

# NPN SILICON TRANSISTOR

## 2SD471

**DESCRIPTION** The 2SD471 is designed for use in driver and output stages of audio frequency amplifiers.

- FEATURES**
- High Total Power Dissipation:  
1.0W at 25°C Ambient Temperature.
  - Complementary to the NEC 2SB564 PNP Transistor.

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures

Storage Temperature ..... -55 to +150°C  
 Junction Temperature ..... +150°C Maximum

Maximum Power Dissipation (Ta = 25°C)

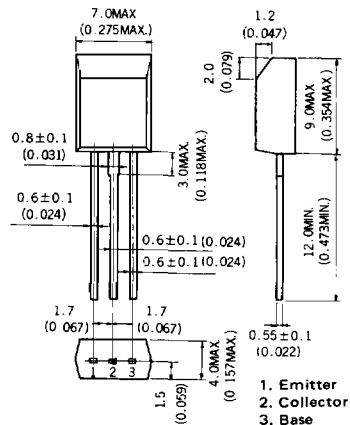
Total Power Dissipation ..... 1.0 W  
 Thermal Resistance (Junction to Ambient) ..... 125°C/W

Maximum Voltages and Currents (Ta = 25°C)

V<sub>CBO</sub> Collector to Base Voltage ..... 30 V  
 V<sub>CEO</sub> Collector to Emitter Voltage ..... 25 V  
 V<sub>EBO</sub> Emitter to Base Voltage ..... 5.0 V  
 I<sub>C</sub> Collector Current ..... 1.0 A  
 I<sub>B</sub> Base Current ..... 0.1 A

**PACKAGE DIMENSIONS**

in millimeters (inches)



**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

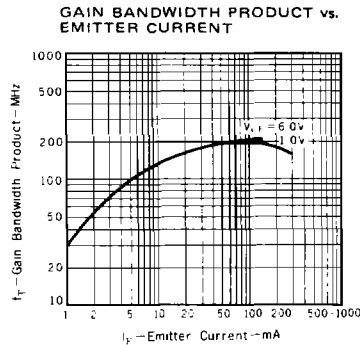
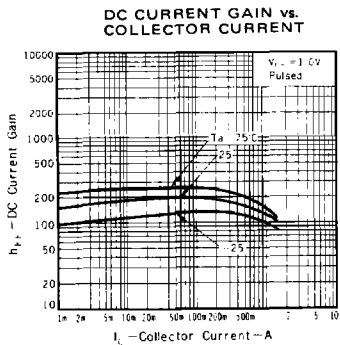
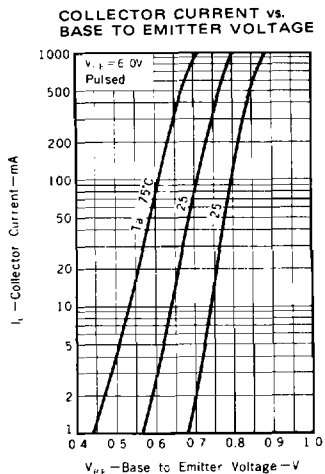
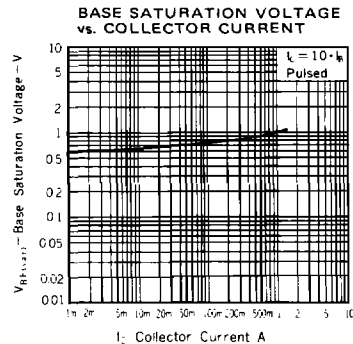
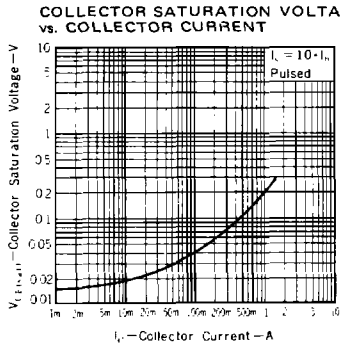
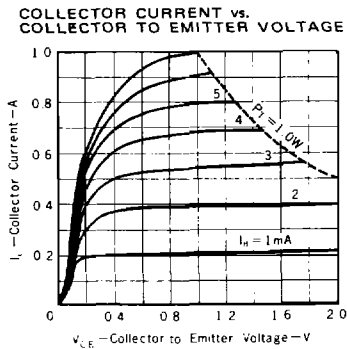
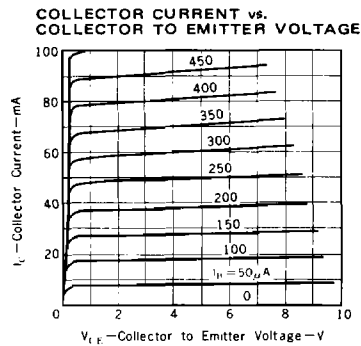
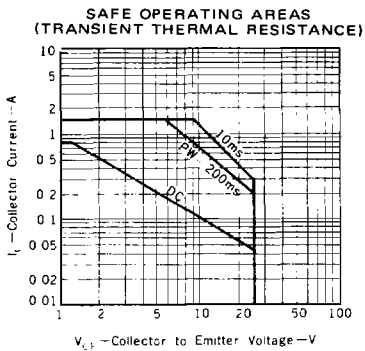
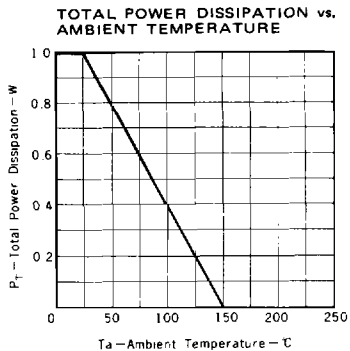
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h <sub>FE1</sub>	DC Current Gain	90	200	400		V <sub>CE</sub> = 1.0V, I <sub>C</sub> = 0.1A
h <sub>FE2</sub>	DC Current Gain	50	140			V <sub>CE</sub> = 1.0V, I <sub>C</sub> = 1.0A
f <sub>T</sub>	Gain Bandwidth Product		100		MHz	V <sub>CE</sub> = 6.0V, I <sub>C</sub> = 10mA
C <sub>ob</sub>	Collector to Base Capacitance		22		pF	V <sub>CB</sub> = 6.0V, I <sub>E</sub> = 0, f = 1.0MHz
I <sub>CBO</sub>	Collector Cutoff Current			100	nA	V <sub>CB</sub> = 30V, I <sub>E</sub> = 0
I <sub>EBO</sub>	Emitter Cutoff Current			100	nA	V <sub>EB</sub> = 5.0V, I <sub>C</sub> = 0
V <sub>BE</sub>	Base to Emitter Voltage	600	630	700	mV	V <sub>CE</sub> = 6.0V, I <sub>C</sub> = 10mA
V <sub>CE(sat)</sub>	Collector Saturation Voltage		0.21	0.6	V	I <sub>C</sub> = 1.0A, I <sub>B</sub> = 0.1A
V <sub>BE(sat)</sub>	Base Saturation Voltage		1.0	1.2	V	I <sub>C</sub> = 1.0A, I <sub>B</sub> = 0.1A

**Classification of h<sub>FE1</sub>**

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

h<sub>FE1</sub> Test Conditions: V<sub>CE</sub> = 1.0V, I<sub>C</sub> = 0.1A

TYPICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)



**COLLECTOR TO BASE CAPACITANCE vs.  
COLLECTOR TO BASE VOLTAGE**

