

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

# 2SB1015A

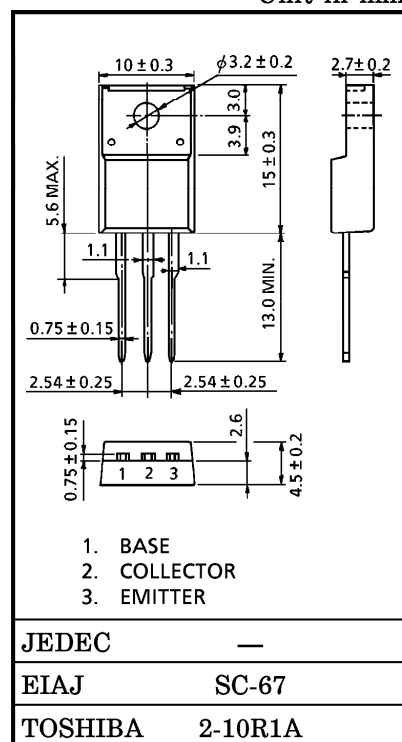
AUDIO FREQUENCY POWER AMPLIFIER APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage :  $V_{CE(sat)} = -1.7 \text{ V (Max.)}$   
( $I_C = -3 \text{ A}, I_B = -0.3 \text{ A}$ )
- Collector Power Dissipation :  $P_C = 25 \text{ W (Tc = 25°C)}$

MAXIMUM RATINGS ( $T_a = 25°C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	-60	V
Collector-Emitter Voltage	$V_{CEO}$	-60	V
Emitter-Base Voltage	$V_{EBO}$	-7	V
Collector Current	$I_C$	-3	A
Base Current	$I_B$	-0.5	A
Collector Power Dissipation	$P_C$	$T_a = 25°C$	2.0
		$T_c = 25°C$	25
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> = -60 V, I <sub>E</sub> = 0	—	—	-100	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = -7 V, I <sub>C</sub> = 0	—	—	-100	μA
Collector-Emitter Breakdown Voltage		V <sub>(BR)CEO</sub>	I <sub>C</sub> = -50 mA, I <sub>B</sub> = 0	-60	—	—	V
DC Current Gain	h <sub>FE</sub> (1) (Note)		V <sub>CE</sub> = -5 V, I <sub>C</sub> = -0.5 A	60	—	200	
	h <sub>FE</sub> (2)		V <sub>CE</sub> = -5 V, I <sub>C</sub> = -3 A	20	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> = -3 A, I <sub>B</sub> = -0.3 A	—	-0.5	-1.7	V
Base-Emitter Voltage		V <sub>BE</sub>	V <sub>CE</sub> = -5 V, I <sub>C</sub> = -0.5 A	—	-0.7	-1.0	V
Transition Frequency		f <sub>T</sub>	V <sub>CE</sub> = -5 V, I <sub>C</sub> = -0.5 A	—	9	—	MHz
Collector Output Capacitance		C <sub>ob</sub>	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0, f = 1 MHz	—	150	—	pF
Switching Time	Turn-on Time	t <sub>on</sub>	<p> <math>I_{B1}</math> <math>I_{B2}</math> <math>I_{B1}</math> <math>I_{B2}</math>              INPUT OUTPUT  <math>20 \mu s</math> <math>15 \Omega</math>  <math>V_{CC} = -30 V</math> </p>	—	0.4	—	μs
	Storage Time	t <sub>stg</sub>		—	1.7	—	
	Fall Time	t <sub>f</sub>		$-I_{B1} = I_{B2} = 0.2 A,$ $DUTY CYCLE \leq 1\%$	—	0.5	

(Note) : h<sub>FE</sub>(1) Classification O : 60~120, Y : 100~200

