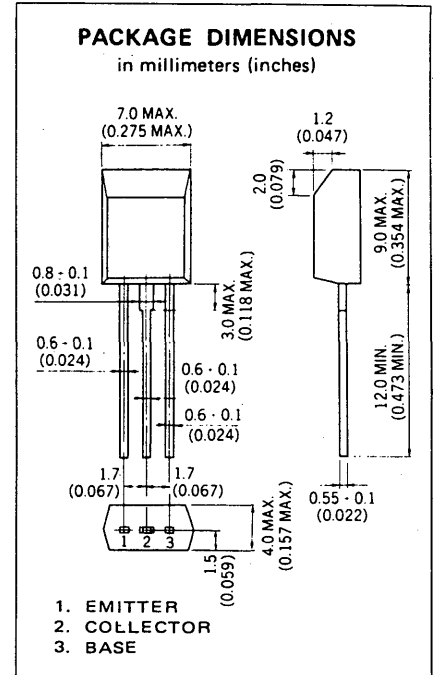


**DESCRIPTION** The 2SC3209 is designed for use in TV chroma output circuits and TV horizontal deflection output circuits.

- FEATURES**
- High voltage  $V_{CE0} \geq 300$  V
  - High Electrostatic-Discharge-Resistant (E-B reverse bias,  $C=2\ 300$  pF)  $V_{ESDR}$ : TYP. 1 000 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 . . . . . 1.0 W
- Maximum Voltages and Currents ( $T_a = 25$  °C)
- $V_{CBO}$  Collector to Base Voltage . . . . . 300 V
  - $V_{CEO}$  Collector to Emitter Voltage . . . . . 300 V
  - $V_{EBO}$  Emitter to Base Voltage . . . . . 5.0 V
  - $I_C$  Collector Current . . . . . 200 mA



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$h_{FE}^*$	DC Current Gain	60	150	250		$V_{CE} = 10$ V, $I_C = 10$ mA
$t_d$	Delay Time			1.0	$\mu$ s	$V_{CC} = 30$ V $I_C = 100$ mA $I_{B1} = -I_{B2} = 10$ mA
$t_r$	Rise Time			1.0	$\mu$ s	
$t_{stg}$	Storage Time			2.0	$\mu$ s	
$t_f$	Fall Time			1.0	$\mu$ s	
$f_T$	Gain Bandwidth Product		50		MHz	$V_{CE} = 30$ V, $I_E = -10$ mA
$V_{ESDR}$	Electrostatic-Discharge-Resistant		1000		V	See Test Circuit
$C_{ob}$	Output Capacitance		2.8	3.5	pF	$V_{CB} = 30$ V, $I_E = 0$ , $f = 1.0$ MHz
$I_{CBO}$	Collector Cutoff Current			100	nA	$V_{CB} = 200$ V, $I_E = 0$
$I_{EBO}$	Emitter Cutoff Current			100	nA	$V_{EB} = 5.0$ V, $I_C = 0$
$V_{BE}^*$	Base to Emitter Voltage	600	670	700	mV	$V_{CE} = 10$ V, $I_C = 10$ mA
$V_{CE(sat)}^*$	Collector Saturation Voltage		0.15	1.5	V	$I_C = 50$ mA, $I_B = 5.0$ mA
$V_{BE(sat)}^*$	Base Saturation Voltage		0.80	1.5	V	$I_C = 50$ mA, $I_B = 5.0$ mA

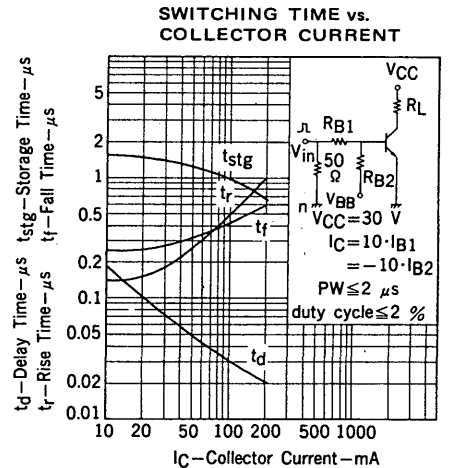
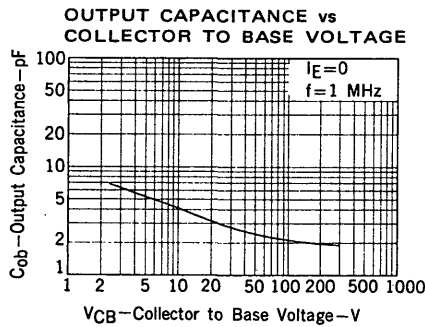
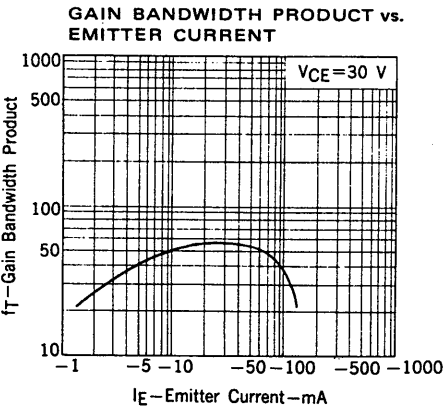
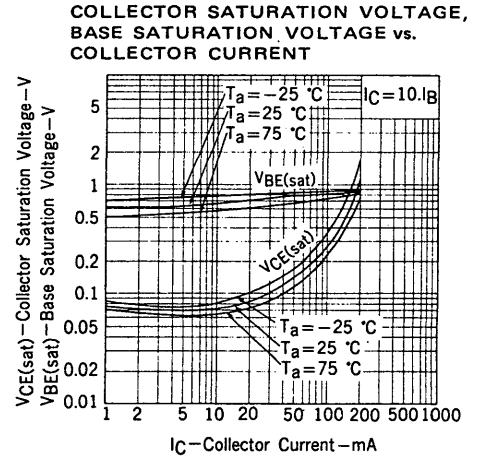
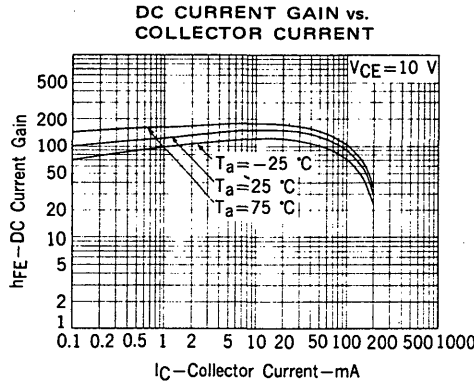
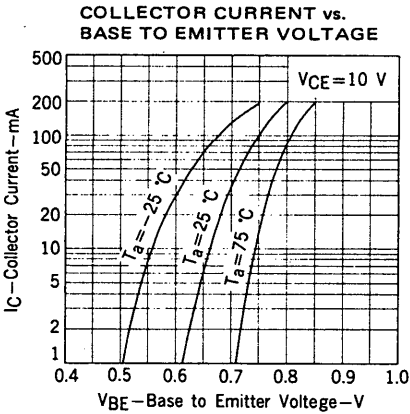
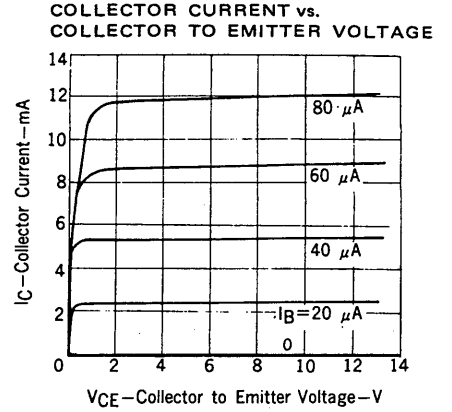
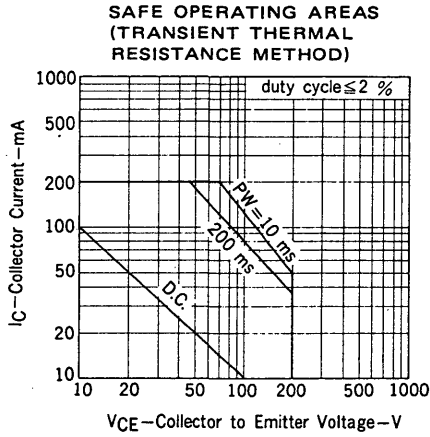
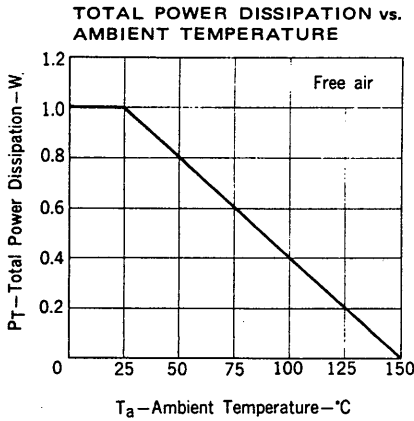
\* Pulsed  $PW \leq 300$   $\mu$ s, duty cycle  $\leq 2$  %

Classification of  $h_{FE1}$

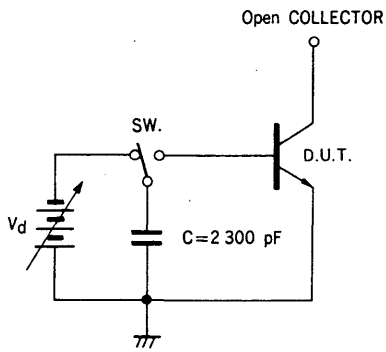
Rank	M	L	K
Range	60 - 120	100 - 200	160 - 250

Test Conditions:  $V_{CE} = 10$  V,  $I_C = 10$  mA

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



**ELECTROSTATIC-DISCHARGE-RESISTANT TEST CIRCUIT**



**TEST CONDITION**

- 1) E-B reverse bias
- 2)  $C = 2300 \text{ pF}$
- 3) Apply one shot pluse to D.U.T. (Transistor Under the Test) by SW.

**JUDGEMENT**

**REJECT;**  $BV_{EBO}$  waveform defect  
 As a result if D.U.T. is not rejected, apply higher voltage to capacitor and test again.