NEC

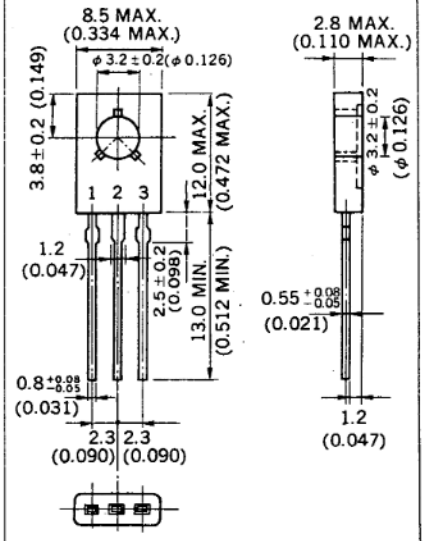
NPN SILICON POWER TRANSISTOR
2SD882

DESCRIPTION The 2SD882 is NPN silicon transistor suited for the output stage of 3 watts audio amplifier, voltage regulator, DC-DC converter and relay driver.

FEATURES

- Low saturation voltage.
  $V_{CE(sat)} \leqq 0.5$ V (@ $I_C = 2$ A, $I_B = 0.2$ A)
- Excellent h_{FE} linearity and high h_{FE}.
  h_{FE} : 60 to 400 (@ $V_{CE} = 2$ V, $I_C = 1$ A)
- Less cramping space required due to small and thin package and reducing the trouble for attachment to a radiator.
  No insulator bushing required.

PACKAGE DIMENSIONS
in millimeters (inches)



1. Emitter
2. Collector connected to mounting plane
3. Base

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

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

Maximum Power Dissipations

- Total Power Dissipation ($T_a = 25$ °C) . . . . . 1.0 W
- Total Power Dissipation ($T_c = 25$ °C) . . . . . 10 W

Maximum Voltages and Currents ($T_a = 25$ °C)

V_{CBO}	Collector to Base Voltage	40	V
V_{CEO}	Collector to Emitter Voltage	30	V
V_{EBO}	Emitter to Base Voltage	5.0	V
$I_{C(DC)}$	Collector Current (D.C)	3.0	A
$I_{C(pulse)}$*	Collector Current (pulse)	7.0	A

*Pulse Test PW ≦ 350 μs, Duty Cycle ≦ 2 %

ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}	DC Current Gain	30	150			$V_{CE} = 2.0$ V, $I_C = 20$ mA**
h_{FE2}	DC Current Gain	60	160	400		$V_{CE} = 2.0$ V, $I_C = 1.0$ A**
f_T	Gain Bandwidth Product		90		MHz	$V_{CE} = 5.0$ V, $I_C = 0.1$ A
C_{ob}	Output Capacitance		45		pF	$V_{CB} = 10$ V, $I_E = 0$, f = 1.0 MHz
I_{CBO}	Collector Cutoff Current			1.0	μA	$V_{CB} = 30$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			1.0	μA	$V_{EB} = 3.0$ V, $I_C = 0$
$V_{CE(sat)}$	Collector Saturation Voltage		0.3	0.5	V	$I_C = 2.0$ A, $I_B = 0.2$ A**
$V_{BE(sat)}$	Base Saturation Voltage		1.0	2.0	V	$I_C = 2.0$ A, $I_B = 0.2$ A**

**Pulse Test : PW ≦ 350 μs, Duty Cycle ≦ 2 %

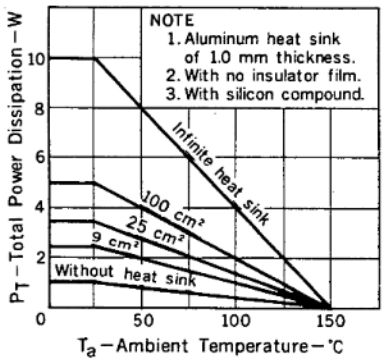
Classification of h_{FE}

Rank	R	Q	P	E
Range	60 to 120	100 to 200	160 to 320	200 to 400

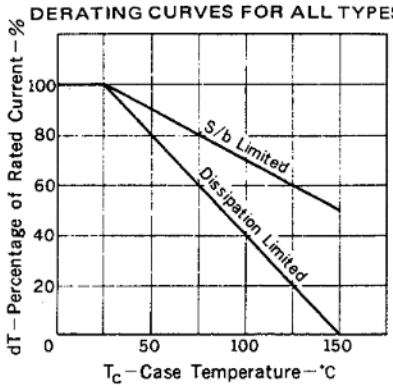
Test Conditions : $V_{CE} = 2.0$ V, $I_C = 1.0$ A

TYPICAL CHARACTERISTICS (T_a = 25 °C)

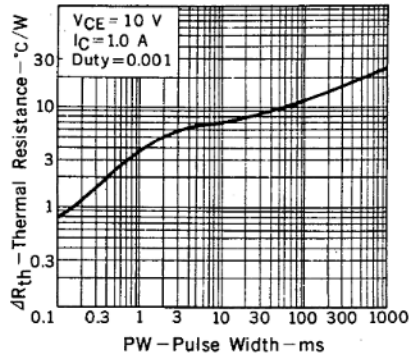
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



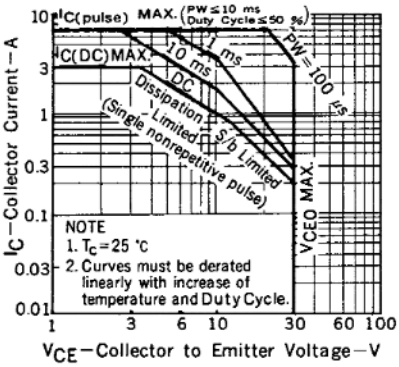
DERATING CURVES FOR ALL TYPES



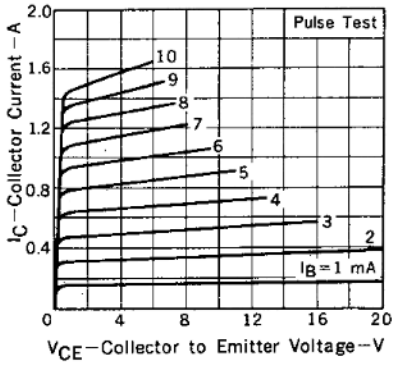
THERMAL RESISTANCE vs. PULSE WIDTH



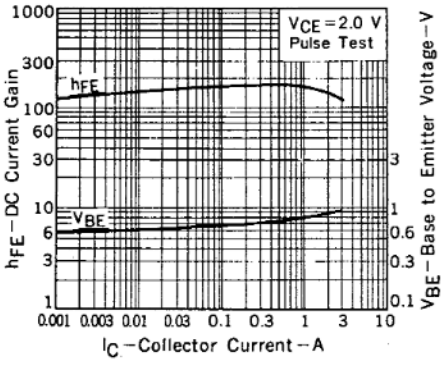
SAFE OPERATING AREAS



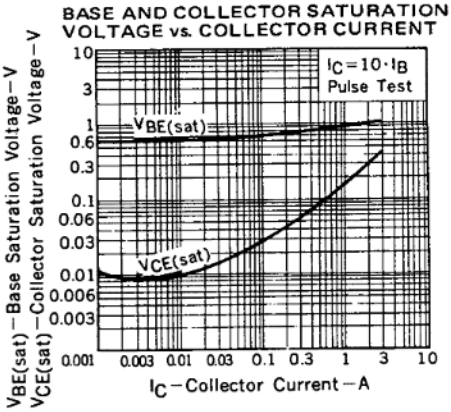
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



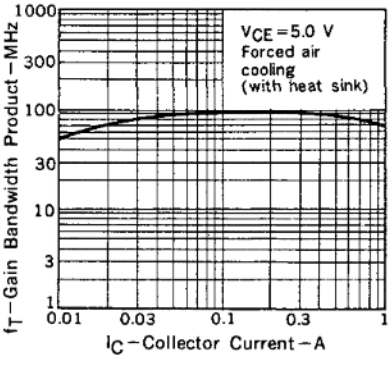
DC CURRENT GAIN, BASE TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE