

# 2SA1356

## Audio Power Amplifier Applications

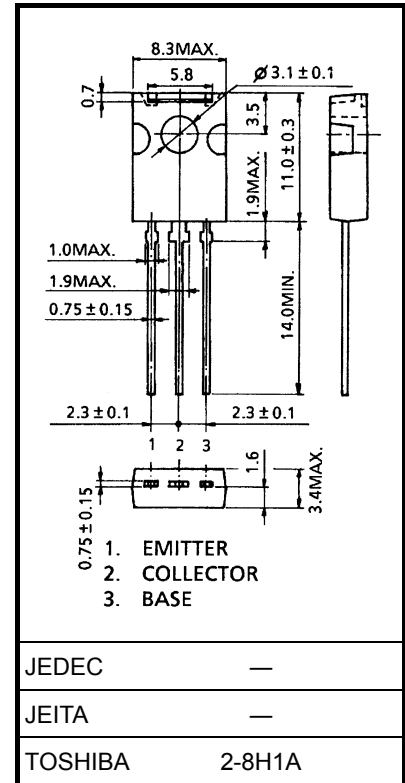
- Low saturation voltage:  $V_{CE(sat)} = -0.32\text{ V}$  (typ.)  
( $I_C = -500\text{ mA}$ ,  $I_B = -50\text{ mA}$ )
- High collector power dissipation:  $P_C = 1.2\text{ W}$  ( $T_a = 25^\circ\text{C}$ )
- Complementary to 2SC3419

## Absolute Maximum Ratings ( $T_c = 25^\circ\text{C}$ )

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	-40	V
Collector-emitter voltage		$V_{CEO}$	-40	V
Emitter-base voltage		$V_{EBO}$	-5	V
Collector current		$I_C$	-800	mA
Base current		$I_B$	-80	mA
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1.2	W
	$T_c = 25^\circ\text{C}$		5	
Junction temperature		$T_j$	150	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ\text{C}$

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm



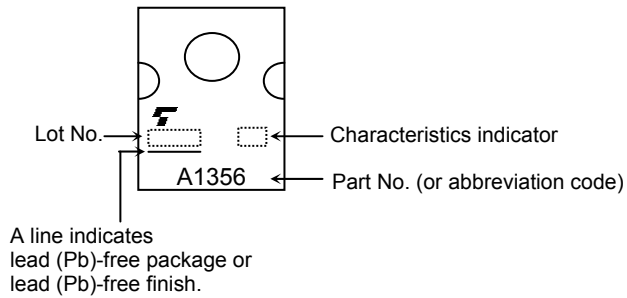
Weight: 0.82 g (typ.)

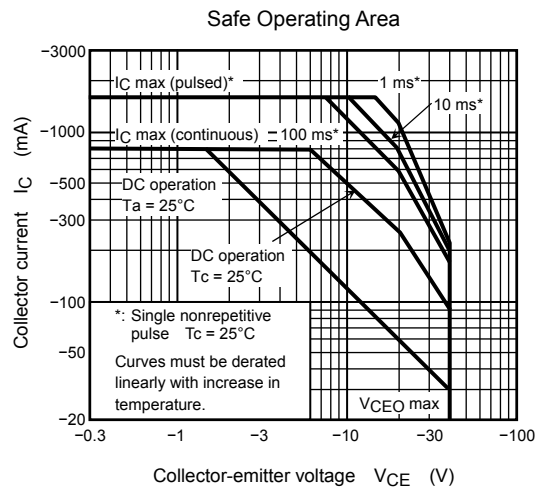
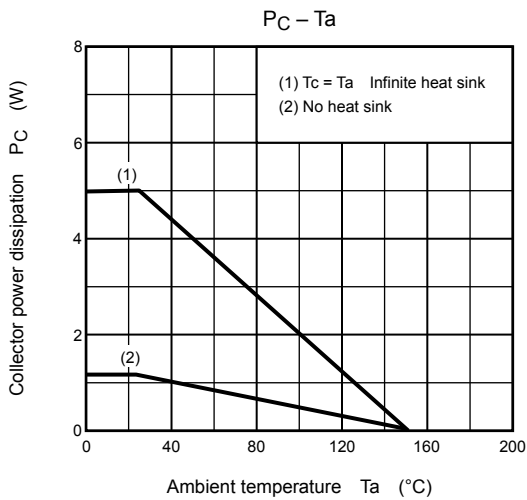
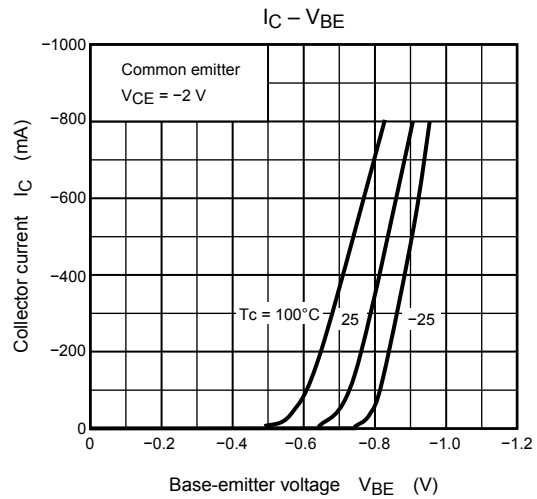
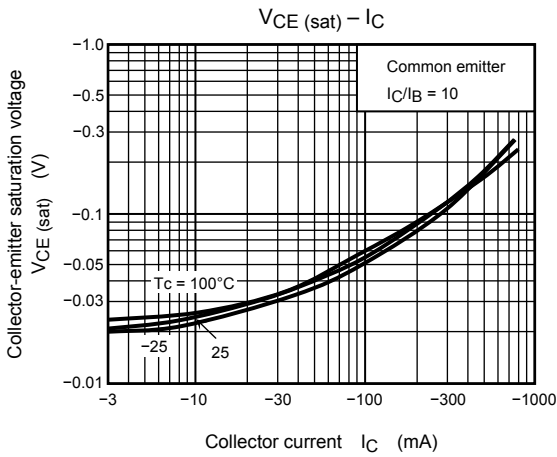
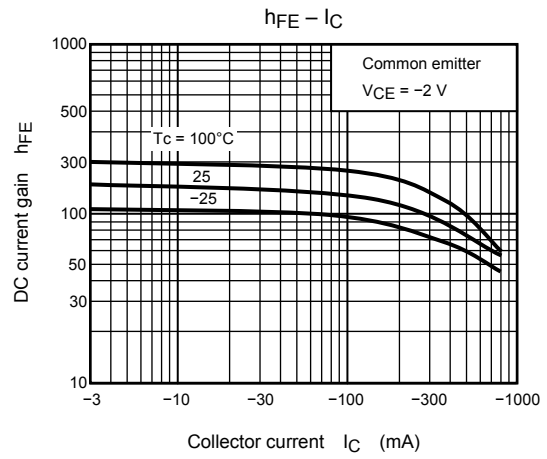
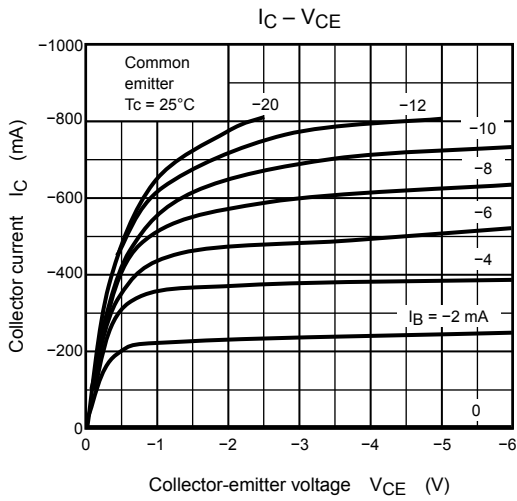
## Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -40\text{ V}, I_E = 0$	—	—	-1.0	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-1.0	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-40	—	—	V
DC current gain	$h_{FE(1)}$ (Note)	$V_{CE} = -2\text{ V}, I_C = -50\text{ mA}$	70	—	240	
	$h_{FE(2)}$	$V_{CE} = -2\text{ V}, I_C = -800\text{ mA}$	13	50	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	—	-0.32	-0.8	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = -2\text{ V}, I_C = -500\text{ mA}$	—	—	-1.3	V
Transition frequency	$f_T$	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	50	100	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	20	—	pF

Note:  $h_{FE(1)}$  classification O: 70 to 140, Y: 120 to 240

## Marking





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