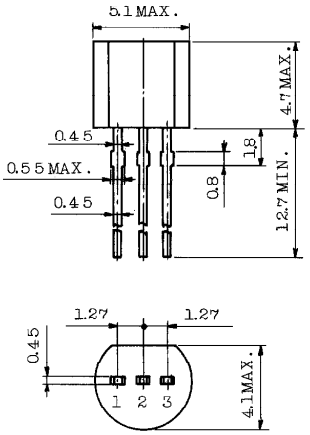
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC1815

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

- 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)

Unit in mm



1. EMITTER
2. COLLECTOR
3. BASE

JEDEC	TO-92
EIAJ	SC-43
TOSHIBA	2-5F1B

Weight : 0.21g

MAXIMUM RATINGS (Ta = 25°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	°C
Storage Temperature Range	T_{stg}	−55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°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	—	
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 Ouput 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	V_{CE} = 6V, I_C = 0.1mA f = 1kHz, R_G = 10kΩ	—	1.0	10	dB

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

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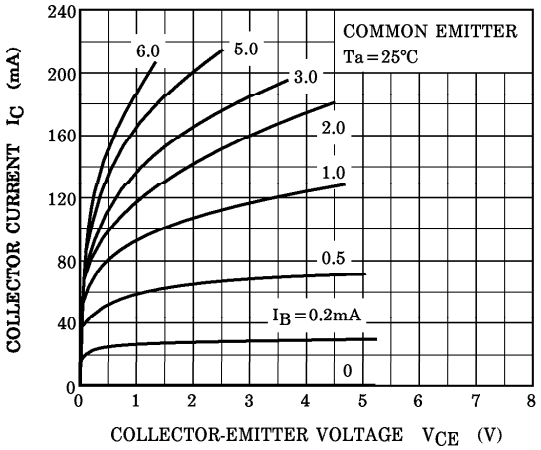
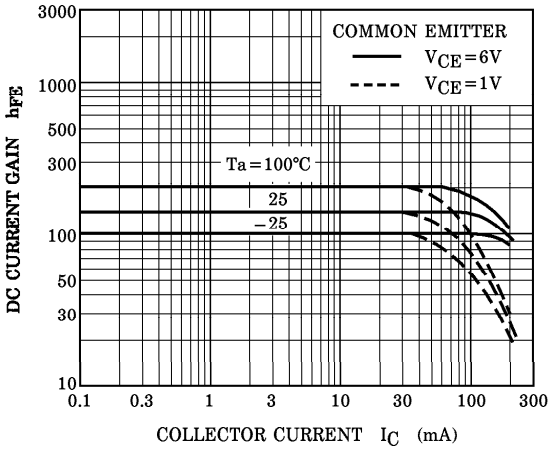
● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

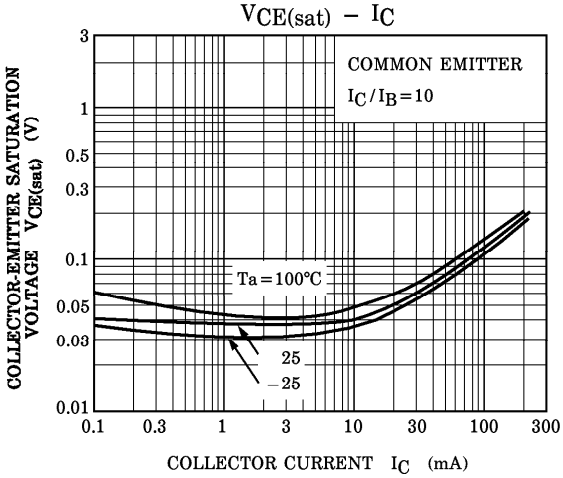
I_C – V_{CE}



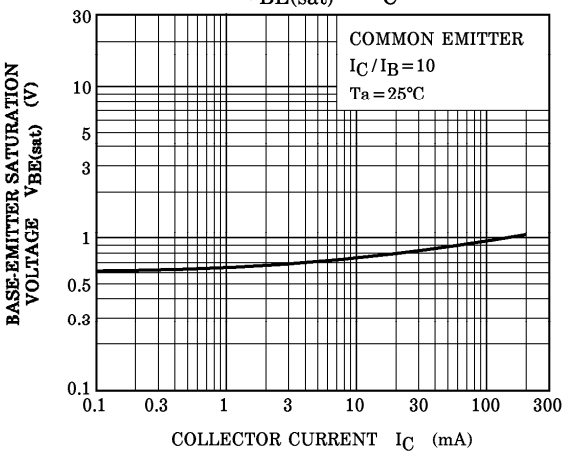
h_{FE} – I_C



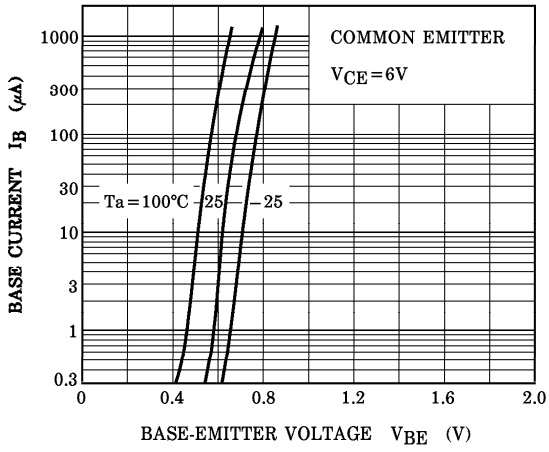
$V_{CE(sat)}$ – I_C



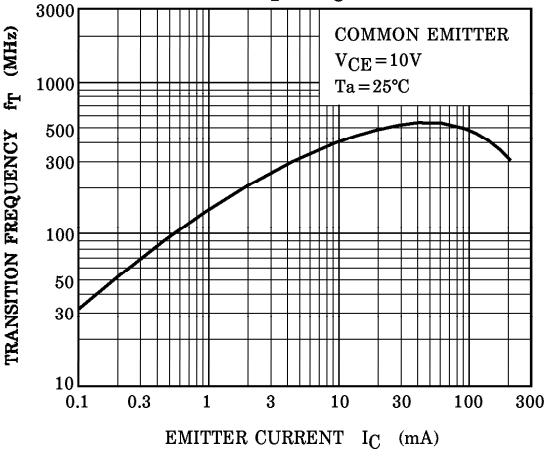
$V_{BE(sat)}$ – I_C



I_B – V_{BE}



f_T – I_C



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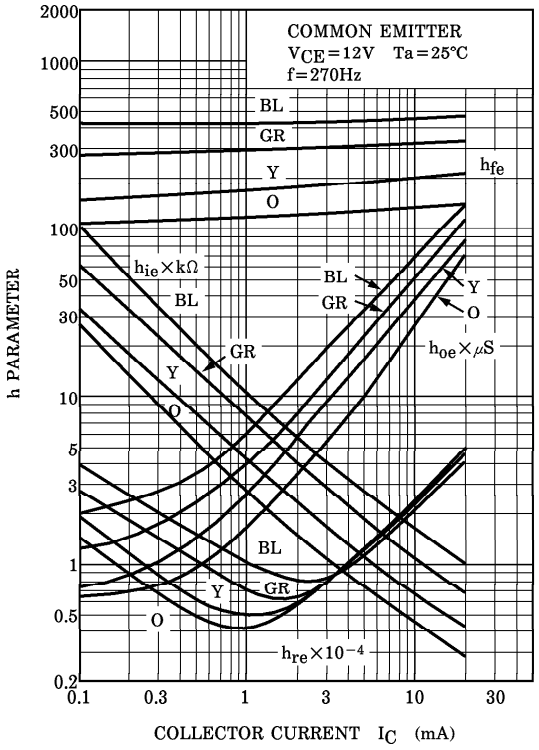
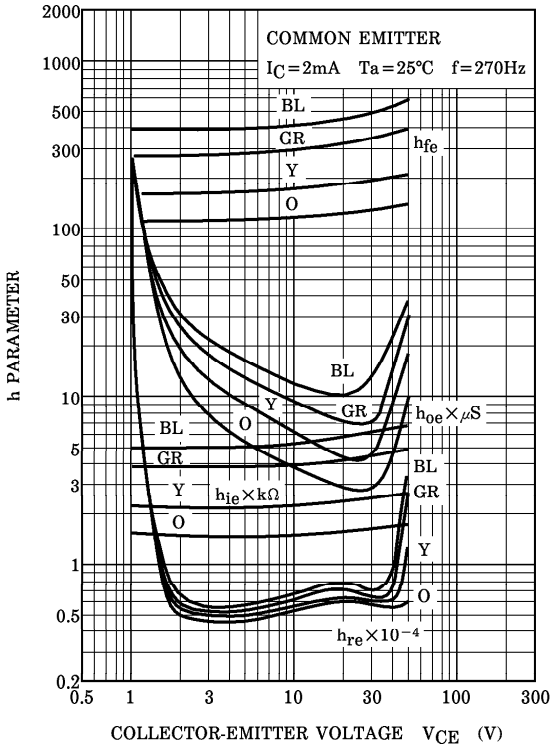
h PARAMATER – I_C



h PARAMATER – V_{CE}



P_C – Ta