

TOSHIBA**2SA1015L**

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

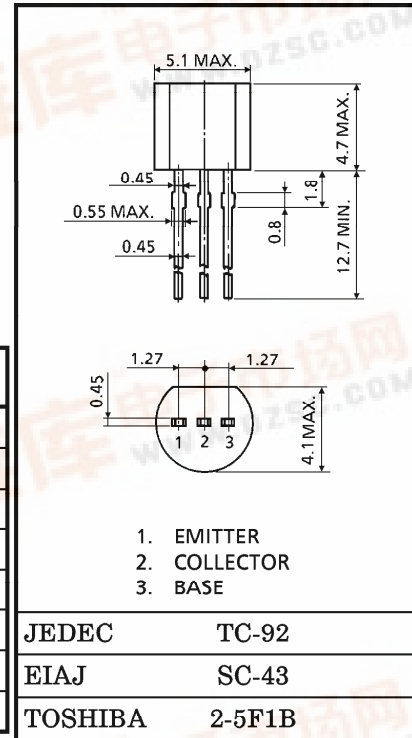
2SA1015LAUDIO FREQUENCY AMPLIFIER APPLICATIONS
LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

- High Voltage and High Current
: $V_{CEO} = -50V$ (Min.), $I_C = -150mA$ (Max.)
- Excellent h_{FE} Linearity
: $h_{FE}(2) = 80$ (Typ.) at $V_{CE} = -6V$, $I_C = -150mA$
: $h_{FE}(I_C = -0.1mA) / h_{FE}(I_C = -2mA) = 0.95$ (Typ.)
- Low Noise: $NF = 0.2dB$ (Typ.) ($f = 1kHz$)
- Complementary to 2SC1815L

MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-150	mA
Base Current	I_B	-50	mA
Collector Power Dissipation	P_C	400	mW
Junction Temperature	T_j	125	$^\circ C$
Storage Temperature Range	T_{stg}	-55~125	$^\circ C$

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

Weight : 0.21g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = -50V$, $I_E = 0$	—	—	-0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -5V$, $I_C = 0$	—	—	-0.1	μA
DC Current Gain	$h_{FE}(1)$ (Note)	$V_{CE} = -6V$, $I_C = -2mA$	70	—	400	
	$h_{FE}(2)$	$V_{CE} = -6V$, $I_C = -150mA$	25	80	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -100mA$, $I_B = -10mA$	—	-0.1	-0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -100mA$, $I_B = -10mA$	—	—	-1.1	V
Transition Frequency	f_T	$V_{CE} = -10V$, $I_C = -1mA$	80	—	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10V$, $I_E = 0$ $f = 1MHz$	—	4	7	pF
Base Intrinsic Resistance	$r_{bb'}$	$V_{CB} = -10V$, $I_E = 1mA$ $f = 30MHz$	—	30	—	Ω
Noise Figure	NF (1)	$V_{CE} = -6V$, $I_C = -0.1mA$ $f = 100Hz$, $R_G = 10k\Omega$	—	0.5	6	dB
	NF (2)	$V_{CE} = -6V$, $I_C = -0.1mA$ $f = 1kHz$, $R_G = 10k\Omega$	—	0.2	3	

Note : $h_{FE}(1)$ Classification 0 : 70~140, Y : 120~240, GR : 200~400

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