C945 TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

FEATURE

- Excellent h_{FE} Linearity
- Low noise
- Complementary to A733

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

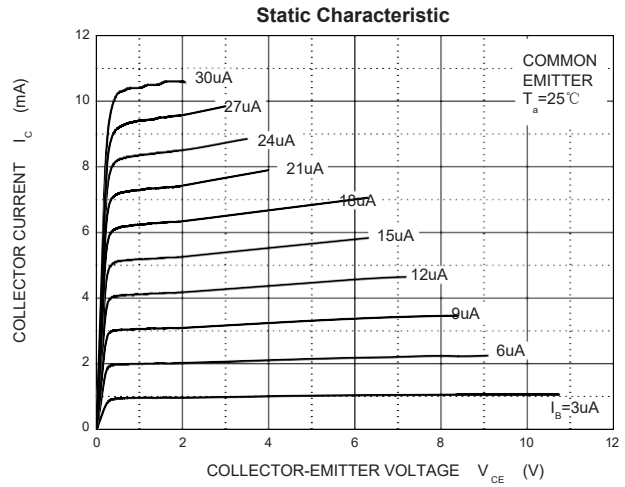
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	150	mA
P_C	Collector Power Dissipation	200	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	625	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

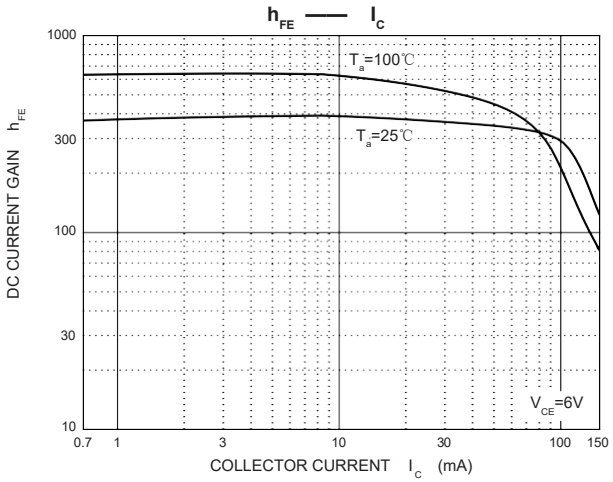
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

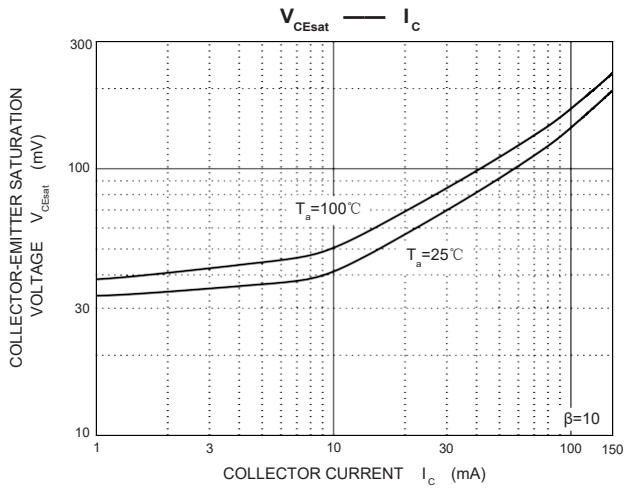
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100uA, I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA , I_B=0	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=0.1mA, I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}=60V, I_E=0			0.1	uA
Collector cut-off current	I_{CER}	V_{CE}=55V,R=10MΩ			0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB}=5V , I_C=0			0.1	uA
DC current gain	$h_{FE(1)}$	V_{CE}=6 V , I_C=1mA	130		400	
	$h_{FE(2)}$	V_{CE}=6 V , I_C=0.1mA	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=100mA, I_B=10mA			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=100mA, I_B=10mA			1	V
Transition frequency	f_T	V_{CE}=6V,I_C=10mA,f =30 MHz	150			MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHz			3.0	pF
Noise figure	NF	VCE=6V,IC=0.1mA Rg=10kΩ,f=1kMHz		4	10	dB

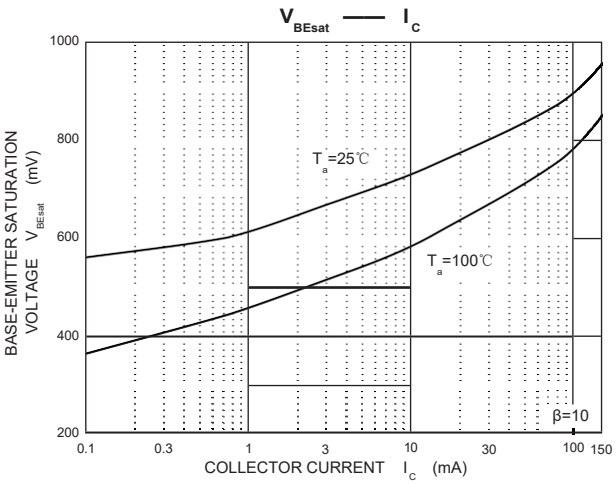
CLASSIFICATION OF $h_{FE(1)}$

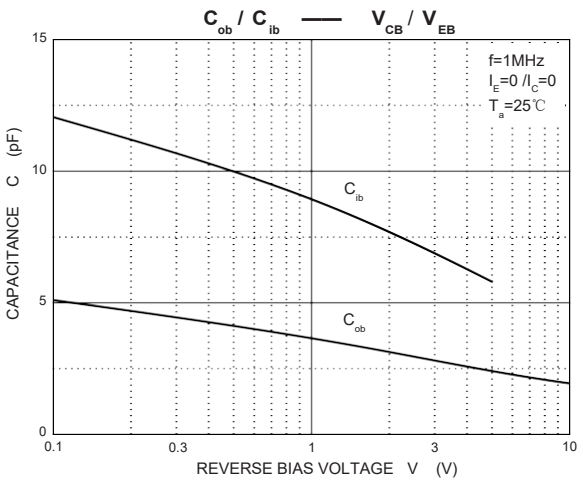
Rank	L	H
Range	130-200	200-400

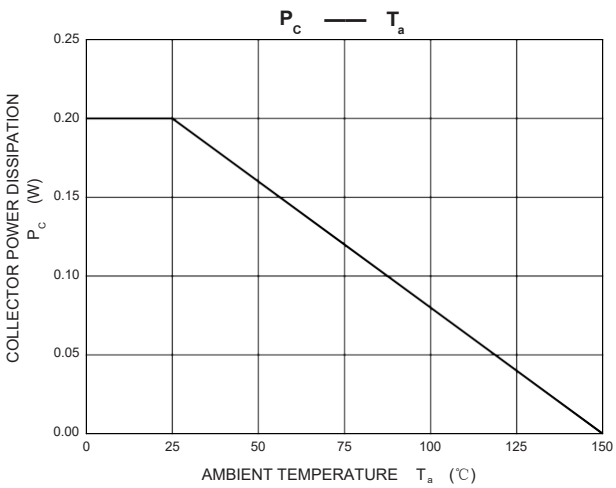

Static Characteristic
COMMON EMITTER
T_a=25℃
30uA
27uA
24uA
21uA
18uA
15uA
12uA
9uA
6uA
I_B=3uA
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)


h_{FE} —— I_C
T_a=100℃
T_a=25℃
V_{CE}=6V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)


V_{CEsat} —— I_C
T_a=100℃
T_a=25℃
β=10
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)


V_{BEsat} —— I_C
T_a=25℃
T_a=100℃
β=10
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
COLLECTOR CURRENT I_C (mA)


C_{ob} / C_{ib} —— V_{CB} / V_{EB}
f=1MHz
I_E=0 /I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
REVERSE BIAS VOLTAGE V (V)


P_C —— T_a
COLLECTOR POWER DISSIPATION P_C (W)
AMBIENT TEMPERATURE T_a (℃)