NEC

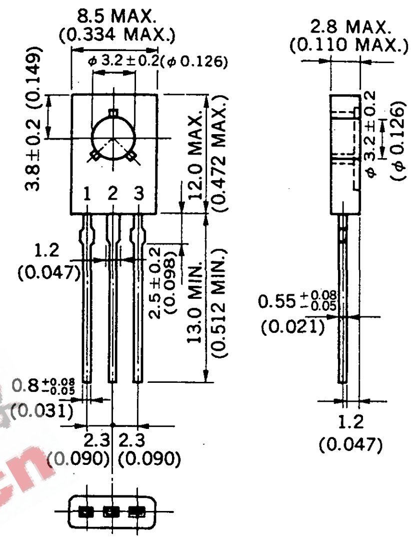
NPN SILICON TRANSISTOR
2SC2688

DESCRIPTION The 2SC2688 is designed for use in Color TV chroma output circuits.

FEATURES

- High Electrostatic-Discharge-Resistance. (E-B reverse bias, C = 2 300 pF) ESDR : TYP. 1 000 V
- Low C_{re}, High f_T
  - $C_{re} \leqq 3.0$ pF (V_{CB} = 30 V)
  - $f_T \geqq 50$ MHz (V_{CE} = 30 V, I_E = −10 mA)

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)	1.25 W
Total Power Dissipation (T_c = 25 °C)	10 W

Maximum Voltages and Current (T_a = 25 °C)

V_{CBO}	Collector to Base Voltage	300	V
V_{CEO}	Collector to Emitter Voltage	300	V
V_{EBO}	Emitter to Base Voltage	5.0	V
I_C	Collector Current	200	mA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	40	80	250		V_{CE} = 10 V, I_C = 10 mA*
f_T	Gain Bandwidth Product	50	80		MHz	V_{CE} = 30 V, I_E = −10 mA
C_{re}	Feedback Capacitance			3.0	pF	V_{CB} = 30 V, I_E = 0, f = 1.0 MHz
I_{CBO}	Collector Cutoff Current			100	nA	V_{CB} = 200 V, I_E = 0
I_{EBO}	Emitter Cutoff Current			100	nA	V_{EB} = 5.0 V, I_C = 0
$V_{CE(sat)}$	Collector Saturation Voltage			1.5	V	I_C = 50 mA, I_B = 5.0 mA

*Pulsed PW ≦ 350 μs, Duty Cycle ≦ 2 %

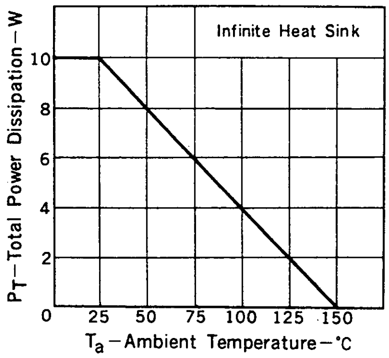
Classification of h_{FE}

Rank	N	M	L	K
Range	40 to 80	60 to 120	100 to 200	160 to 250

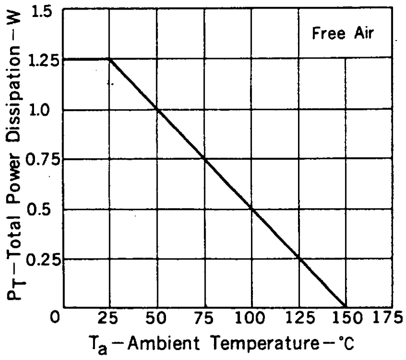
Test Conditions : V_{CE} = 10 V, I_C = 10 mA

TYPICAL CHARACTERISTICS (T_a = 25 °C)

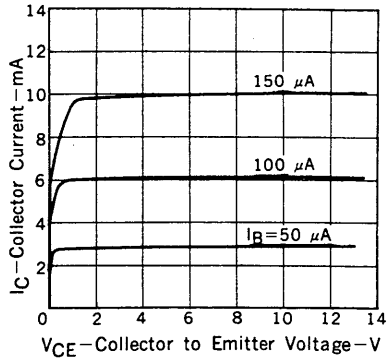
TOTAL POWER DISSIPATION vs. AMBINET TEMPERATURE



TOTAL POWER DISSIPATION vs. AMBINET TEMPERATURE



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



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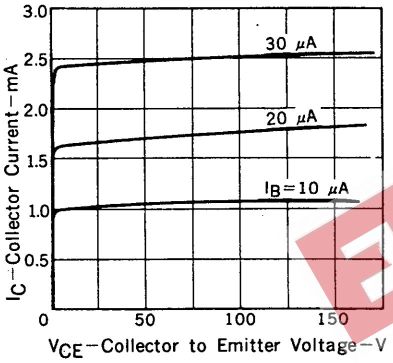
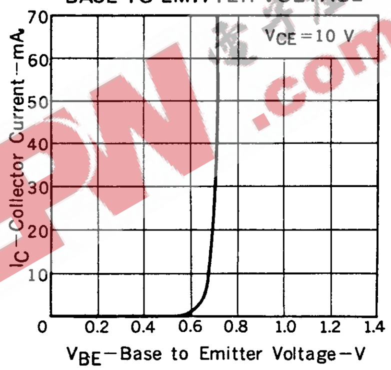
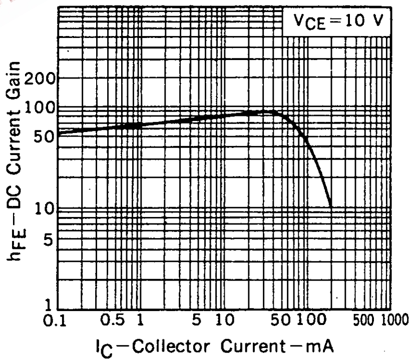


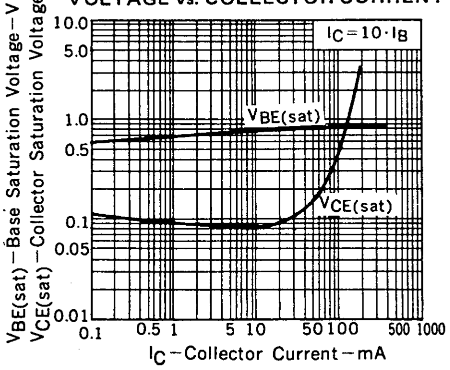
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



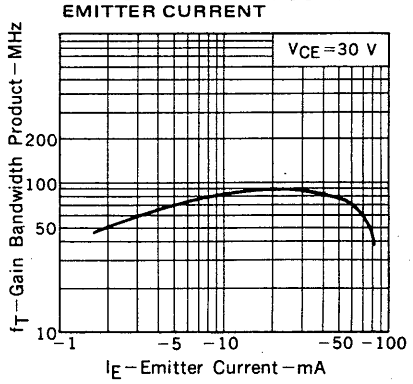
DC CURRENT GAIN vs. COLLECTOR CURRENT



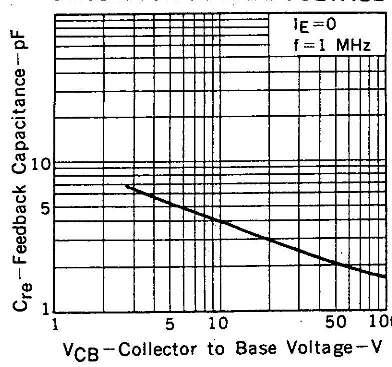
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



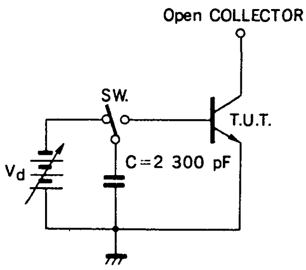
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



FEEDBACK CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



BURNOUT TEST CIRCUIT BY DISCHARGE OF CAPACITOR



TEST CONDITION

1) E-B reverse bias
2) C = 2300 pF
3) Apply one shot pulse to T.U.T. (Transistor Under the Test) by SW.

JUDGEMENT

REJECT; BV_{EBO} waveform defect
As a result if T.U.T. is not rejected, apply higher voltage to capacitor and test again.