

SILICON POWER TRANSISTORS

2SA1006, 2SA1006A, 2SA1006B / 2SC2336, 2SC2336A, 2SC2336B

AUDIO FREQUENCY POWER AMPLIFIER PNP/NPN SILICON EPITAXIAL TRANSISTOR (BUILT IN EMITTER BALLAST RESISTORS)

DESCRIPTION

The 2SA1006, 2SA1006A, 2SA1006B/2SC2336, 2SC2336A and 2SC2336B are silicon epitaxial transistors suited for use as driver stage of 150 to 500 watts complimentary symmetry audio amplifier.

FEATURES

- Wide safe operating area (SOA) because of emitter ballast resistors structure.
- High voltage ratings. $V_{CEO} = 180V, 200V, 250V$
- High f_T : PNP type, 80MHz, NPN type, 95MHz (at 10V 100mA)
- Excellent h_{FE} linearity.

ABSOLUTE MAXIMUM RATINGS

		2SA1006	2SA1006A	2SA1006B	2SC2336	2SC2336A	2SC2336B	
Maximum Voltages and Currents ($T_a = 25^\circ C$)								
Collector to Base Voltage	V_{CBO}	-180	-200	-250	180	200	250	V
Collector to Emitter Voltage	V_{CEO}	-180	-200	-250	180	200	250	V
Emitter to Base Voltage	V_{EBO}		-5.0			5.0		V
Collector Current	$I_C(DC)$		-1.5			1.5		A
Collector Current	$I_C(pulse)^*$		-3.0			3.0		A
Maximum Power Dissipations								
Total Power Dissipation	$P_T(T_c = 25^\circ C)$		25			25		W
Total Power Dissipation	$P_T(T_a = 25^\circ C)$		1.5			1.5		W
Maximum Temperature								
Junction Temperature	T_j		150			150		$^\circ C$
Storage Temperature Range	T_{stg}		-55 to +150			-55 to +150		$^\circ C$

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

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

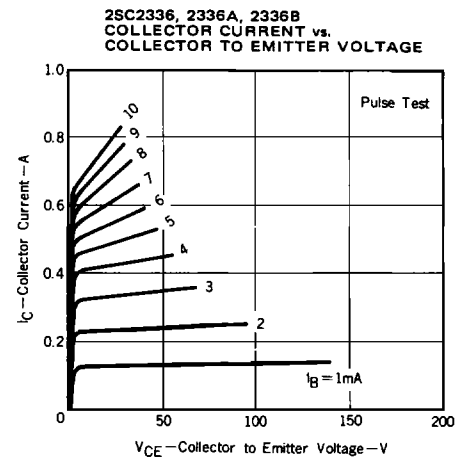
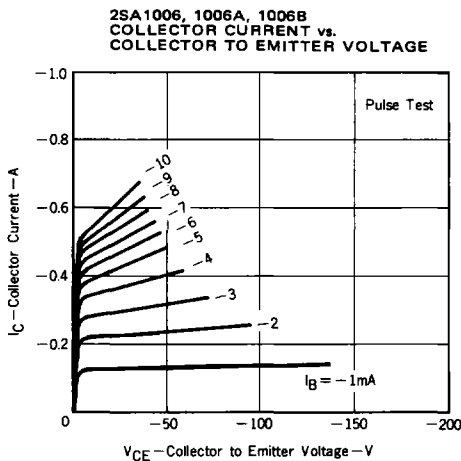
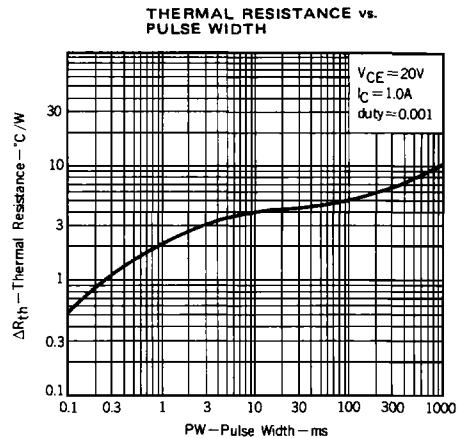
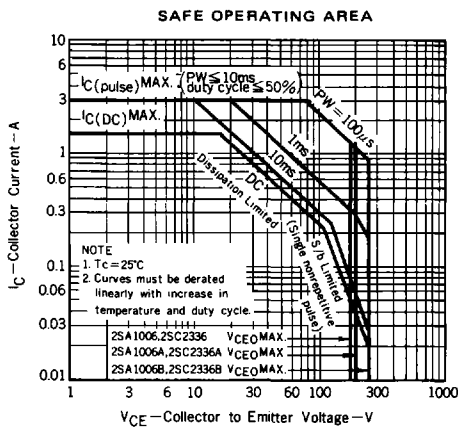
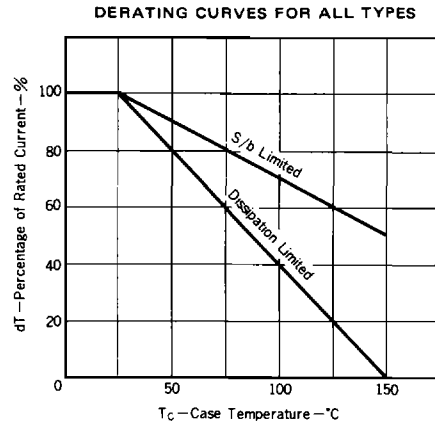
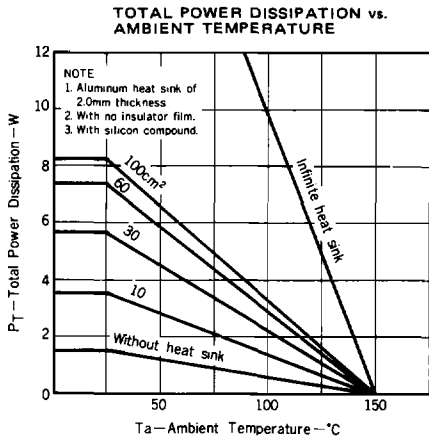
2SA1006, 2SA1006A, 2SA1006B/2SC2336, 2SC2336A, 2SC2336B

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			-1.0/1.0	μA	$V_{CB} = 150V, I_E = 0$
Emitter Cutoff Current	I_{EBO}			-1.0/1.0	μA	$V_{EB} = 3.0V, I_C = 0$
DC Current Gain	h_{FE1}	30	120/90			$V_{CE} = 5.0V, I_C = 5.0mA^*$
	h_{FE2}	60	120	320		$V_{CE} = 5.0V, I_C = 150mA^*$
Collector Saturation Voltage	$V_{CE(sat)}$		-0.4/0.3	-1.0/1.0	V	$I_C = 500mA, I_B = 50mA^*$
Base Saturation Voltage	$V_{BE(sat)}$		-1.0/1.0	-1.5/1.5	V	$I_C = 500mA, I_B = 50mA^*$
Gain Bandwidth Product	f_T		80/95		MHz	$V_{CE} = 10V, I_C = 100mA$
Output Capacitance	C_{ob}		45/30		pF	$V_{CB} = 10V, I_E = 0, f = 1.0MHz$

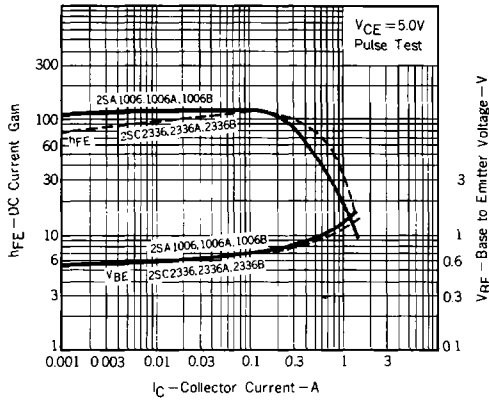
*Pulse Test PW $\leq 350\mu s$, duty cycle $\leq 2\%$

h_{FE2} Classification / R : 60 - 120, Q : 100 - 200, P : 160 - 320

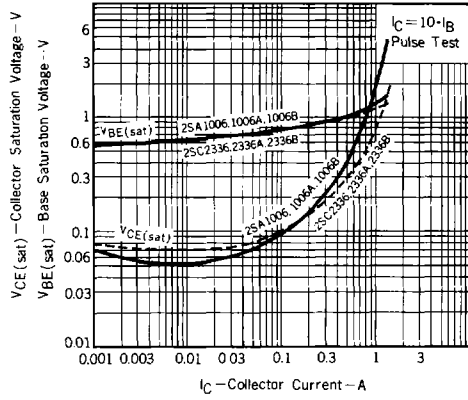
TYPICAL CHARACTERISTICS (Ta=25°C)



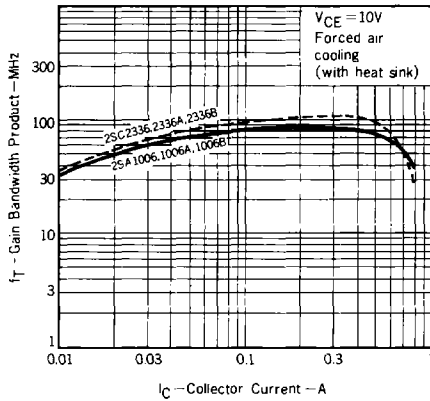
DC CURRENT GAIN, BASE TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



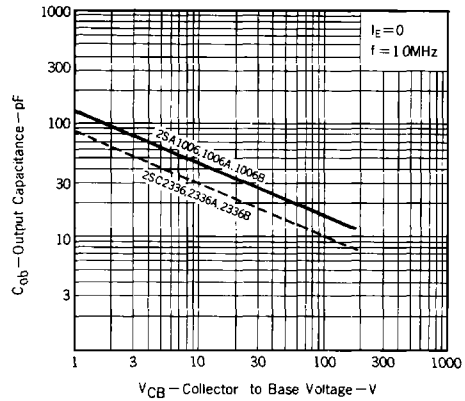
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



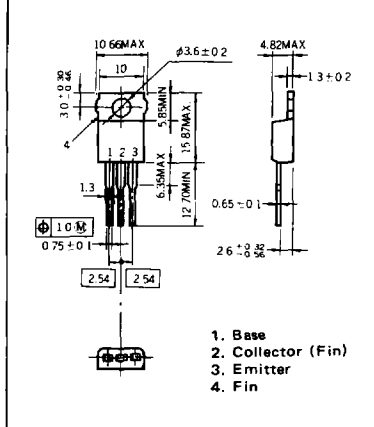
GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



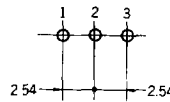
OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



PACKAGE DIMENSIONS (Unit : mm)



Holes for mounting



Mounting instruction

