TRANSISTOR (NPN)

SOT-23

1. BASE
2. EMITTER
3. COLLECTOR

FEATURE

- **Low Noise: NF=1 dB (Typ),10dB(MAX)**
- **Complementary to 2SA1162**

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	150	mA
P_C	Collector Power Dissipation	150	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

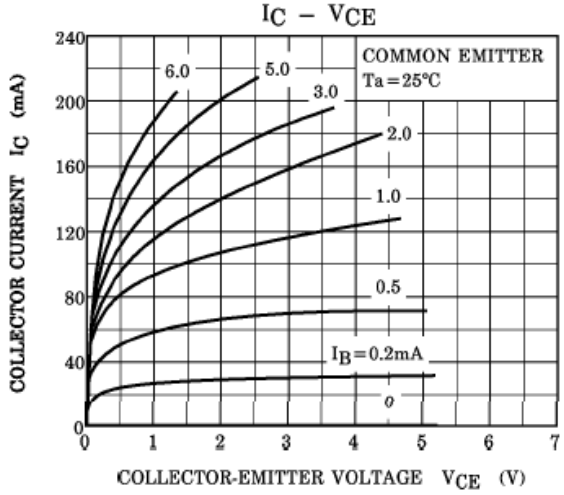
ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 100μA, I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA , I_B=0	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 100μA, I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}= 60 V, I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0			0.1	μA
DC current gain	h_{FE}	V_{CE}=6V, I_C=2mA	70		700	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C= 100mA, I_B=10mA		0.1	0.25	V
Transition frequency	f_T	V_{CE}=10V, I_C= 1mA	80			MHz
Output capacitance	C_{ob}	V_{CB}=10V, I_E=0,f=1 MHz		2.0	3.5	pF
Noise Figure	NF	V_{CE}=6V,I_C=0.1mA,f=1kHz, Rg=10kΩ		1.0	10	dB

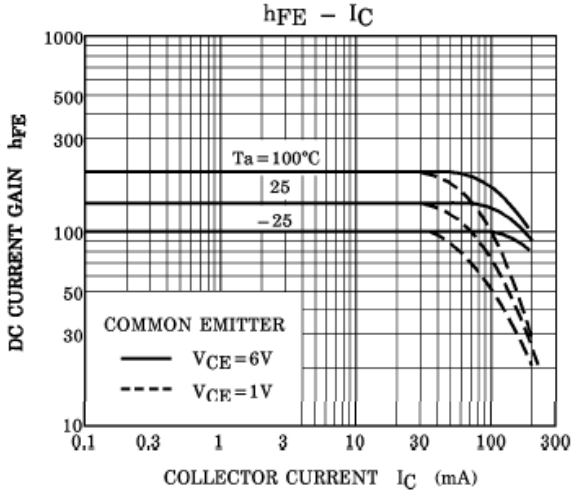
CLASSIFICATION OF h_{FE}

Rank	O	Y	GR	BL
Range	70-140	120-240	200-400	350-700
Marking	LO	LY	LG	LL

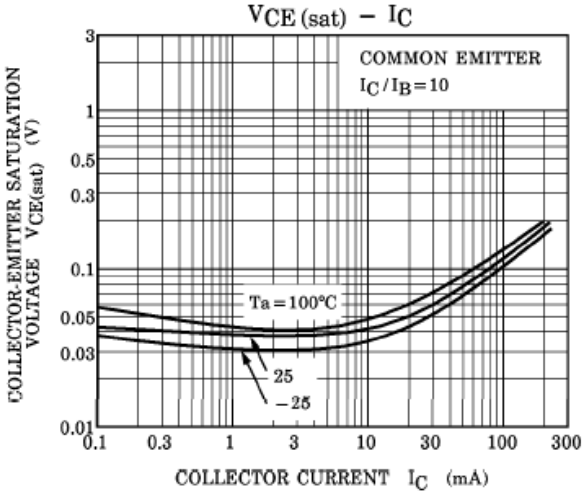
I_C – V_{CE}



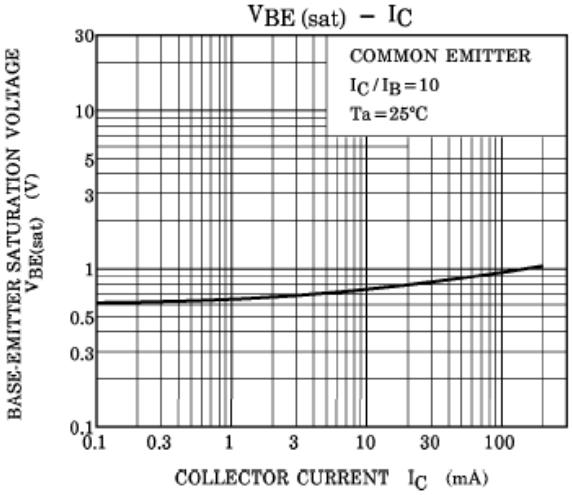
h_{FE} – I_C



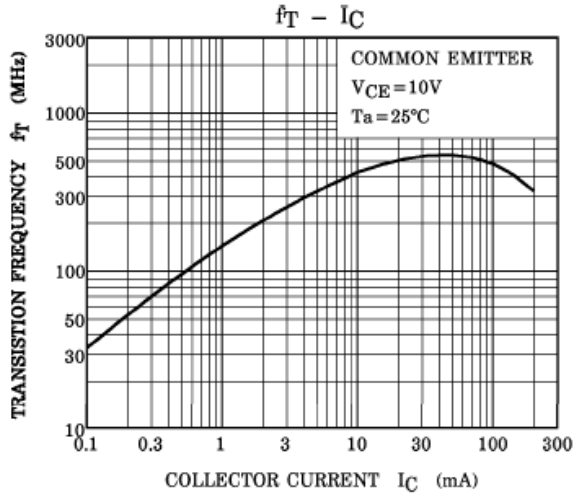
$V_{CE\,(sat)}$ – I_C



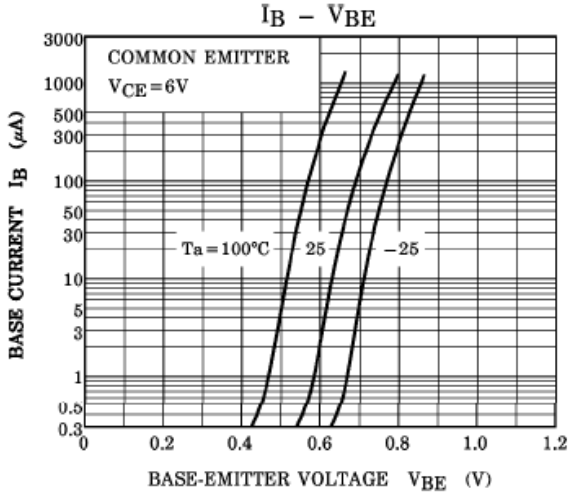
$V_{BE\,(sat)}$ – I_C

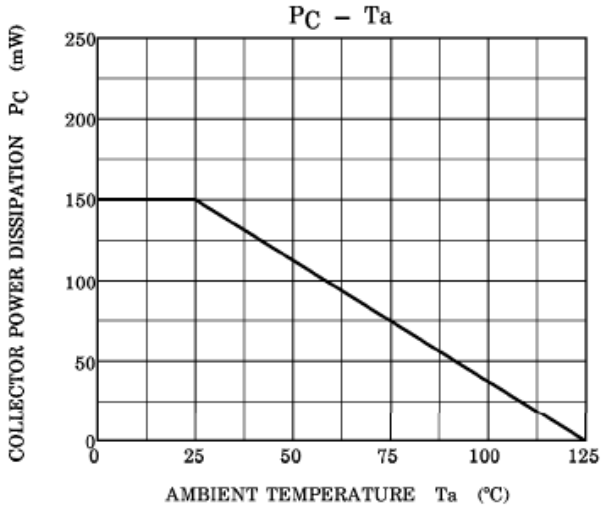


f_T – I_C



I_B – V_{BE}




PC – Ta
COLLECTOR POWER DISSIPATION PC (mW)
250
200
150
100
50
0
0
25
50
75
100
125
AMBIENT TEMPERATURE Ta (°C)