NEC

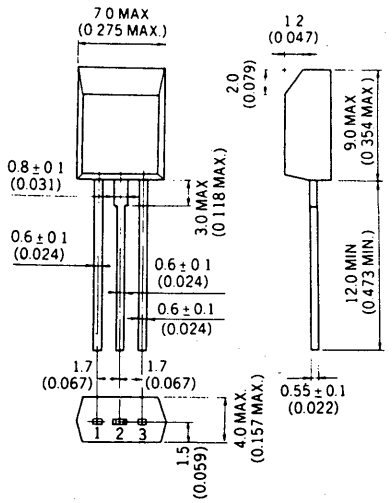
NPN SILICON TRANSISTOR
2SD471

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

FEATURES

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

PACKAGE DIMENSIONS
in millimeters (inches)



1. EMITTER
2. COLLECTOR
3. BASE

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_{CBO} Collector to Base Voltage . . . . . 30 V
- V_{CEO} Collector to Emitter Voltage . . . . . 25 V
- V_{EBO} Emitter to Base Voltage . . . . . 5.0 V
- I_C Collector Current . . . . . 1.0 A
- I_B Base Current . . . . . 0.1 A

ELECTRICAL CHARACTERISTICS (Ta = 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=0.1 A
h_{FE2}	DC Current Gain	50	140			V_{CE}=1.0 V, I_C=1.0 A
f_T	Gain Bandwidth Product		100		MHz	V_{CE}=6.0 V, I_E=10 mA
C_{ob}	Collector to Base Capacitance		22		pF	V_{CB}=6.0 V, I_E=0, f=1.0 MHz
I_{CBO}	Collector Cutoff Current			100	nA	V_{CB}=30 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	630	700	mV	V_{CE}=6.0 V, I_C=10 mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.21	0.35	V	I_C=1.0 A, I_B=0.1 A
$V_{BE(sat)}$	Base Saturation Voltage		1.0	1.2	V	I_C=1.0 A, I_B=0.1 A

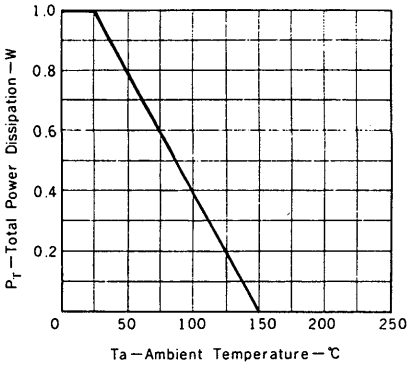
Classification of h_{FE1}

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

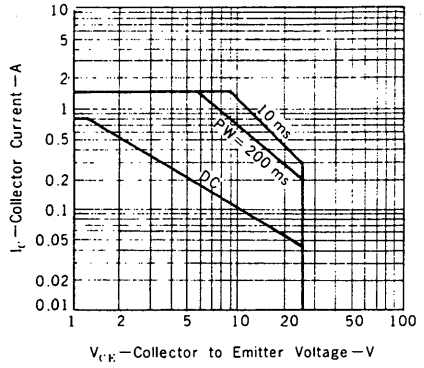
h_{FE1} Test Conditions: V_{CE} = 1.0V, I_C = 0.1A

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

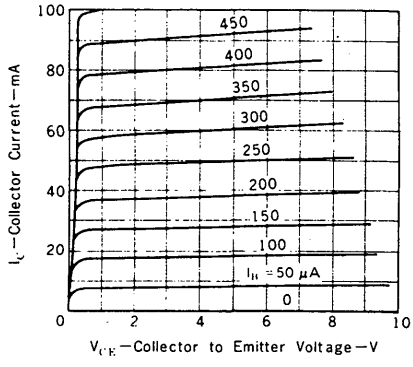
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



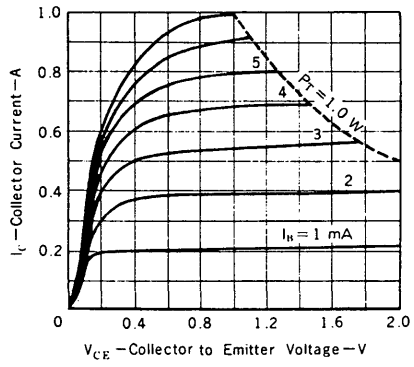
SAFE OPERATING AREAS (TRANSIENT THERMAL RESISTANCE)



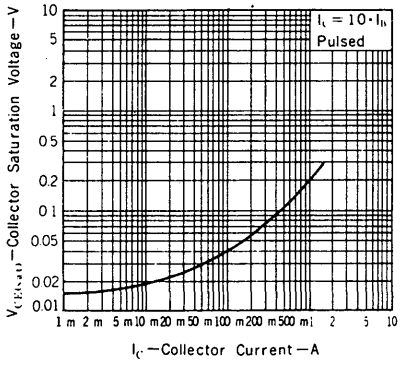
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



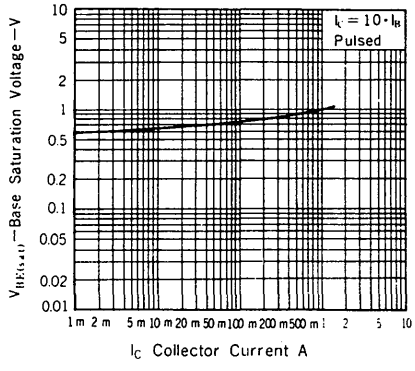
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



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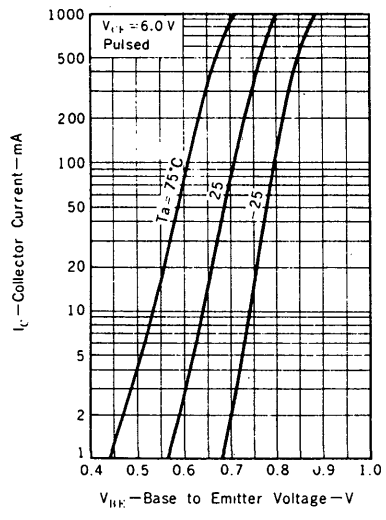
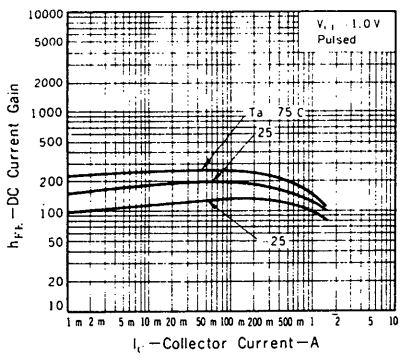
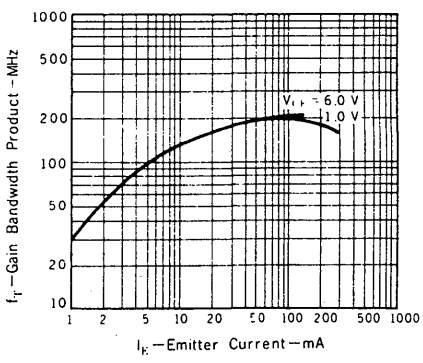
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



COLLECTOR TO BASE CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE