

# NPN SILICON TRANSISTOR 2SC2003

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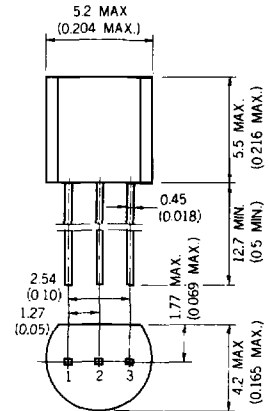
**DESCRIPTION** The 2SC2003 is designed for use in driver stage of high voltage audio equipments.

- FEATURES**
- High total power dissipation.  
 $P_T$  : 600 mW
  - High  $h_{FE}$  and high voltage.  
 $h_{FE}$  ( $I_C = 50$  mA) : 200 TYP.  
 $V_{CEO}$  : 80 V

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures  
 Storage Temperature ..... -55 to +150 °C  
 Junction Temperature ..... +150 °C Maximum  
 Maximum Power Dissipation ( $T_a = 25$  °C)  
 Total Power Dissipation ..... 600 mW  
 Maximum Voltages and Currents ( $T_a = 25$  °C)  
 $V_{CBO}$  Collector to Base Voltage ..... 80 V  
 $V_{CEO}$  Collector to Emitter Voltage ..... 80 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-43  
 2. COLLECTOR JEDEC : TO-92  
 3. BASE IEC : PA33

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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$h_{FE1}^*$	DC Current Gain	90	200	400	—	$V_{CE} = 1.0$ V, $I_C = 50$ mA
$h_{FE2}^*$	DC Current Gain	30	80	—	—	$V_{CE} = 2.0$ V, $I_C = 300$ mA
$C_{ob}$	Collector to Base Capacitance	—	7.0	15	pF	$V_{CB} = 6.0$ V, $I_E = 0$ $f = 1.0$ MHz
$f_T$	Gain Bandwidth Product	50	140	—	MHz	$V_{CE} = 6.0$ V, $I_E = -10$ mA
$V_{BE}^*$	Base to Emitter Voltage	600	645	700	mV	$V_{CE} = 6.0$ V, $I_C = 10$ mA
$V_{CE(sat)}^*$	Collector Saturation Voltage	—	0.15	0.6	V	$I_C = 300$ mA, $I_B = 30$ mA
$V_{BE(sat)}^*$	Base Saturation Voltage	—	0.86	1.2	V	$I_C = 300$ mA, $I_B = 30$ mA
$I_{CBO}$	Collector Cutoff Current	—	—	100	nA	$V_{CB} = 80$ V, $I_E = 0$
$I_{EBO}$	Emitter Cutoff Current	—	—	100	nA	$V_{EB} = 5.0$ V, $I_E = 0$

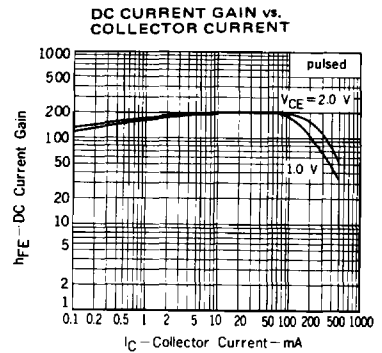
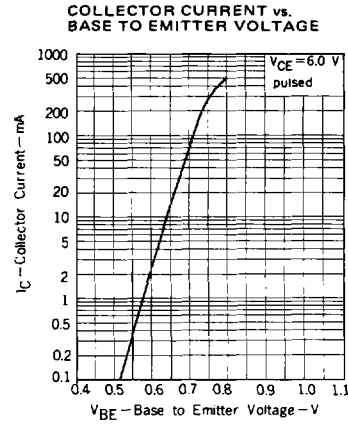
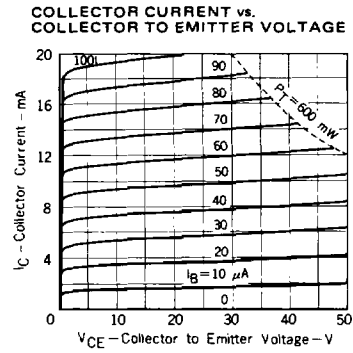
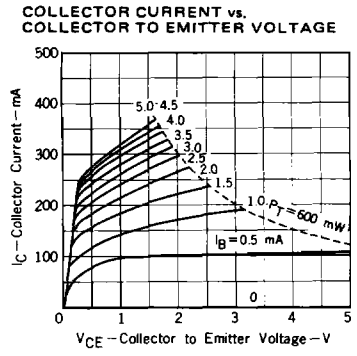
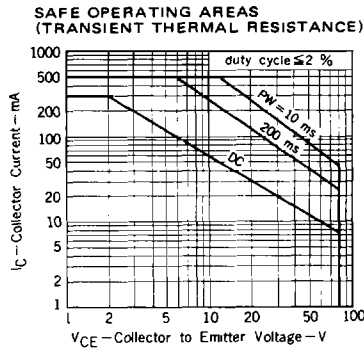
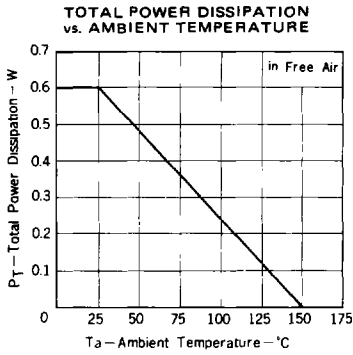
\*Pulsed  $PW \leq 350$   $\mu$ s, duty cycle  $\leq 2.0$  %.

Classification of  $h_{FE1}$

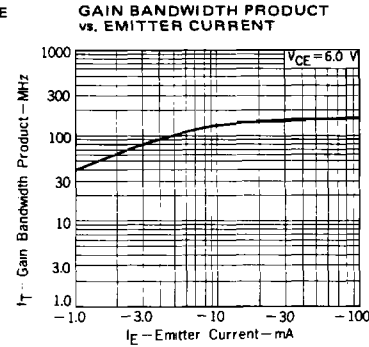
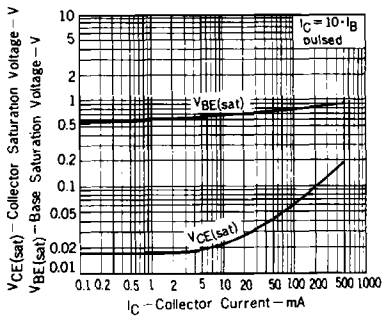
Rank	M	L	K
Range	90 - 180	135 - 270	200 - 400

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

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



**BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT**



**EMITTER TO BASE AND COLLECTOR TO BASE CAPACITANCE vs. REVERSE VOLTAGE**

