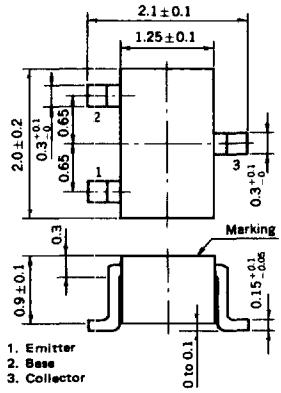
SILICON TRANSISTOR
2SA1609

HIGH VOLTAGE AMPLIFIER
PNP SILICON EPITAXIAL TRANSISTOR

DESCRIPTION

The 2SA1609 is designed for audio frequency preamplifier application, especially in Hybrid Integrated Circuits.

PACKAGE DIMENSIONS
in millimeters (inches)



1. Emitter
2. Base
3. Collector

FEATURE

- High Collector to Emitter Voltage
  : $V_{CEO} > -140$ V

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

Maximum Voltages and Currents			
Collector to Base Voltage	V_{CBO}	−160	V
Collector to Emitter Voltage	V_{CEO}	−160	V
Emitter to Base Voltage	V_{EBO}	−5.0	V
Collector Current (DC)	I_C	−50	mA
Collector Current (Pulse)*	I_C	−100	mA
Maximum Power Dissipation			
Total Power Dissipation at 25 °C Ambient Temperature	P_T	150	mW
Maximum Temperatures			
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

*PW ≦ 10 ms, duty cycle ≦ 50 %

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Collector Cutoff Current	I_{CBO}			−100	nA	V_{CB} = −140 V, I_E = 0	
Emitter Cutoff Current	I_{EBO}			−100	nA	V_{EB} = −5.0 V, I_C = 0	
DC Current Gain	h_{FE1}	50	200			V_{CE} = −10 V, I_C = −1.0 mA	***
DC Current Gain	h_{FE2}	90	200	400		V_{CE} = −10 V, I_C = −10 mA	***
Collector Saturation Voltage	$V_{CE(sat)}$		−0.18	−0.60	V	I_C = −20 mA, I_B = −2.0 mA	***
Base Saturation Voltage	$V_{BE(sat)}$		−0.79	−1.0	V	I_C = −20 mA, I_B = −2.0 mA	***
Base to Emitter Voltage	V_{BE}	−650	−695	−750	mV	V_{CE} = −10 V, I_C = −10 mA	
Gain Bandwidth Product	f_T		80		MHz	V_{CE} = −10 V, I_E = 10 mA	
Output Capacitance	C_{ob}		2.5		pF	V_{CB} = −10 V, I_E = 0, f = 1.0 MHz	

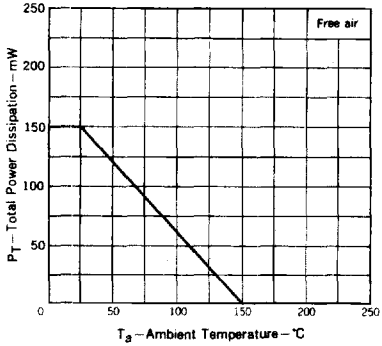
***Pulsed: PW ≦ 350 μs, duty cycle ≦ 2 %

h_{FE} Classification

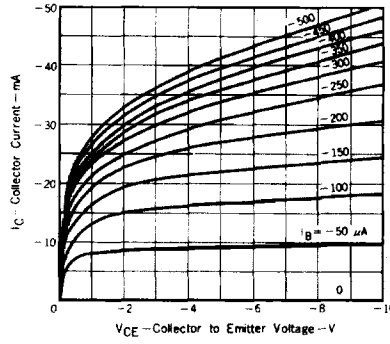
MARKING	O15	O16	O17
h_{FE2}	90 to 180	135 to 270	200 to 400

TYPICAL CHARACTERISTICS (Ta = 25 °C)

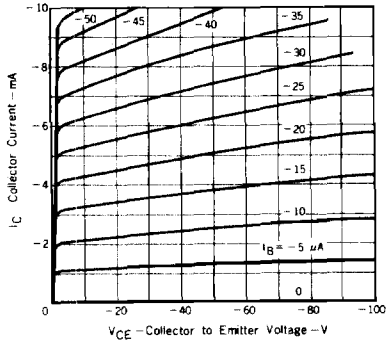
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



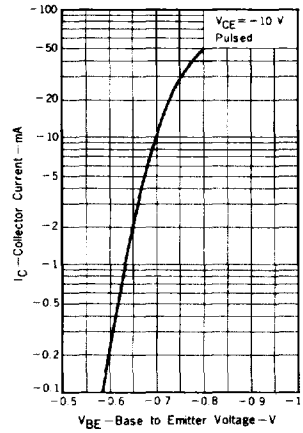
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



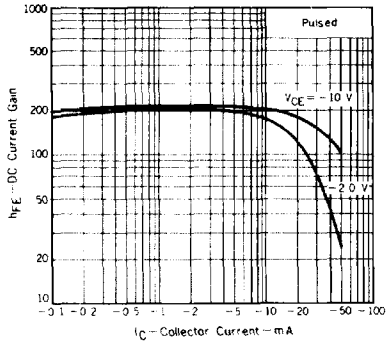
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



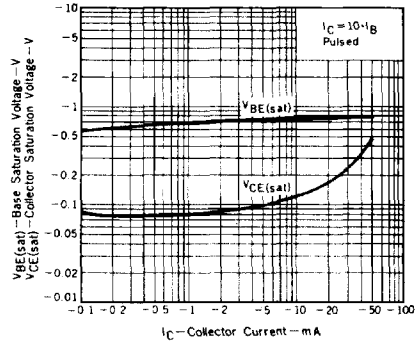
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT

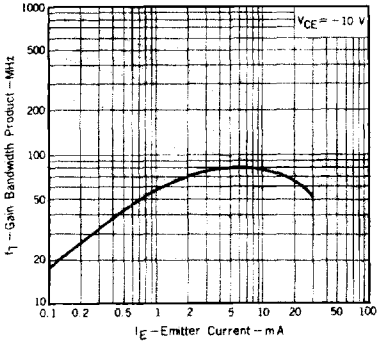


COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



6

GAIN BANDWIDTH PRODUCT
vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE