

# **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 VCEO = -200 V
- DC Current Gain hFE = 70 to 200
- TO-3P Package

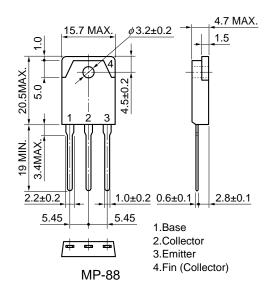
#### ORDERING INFORMATION

Type Number	Package		
2SA1988	MP-88		

#### ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

Collector to Base Voltage	Vсво	-200	
Collector to Emitter Voltage	Vceo	-200	
Emitter to Base Voltage	Vebo	-5.0	
Collector Current (DC)	IC (DC)	-7.0	
Collector Current (pulse)	IC (pulse) *1	-10	
Total Power Dissipantion	P2 *2	100	
JunctionTemperature	TJ	150	
Storage Tempreature	Tstg	-55 to +150	,
*1 PW $\leq$ 300 $\mu$ s, Duty Cycle $\leq$	10 % *2	Tc = 25 °C	

#### PACKAGE DIMENSIONS



### ELECTRICAL CHARACTERISTICS (TA = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Collector Cutoff Current	Ісво			-50	μA	$V_{CB} = -200 V, I_E = 0$	
Emitter Cutoff Current	Іево			-50	μA	$V_{EB} = -3.0 V, I_{C} = 0$	
DC Current Gain	hfe1	70		200	_	$V_{CE} = -5.0 \text{ V}, \text{ Ic} = -1.0 \text{ A}$	*
DC Current Gain	hFE2	20			_	Vce = -5.0 V, Ic = -3.5 A	*
Collector Saturation Voltage	VCE (sat)		-0.6	-2.0	V	Ic = -5.0 V, IE = -0.5 V	*
Base Saturation Voltage	VBE (sat)		-1.3	-2.0	V	$I_{C} = -5.0 \text{ V}, I_{E} = -0.5 \text{ V}$	*
Gain Band width Product	f⊤		40		MHz	Vce = -5.0 V, Ic = 1.0 mA	
Output Capacitance	Cob		270		pF	V <sub>CB</sub> = -10 V, Ic = 0, f = 1.0 MHz	

V

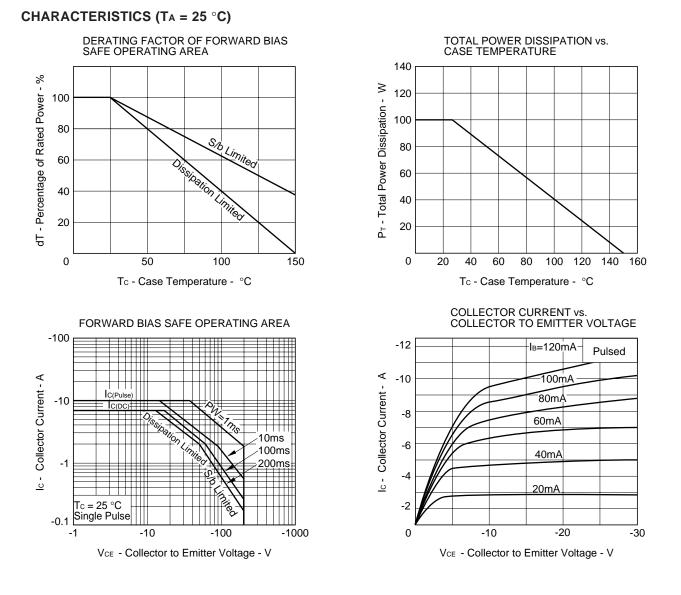
V

V

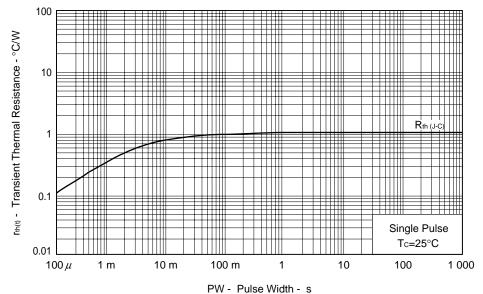
A A W °C °C

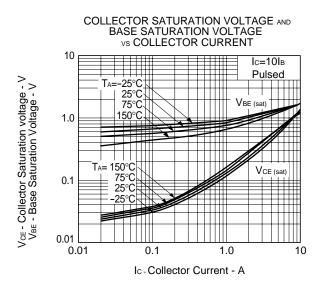
\* Pulse Test PW  $\leq$  350  $\mu$ s, Duty Cycle  $\leq$  2 %

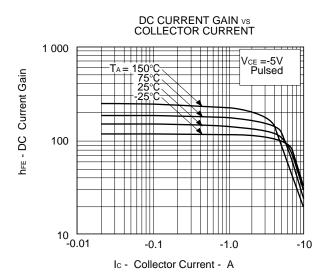
The information in this document is subject to change without notice.



#### TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH







OUTOPUT CAPASITANCE VS COLLECTOR TO BASE VOLTAGE I⊧=0 f=1MHz Cob - Output Cpacitance - pF 1 000 100 10 -1000 -0.1 -1.0 -10 -100 VCB - Collector to Base Voltage -V

#### 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

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- Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)
- Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.