

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

# 2SC1815L

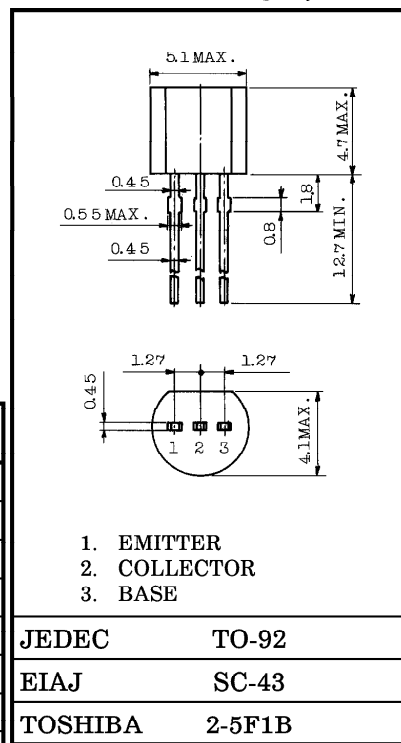
AUDIO FREQUENCY VOLTAGE AMPLIFIER APPLICATIONS.  
 LOW NOISE AMPLIFIER APPLICATIONS.

Unit in mm

- High Breakdown Voltage, High Current Capability  
 :  $V_{CE0} = 50V$  (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 2SA1015L. (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	$^\circ C$



Weight : 0.21g

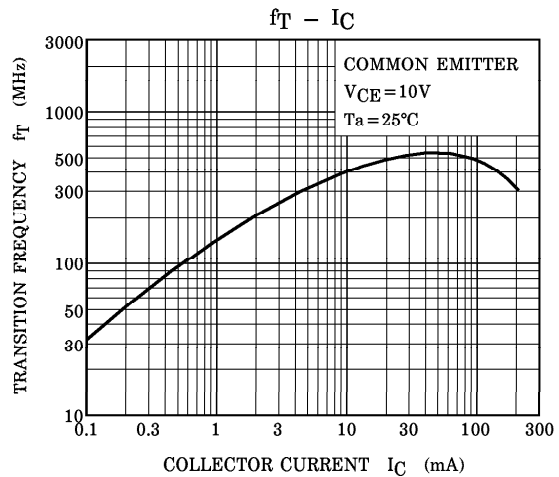
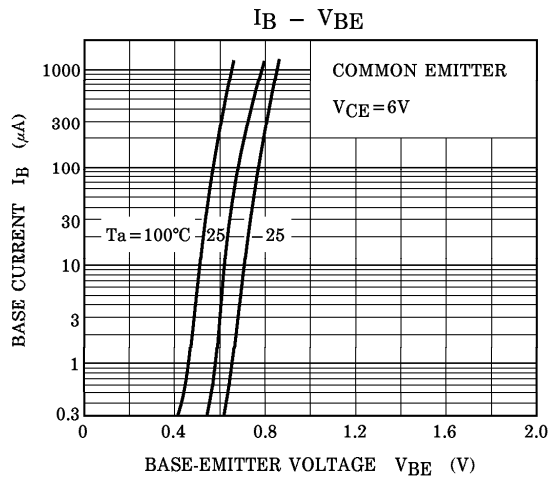
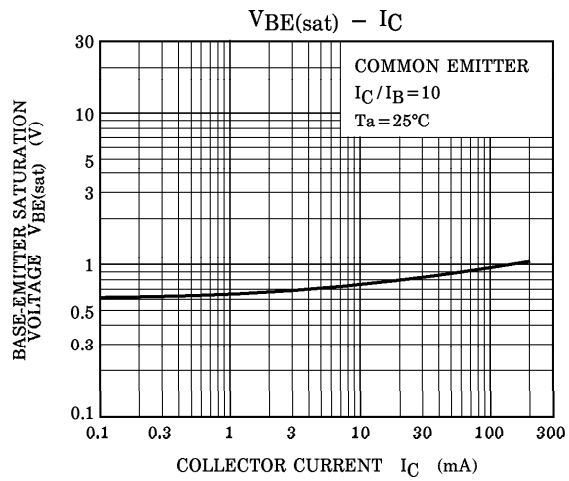
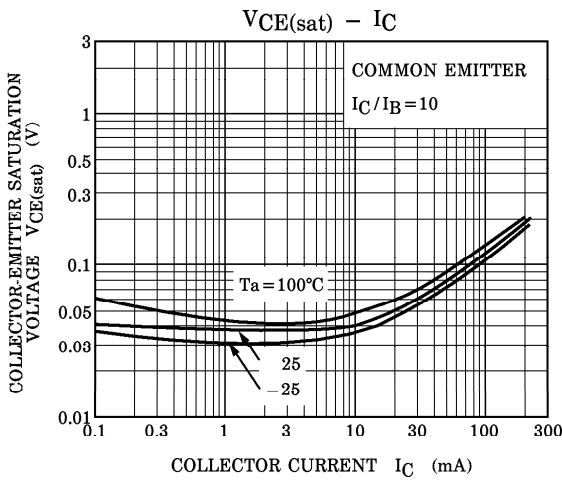
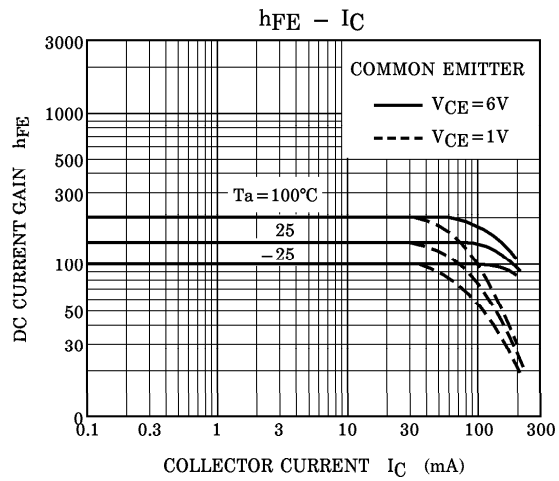
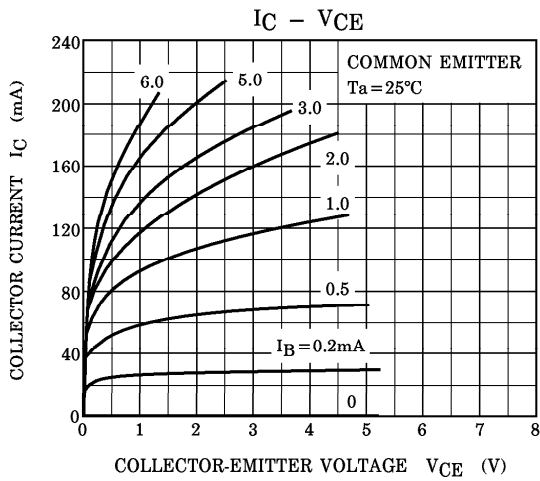
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

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	—	
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	—	$\Omega$
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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