

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

2SA1316

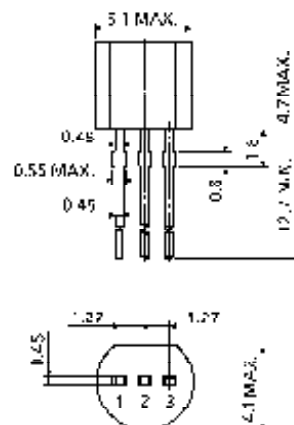
FOR LOW NOISE AUDIO AMPLIFIER APPLICATIONS AND
RECOMMENDED FOR THE FIRST STAGES OF MC HEAD AMPLIFIERS

- Very Low Noise in the Region of Low Signal Source Impedance
Equivalent Input Noise Voltage : $E_n = 0.6 \text{ nV} / \sqrt{\text{Hz}}$ (Typ.)
- Low Pulse Noise, Low $1/f$ Noise
- Low Base Spreading Resistance : $r_{bb'} = 2.0 \Omega$ (Typ.)
- Complementary to 2SC3329

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	-80	V
Collector-Emitter Voltage	V_{CE0}	-80	V
Emitter-Base Voltage	V_{EB0}	-5	V
Collector Current	I_C	-100	mA
Base Current	I_B	-20	mA
Collector Power Dissipation	P_C	400	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

Unit in mm



1. EMITTER
2. COLLECTOR
3. BASE

JEDEC TO-92

EIAJ SC-43

TOSHIBA 2-5F1B

Weight : 0.21g

96100-2432

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = -80\text{V}, I_E = 0$			0.1	μA
Emitter Cut-off Current	I_{EB0}	$V_{EB} = -5\text{V}, I_C = 0$	—	—	-0.1	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_E = 0$	-80	—	—	V
DC Current Gain	h_{FE} (Note)	$V_{CE} = -6\text{V}, I_C = -2\text{mA}$	200	—	700	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_E = -1\text{mA}$	—	—	-0.1	V
Base-Emitter Voltage	V_{BE}	$V_{CE} = -6\text{V}, I_C = -2\text{mA}$	—	-0.6	—	V
Base Spreading Resistance	$r_{bb'}$	$V_{CE} = -6\text{V}, I_C = -1\text{mA},$ $f = 100\text{MHz}$	—	2.0	—	Ω
Transition Frequency	f_T	$V_{CE} = -6\text{V}, I_C = -1\text{mA},$ $f = 100\text{MHz}$	—	50	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	—	6.2	—	pF
Noise Figure	NF	$V_{CE} = -6\text{V}, I_C = -0.1\text{mA}$ $f = 10\text{Hz}, R_G = 10\text{k}\Omega$	—	1	6	dB
		$V_{CE} = -6\text{V}, I_C = -0.1\text{mA}$ $f = 1\text{kHz}, R_G = 10\text{k}\Omega$	—	0.5	2	
		$V_{CE} = -6\text{V}, I_C = -0.1\text{mA}$ $f = 1\text{kHz}, R_G = 100\Omega$	—	2.5	—	

Note : h_{FE} Classification GR : 200~400, BL : 350~700

