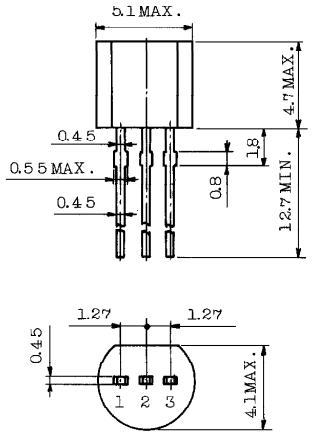
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

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).

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	—	
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 = 10kΩ, f = 100Hz	—	0.5	6	dB
		NF (2)	V_{CE} = 6V, I_C = 0.1mA, R_G = 10kΩ, 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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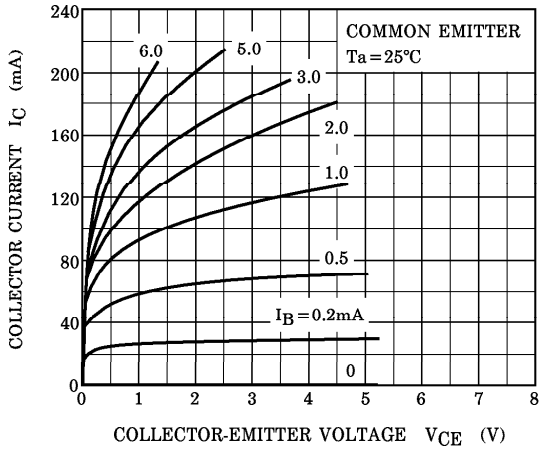
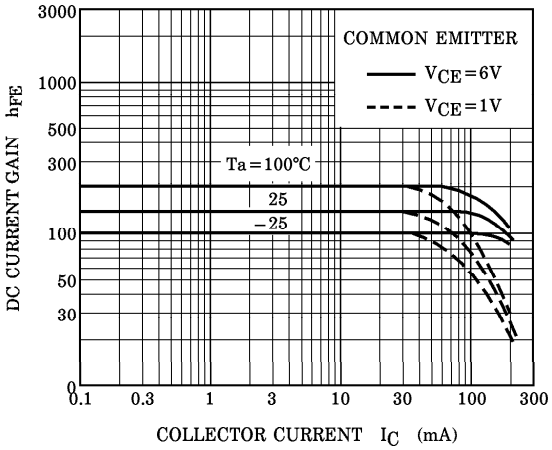
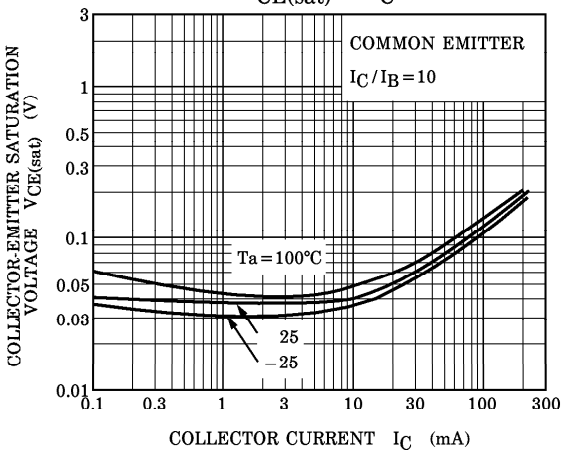
$I_C - V_{CE}$



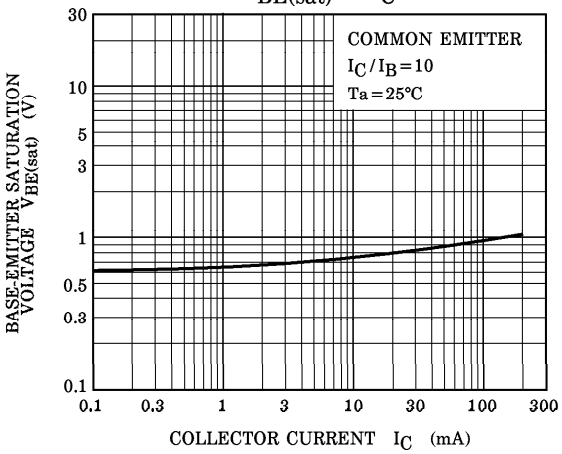
$h_{FE} - I_C$



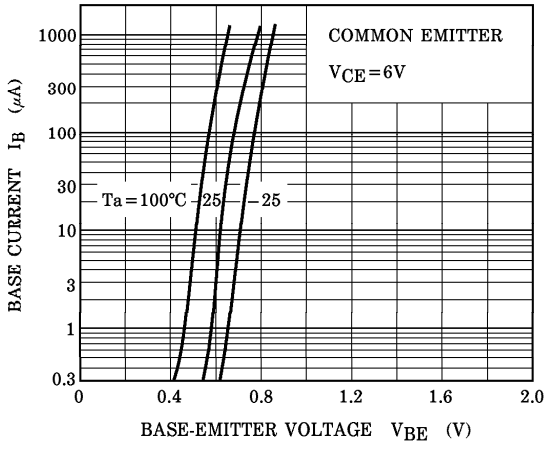
$V_{CE(sat)} - I_C$



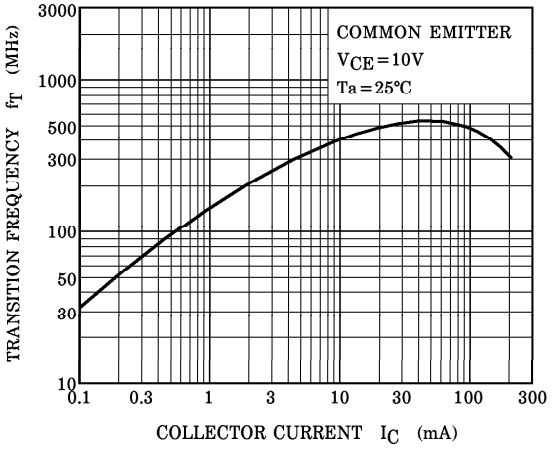
$V_{BE(sat)} - I_C$



$I_B - V_{BE}$



$f_T - I_C$



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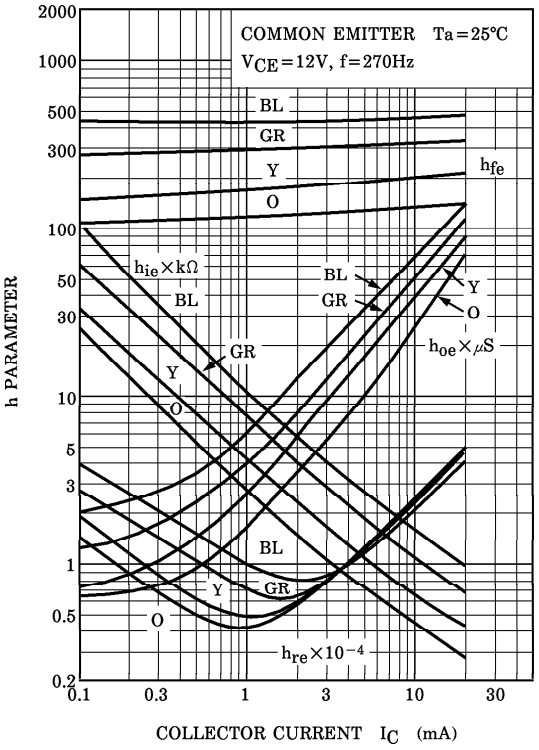
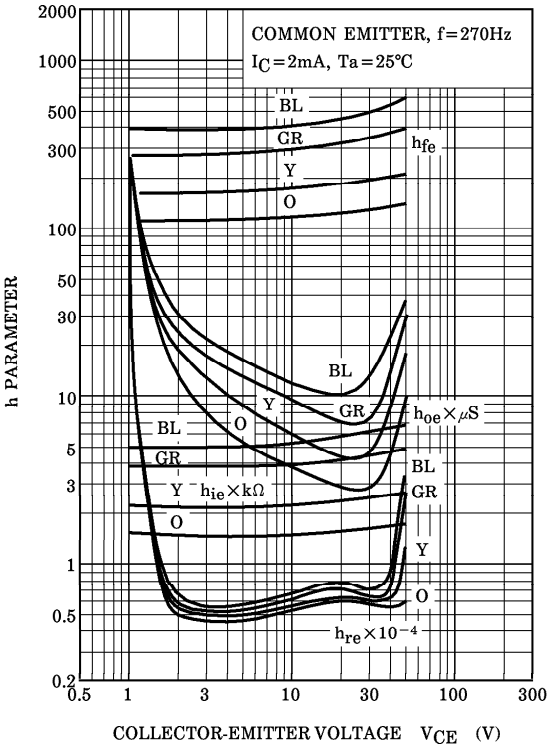
h PARAMETER – I_C



h PARAMETER – V_{CE}



P_C – Ta