

**DESCRIPTION** The 2SA733 is designed for use in driver stage of AF amplifier.

**FEATURES**

- High  $h_{FE}$  and Excellent Linearity : 200 TYP.  
 $h_{FE}$  ( $V_{CE} = -6.0$  V,  $I_C = -1.0$  mA)

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures

Storage Temperature . . . . . -55 to +125 °C

Junction Temperature . . . . . +125 °C Maximum

Maximum Power Dissipation ( $T_a = 25$  °C)

Total Power Dissipation . . . . . 250 mW

Maximum Voltages and Currents ( $T_a = 25$  °C)

$V_{CBO}$  Collector to Base Voltage . . . . . -60 V

$V_{CEO}$  Collector to Emitter Voltage . . . . . -50 V

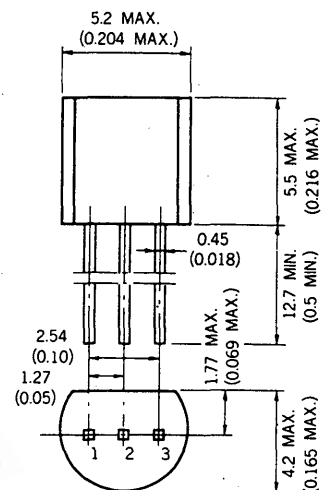
$V_{EBO}$  Emitter to Base Voltage . . . . . -5.0 V

$I_C$  Collector Current . . . . . -100 mA

$I_B$  Base Current . . . . . -20 mA

**PACKAGE DIMENSIONS**

in millimeters (inches)



1. EMITTER EIAJ : SC-43B  
 2. COLLECTOR JEDEC : TO 92  
 3. BASE IEC : PA33

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**ELECTRICAL CHARACTERISTICS ( $T_a = 25$  °C)**

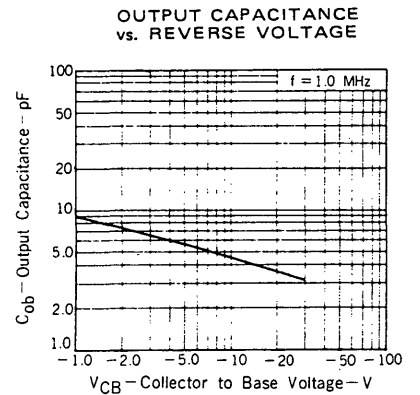
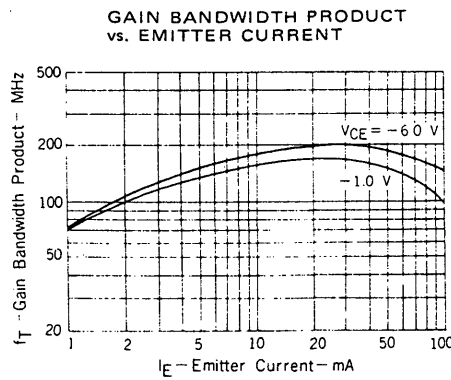
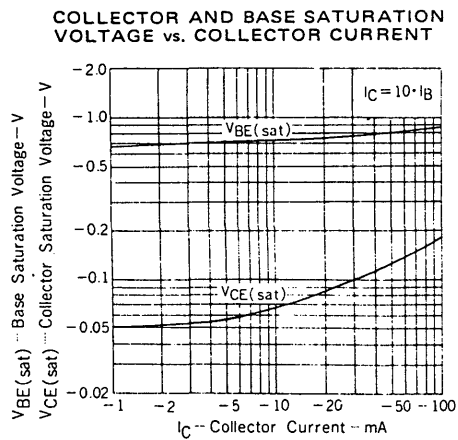
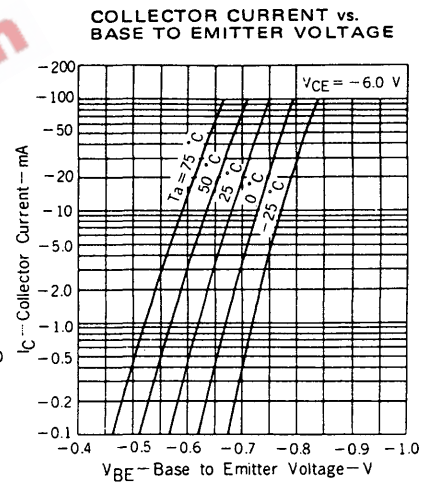
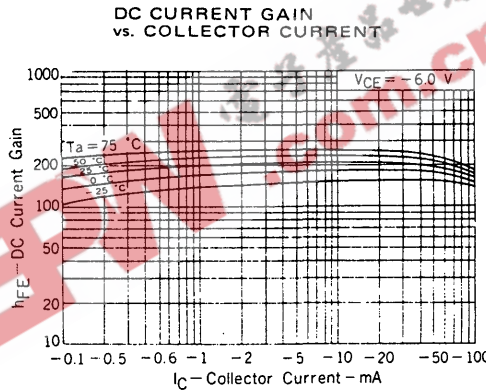
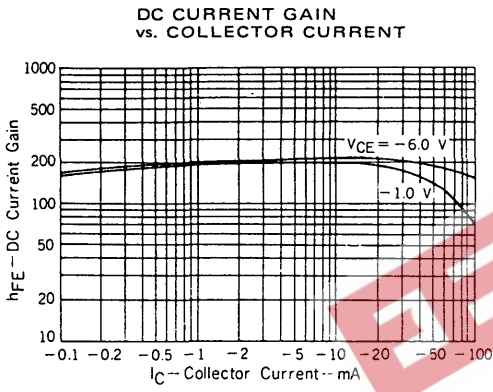
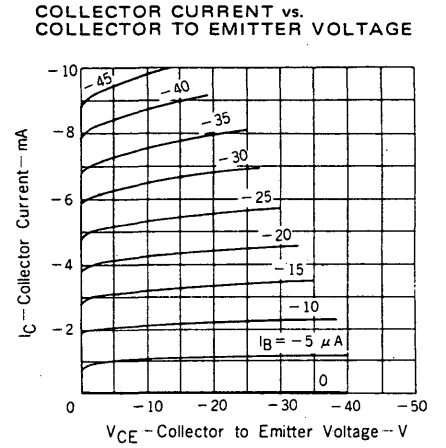
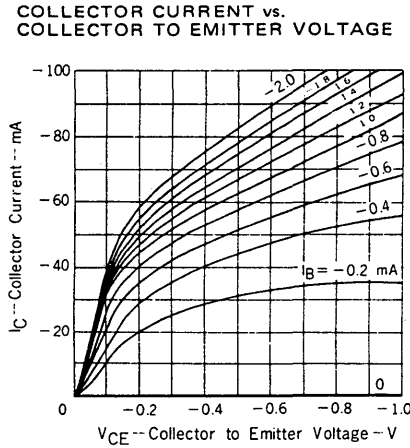
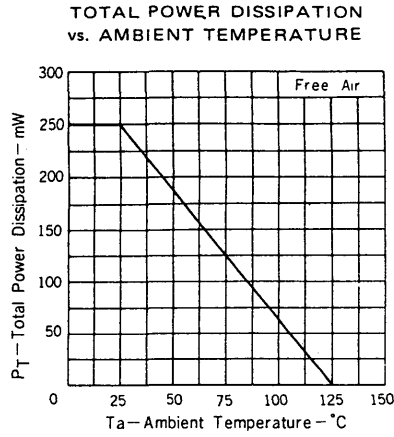
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$h_{FE}$	DC Current Gain	90	200	600		$V_{CE} = -6.0$ V, $I_C = -1.0$ mA
NF	Noise Figure		6.0	20	dB	$V_{CE} = -6.0$ V, $I_C = -0.3$ mA, $R_G = 10$ k $\Omega$ , $f = 100$ Hz
$f_T$	Gain Bandwidth Product	100	180		MHz	$V_{CE} = -6.0$ V, $I_E = 10$ mA
$C_{ob}$	Output Capacitance		4.5	6.0	pF	$V_{CB} = -10$ V, $I_E = 0$ , $f = 1.0$ MHz
$I_{CBO}$	Collector Cutoff Current			-0.1	$\mu$ A	$V_{CB} = -60$ V, $I_E = 0$
$I_{EBO}$	Emitter Cutoff Current			-0.1	$\mu$ A	$V_{EB} = -5.0$ V, $I_C = 0$
$V_{BE}$	Base to Emitter Voltage	-0.58	-0.62	-0.68	V	$V_{CE} = -6.0$ V, $I_C = -1.0$ mA
$V_{CE(sat)}$	Collector Saturation Voltage		-0.18	-0.3	V	$I_C = -100$ mA, $I_B = -10$ mA

**Classification of  $h_{FE}$**

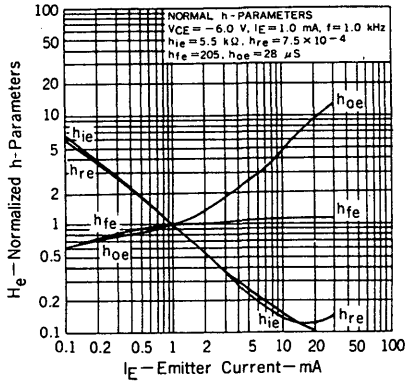
Rank	R	Q	P	K
Range	90 - 180	135 - 270	200 - 400	300 - 600

$h_{FE}$  Test Conditions :  $V_{CE} = -6.0$  V,  $I_C = -1.0$  mA

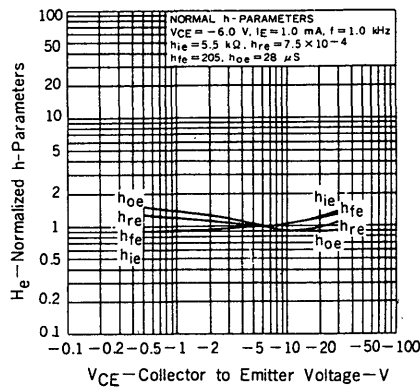
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$  unless otherwise noted)



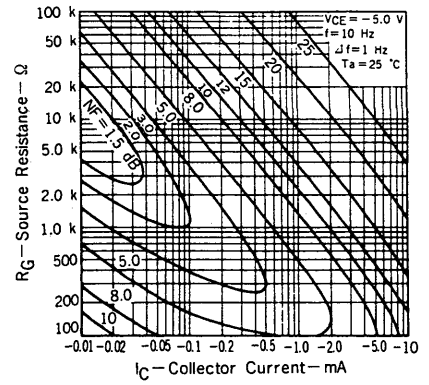
NORMALIZED h-PARAMETERS vs. EMITTER CURRENT



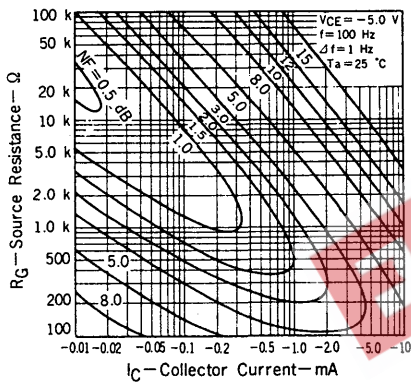
NORMALIZED h-PARAMETERS vs. COLLECTOR TO EMITTER VOLTAGE



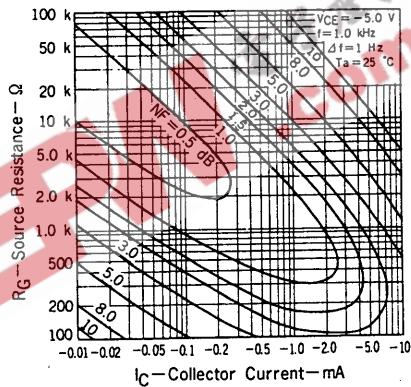
NOISE FIGURE MAP 1



NOISE FIGURE MAP 2



NOISE FIGURE MAP 3



NOISE FIGURE MAP 4

