UNR911xJシリーズ (UN911xJシリーズ)

シリコンPNPエピタキシャルプレーナ形

デジタル回路用

■ 特　長

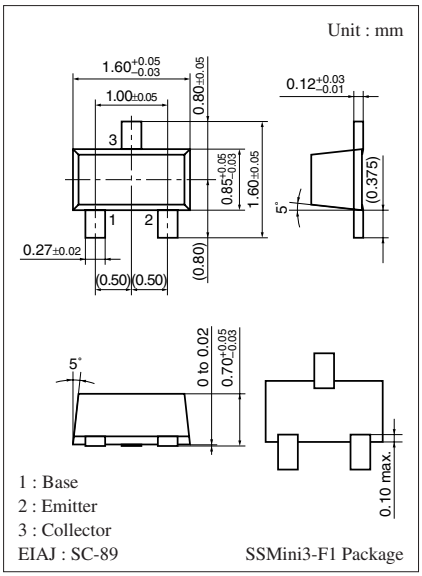
- 機器の小形化, 部品点数の削減によりコストダウン可能
- SSミニ型パッケージのため, テーピング, マガジン包装による自動挿入が可能

■ 品種別抵抗値

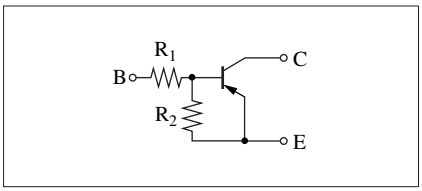
	形名表示記号	(R_1)	(R_2)
• UNR9110J (UN9110J)	6L	47 kΩ	—
• UNR9111J (UN9111J)	6A	10 kΩ	10 kΩ
• UNR9112J (UN9112J)	6B	22 kΩ	22 kΩ
• UNR9113J (UN9113J)	6C	47 kΩ	47 kΩ
• UNR9114J (UN9114J)	6D	10 kΩ	47 kΩ
• UNR9115J (UN9115J)	6E	10 kΩ	—
• UNR9116J (UN9116J)	6F	4.7 kΩ	—
• UNR9117J (UN9117J)	6H	22 kΩ	—
• UNR9118J (UN9118J)	6I	0.51 kΩ	5.1 kΩ
• UNR9119J (UN9119J)	6K	1 kΩ	10 kΩ
• UNR911AJ	6X	100 kΩ	100 kΩ
• UNR911BJ	6Y	100 kΩ	—
• UNR911CJ	6Z	—	47 kΩ
• UNR911DJ (UN911DJ)	6M	47 kΩ	10 kΩ
• UNR911EJ (UN911EJ)	6N	47 kΩ	22 kΩ
• UNR911FJ (UN911FJ)	6O	4.7 kΩ	10 kΩ
• UNR911HJ (UN911HJ)	6P	2.2 kΩ	10 kΩ
• UNR911LJ (UN911LJ)	6Q	4.7 kΩ	4.7 kΩ
• UNR911MJ	EI	2.2 kΩ	47 kΩ
• UNR911NJ	EW	4.7 kΩ	47 kΩ
• UNR911TJ (UN911TJ)	EY	22 kΩ	47 kΩ
• UNR911VJ	FC	2.2 kΩ	2.2 kΩ

■ 絶対最大定格　T_a = 25°C

項目	記号	定格	単位
コレクタ・ベース間電圧(E開放時)	V_{CBO}	−50	V
コレクタ・エミッタ間電圧(B開放時)	V_{CEO}	−50	V
コレクタ電流	I_C	−100	mA
全許容損失	P_T	125	mW
接合温度	T_j	125	°C
保存温度	T_{stg}	−55 ~ +125	°C



内部接続図



注) 形名の( )内は, 従来品番です

■ 電気的特性 $T_a = 25°C \pm 3°C$

項目		記号	条件	最小	標準	最大	単位
コレクタ・ベース間電圧(E開放時)		V_{CBO}	$I_C = -10\ \mu A$, $I_E = 0$	−50			V
コレクタ・エミッタ間電圧(B開放時)		V_{CEO}	$I_C = -2$ mA, $I_B = 0$	−50			V
コレクタ・ベース間遮断電流(E開放時)		I_{CBO}	$V_{CB} = -50$ V, $I_E = 0$			− 0.1	μA
コレクタ・エミッタ間遮断電流(B開放時)		I_{CEO}	$V_{CE} = -50$ V, $I_B = 0$			− 0.5	μA
エミッタ・ベース間遮断電流(C開放時)	UNR9115J/9116J/9117J/911BJ	I_{EBO}	$V_{EB} = -6$ V, $I_C = 0$			− 0.01	mA
	UNR9110J/9113J/911AJ					− 0.1	
	UNR9112J/9114J/911DJ/911EJ/911MJ/911NJ/911TJ					− 0.2	
	UNR9111J					− 0.5	
	UNR911FJ/911HJ					−1.0	
	UNR9119J					−1.5	
	UNR9118J/911CJ/911LJ/911VJ					−2.0	
直流電流増幅率	UNR911VJ	h_{FE}	$V_{CE} = -10$ V, $I_C = -5$ mA	6		20	—
	UNR9118J/911LJ			20			
	UNR9119J/911DJ/911FJ/911HJ			30			
	UNR9111J			35			
	UNR9112J/911EJ			60			
	UNR9113J/9114J/911AJ/911CJ/911MJ			80			
	UNR911NJ/911TJ			80		400	
	UNR9110J/9115J/9116J/9117J/911BJ			160		460	
コレクタ・エミッタ間飽和電圧		$V_{CE(sat)}$	$I_C = -10$ mA, $I_B = -0.3$ mA			− 0.25	V
	UNR911VJ		$I_C = -10$ mA, $I_B = -1.5$ mA				
出力電圧ハイレベル		V_{OH}	$V_{CC} = -5$ V, $V_B = -0.5$ V, $R_L = 1$ kΩ	−4.9			V
出力電圧ローレベル		V_{OL}	$V_{CC} = -5$ V, $V_B = -2.5$ V, $R_L = 1$ kΩ			− 0.2	V
	UNR9113J/911BJ		$V_{CC} = -5$ V, $V_B = -3.5$ V, $R_L = 1$ kΩ				
	UNR911DJ		$V_{CC} = -5$ V, $V_B = -10$ V, $R_L = 1$ kΩ				
	UNR911EJ		$V_{CC} = -5$ V, $V_B = -6$ V, $R_L = 1$ kΩ				
	UNR911AJ		$V_{CC} = -5$ V, $V_B = -5$ V, $R_L = 1$ kΩ				
トランジション周波数		f_T	$V_{CB} = -10$ V, $I_E = 1$ mA, f = 200 MHz		80		MHz
	UNR9113J		$V_{CB} = -10$ V, $I_E = 1$ mA, f = 200 MHz		150		
	UNR911AJ		$V_{CB} = -10$ V, $I_E = 2$ mA, f = 200 MHz		80		
	UNR911CJ		$V_{CB} = -10$ V, $I_E = 2$ mA, f = 200 MHz		150		
入力抵抗	UNR9118J	R_1		−30%	0.51	+30%	kΩ
	UNR9119J				1.0		
	UNR911HJ/911MJ/911VJ				2.2		
	UNR9116J/911FJ/911LJ/911NJ				4.7		
	UNR9111J/9114J/9115J				10		
	UNR9112J/9117J/911TJ				22		
	UNR9110J/9113J/911DJ/911EJ				47		
	UNR911AJ/911BJ				100		

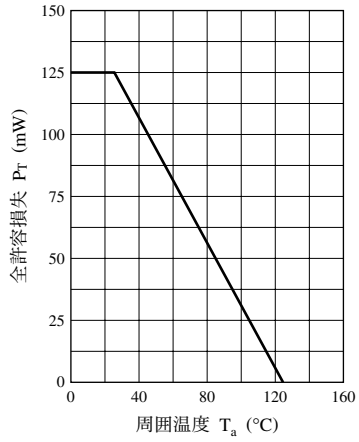
■ 電気的特性(つづき) $T_a = 25°C \pm 3°C$

項目		記号	条件	最小	標準	最大	単位
エミッタ・ベース間抵抗	UNR911CJ	R_2		−30%	47	+30%	kΩ
抵抗比率	UNR911MJ	R_1/R_2			0.047		—
	UNR911NJ				0.1		
	UNR9118J/9119J			0.08	0.10	0.12	
	UNR9114J			0.17	0.21	0.25	
	UNR911HJ			0.17	0.22	0.27	
	UNR911TJ				0.47		
	UNR911FJ			0.37	0.47	0.57	
	UNR911AJ/911VJ				1.0		
	UNR9111J/9112J/9113J/911LJ			0.8	1.0	1.2	
	UNR911EJ			1.70	2.14	2.60	
	UNR911DJ			3.7	4.7	5.7	

注) 測定方法は, 日本工業規格 JIS C 7030 トランジスタ測定方法によります。

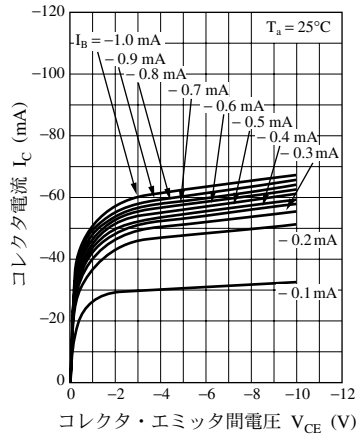
共通特性図

P_T — T_a

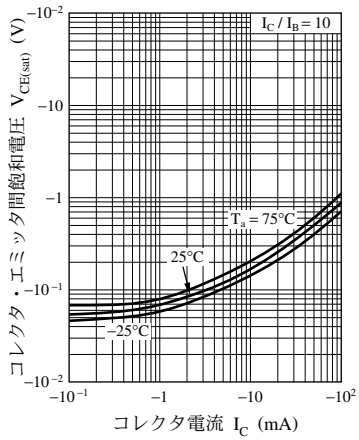


UNR9110J特性図

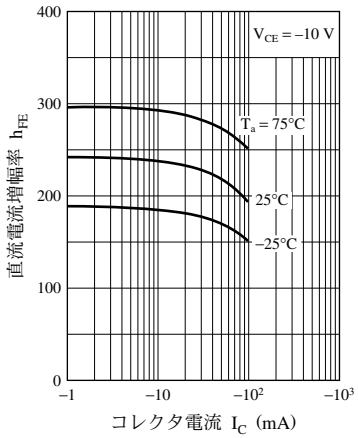
I_C — V_{CE}



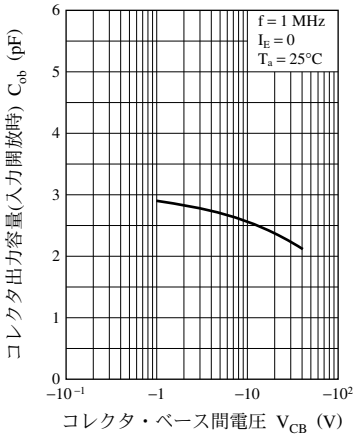
$V_{CE(sat)}$ — I_C



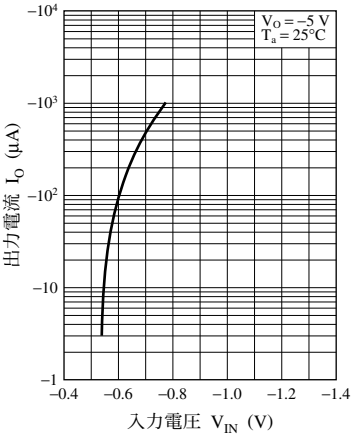
h_{FE} — I_C



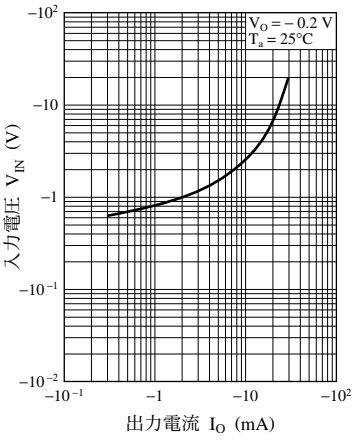
C_{ob} — V_{CB}



I_O — V_{IN}

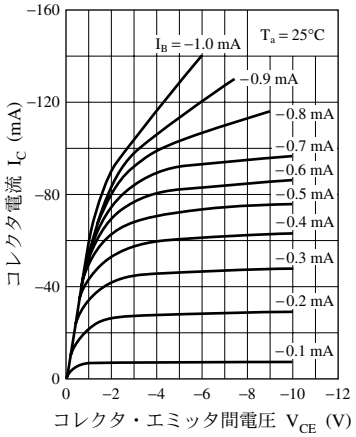


V_{IN} — I_O

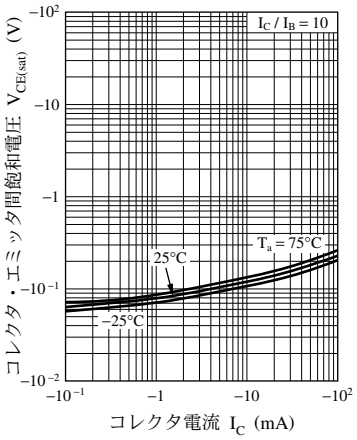


UNR9111J特性図

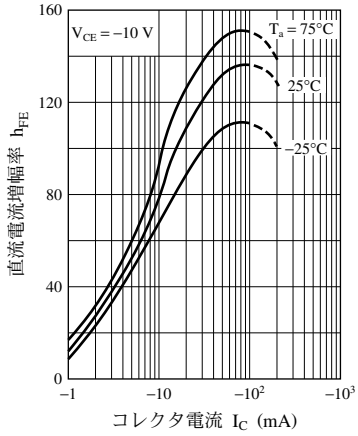
I_C — V_{CE}



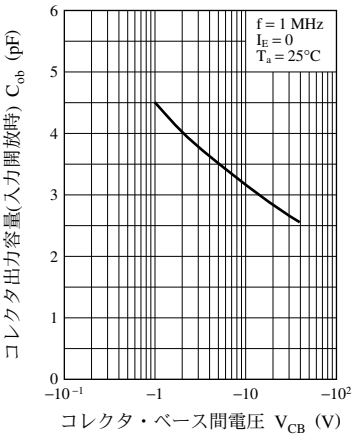
$V_{CE(sat)}$ — I_C



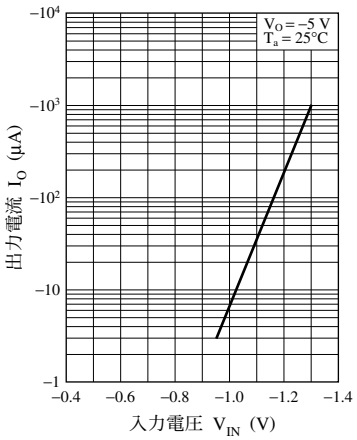
h_{FE} — I_C



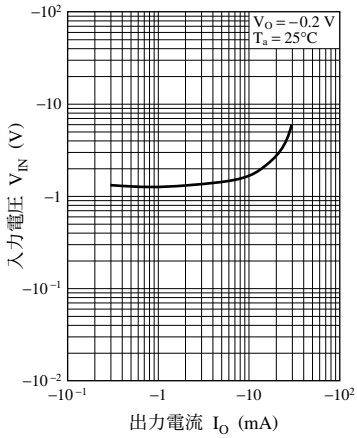
C_{ob} — V_{CB}



I_O — V_{IN}

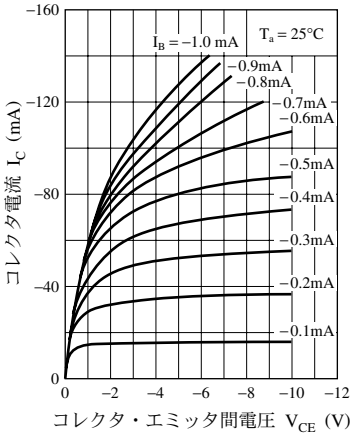


V_{IN} — I_O

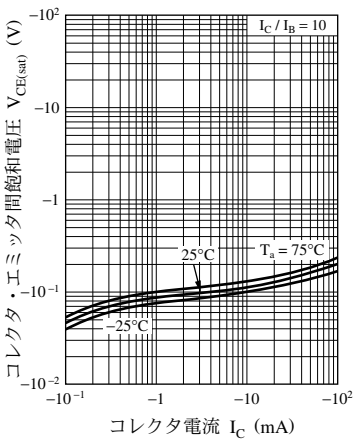


UNR9112J特性図

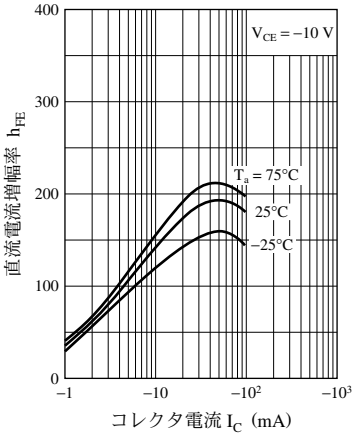
I_C — V_{CE}



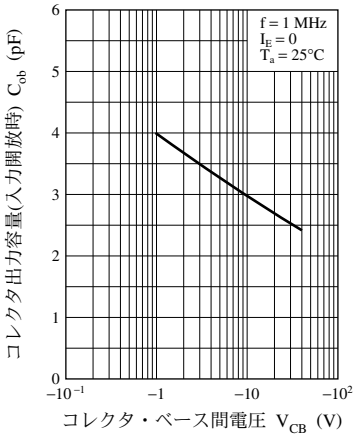
$V_{CE(sat)}$ — I_C



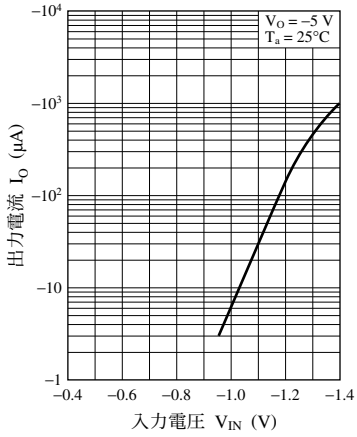
h_{FE} — I_C



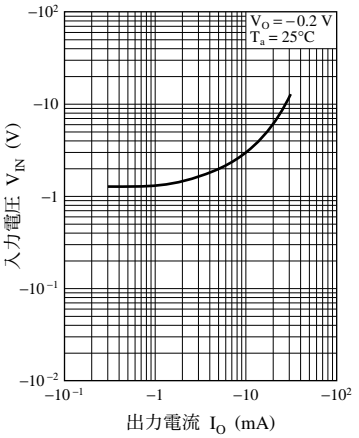
C_{ob} — V_{CB}



I_O — V_{IN}

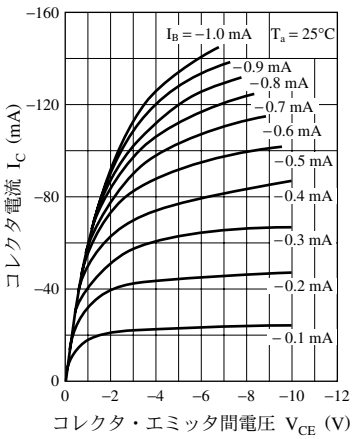


V_{IN} — I_O

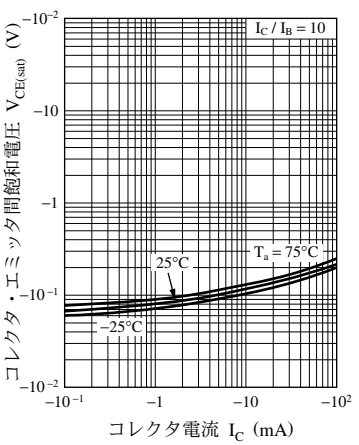


UNR9113J特性図

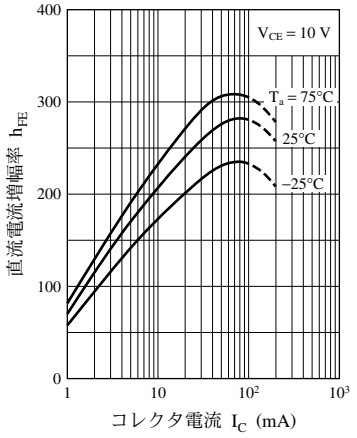
I_C — V_{CE}



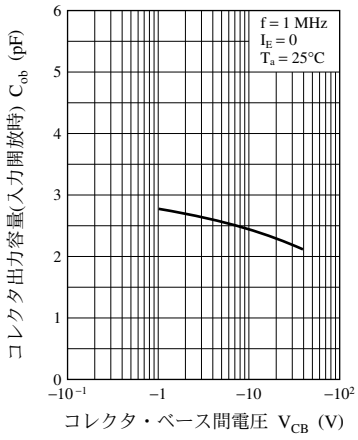
$V_{CE(sat)}$ — I_C



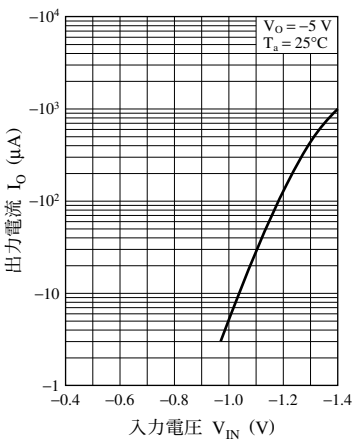
h_{FE} — I_C



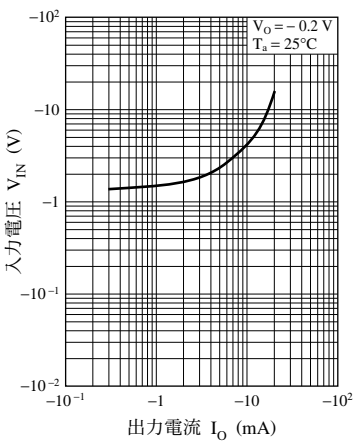
C_{ob} — V_{CB}



I_O — V_{IN}

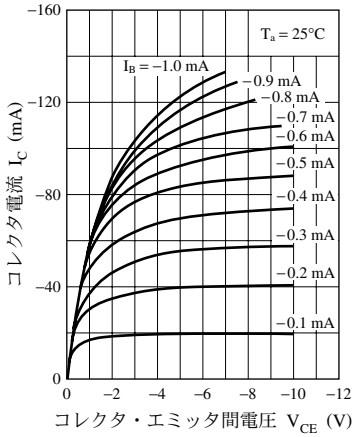


V_{IN} — I_O

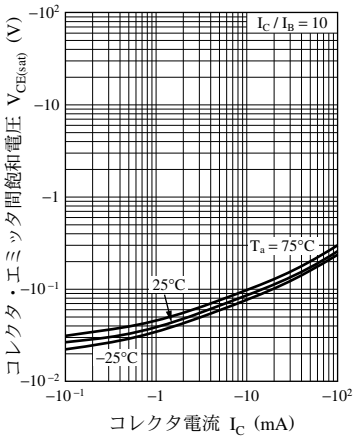


UNR9114J特性図

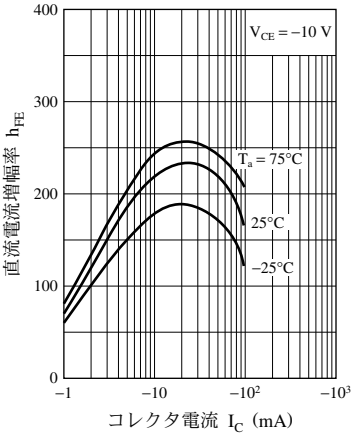
I_C — V_{CE}



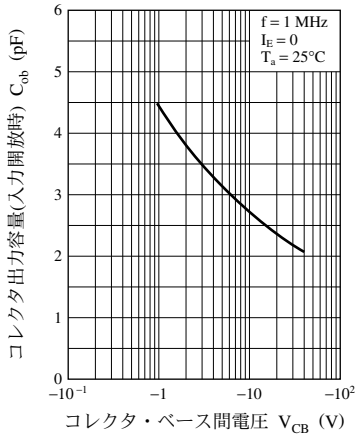
$V_{CE(sat)}$ — I_C



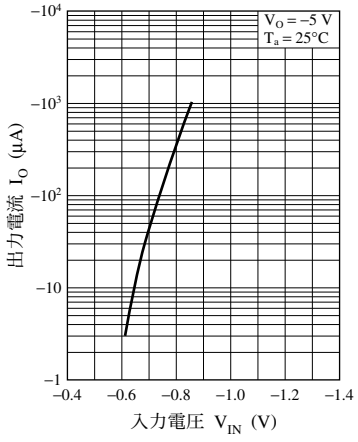
h_{FE} — I_C



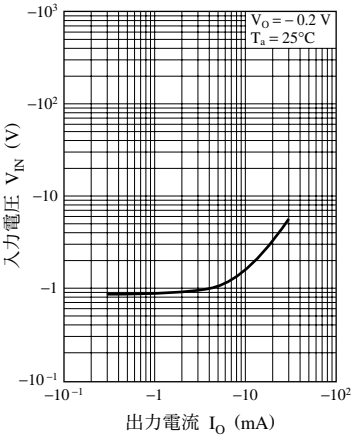
C_{ob} — V_{CB}



I_O — V_{IN}

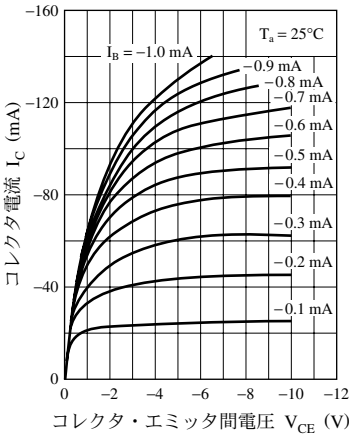


V_{IN} — I_O

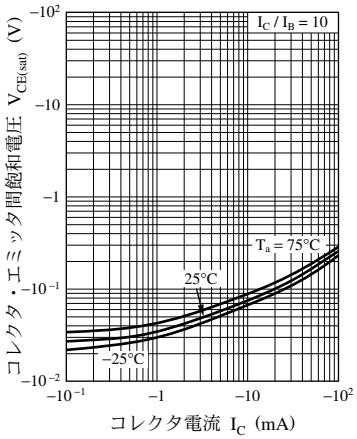


UNR9115J特性図

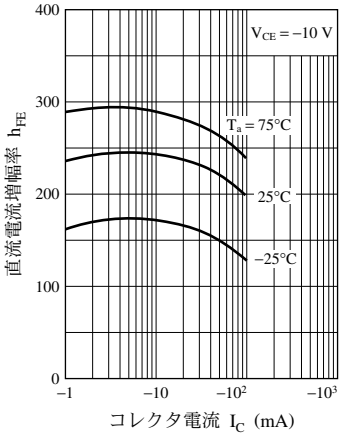
I_C — V_{CE}



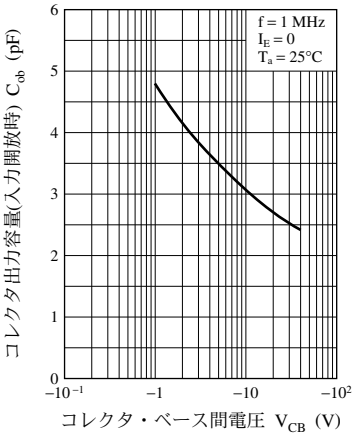
$V_{CE(sat)}$ — I_C



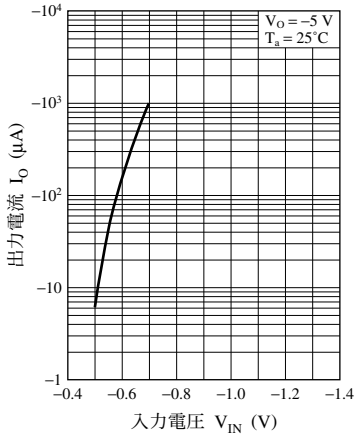
h_{FE} — I_C



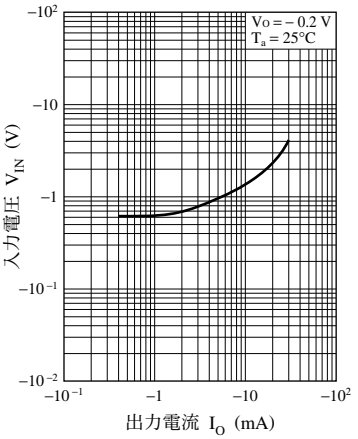
C_{ob} — V_{CB}



I_O — V_{IN}

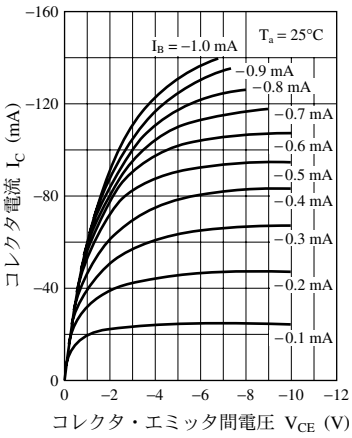


V_{IN} — I_O

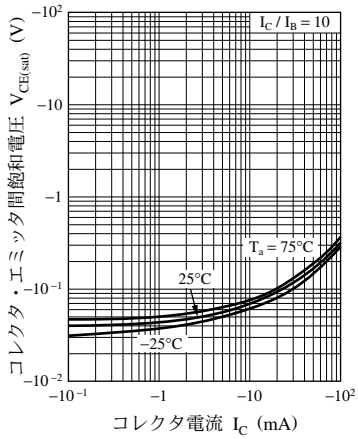


UNR9116J特性図

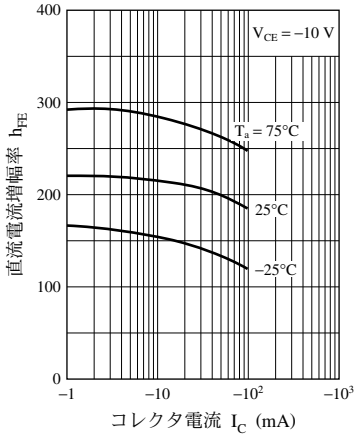
I_C — V_{CE}



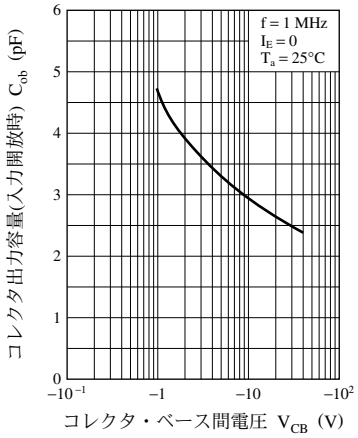
$V_{CE(sat)}$ — I_C



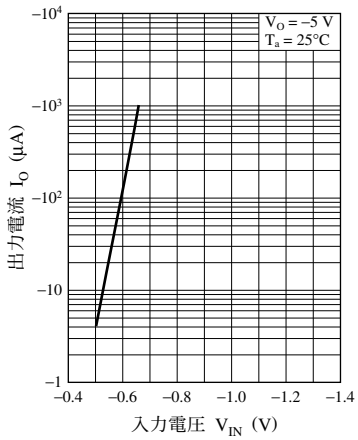
h_{FE} — I_C



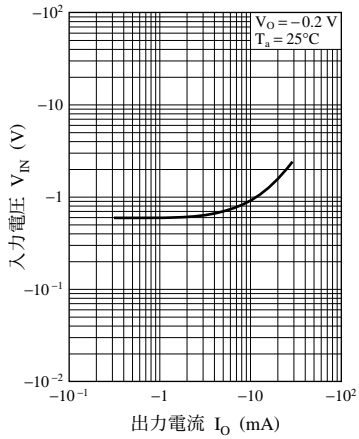
C_{ob} — V_{CB}



I_O — V_{IN}

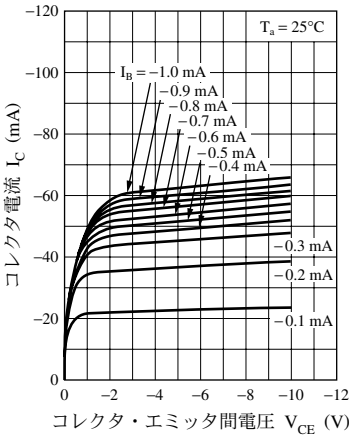


V_{IN} — I_O

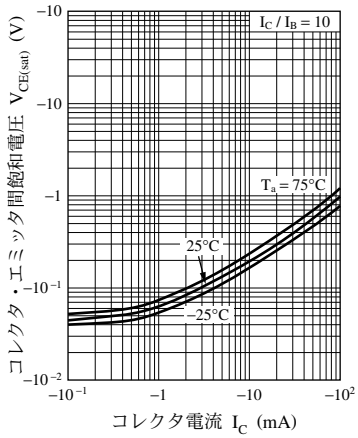


UNR9117J特性図

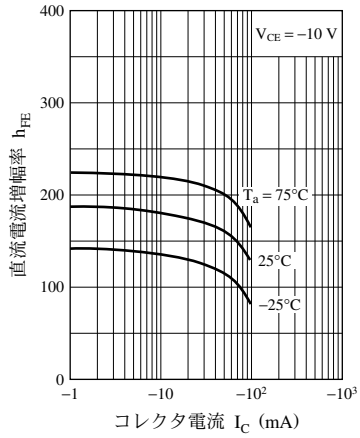
I_C — V_{CE}



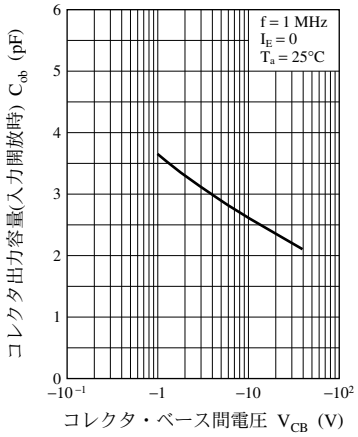
$V_{CE(sat)}$ — I_C



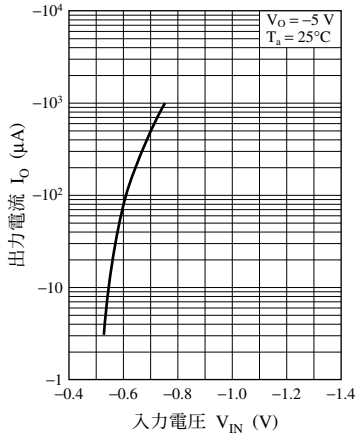
h_{FE} — I_C



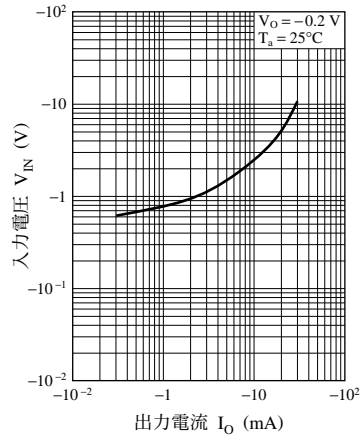
C_{ob} — V_{CB}



I_O — V_{IN}

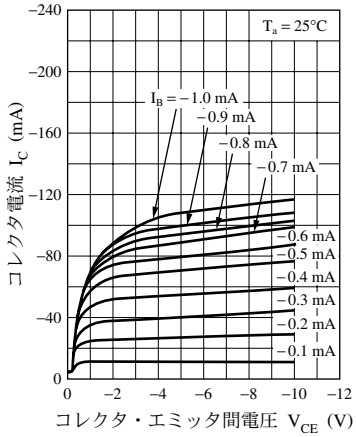


V_{IN} — I_O

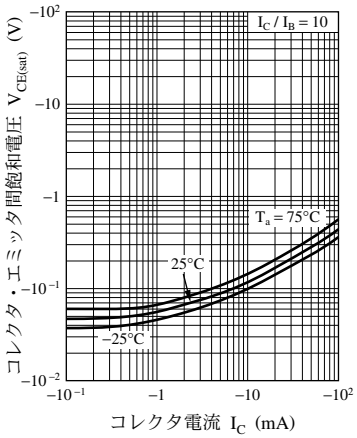


UNR9118J特性図

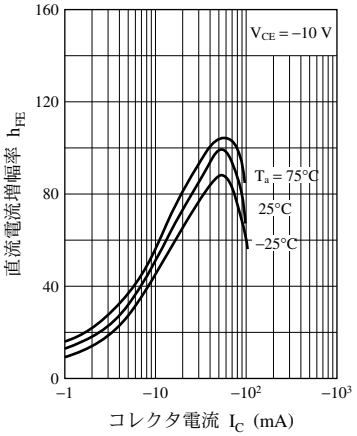
I_C — V_{CE}



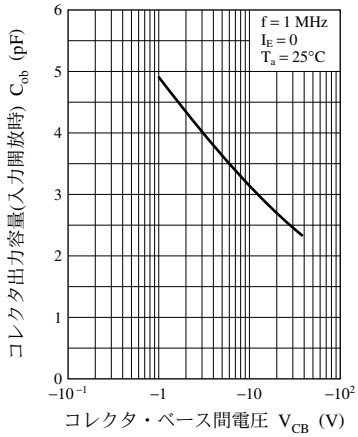
$V_{CE(sat)}$ — I_C



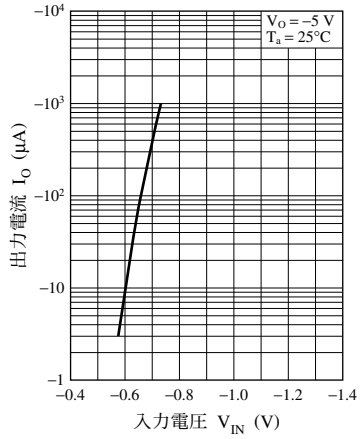
h_{FE} — I_C



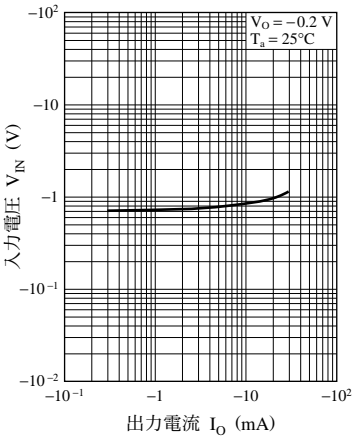
C_{ob} — V_{CB}



I_O — V_{IN}

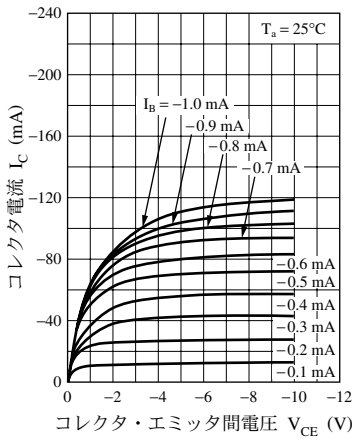


V_{IN} — I_O

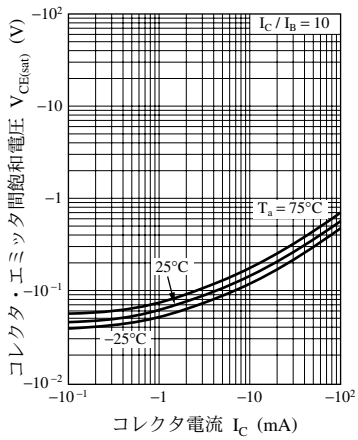


UNR9119J特性図

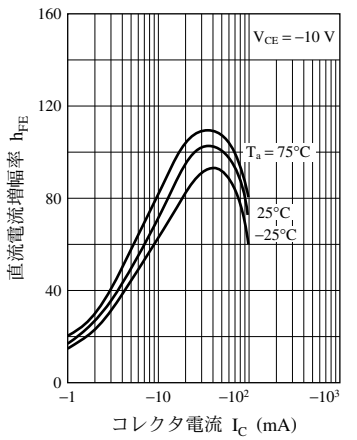
I_C — V_{CE}



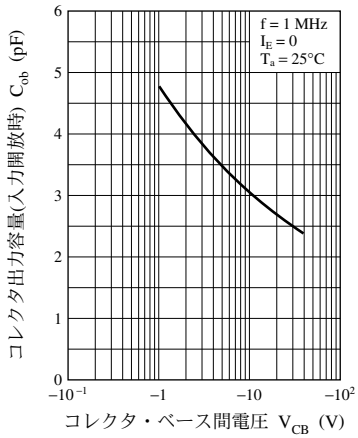
$V_{CE(sat)}$ — I_C



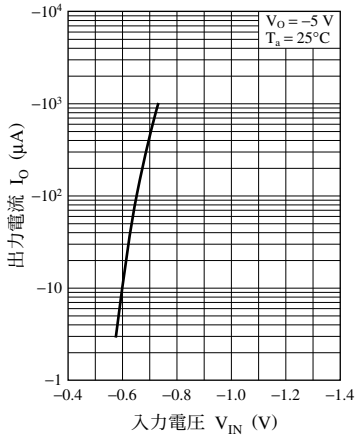
h_{FE} — I_C



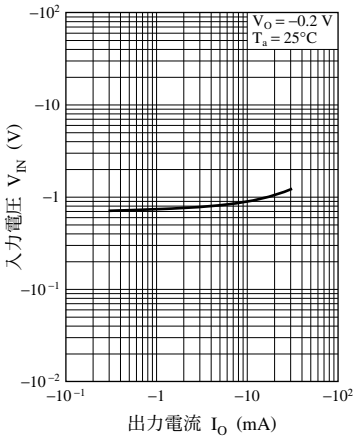
C_{ob} — V_{CB}



I_O — V_{IN}

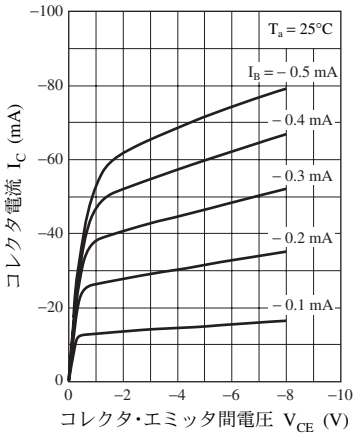


V_{IN} — I_O

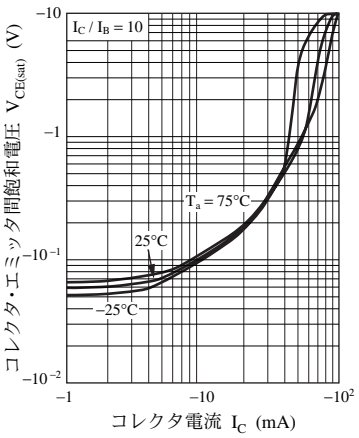


UNR911AJ特性図

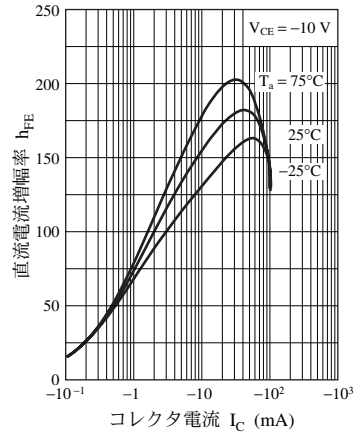
I_C — V_{CE}



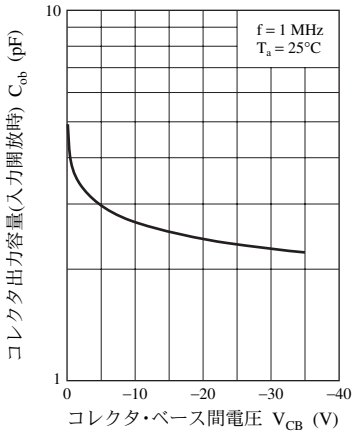
$V_{CE(sat)}$ — I_C



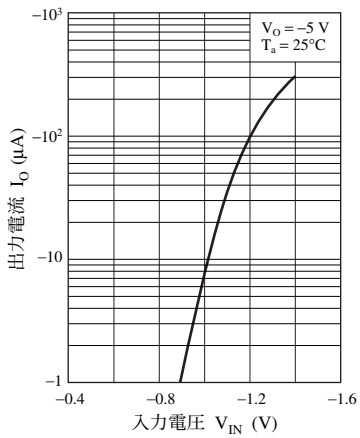
h_{FE} — I_C



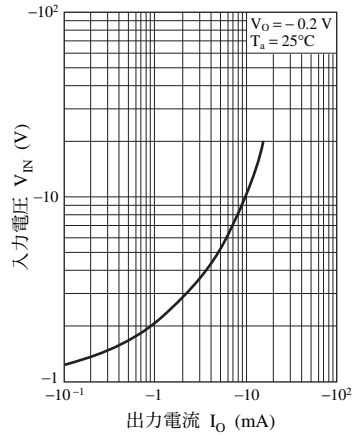
C_{ob} — V_{CB}



I_O — V_{IN}

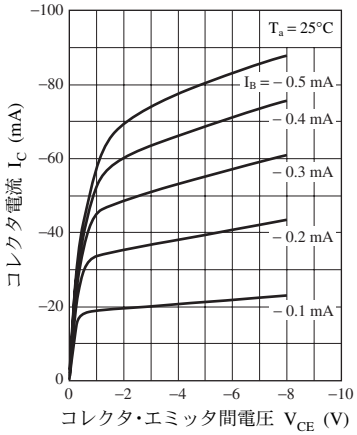


V_{IN} — I_O

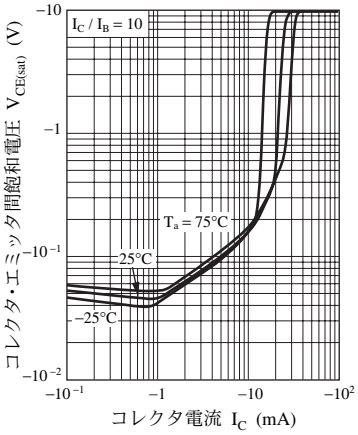


UNR911BJ特性図

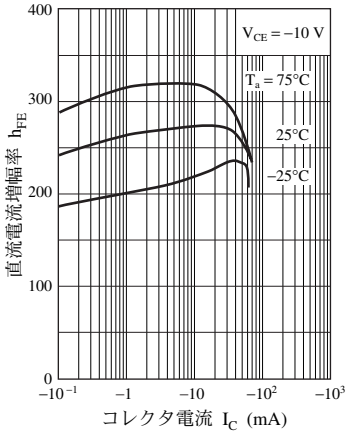
I_C — V_{CE}



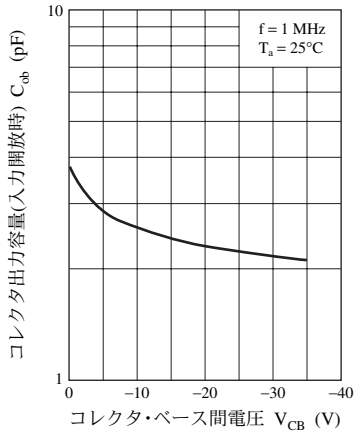
$V_{CE(sat)}$ — I_C



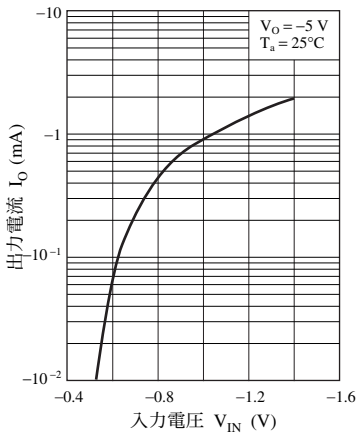
h_{FE} — I_C



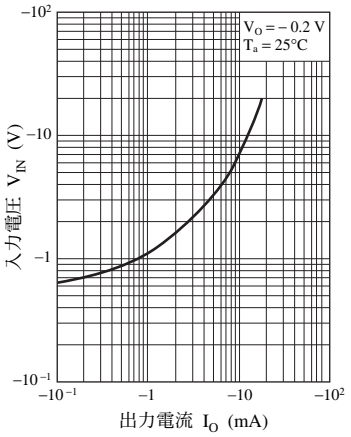
C_{ob} — V_{CB}



I_O — V_{IN}

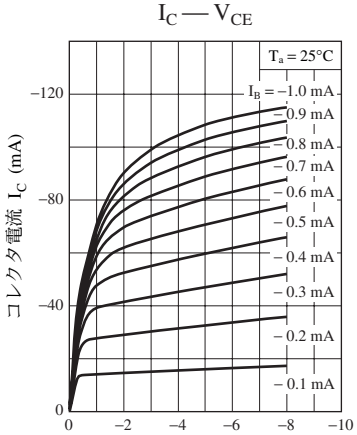


V_{IN} — I_O

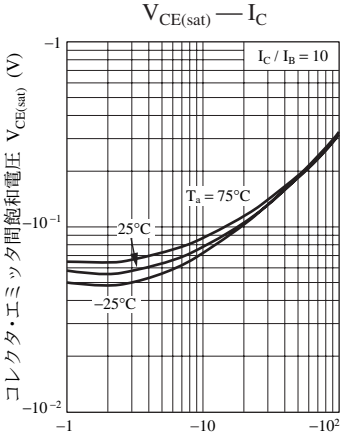


UNR911CJ特性図

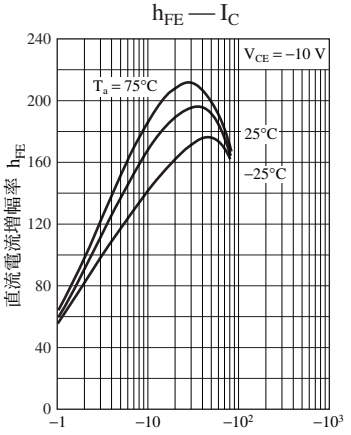
I_C — V_{CE}



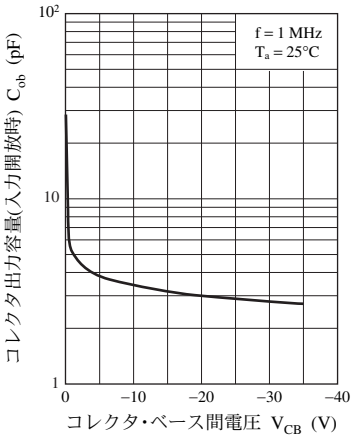
$V_{CE(sat)}$ — I_C



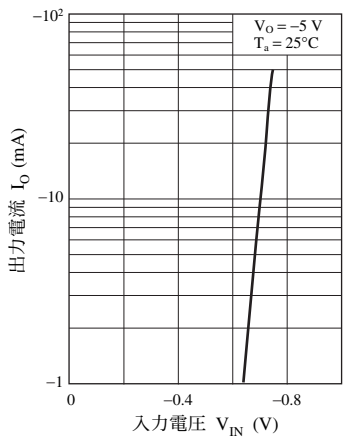
h_{FE} — I_C



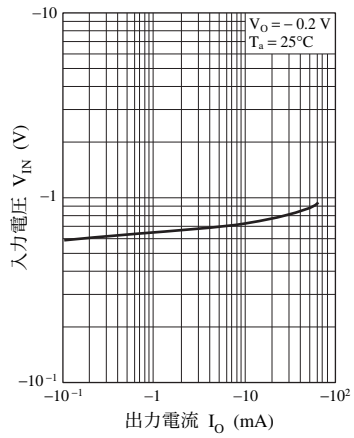
C_{ob} — V_{CB}



I_O — V_{IN}

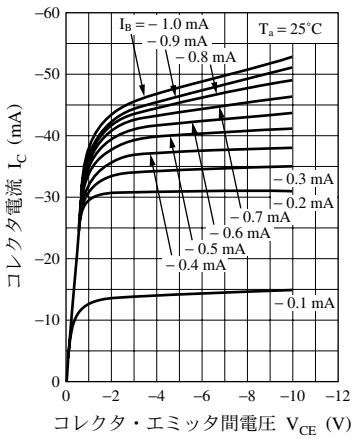


V_{IN} — I_O

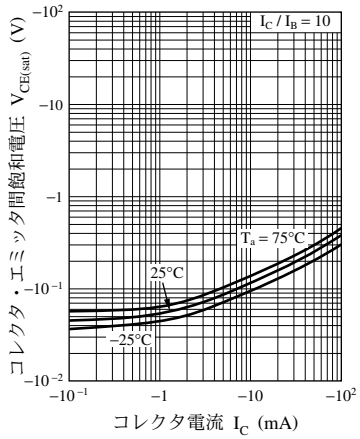


UNR911DJ特性図

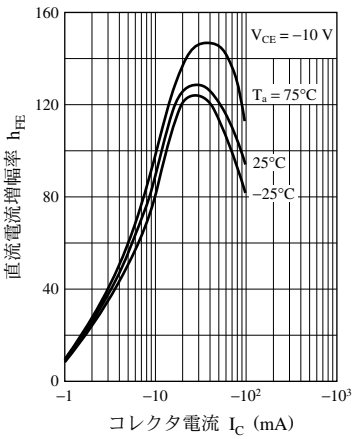
I_C — V_{CE}



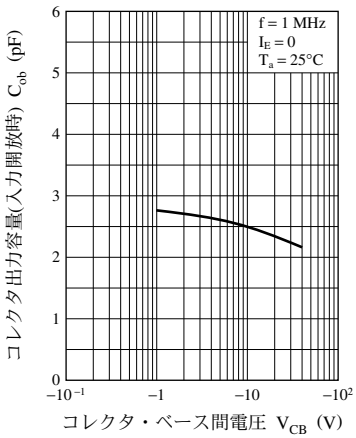
$V_{CE(sat)}$ — I_C



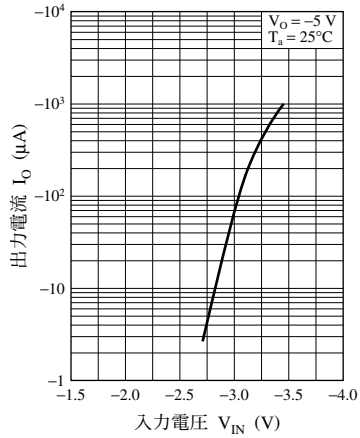
h_{FE} — I_C



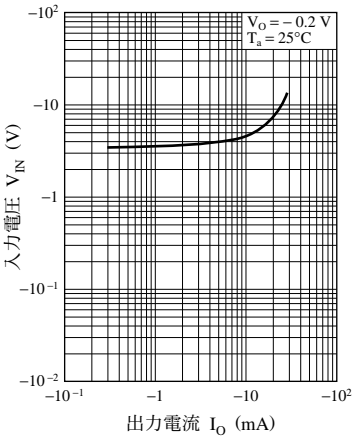
C_{ob} — V_{CB}



I_O — V_{IN}

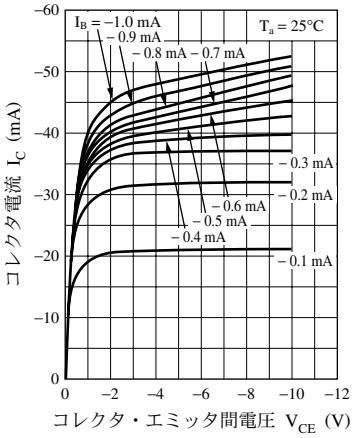


V_{IN} — I_O

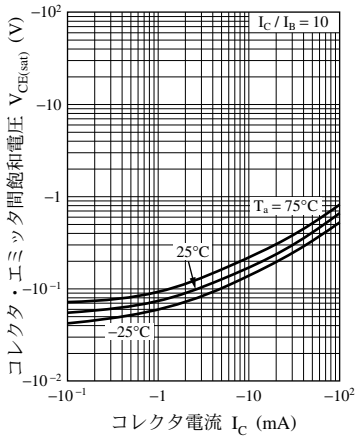


UNR911EJ特性図

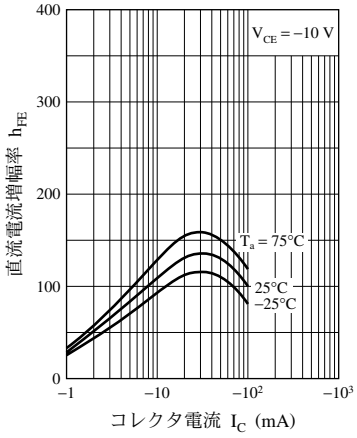
I_C — V_{CE}



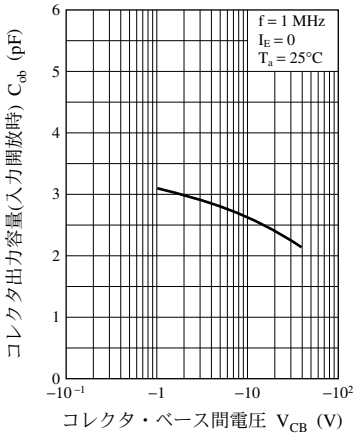
$V_{CE(sat)}$ — I_C



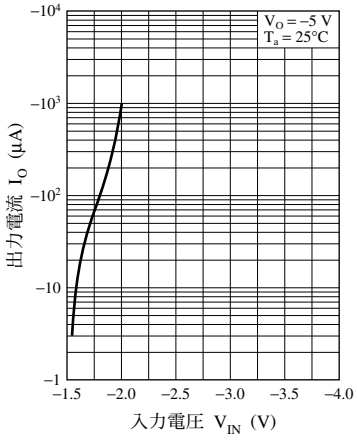
h_{FE} — I_C



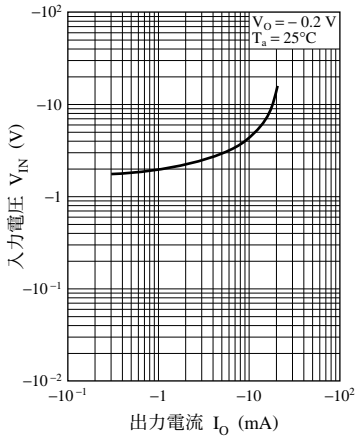
C_{ob} — V_{CB}



I_O — V_{IN}

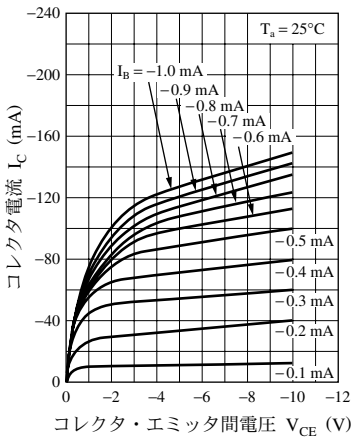


V_{IN} — I_O

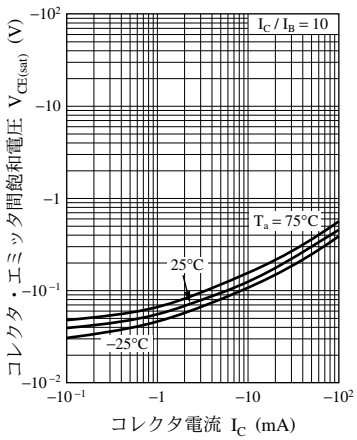


UNR911FJ特性図

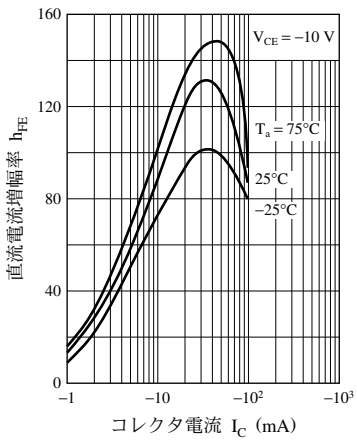
I_C — V_{CE}



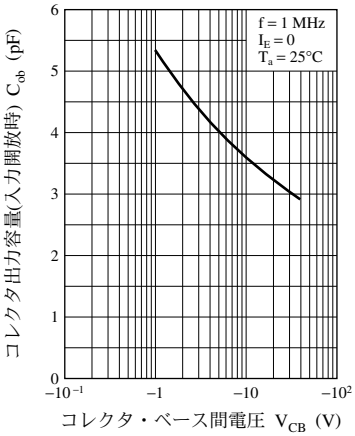
$V_{CE(sat)}$ — I_C



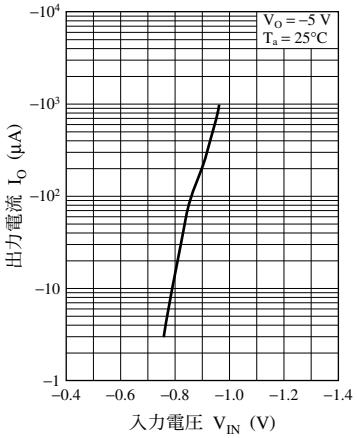
h_{FE} — I_C



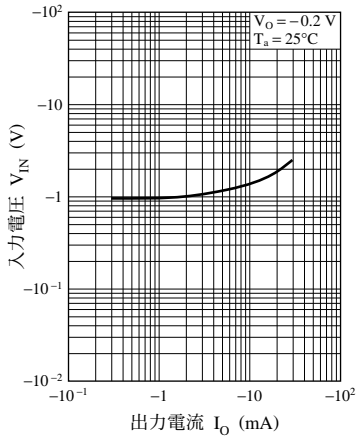
C_{ob} — V_{CB}



I_O — V_{IN}

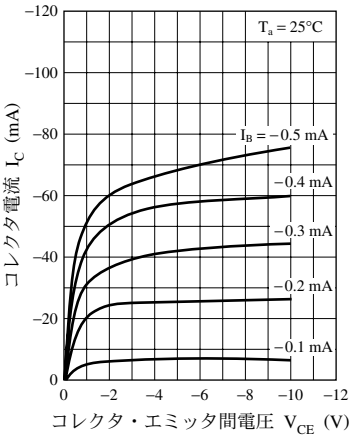


V_{IN} — I_O

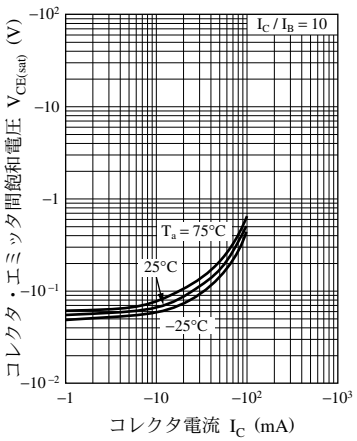


UNR911HJ特性図

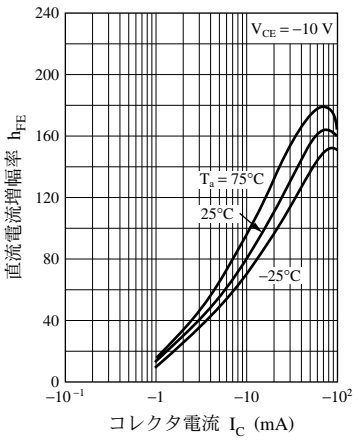
I_C — V_{CE}



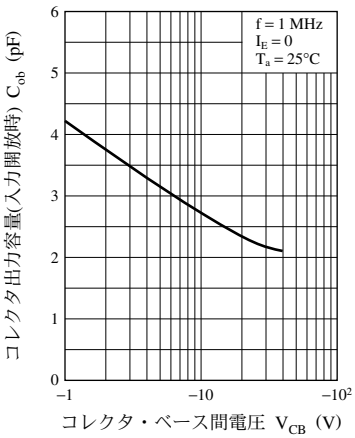
$V_{CE(sat)}$ — I_C



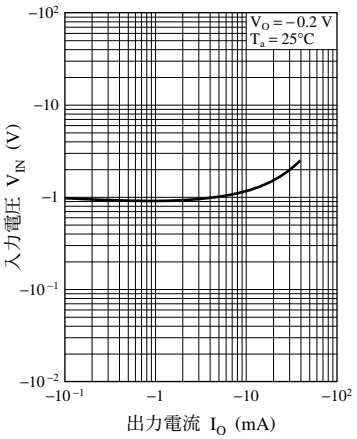
h_{FE} — I_C



C_{ob} — V_{CB}

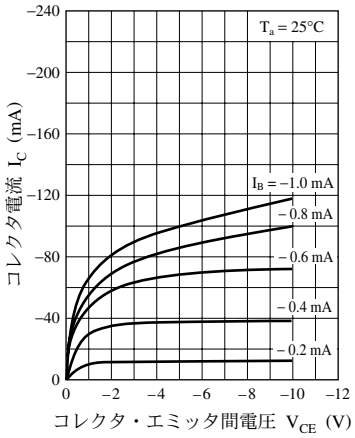


V_{IN} — I_O

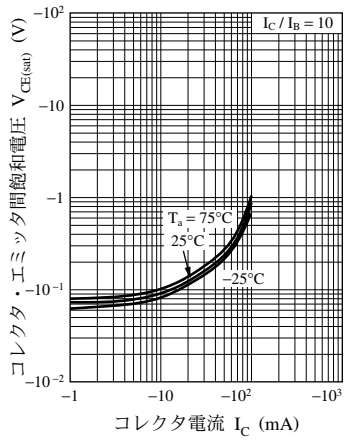


UNR911LJ特性図

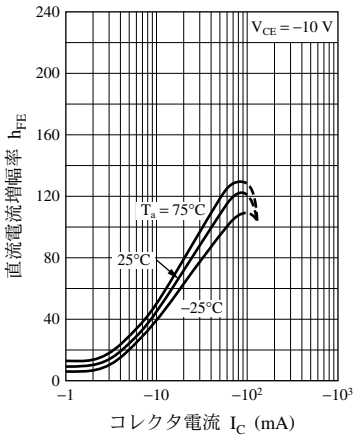
I_C — V_{CE}



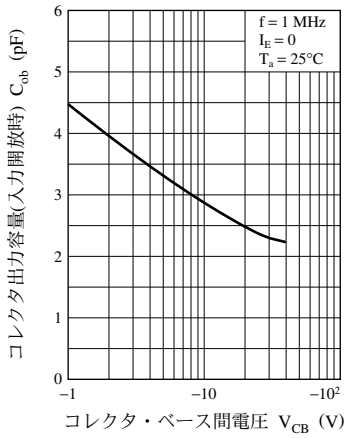
$V_{CE(sat)}$ — I_C



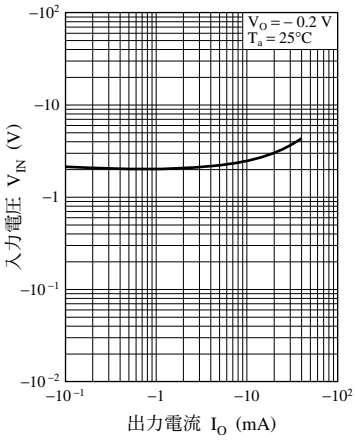
h_{FE} — I_C



C_{ob} — V_{CB}

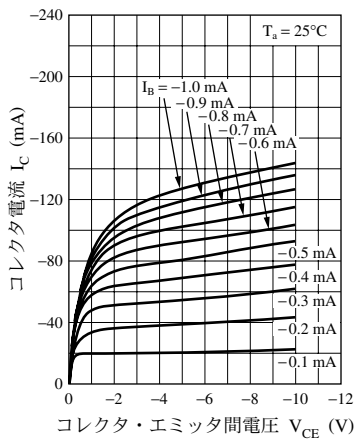


V_{IN} — I_O

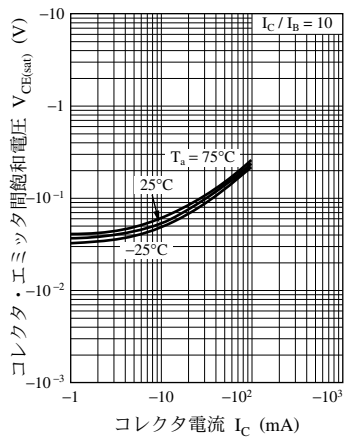


UNR911MJ特性図

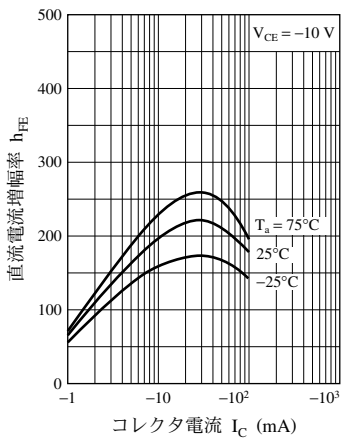
I_C — V_{CE}



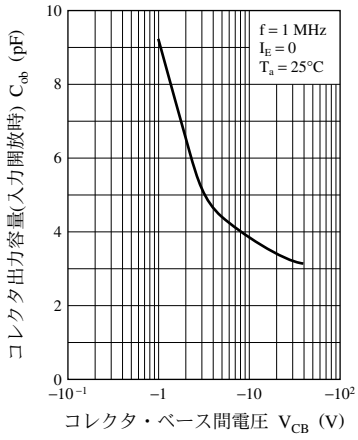
$V_{CE(sat)}$ — I_C



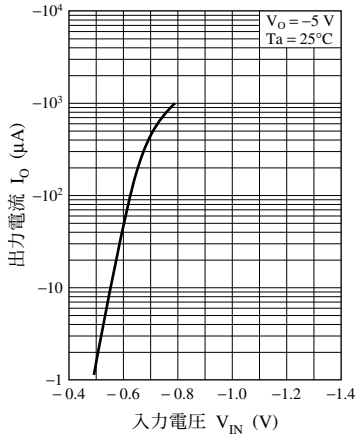
h_{FE} — I_C



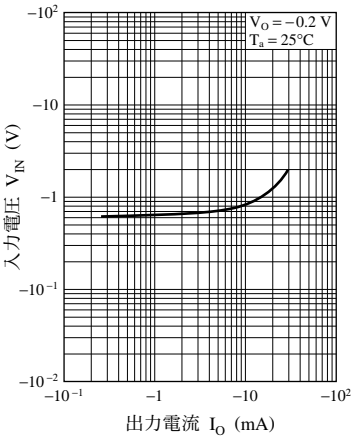
C_{ob} — V_{CB}



I_O — V_{IN}

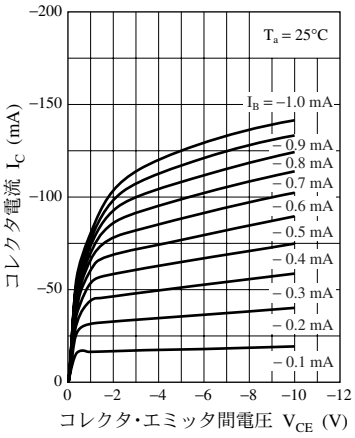


V_{IN} — I_O

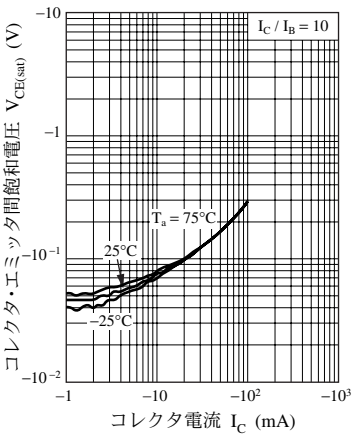


UNR911NJ特性図

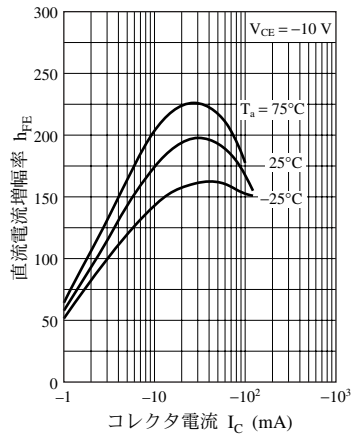
I_C — V_{CE}



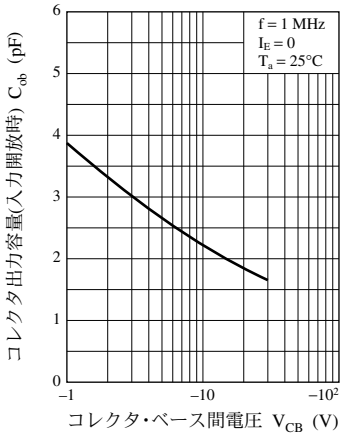
$V_{CE(sat)}$ — I_C



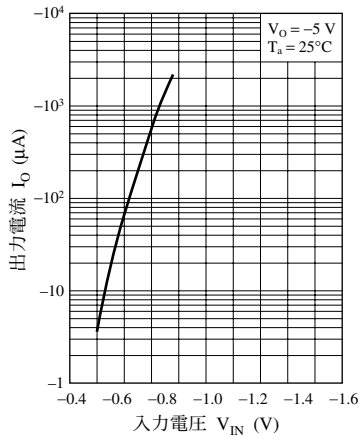
h_{FE} — I_C



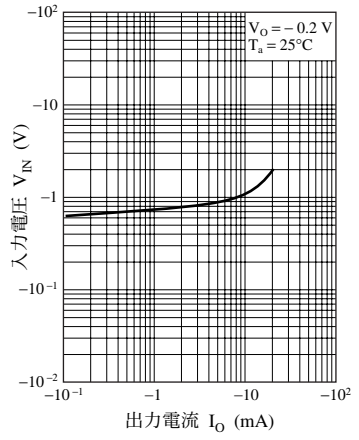
C_{ob} — V_{CB}



I_O — V_{IN}

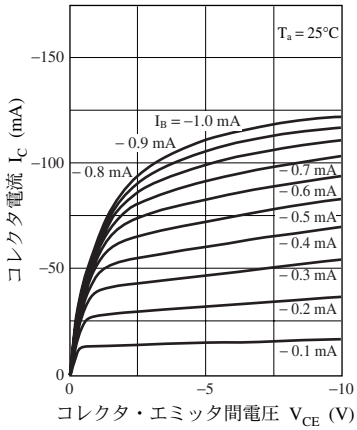


V_{IN} — I_O

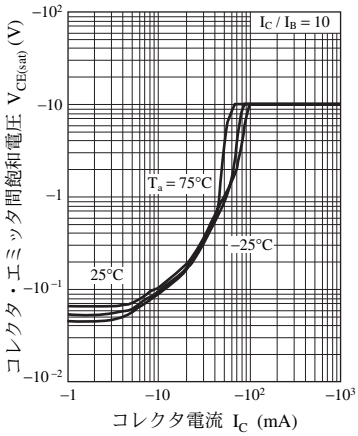


UNR911TJ特性図

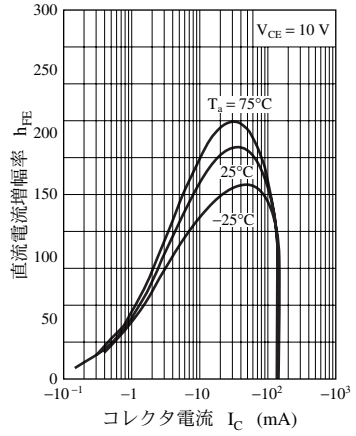
I_C — V_{CE}



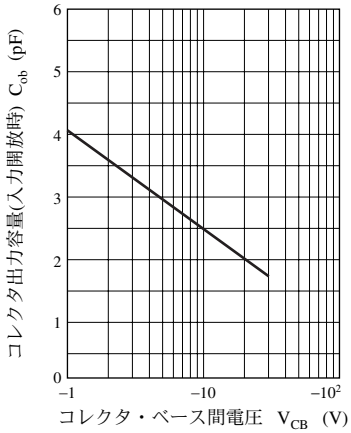
$V_{CE(sat)}$ — I_C



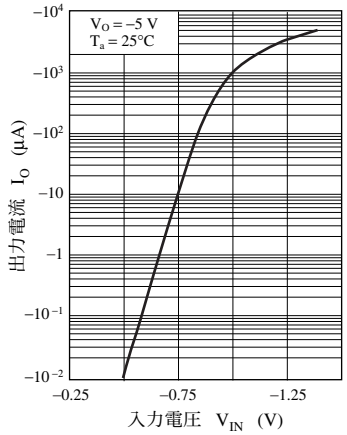
h_{FE} — I_C



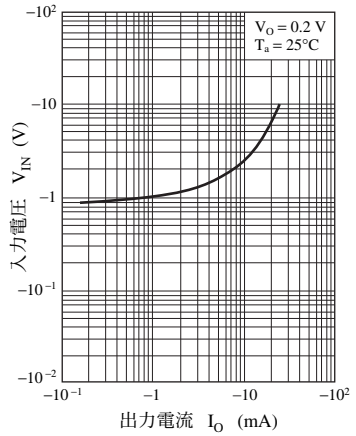
C_{ob} — V_{CB}



I_O — V_{IN}

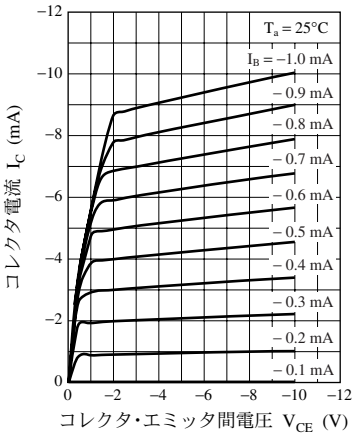


V_{IN} — I_O

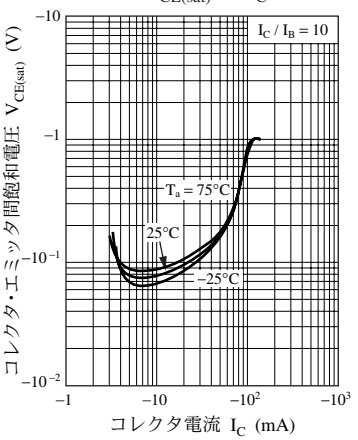


UNR911VJ特性図

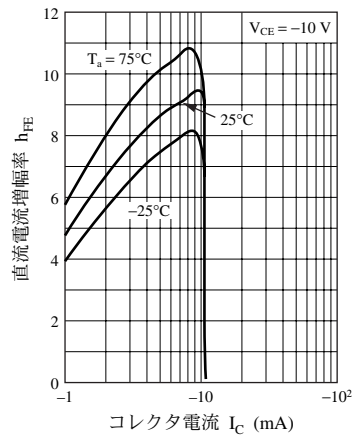
I_C — V_{CE}



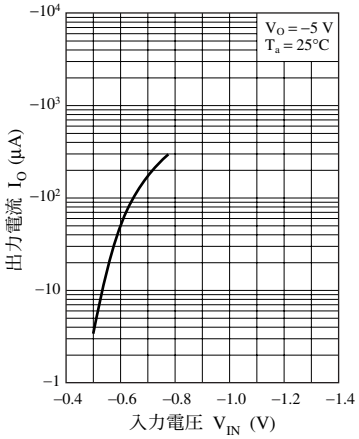
$V_{CE(sat)}$ — I_C



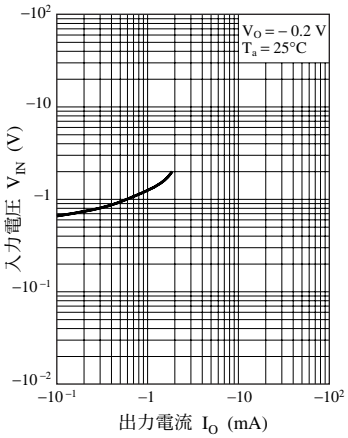
h_{FE} — I_C



I_C — V_{IN}


V_O = −5 V
T_a = 25°C
出力電流 I_O (μA)
-10^4
-10^3
-10^2
−10
−1
−0.4
−0.6
−0.8
−1.0
−1.2
−1.4
入力電圧 V_{IN} (V)

V_{IN} — I_O


V_O = − 0.2 V
T_a = 25°C
入力電圧 V_{IN} (V)
-10^2
−10
−1
-10^{-1}
-10^{-2}
-10^{-1}
−1
−10
-10^2
出力電流 I_O (mA)

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