

DESCRIPTION The 2SA953 is designed for use in driver stage of high voltage audio equipment.

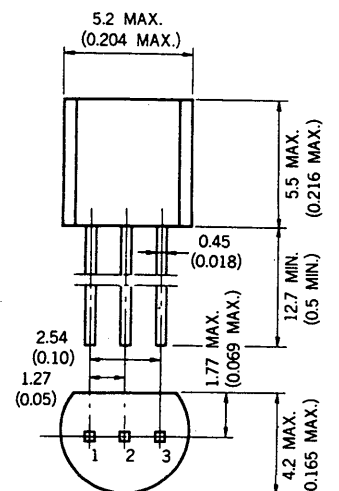
- FEATURES**
- High total power dissipation.
 $P_T = 600 \text{ mW}$
 - High h_{FE} and high voltage.
 $h_{FE} (I_C = -50 \text{ mA}) : 200 \text{ TYP.}$
 $V_{CEO} : -60 \text{ V}$

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Junction Temperature	+150 °C Maximum
Maximum Power Dissipation ($T_a = 25 \text{ °C}$)	
Total Power Dissipation	600 mW
Maximum Voltages and Currents ($T_a = 25 \text{ °C}$)	
V_{CBO} Collector to Base Voltage	-60 V
V_{CEO} Collector to Emitter Voltage	-60 V
V_{EBO} Emitter to Base Voltage	-5.0 V
I_C Collector Current	-300 mA
I_B Base Current	-60 mA

PACKAGE DIMENSIONS

in millimeters (inches)



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

ELECTRICAL CHARACTERISTICS ($T_a = 25 \text{ °C}$)

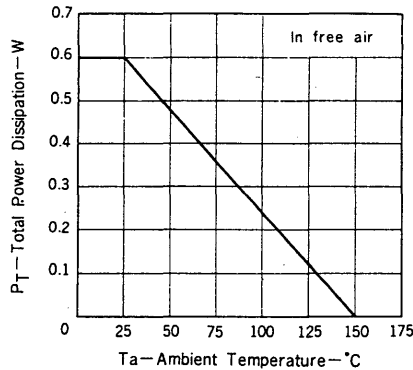
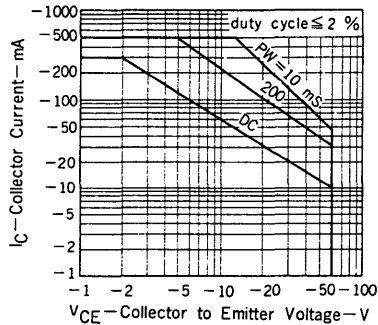
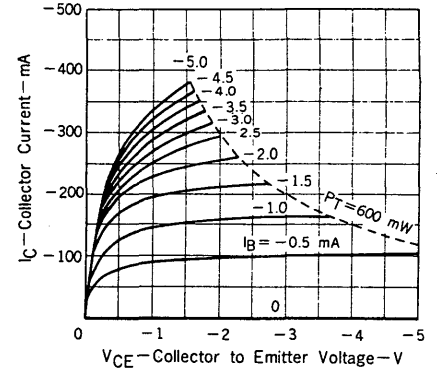
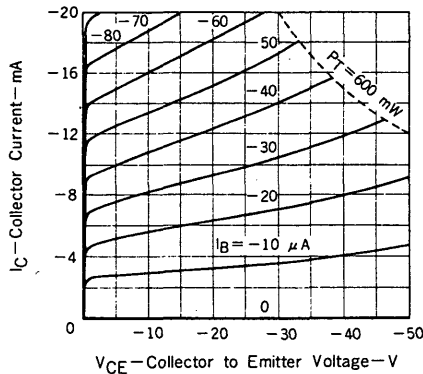
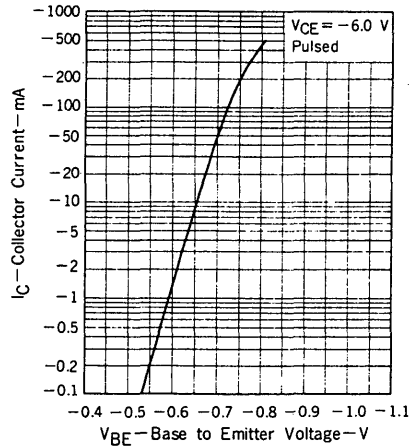
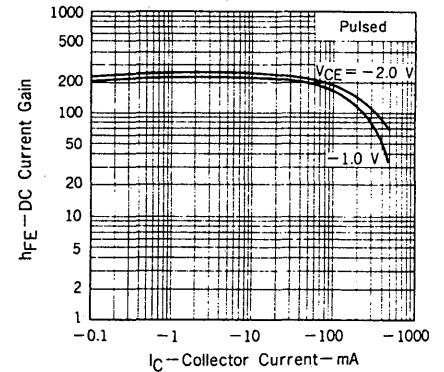
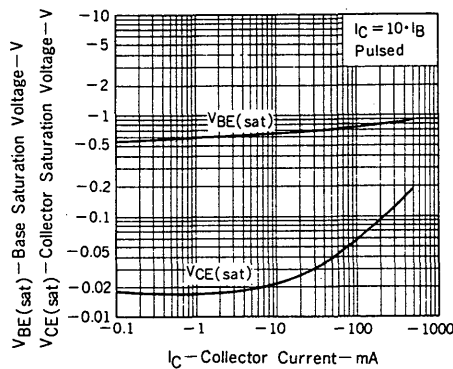
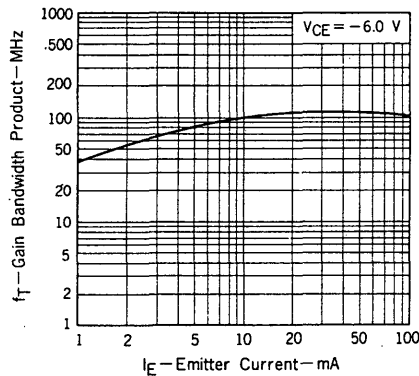
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}^*	DC Current Gain	90	200	400	—	$V_{CE} = -1.0 \text{ V}, I_C = -50 \text{ mA}$
h_{FE2}^*	DC Current Gain	30	80	—	—	$V_{CE} = -1.0 \text{ V}, I_C = -300 \text{ mA}$
C_{ob}	Collector to Base Capacitance	—	13	25	pF	$V_{CB} = -6.0 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$
f_T	Gain Bandwidth Product	50	100	—	MHz	$V_{CE} = -6.0 \text{ V}, I_E = 10 \text{ mA}$
V_{BE}^*	Base to Emitter Voltage	-600	-660	-700	mV	$V_{CE} = -6.0 \text{ V}, I_C = -10 \text{ mA}$
$V_{CE(sat)}^*$	Collector Saturation Voltage	-0.15	-0.6	—	V	$I_C = -300 \text{ mA}, I_B = -30 \text{ mA}$
$V_{BE(sat)}^*$	Base Saturation Voltage	-0.85	-1.2	—	V	$I_C = -300 \text{ mA}, I_B = -30 \text{ mA}$
I_{CBO}	Collector Cutoff Current	—	—	-100	nA	$V_{CB} = -60 \text{ V}, I_E = 0$
I_{EBO}	Emitter Cutoff Current	—	—	-100	nA	$V_{EB} = -5.0 \text{ V}, I_C = 0$

* Pulsed $PW \leq 350 \mu s$, duty cycle $\leq 2.0 \%$

Classification of h_{FE1}

Rank	M	L	K
Range	90 — 180	135 — 270	200 — 400

h_{FE} Test Conditions : $V_{CE} = -1.0 \text{ V}, I_C = -50 \text{ mA}$

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$ unless otherwise noted)TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURESAFE OPERATING AREAS
(TRANSIENT THERMAL RESISTANCE)COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGECOLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGECOLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGEDC CURRENT GAIN vs.
COLLECTOR CURRENTBASE AND COLLECTOR SATURATION VOLTAGE
vs. COLLECTOR CURRENTGAIN BANDWIDTH PRODUCT
vs. EMITTER CURRENTEMITTER TO BASE AND COLLECTOR TO BASE
CAPACITANCE vs. REVERSE VOLTAGE