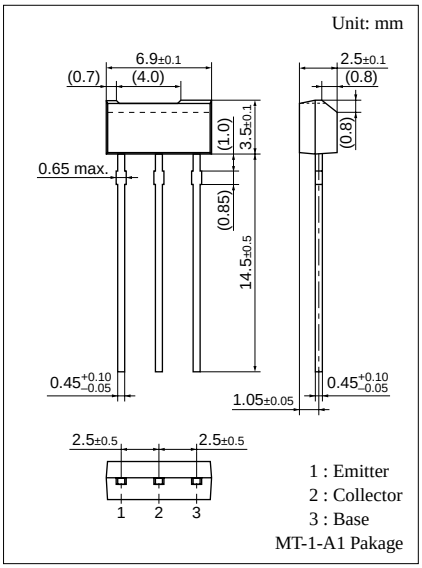
UNR6211/6212/6213/6214/6215/6216/6217/6218/6219/6210/621D/621E/621F/621K/621L (UN6211/6212/6213/6214/6215/6216/6217/6218/6219/6210/621D/621E/621F/621K/621L)

Silicon NPN epitaxial planer transistor

For digital circuits



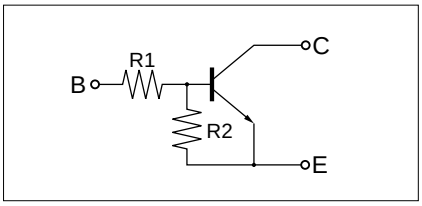
Features

- 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 (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	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.

Electrical Characteristics (Ta=25°C)

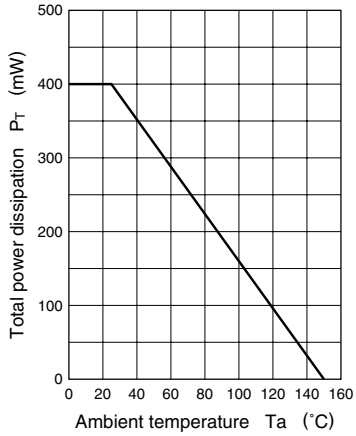
Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 50V, I_E = 0			0.1	μA
		I_{CEO}	V_{CE} = 50V, I_B = 0			0.5	μA
Emitter cutoff current	UNR6211	I_{EBO}	V_{EB} = 6V, I_C = 0			0.5	mA
	UNR6212/6214/621E/621D					0.2	
	UNR6213					0.1	
	UNR6215/6216/6217/6210					0.01	
	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
	UNR6213/621K		V_{OC} = 5V, V_B = 3.5V, R_1 = 1kΩ			0.2	
	UNR621D		V_{CC} = 5V, V_B = 10V, R_1 = 1kΩ			0.2	
	UNR621E		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

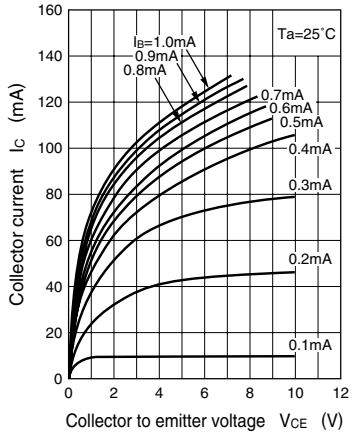
Common characteristics chart

P_T — Ta

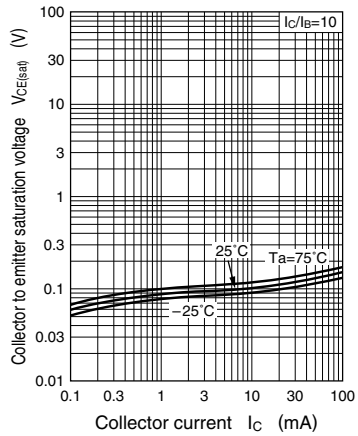


Characteristics charts of UNR6211

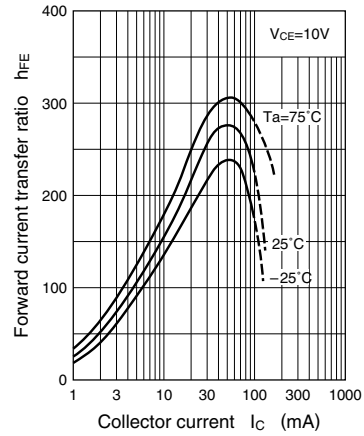
I_C — V_{CE}



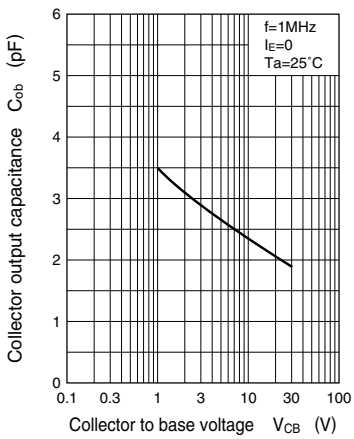
$V_{CE(sat)}$ — I_C



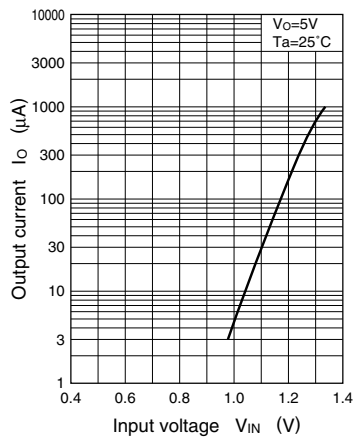
h_{FE} — I_C



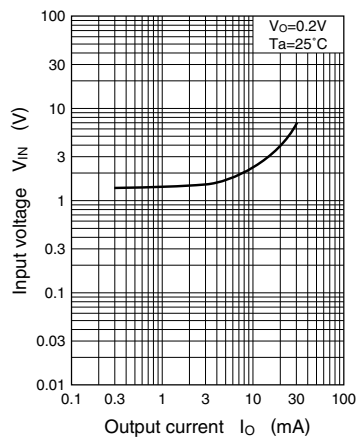
C_{ob} — V_{CB}



I_O — V_{IN}

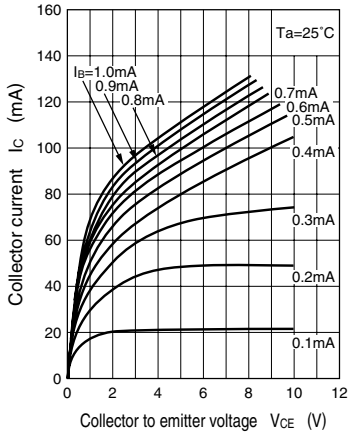


V_{IN} — I_O

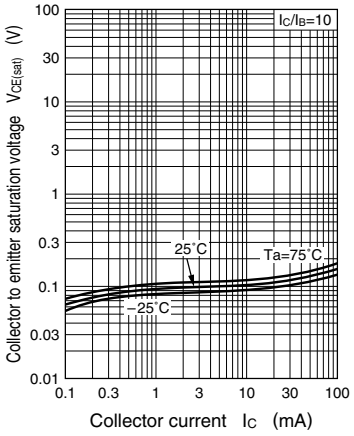


Characteristics charts of UNR6212

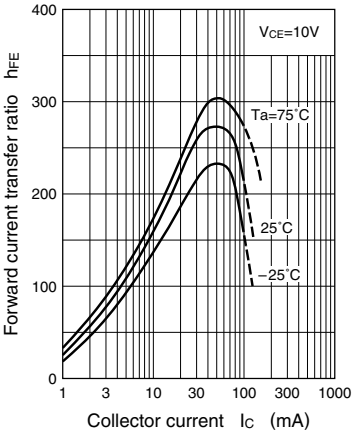
I_C — V_{CE}



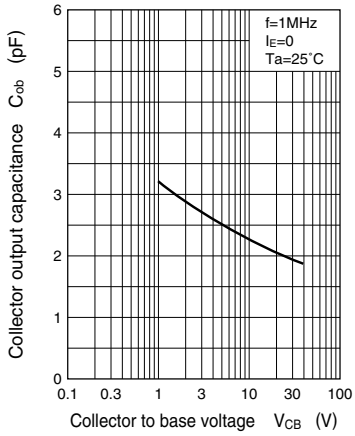
$V_{CE(sat)}$ — I_C



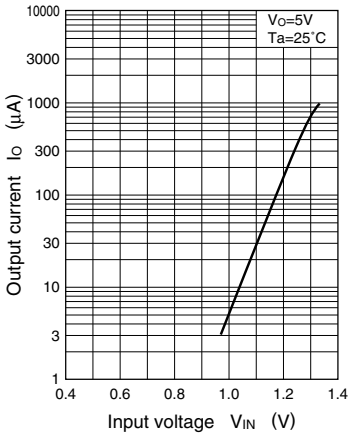
h_{FE} — I_C



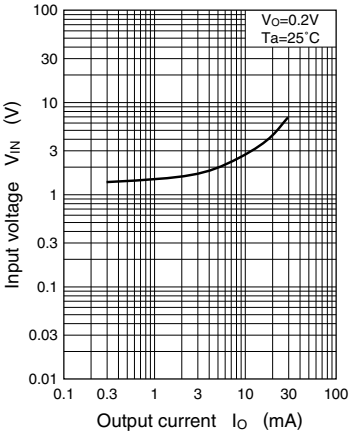
C_{ob} — V_{CB}



I_O — V_{IN}

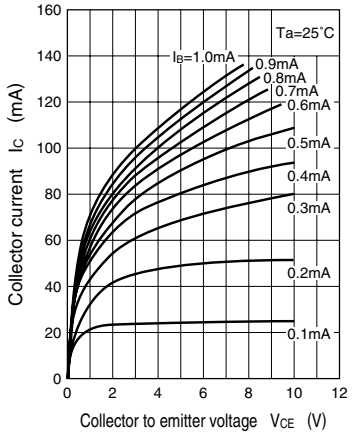


V_{IN} — I_O

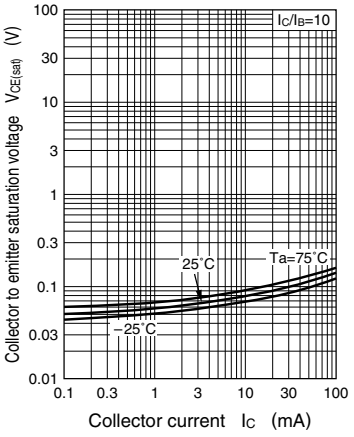


Characteristics charts of UNR6213

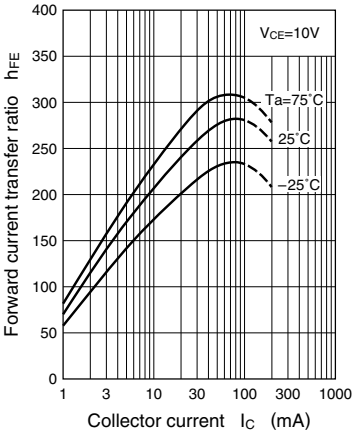
I_C — V_{CE}



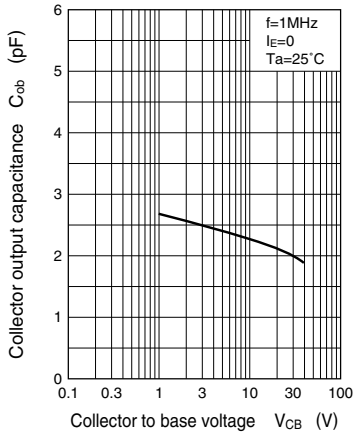
$V_{CE(sat)}$ — I_C



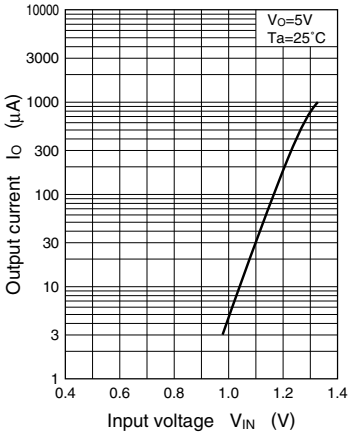
h_{FE} — I_C



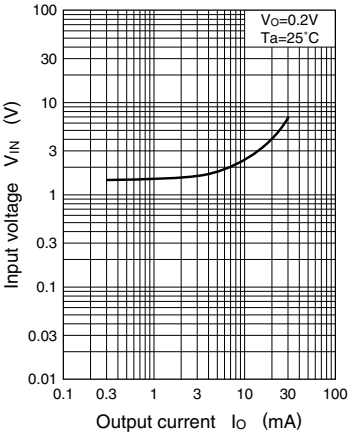
C_{ob} — V_{CB}



I_O — V_{IN}

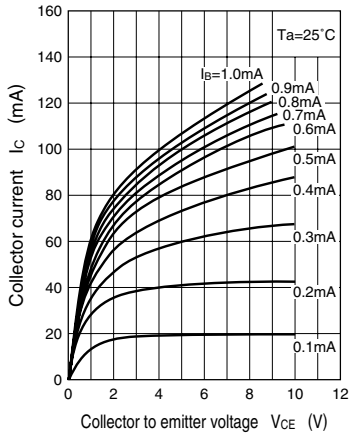


V_{IN} — I_O

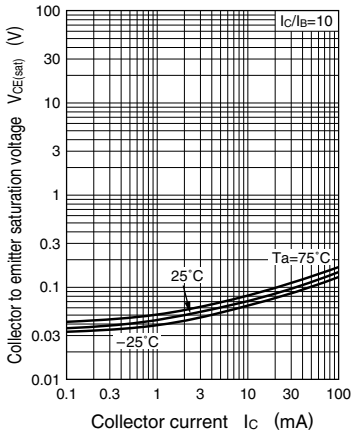


Characteristics charts of UNR6214

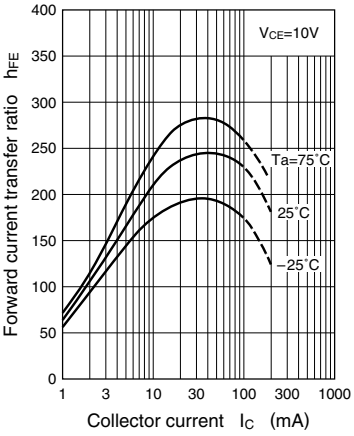
I_C — V_{CE}



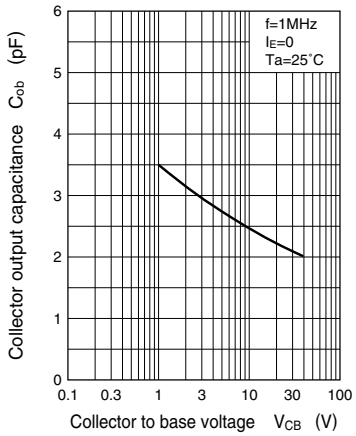
$V_{CE(sat)}$ — I_C



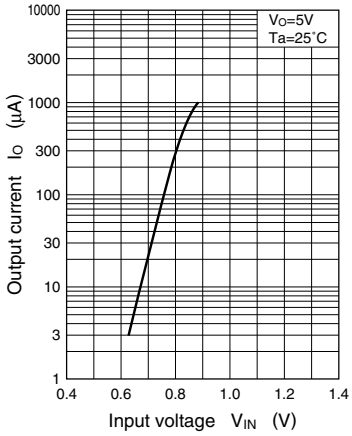
h_{FE} — I_C



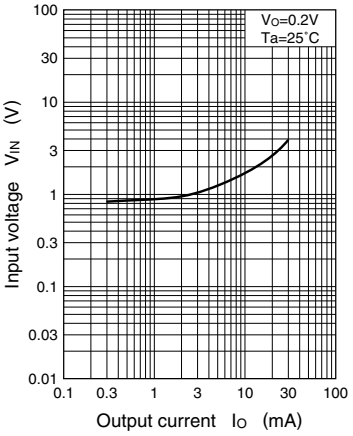
C_{ob} — V_{CB}



I_O — V_{IN}

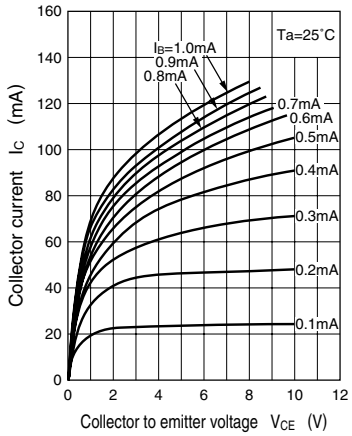


V_{IN} — I_O

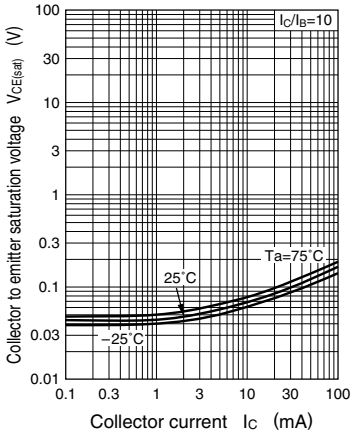


Characteristics charts of UNR6215

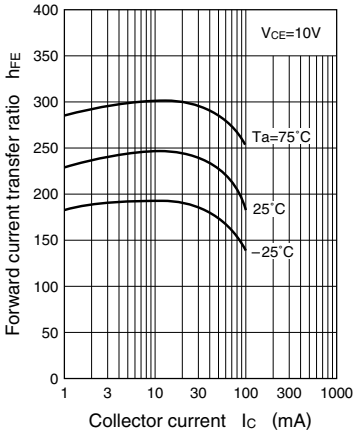
I_C — V_{CE}



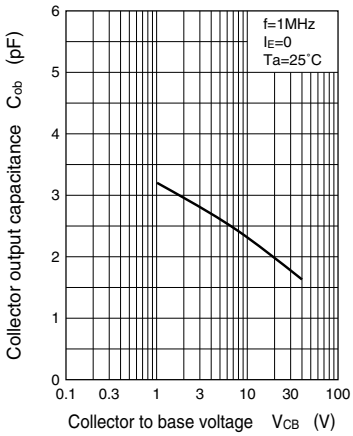
$V_{CE(sat)}$ — I_C



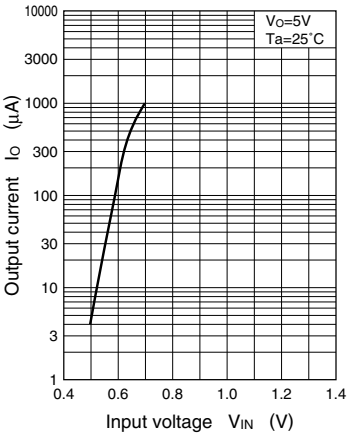
h_{FE} — I_C



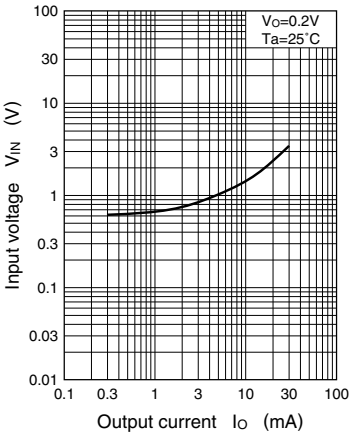
C_{ob} — V_{CB}



I_O — V_{IN}

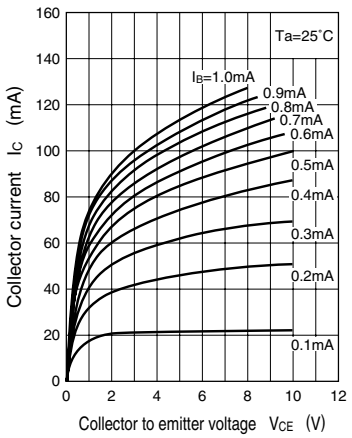


V_{IN} — I_O

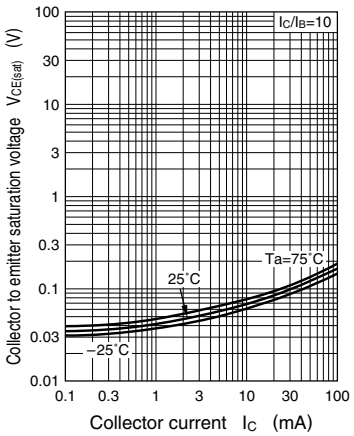


Characteristics charts of UNR6216

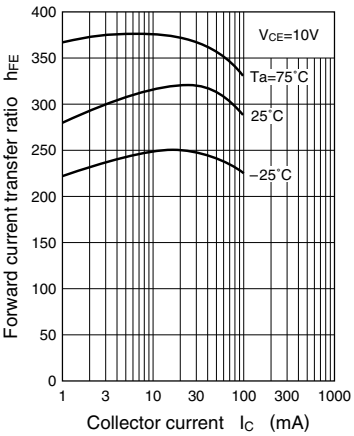
I_C — V_{CE}



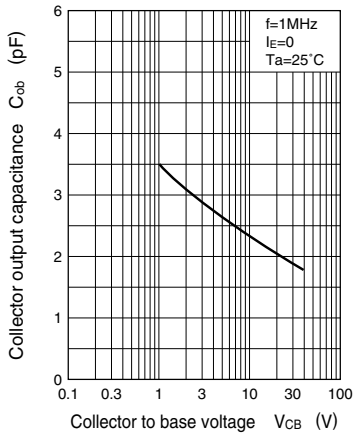
$V_{CE(sat)}$ — I_C



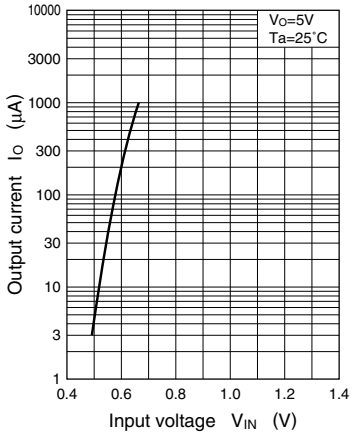
h_{FE} — I_C



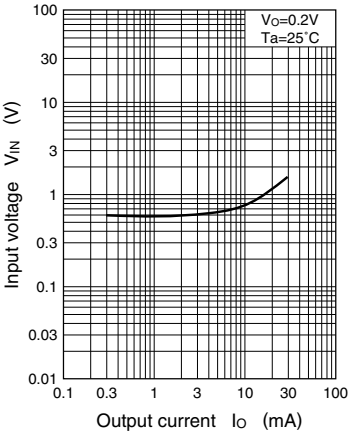
C_{ob} — V_{CB}



I_O — V_{IN}

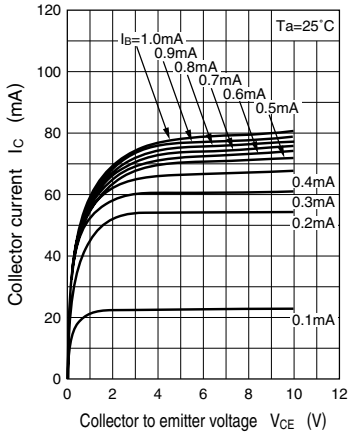


V_{IN} — I_O

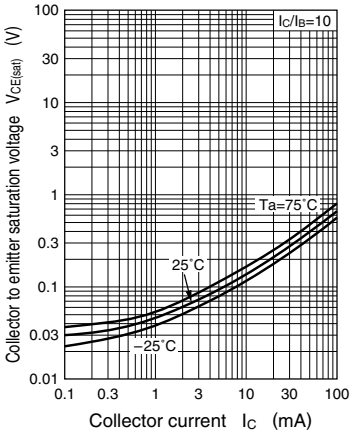


Characteristics charts of UNR6217

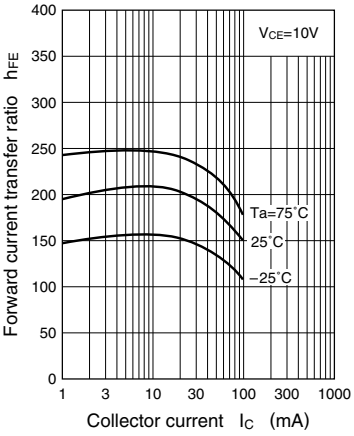
I_C — V_{CE}



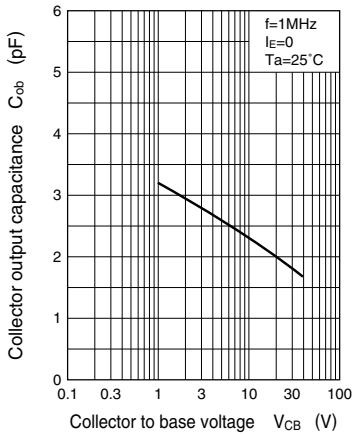
$V_{CE(sat)}$ — I_C



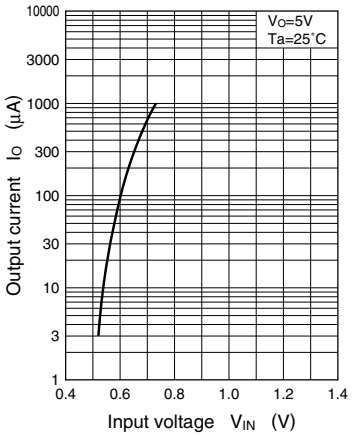
h_{FE} — I_C



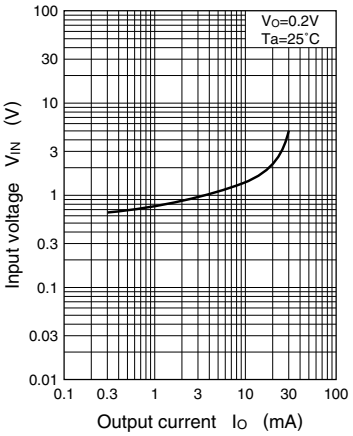
C_{ob} — V_{CB}



I_O — V_{IN}

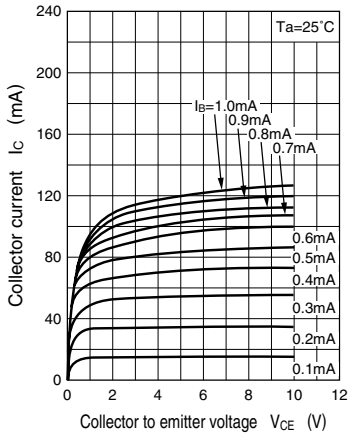


V_{IN} — I_O

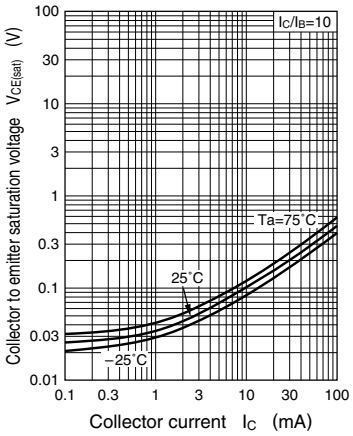


Characteristics charts of UNR6218

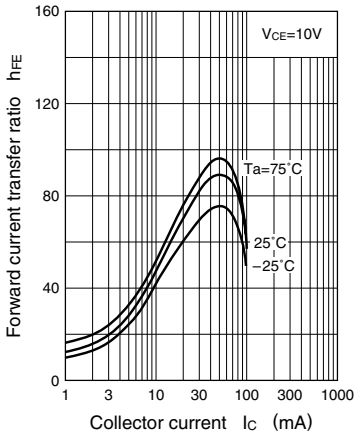
I_C — V_{CE}



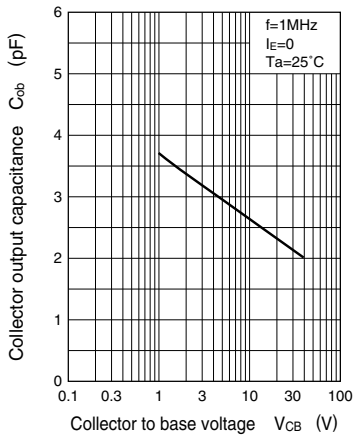
$V_{CE(sat)}$ — I_C



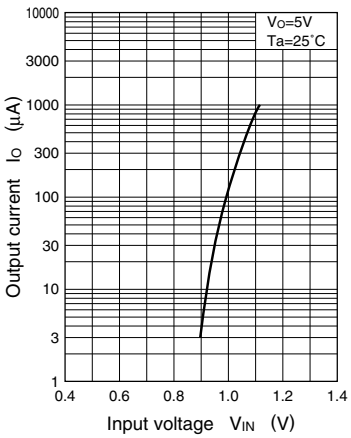
h_{FE} — I_C



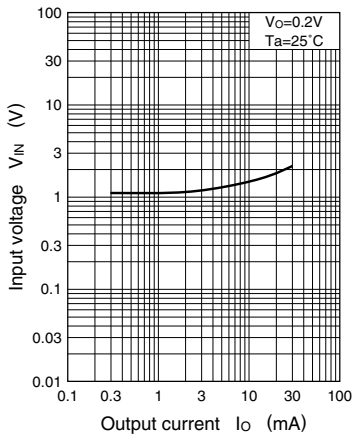
C_{ob} — V_{CB}



I_O — V_{IN}

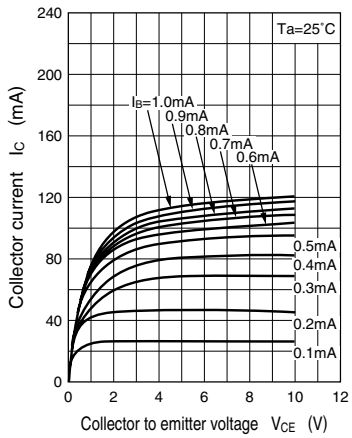


V_{IN} — I_O

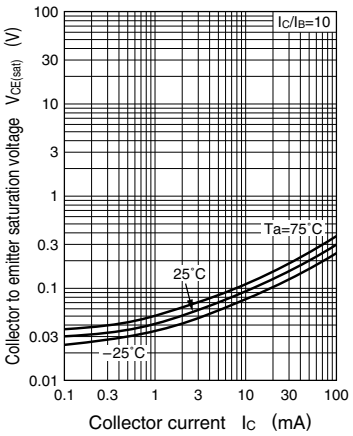


Characteristics charts of UNR6219

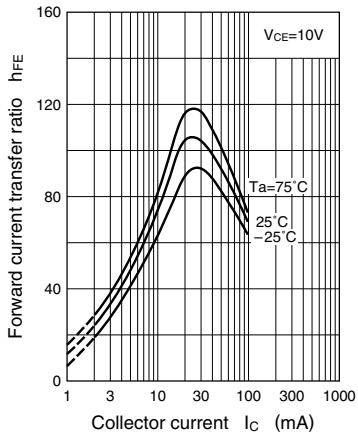
I_C — V_{CE}



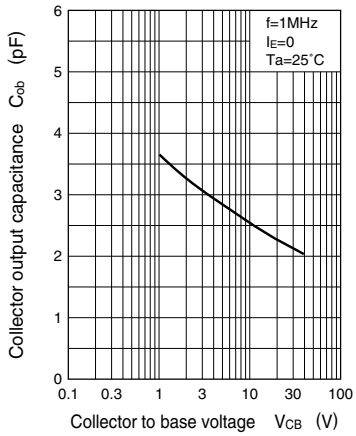
$V_{CE(sat)}$ — I_C



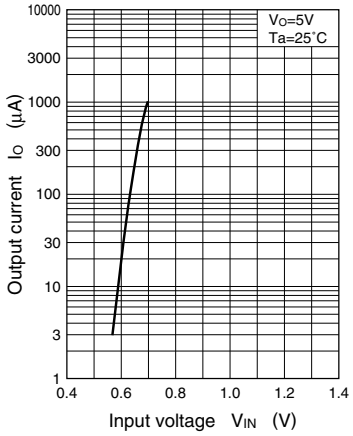
h_{FE} — I_C



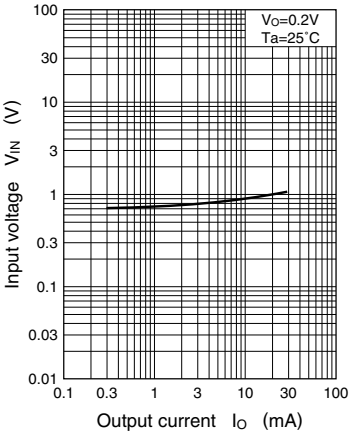
C_{ob} — V_{CB}



I_O — V_{IN}

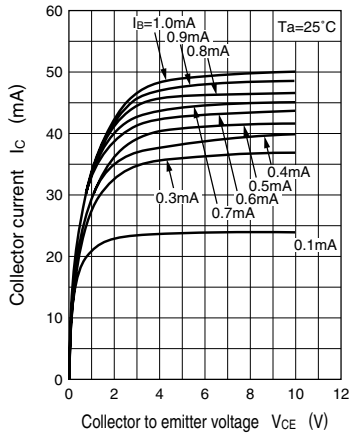


V_{IN} — I_O

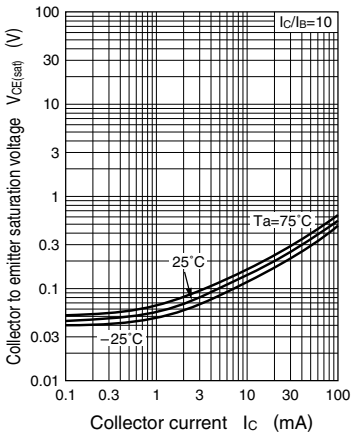


Characteristics charts of UNR6210

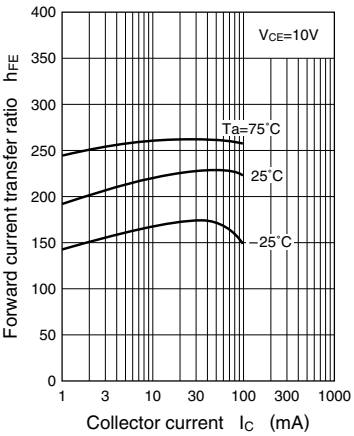
I_C — V_{CE}



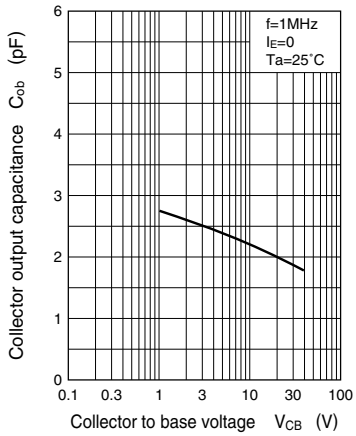
$V_{CE(sat)}$ — I_C



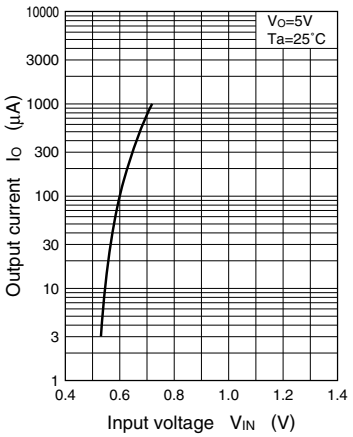
h_{FE} — I_C



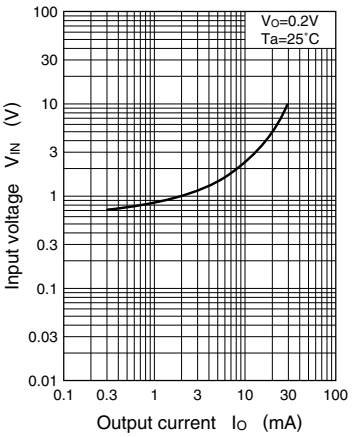
C_{ob} — V_{CB}



I_O — V_{IN}

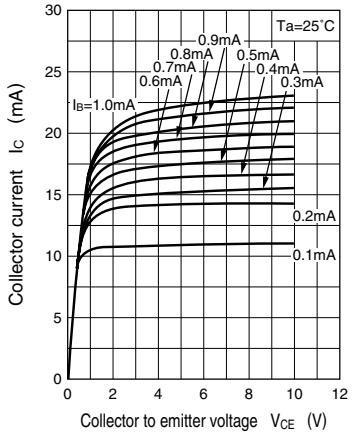


V_{IN} — I_O

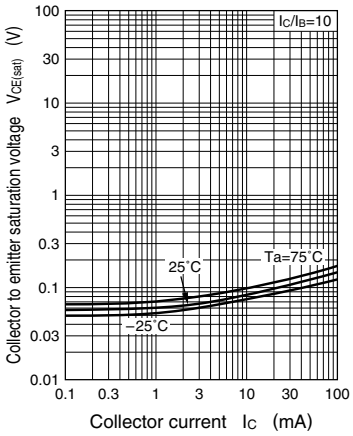


Characteristics charts of UNR621D

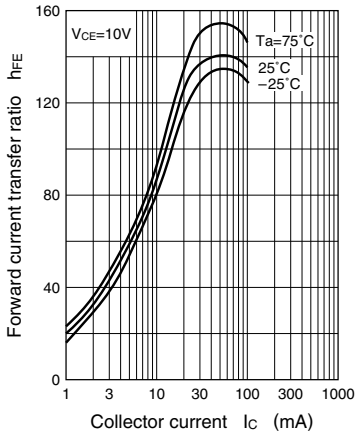
I_C — V_{CE}



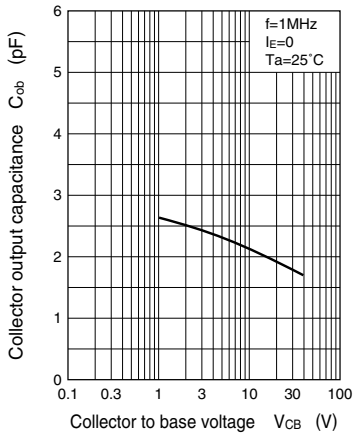
$V_{CE(sat)}$ — I_C



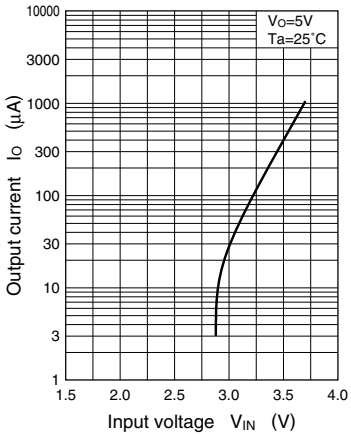
h_{FE} — I_C



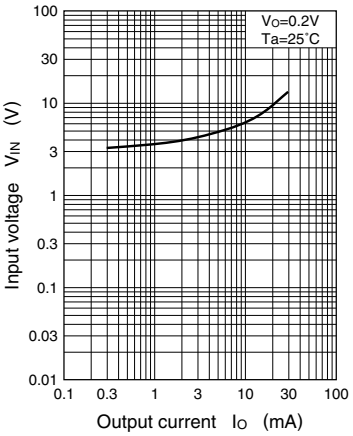
C_{ob} — V_{CB}



I_O — V_{IN}

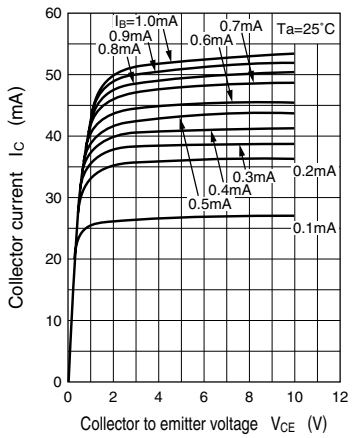


V_{IN} — I_O

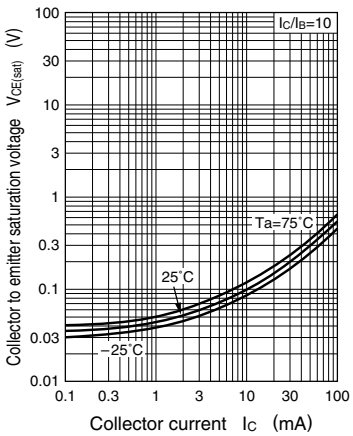


Characteristics charts of UNR621E

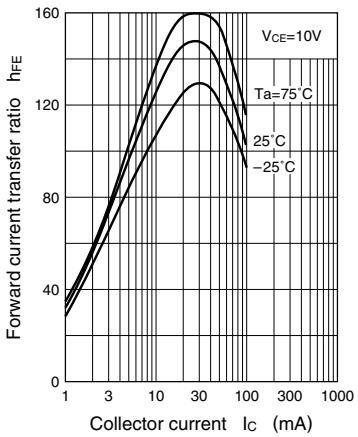
I_C — V_{CE}



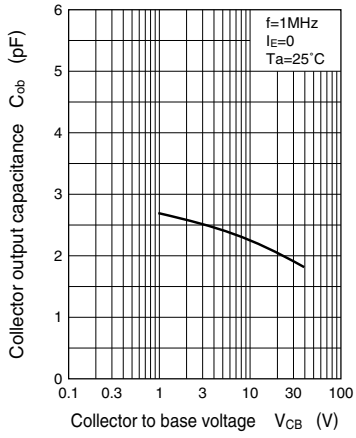
$V_{CE(sat)}$ — I_C



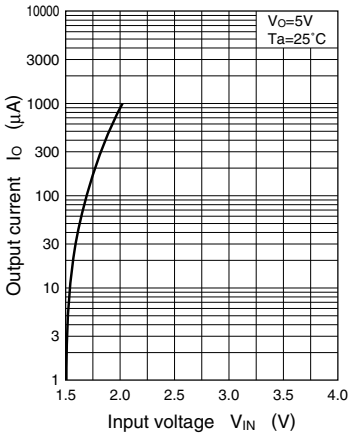
h_{FE} — I_C



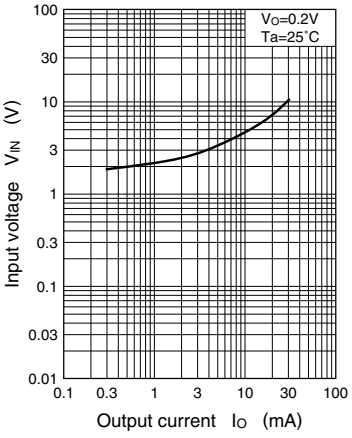
C_{ob} — V_{CB}



I_O — V_{IN}

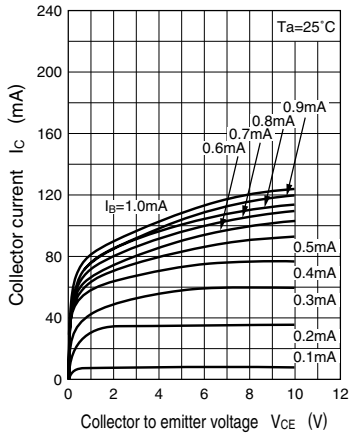


V_{IN} — I_O

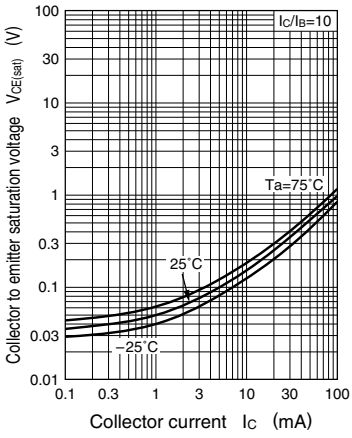


Characteristics charts of UNR621F

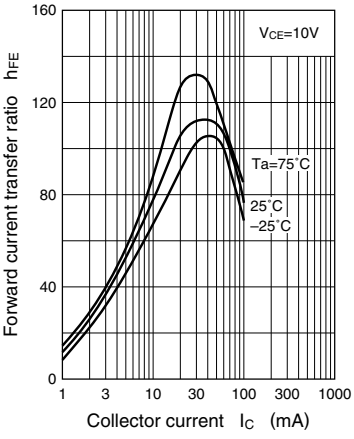
I_C — V_{CE}



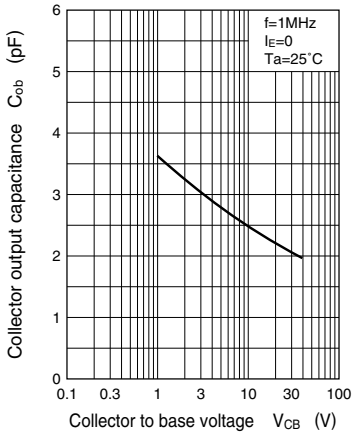
$V_{CE(sat)}$ — I_C



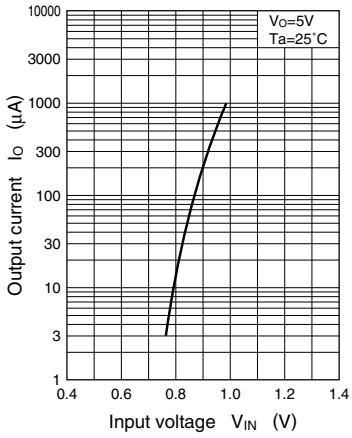
h_{FE} — I_C



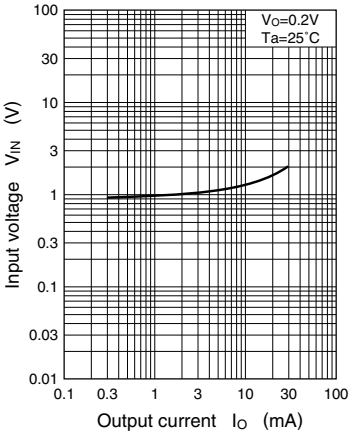
C_{ob} — V_{CB}



I_O — V_{IN}

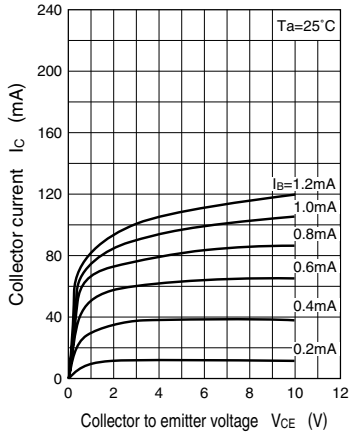


V_{IN} — I_O

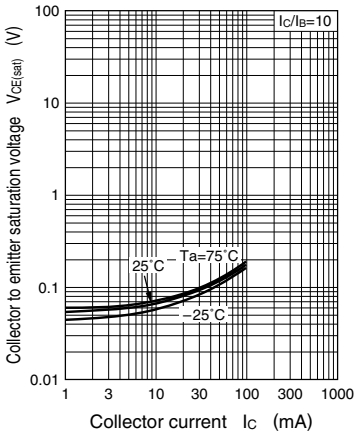


Characteristics charts of UNR621K

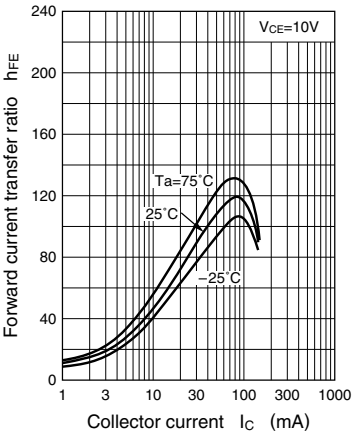
I_C — V_{CE}



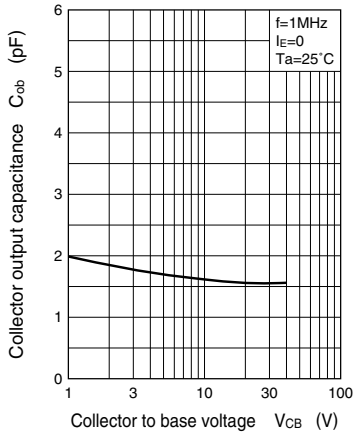
$V_{CE(sat)}$ — I_C



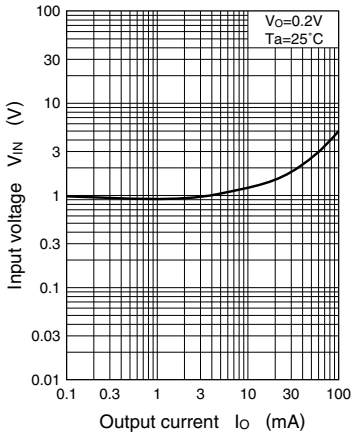
h_{FE} — I_C



C_{ob} — V_{CB}

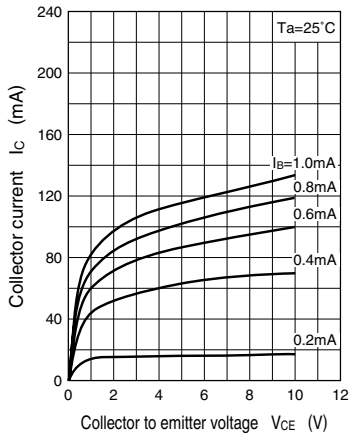


V_{IN} — I_O

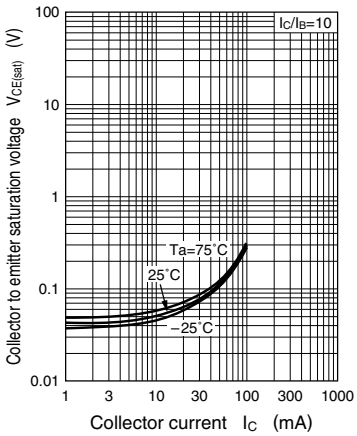


Characteristics charts of UNR621L

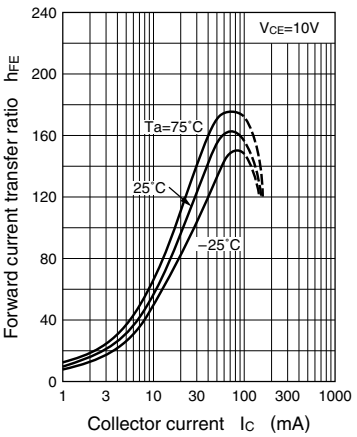
I_C — V_{CE}



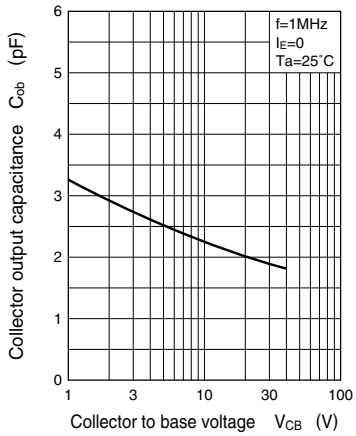
$V_{CE(sat)}$ — I_C



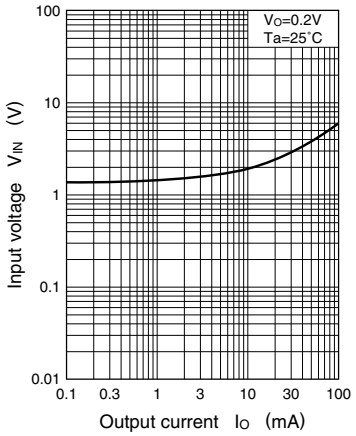
h_{FE} — I_C



C_{ob} — V_{CB}



I_O — V_{IN}



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