NEC

NPN SILICON TRANSISTOR

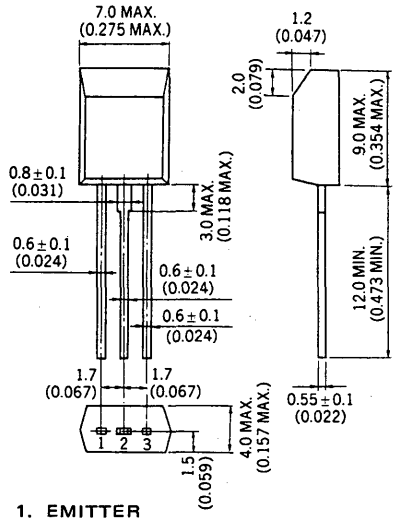
2SD774

DESCRIPTION The 2SD774 is designed for use in driver and output stages of audio frequency amplifiers.

FEATURES

- High Total Power Dissipation P_T : 1.0 W (Ta = 25 °C)
- High Voltage V_{CE} : 50 V MIN.
- Complementary to the NEC 2SB734 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

Maximum Voltages and Current (Ta=25 °C)

- V_{CBO} Collector to Base Voltage . . . . . 100 V
- V_{CEO} Collector to Emitter Voltage . . . . . 50 V
- V_{EBO} Emitter to Base Voltage . . . . . 6.0 V
- I_C Collector Current . . . . . 1.0 A

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	135	300	600	—	V_{CE}=2.0 V, I_C=100 mA
h_{FE2}	DC Current Gain	70			—	V_{CE}=1.0 V, I_C=1.0 A
f_T	Gain Bandwidth Product	50	95		MHz	V_{CE}=2.0 V, I_E=−10 mA
C_{ob}	Output Capacitance		16	35	pF	V_{CB}=10 V, I_E=0, f=1.0 MHz
I_{CBO}	Collector Cutoff Current			100	nA	V_{CB}=50 V, I_E=0
I_{EBO}	Emitter Cutoff Current			100	nA	V_{EB}=6.0 V, I_C=0
V_{BE}	Base to Emitter Voltage	0.55	0.60	0.65	V	V_{CE}=6.0 V, I_C=5.0 mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.23	0.30	V	I_C=1.0 A, I_B=50 mA
$V_{BE(sat)}$	Base Saturation Voltage		0.92	1.20	V	I_C=1.0 A, I_B=50 mA

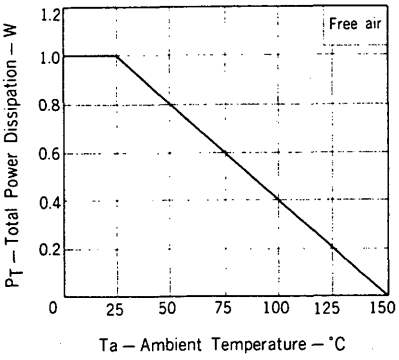
Classification of h_{FE1}

Rank	L_2	K_3	K_4	U_4	U_5
Range	135 – 270	200 – 320	250 – 400	300 – 480	360 – 600

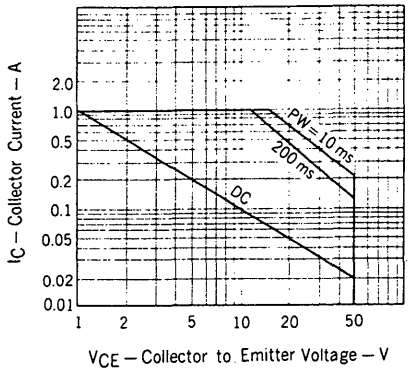
Test Conditions : V_{CE}=2.0 V, I_C=100 mA.

TYPICAL CHARACTERISTICS (Ta=25 °C)

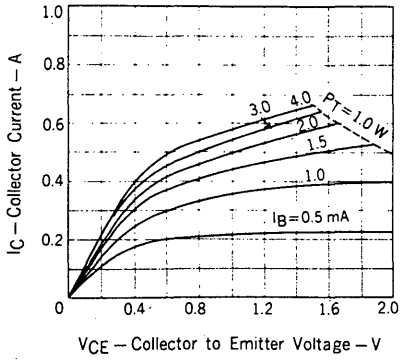
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



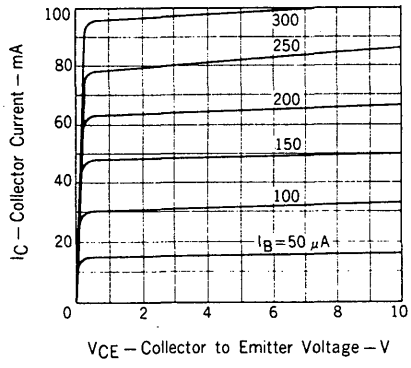
SAFE OPERATING AREAS (TRANSIENT THERMAL RESISTANCE METHOD)



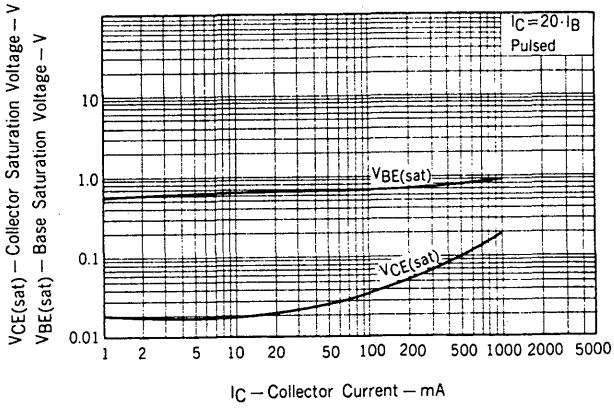
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



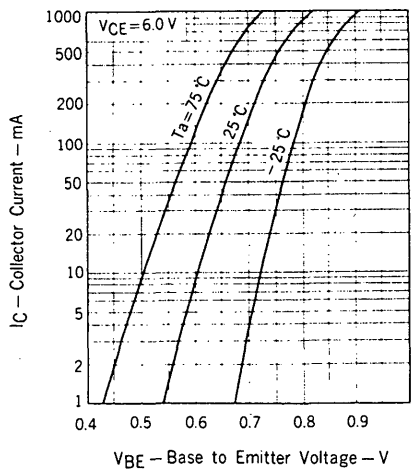
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



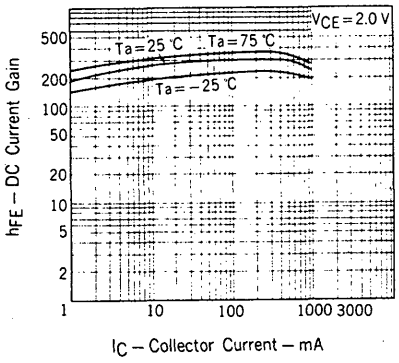
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



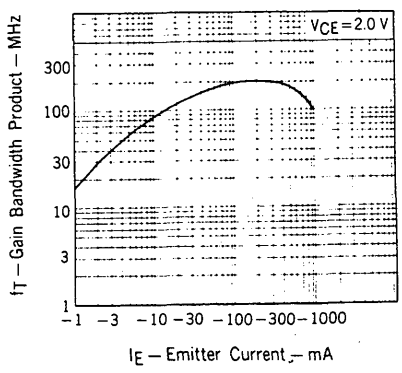
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE