NEC

Silicon Power Transistor

2SA1988

PNP SILICON TRANSISTOR
POWER AMPLIFIER
INDUSTRIAL USE

DESCRIPTION

The 2SA1988 is PNP Silicon Power Transistor that designed for audio frequency power amplifier.

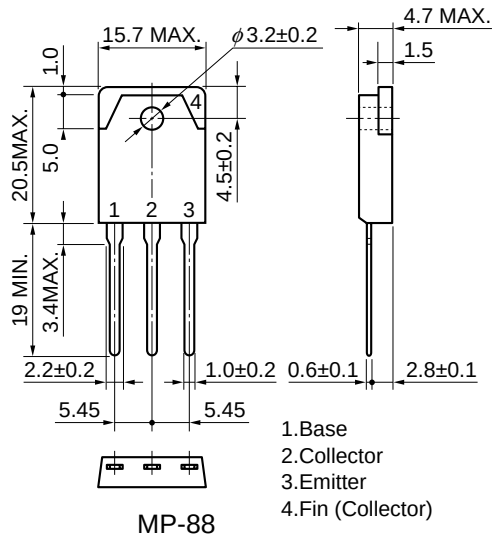
FEATURES

- High Voltage V_{CEO} = –200 V
- DC Current Gain h_{FE} = 70 to 200
- TO-3P Package

ORDERING INFORMATION

Type Number	Package
2SA1988	MP-88

PACKAGE DIMENSIONS



MP-88

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Collector to Base Voltage	V_{CBO}	–200	V
Collector to Emitter Voltage	V_{CEO}	–200	V
Emitter to Base Voltage	V_{EBO}	–5.0	V
Collector Current (DC)	$I_{C\ (DC)}$	–7.0	A
Collector Current (pulse)	$I_{C\ (pulse)}$ *1	-10	A
Total Power Dissipantion	P_2 *2	100	W
JunctionTemperature	T_J	150	°C
Storage Tempreature	T_{stg}	–55 to +150	°C

*1 PW ≤ 300 μs, Duty Cycle ≤ 10 % *2 T_C = 25 °C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			–50	μA	V_{CB} = –200 V, I_E = 0
Emitter Cutoff Current	I_{EBO}			–50	μA	V_{EB} = –3.0 V, I_C = 0
DC Current Gain	h_{FE1}	70		200	–	V_{CE} = –5.0 V, I_C = –1.0 A *
DC Current Gain	h_{FE2}	20			–	V_{CE} = –5.0 V, I_C = –3.5 A *
Collector Saturation Voltage	$V_{CE\ (sat)}$		–0.6	–2.0	V	I_C = –5.0 V, I_E = –0.5 V *
Base Saturation Voltage	$V_{BE\ (sat)}$		–1.3	–2.0	V	I_C = –5.0 V, I_E = –0.5 V *
Gain Band width Product	f_T		40		MHz	V_{CE} = –5.0 V, I_C = 1.0 mA
Output Capacitance	C_{ob}		270		pF	V_{CB} = –10 V, I_C = 0, f = 1.0 MHz

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

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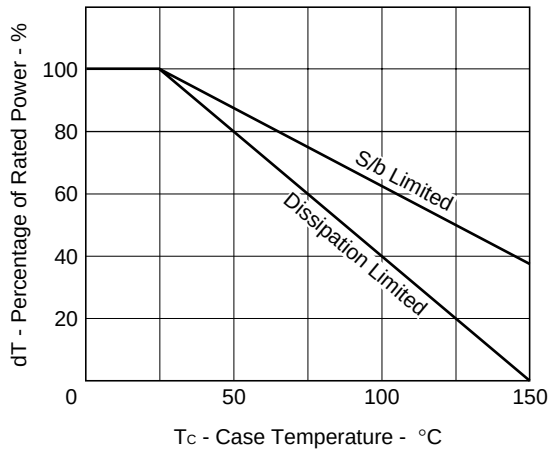
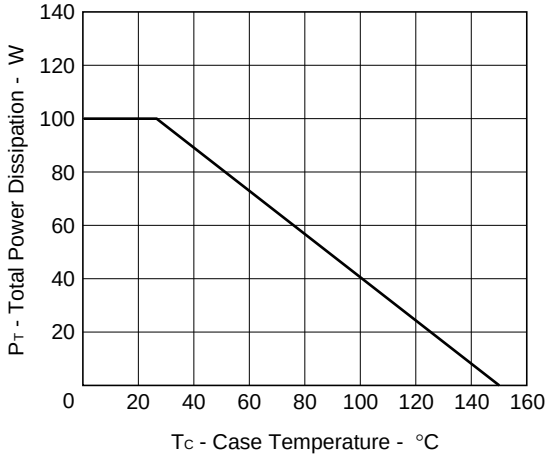
CHARACTERISTICS (T_A = 25 °C)

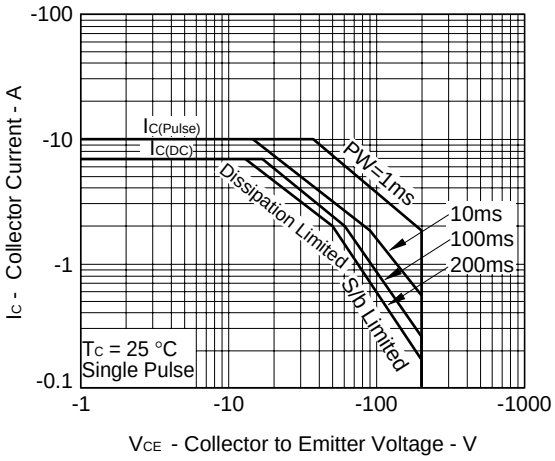
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



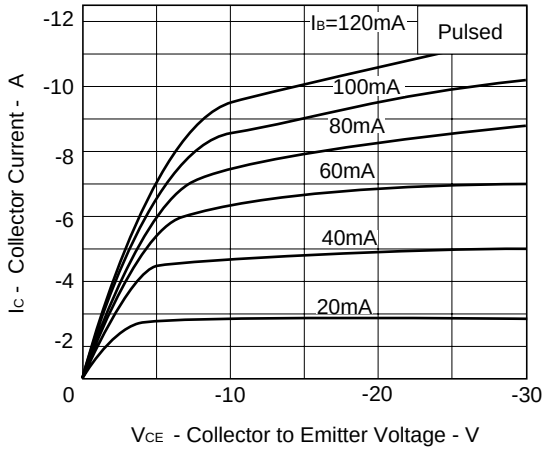
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



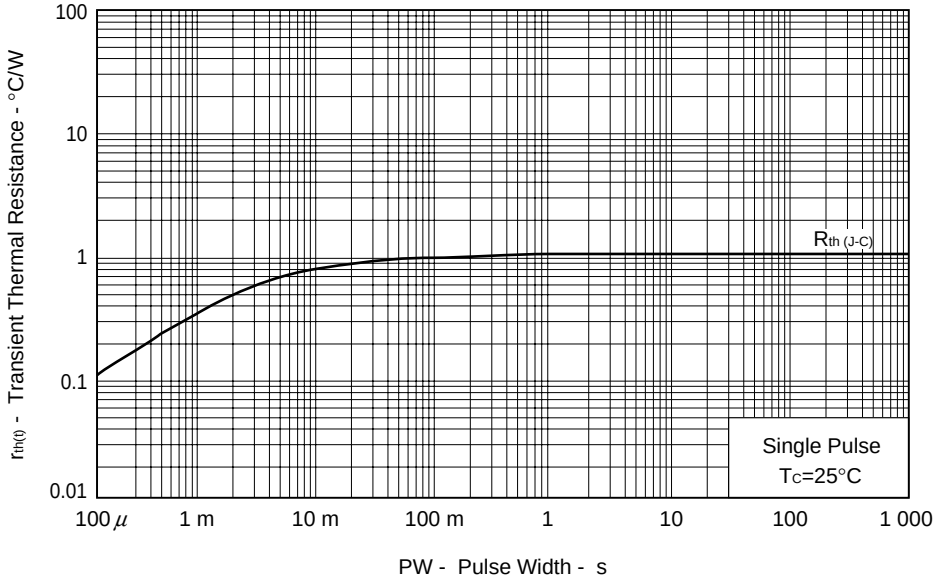
FORWARD BIAS SAFE OPERATING AREA



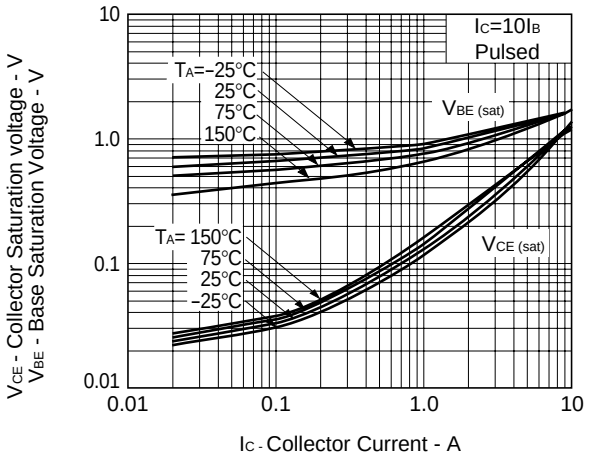
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



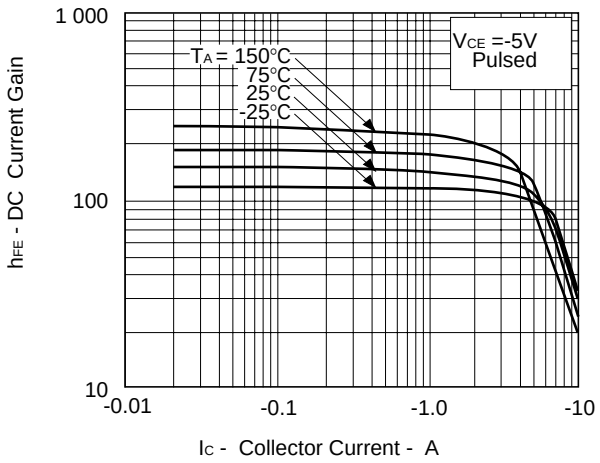
TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



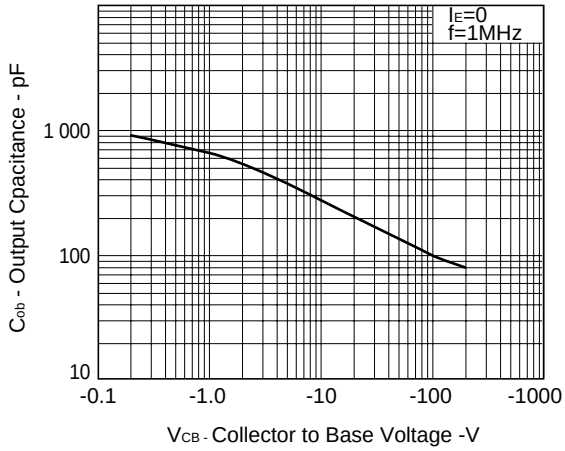
COLLECTOR SATURATION VOLTAGE AND BASE SATURATION VOLTAGE VS COLLECTOR CURRENT



DC CURRENT GAIN VS COLLECTOR CURRENT



OUTOPUT CAPASITANCE VS COLLECTOR TO BASE VOLTAGE



REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system	TEI-1202
Quality grade on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	C10535E
Semoconductor device package manual	C10943X
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E