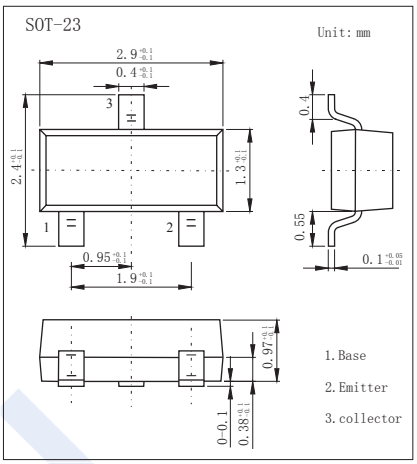
NPN Transistors

2SC2713



■ Features

- High voltage: V_{CEO} = 120 V
- High h_{FE}: h_{FE} = 200~700
- Low noise: NF = 1dB (typ.), 10dB (max)
- Small package
- Complementary to 2SA1163

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	120	V
Collector - Emitter Voltage	V_{CEO}	120	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	100	mA
BaseCurrent	I_B	20	
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_J	125	℃
Storage Temperature Range	T_{stg}	-55 to 125	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA, I_E= 0	120			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA, I_B= 0	120			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μ A, I_C= 0	5			
Collector-base cut-off current	I_{CBO}	V_{CB}= 120 V , I_E= 0			100	nA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10 mA, I_B=1mA			0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=10 mA, I_B=1mA			1.2	
DC current gain	h_{FE}	V_{CE}= 6V, I_C= 2mA	200		700	
Noise figure	NF	V_{CE} = 6 V, I_C = 0.1 mA ,f=1KHz R_G = 10 kΩ		1	10	dB
Collector output capacitance	C_{ob}	V_{CB}= 10V, I_E= 0,f=1MHz		3		pF
Transition frequency	f_T	V_{CE}= 6V, I_C= 1mA		100		MHz

■ Classification of hfe

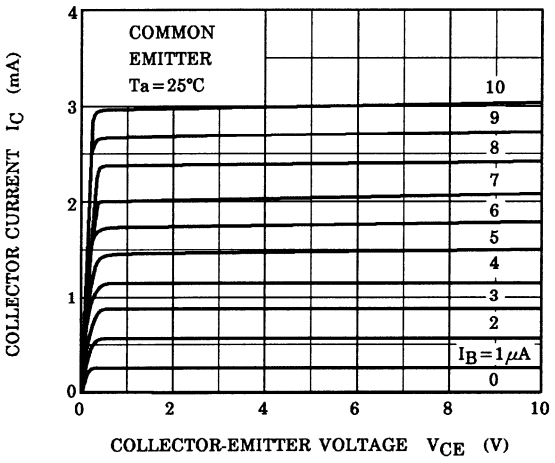
Type	2SC2713-G	2SC2713-L
Range	200-400	350-700
Marking	DG	DL

NPN Transistors

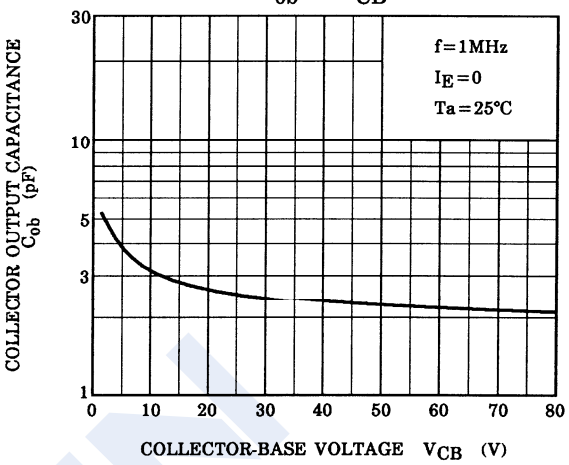
2SC2713

■ Typical Characterisitics

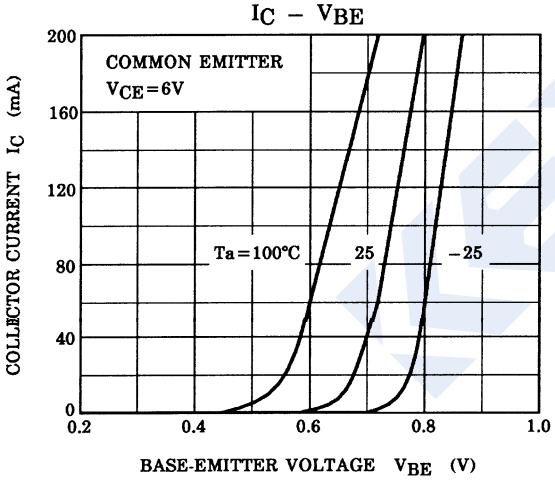
I_C – V_{CE}



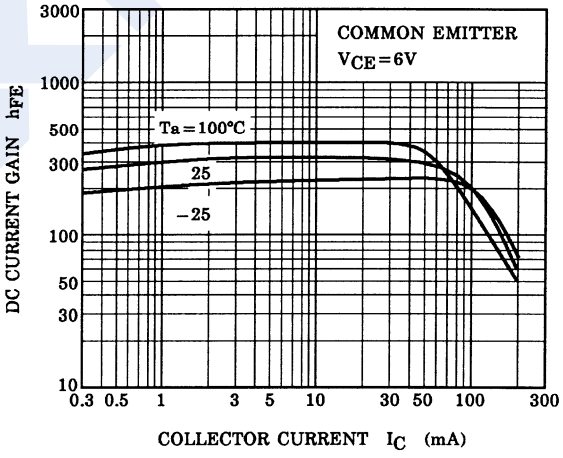
C_{ob} – V_{CB}



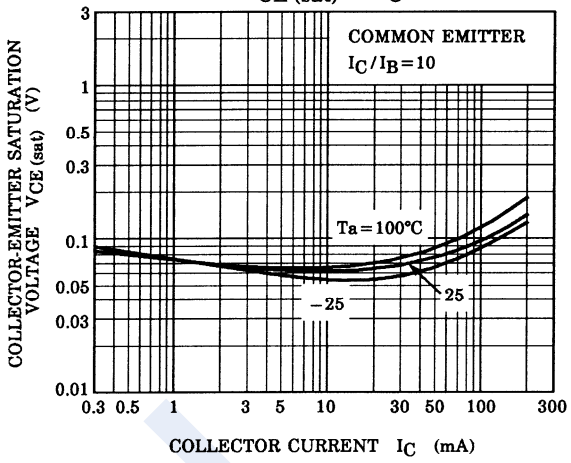
I_C – V_{BE}



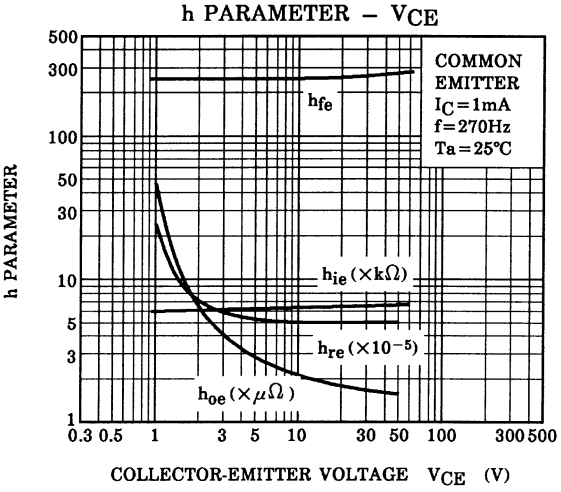
h_{FE} – I_C



$V_{CE\,(sat)}$ – I_C



h PARAMETER – V_{CE}

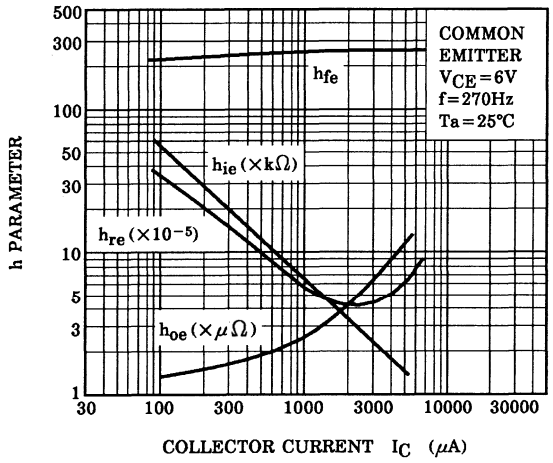


NPN Transistors

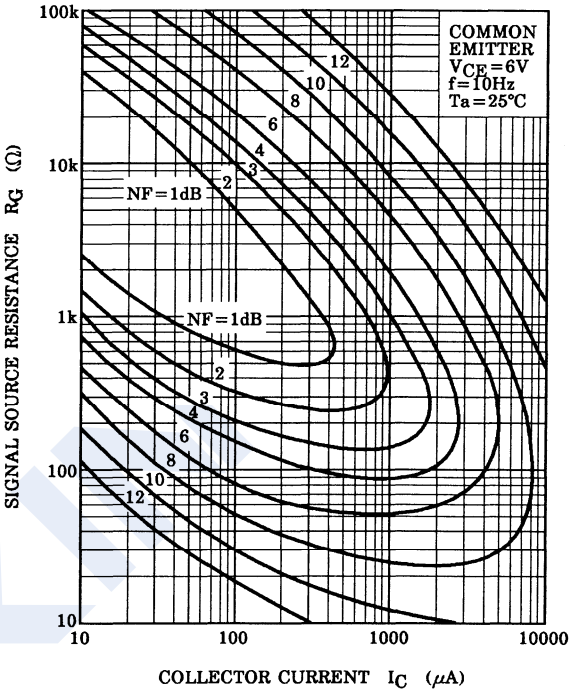
2SC2713

■ Typical Characterisitics

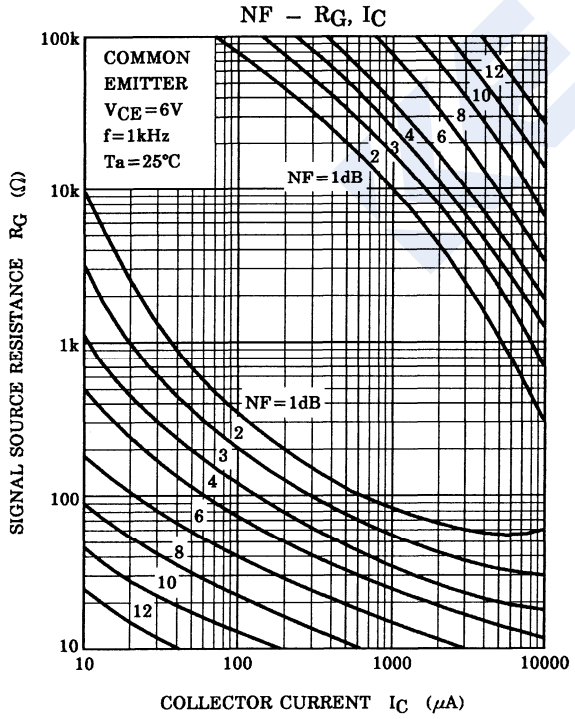
h PARAMETER – I_C



NF – R_G, I_C



NF – R_G, I_C



P_C – Ta