

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

# 2SC1815

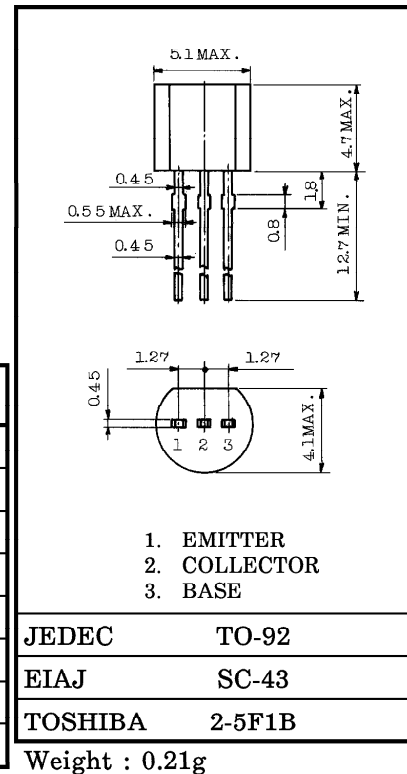
AUDIO FREQUENCY GENERAL PURPOSE AMPLIFIER APPLICATIONS.  
DRIVER STAGE AMPLIFIER APPLICATIONS.

Unit in mm

- High Voltage and High Current  
:  $V_{CEO} = 50V$  (Min.),  $I_C = 150mA$  (Max.)
- Excellent  $h_{FE}$  Linearity  
:  $h_{FE(2)} = 100$  (Typ.) at  $V_{CE} = 6V$ ,  $I_C = 150mA$   
:  $h_{FE} (I_C = 0.1mA) / h_{FE} (I_C = 2mA) = 0.95$  (Typ.)
- Low Noise :  $NF = 1dB$  (Typ.) at  $f = 1kHz$
- 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	$T_{stg}$	-55~125	$^\circ C$



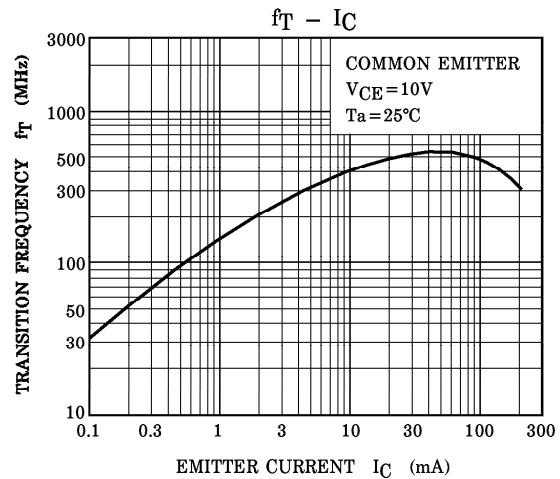
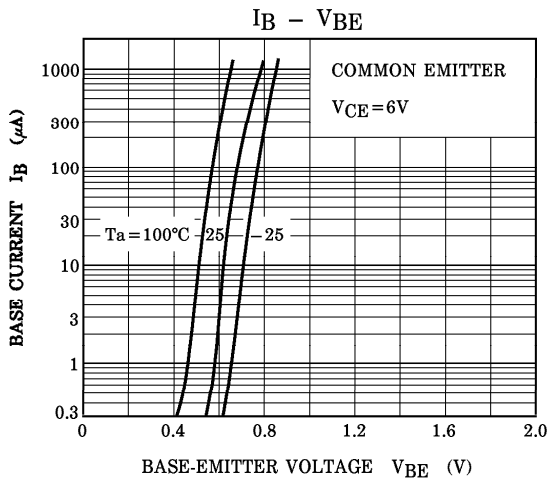
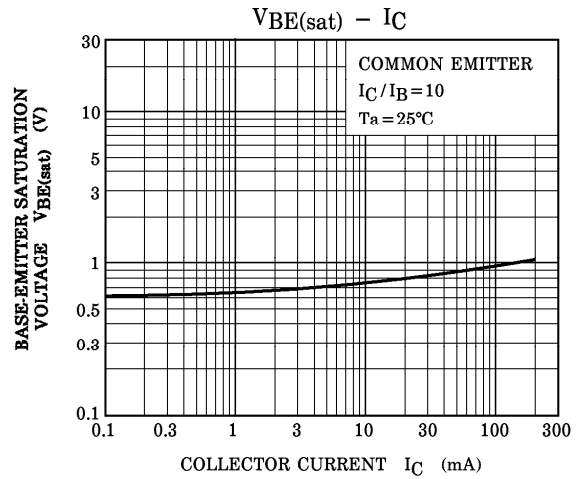
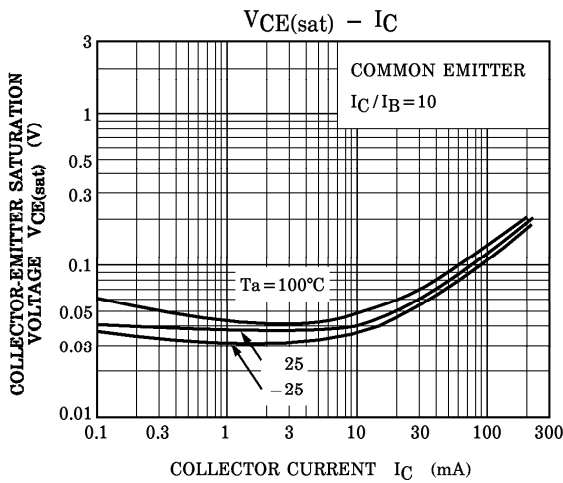
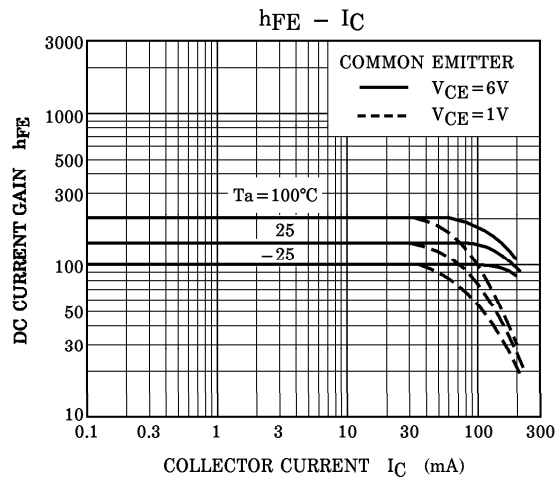
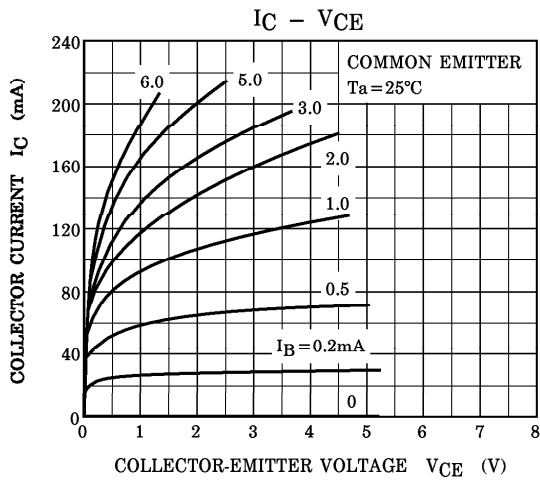
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$	—	—	0.1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	—	—	0.1	$\mu A$
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	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 10mA$	—	0.1	0.25	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 100mA, I_B = 10mA$	—	—	1.0	V
Transition Frequency	$f_T$	$V_{CE} = 10V, I_C = 1mA$	80	—		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	2.0	3.5	pF
Base Intrinsic Resistance	$r_{bb'}$	$V_{CE} = 10V, I_E = -1mA$ $f = 30MHz$	—	50	—	$\Omega$
Noise Figure	NF	$V_{CE} = 6V, I_C = 0.1mA$ $f = 1kHz, R_G = 10k\Omega$	—	1.0	10	dB

Note :  $h_{FE}$  Classification    0 : 70~140    Y : 120~240    GR : 200~400    BL : 350~700

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