

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

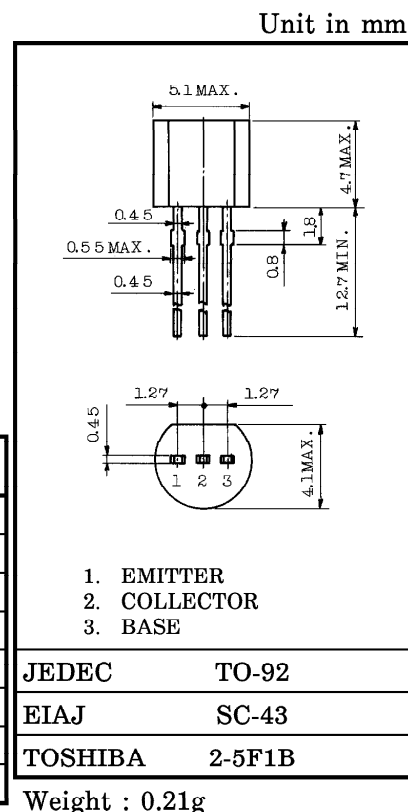
2SC1815[Ⓐ]

AUDIO FREQUENCY VOLTAGE AMPLIFIER APPLICATIONS.
 LOW NOISE AMPLIFIER APPLICATIONS.

- High Breakdown Voltage, High Current Capability
 : $V_{CEO} = 50V$ (Min.), $I_C = 150mA$ (Max.)
- Excellent Linearity of h_{FE}
 : $h_{FE}(2) = 100$ (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 2SA1015[Ⓐ]. (O, Y, GR class).

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	60	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}	$-55 \sim 125$	$^\circ C$

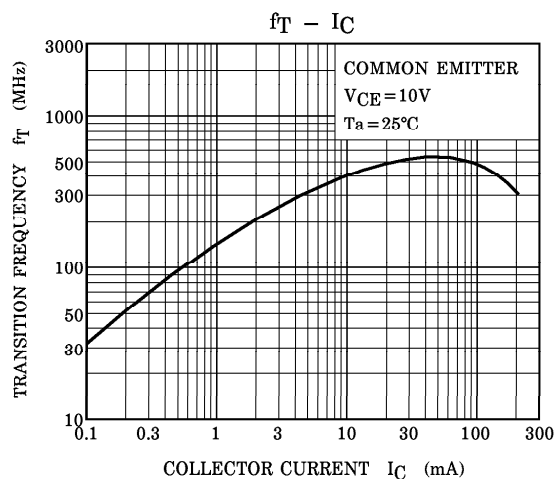
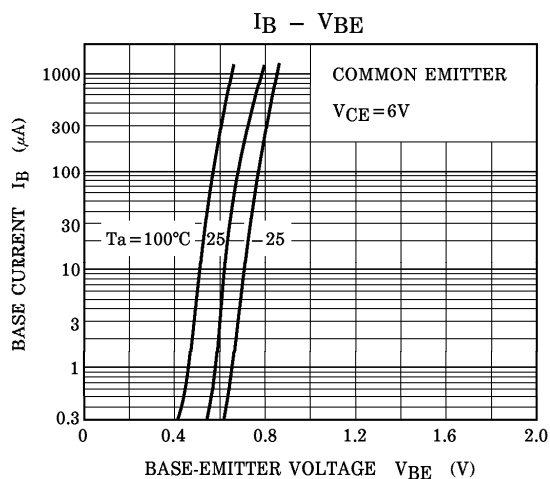
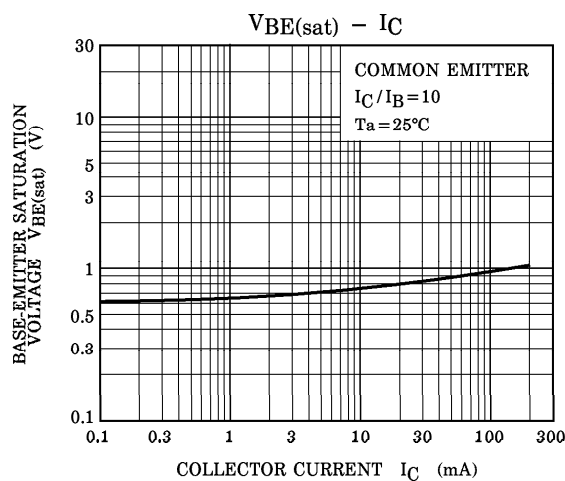
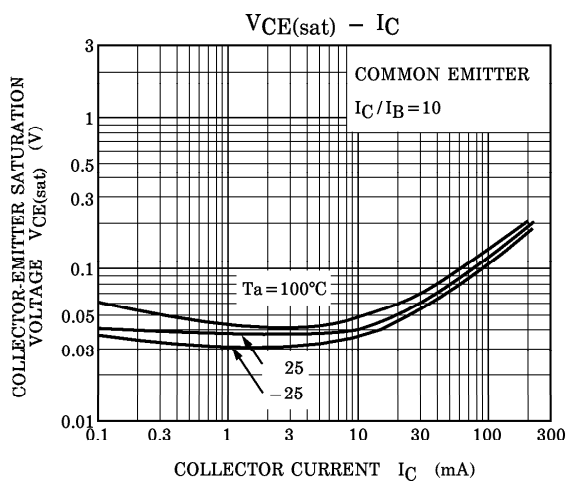
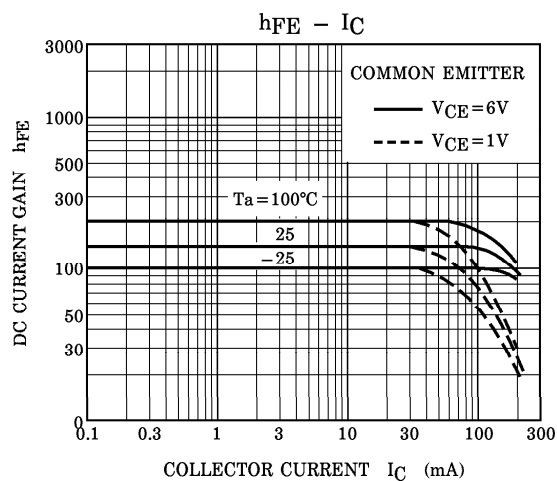
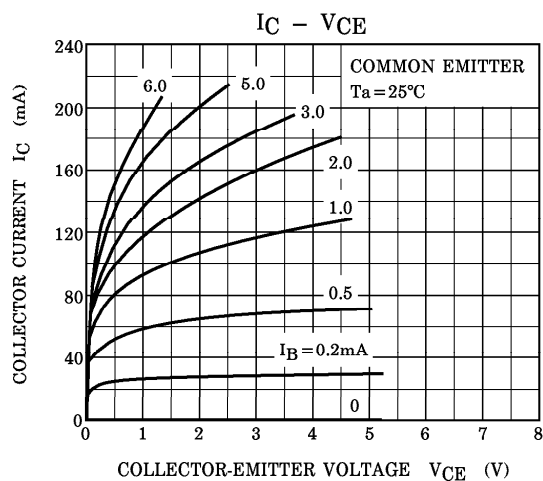
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 60V$, $I_E = 0$	—	—	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	—	700	
	$h_{FE}(2)$	$V_{CE} = 6V$, $I_C = 150mA$	25	100	—	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$ $I_C = 100mA$, $I_B = 10mA$	—	0.1	0.25	V
	Base-Emitter	$V_{BE(sat)}$ $I_C = 100mA$, $I_B = 10mA$	—	—	1.0	
Transition Frequency	f_T	$V_{CE} = 10V$, $I_C = 1mA$	80	—	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = 10V$, $I_E = 0$, $f = 1MHz$	—	2.0	3.5	pF
Base Intrinsic Resistance	$r_{bb'}$	$V_{CE} = 10V$, $I_E = -1mA$, $f = 30MHz$	—	50	—	Ω
Noise Figure	NF (1)	$V_{CE} = 6V$, $I_C = 0.1mA$ $R_G = 10k\Omega$, $f = 100Hz$	—	0.5	6	dB
	NF (2)	$V_{CE} = 6V$, $I_C = 0.1mA$ $R_G = 10k\Omega$, $f = 1kHz$	—	0.2	3	

Note : $h_{FE}(1)$ Classification O : 70~140, Y : 120~240, GR : 200~400, BL : 350~700

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