

# TRANSISTOR (NPN)

**SOT-23**


- 1. BASE
- 2. EMITTER
- 3. COLLECTOR

**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	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	200	mW
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}\text{C}$  unless otherwise specified)**

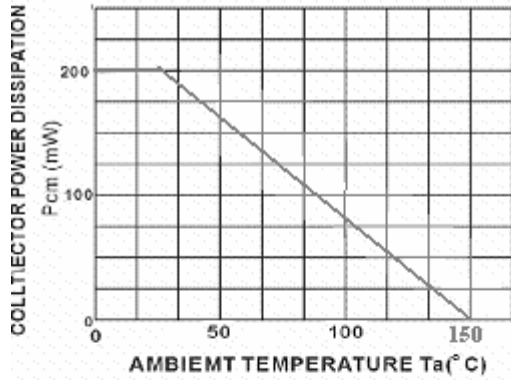
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V(BR)_{CBO}$	$I_C=100\mu\text{A}, I_E=0$	60			V
Collector-emitter breakdown voltage	$V(BR)_{CEO}$	$I_C=1\text{mA}, I_B=0$	50			V
Emitter-base breakdown voltage	$V(BR)_{EBO}$	$I_E=0.1\text{mA}, I_C=0$	5			V
Collector cut-off 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  $h_{FE(1)}$** 

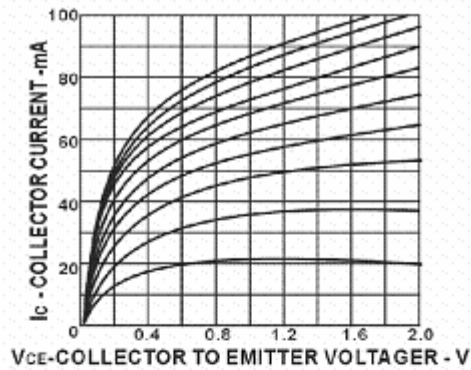
Rank	L	H
Range	130-200	200-400

# Typical characteristics

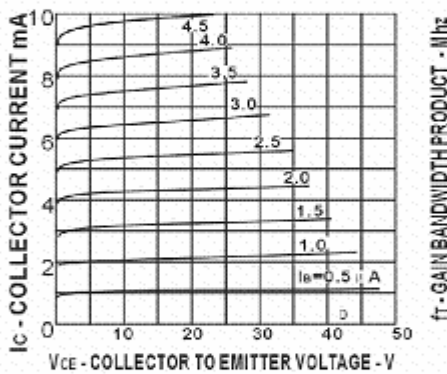
TOTAL Power Dissipation vs AMBIENT Temperature



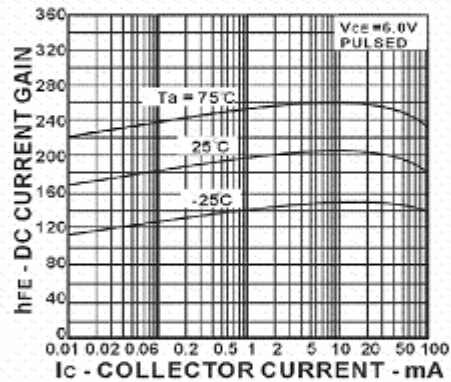
COLLECTOR CURRENT vs COLLECTOR TO EMITTER VOLTAGE



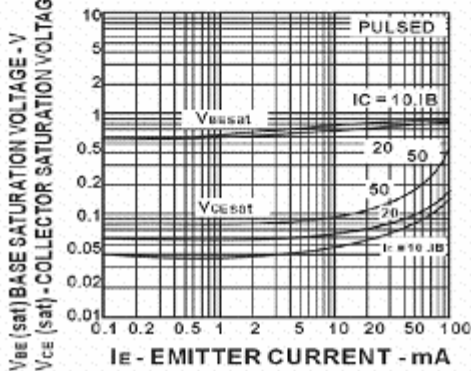
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT



COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT

