

SILICON POWER TRANSISTORS

2SB539A,B,C/2SD287A,B,C

AUDIO FREQUENCY POWER AMPLIFIER

PNP/NPN SILICON TRIPLE DIFFUSED MESA TRANSISTOR

DESCRIPTION

The 2SB539A,B,C and 2SD287A,B,C are triple diffused mesa transistors designed for use in audio amplifier applications.

These devices are especially suitable for use in output stage of 70 to 80 watts audio power amplifier.

FEATURES

- High breakdown voltage. $V_{CE0}=120, 140, 150V$
- High current ratings. $I_{C(pulse)}=15A$
- Wide safe-operating-area.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ($T_a=25^{\circ}C$)		2SB539A	2SB539B	2SB539C	2SD287A	2SD287B	2SD287C	
Collector to Base Voltage	V_{CBO}	-130	-150	-160	200	200	200	V
Collector to Emitter Voltage	V_{CEO}	-120	-140	-150	120	140	150	V
Emitter to Base Voltage	V_{EBO}		6.0			7.0		V
Collector Current	$I_C(DC)$		10			10		A
Collector Current	$I_C(pulse)^*$		15			15		A
Maximum Power Dissipation ($T_c=25^{\circ}C$)								
Total Power Dissipation	P_T		100			100		W
Maximum Temperatures								
Junction Temperature	T_j		150			150		$^{\circ}C$
Storage Temperature Range	T_{stg}		-55 ~ +150			-55 ~ +150		$^{\circ}C$

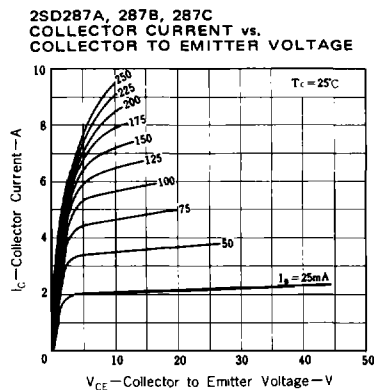
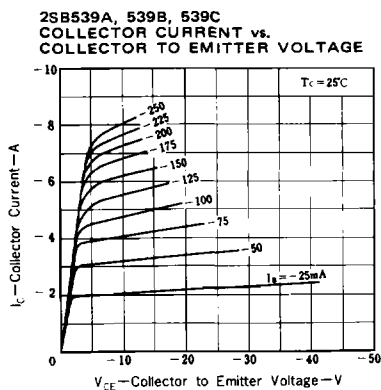
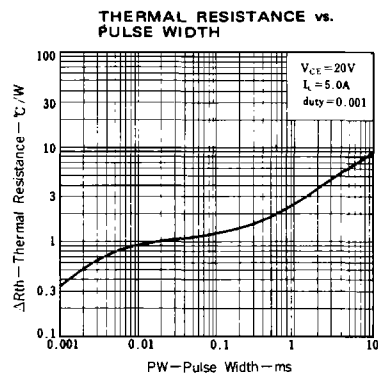
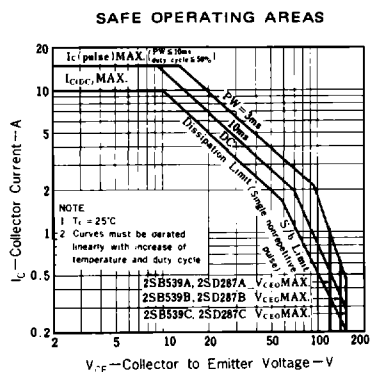
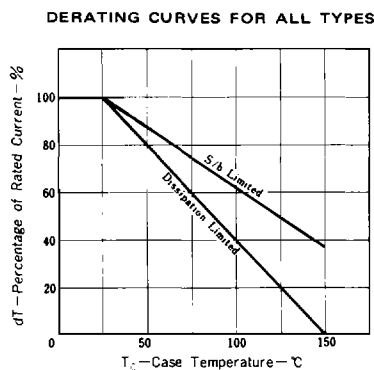
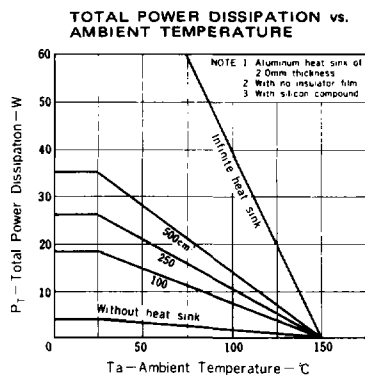
* $PW \leq 10ms$, duty cycle $\leq 50\%$

ELECTRICAL CHARACTERISTICS ($T_a = 25^{\circ}C$) 2SB539A, B, C/2SD287A, B, C

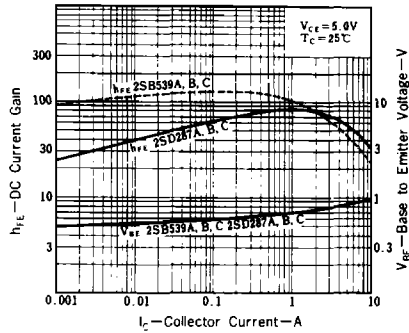
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-100/100	μA	$V_{CE} = 120V, I_B = 0$
Emitter Cutoff Current	I_{EBO}			-100/100	μA	$V_{EB} = 5.0V, I_C = 0$
DC. Current Gain	h_{FE1}	40	80	200		$V_{CE} = 5.0V, I_C = 2.0A^*$
DC. Current Gain	h_{FE2}	25				$V_{CE} = 5.0V, I_C = 5.0A^*$
Collector Saturation Voltage	$V_{CE(sat)}$		-1.4/0.8	-2.0/2.0	V	$I_C = 6.0A, I_B = 0.6A^*$
Base Saturation Voltage	$V_{BE(sat)}$		-1.1/1.0	-2.0/1.7	V	$I_C = 6.0A, I_B = 0.6A^*$
Gain Bandwidth Product	f_T		7/8		MHz	$V_{CE} = 10V, I_C = 0.2A$
Output Capacitance	C_{ob}		420/300		pF	$V_{CB} = 10V, I_E = 0, f = 1.0 MHz$

* Pulse Test $PW \leq 350\mu s$ duty cycle $\leq 2\%$
 h_{FE1} rank: 40~80, 60~120, 100~200

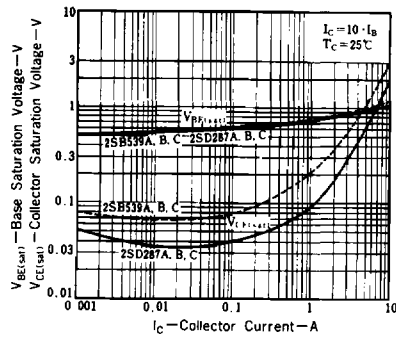
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



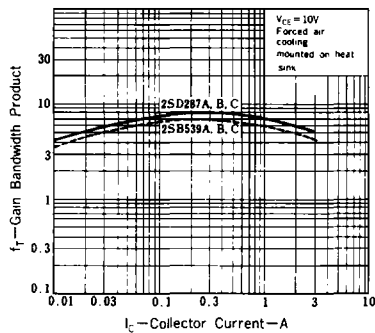
**DC CURRENT GAIN AND
BASE TO EMITTER VOLTAGE vs.
COLLECTOR CURRENT**



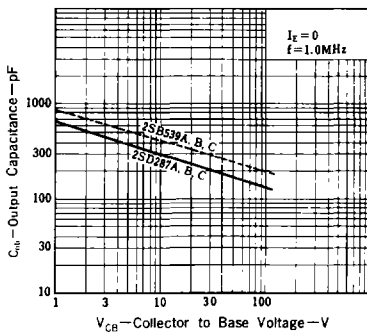
**BASE AND COLLECTOR SATURATION
VOLTAGE vs.
COLLECTOR CURRENT**



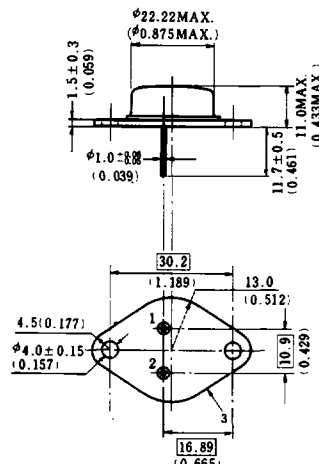
**GAIN BANDWIDTH PRODUCT vs.
COLLECTOR CURRENT**



**OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE**



**PACKAGE DIMENSIONS
in millimeters (inches)**



1. Emitter
2. Base
3. Collector (Case)

EIAJ : TC-3, TB-3
JEDEC : TO-204MA (TO-3)
IEC : C14A, B1B