

## SOT-23 Plastic-Encapsulate Transistors

### C945 TRANSISTOR (NPN)

#### FEATURE

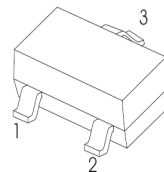
- Excellent  $h_{FE}$  Linearity
- Low noise
- Complementary to A733

#### MARKING:CR •

#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	60	V
$V_{CE0}$	Collector-Emitter Voltage	50	V
$V_{EB0}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	150	mA
$P_C$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^{\circ}\text{C}$

#### SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

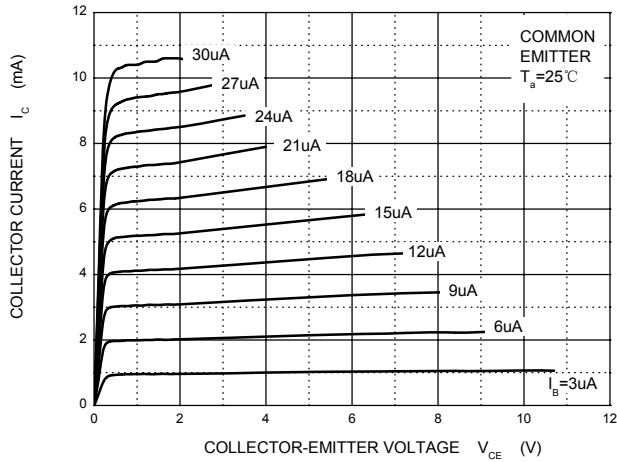
#### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

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

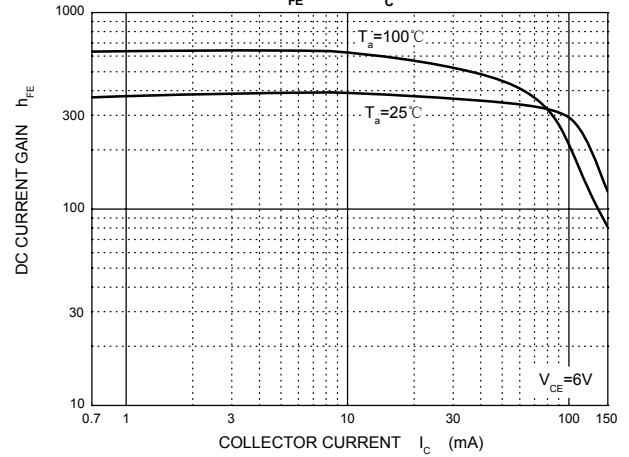
#### CLASSIFICATION OF $h_{FE(1)}$

Rank	L	H
Range	130-200	200-400

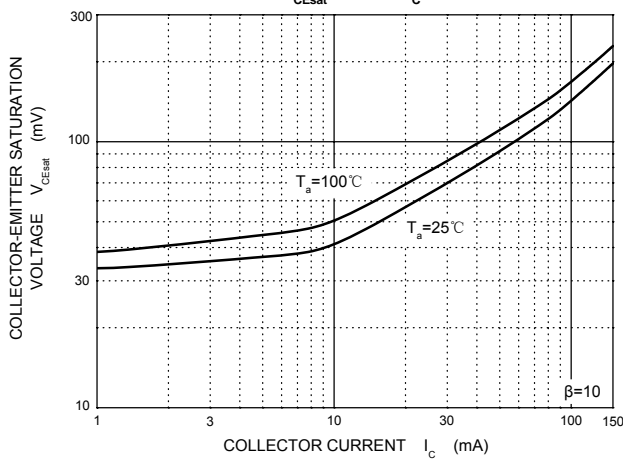
Static Characteristic



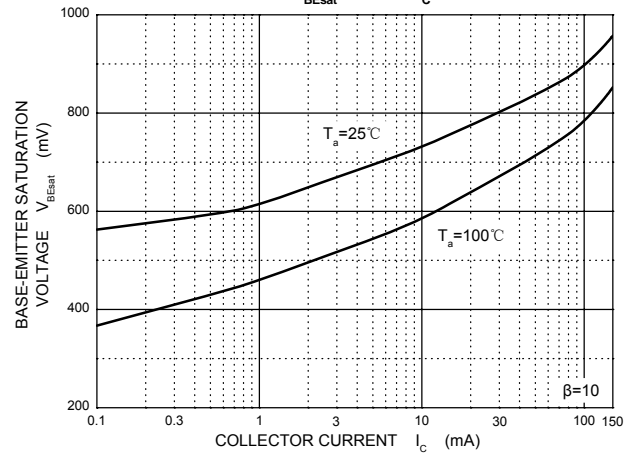
$h_{FE} - I_c$



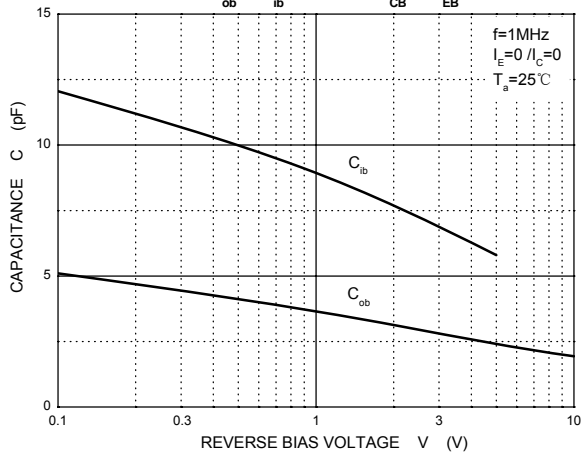
$V_{CEsat} - I_c$



$V_{BEsat} - I_c$



$C_{ob} / C_{ib} - V_{CB} / V_{EB}$



$P_c - T_a$

