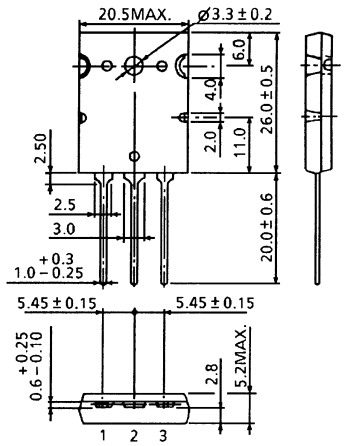
TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SC5200

Power Amplifier Applications

- High breakdown voltage: V_{CEO} = 230 V (min)
- Complementary to 2SA1943
- Suitable for use in 100-W high fidelity audio amplifier's output stage

Unit: mm



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
JEITA	—
TOSHIBA	2-21F1A

Weight: 9.75 g (typ.)

Maximum Ratings (Tc = 25°C)

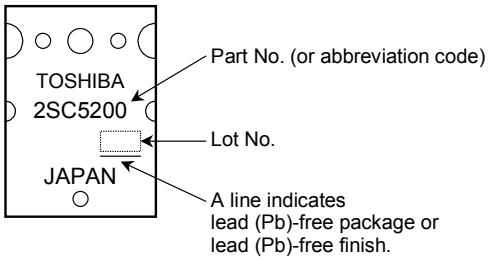
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	230	V
Collector-emitter voltage	V_{CEO}	230	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	15	A
Base current	I_B	1.5	A
Collector power dissipation (Tc = 25°C)	P_C	150	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

Electrical Characteristics (Tc = 25°C)

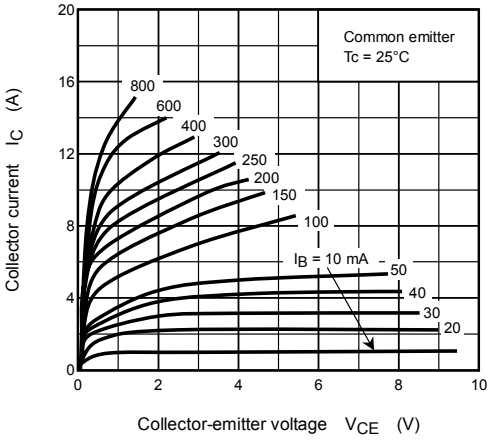
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 230 V, I_E = 0	—	—	5.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	5.0	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = 50 mA, I_B = 0	230	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note)	V_{CE} = 5 V, I_C = 1 A	55	—	160	
	$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 7 A	35	60	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 8 A, I_B = 0.8 A	—	0.4	3.0	V
Base-emitter voltage	V_{BE}	V_{CE} = 5 V, I_C = 7 A	—	1.0	1.5	V
Transition frequency	f_T	V_{CE} = 5 V, I_C = 1 A	—	30	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	200	—	pF

Note: $h_{FE\ (1)}$ classification R: 55 to 110, O: 80 to 160

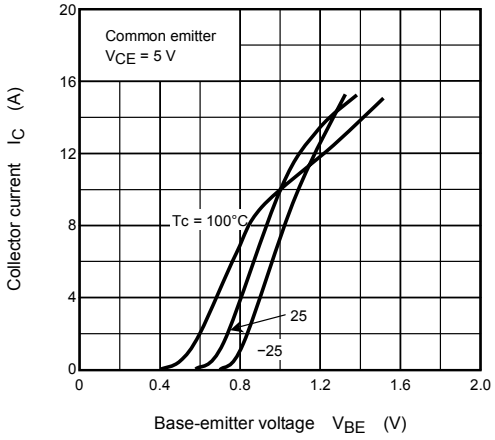
Marking


TOSHIBA
2SC5200
JAPAN
Part No. (or abbreviation code)
Lot No.
A line indicates
lead (Pb)-free package or
lead (Pb)-free finish.

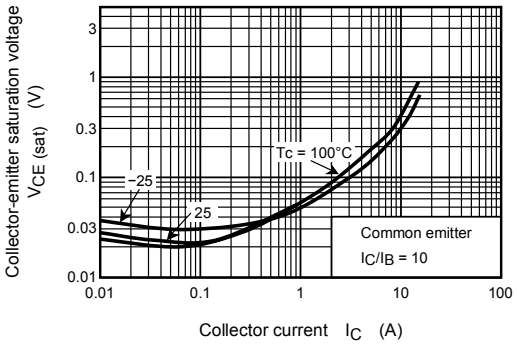
$I_C - V_{CE}$



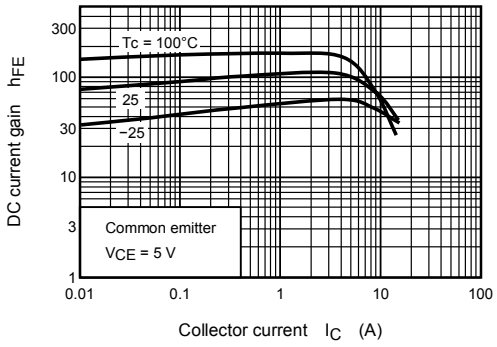
$I_C - V_{BE}$



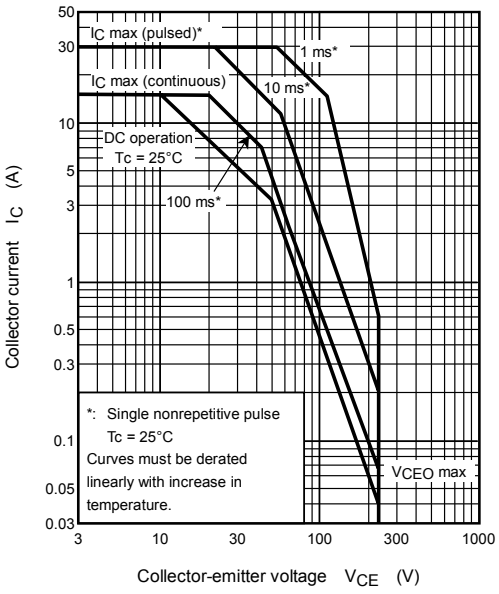
$V_{CE\ (sat)} - I_C$



$h_{FE} - I_C$



Safe Operating Area



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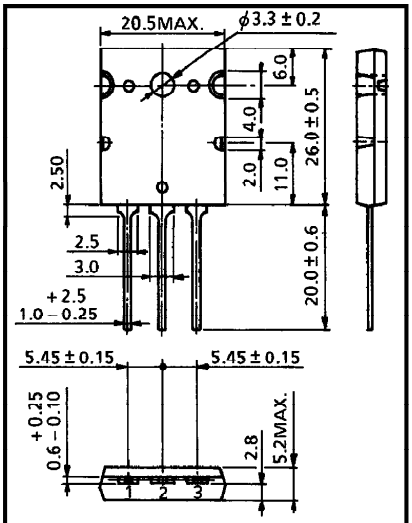
TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

2SA1943

POWER AMPLIFIER APPLICATIONS

- Complementary to 2SC5200
- Recommended for 100W High Fidelity Audio Frequency Amplifier Output Stage.

Unit in mm



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-21F1A

Weight : 9.75g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	−230	V
Collector-Emitter Voltage	V_{CEO}	−230	V
Emitter-Base Voltage	V_{EBO}	−5	V
Collector Current	I_C	−15	A
Base Current	I_B	−1.5	A
Collector Power Dissipation (Tc = 25°C)	P_C	150	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = −230V, I_E = 0	—	—	−5.0	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = −5V, I_C = 0	—	—	−5.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = −50mA, I_B = 0	−230	—	—	V
DC Current Gain	$h_{FE(1)}$ (Note)	V_{CE} = −5V, I_C = −1A	55	—	160	
	$h_{FE(2)}$	V_{CE} = −5V, I_C = −7A	35	60	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = −8A, I_B = −0.8A	—	−1.5	−3.0	V
Base-Emitter Voltage	V_{BE}	V_{CE} = −5V, I_C = −7A	—	−1.0	−1.5	V
Transition Frequency	f_T	V_{CE} = −5V, I_C = −1A	—	30	—	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = −10V, I_E = 0, f = 1MHz	—	360	—	pF

Note : $h_{FE(1)}$ Classification R : 55~110, O : 80~160

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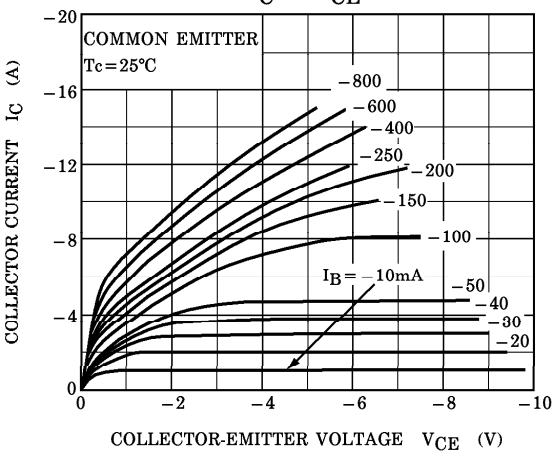
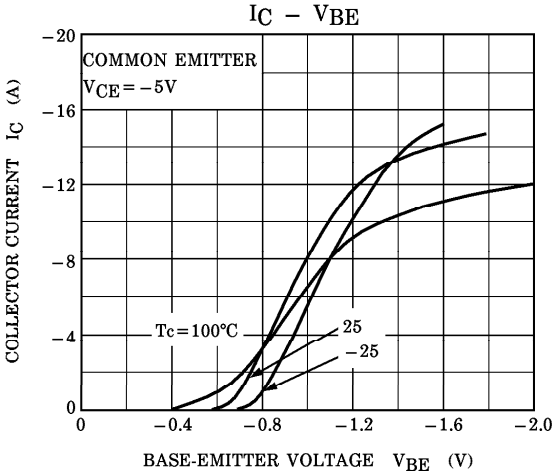
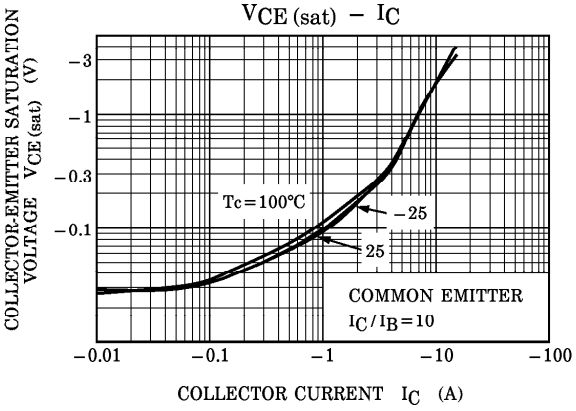
I_C – V_{CE}



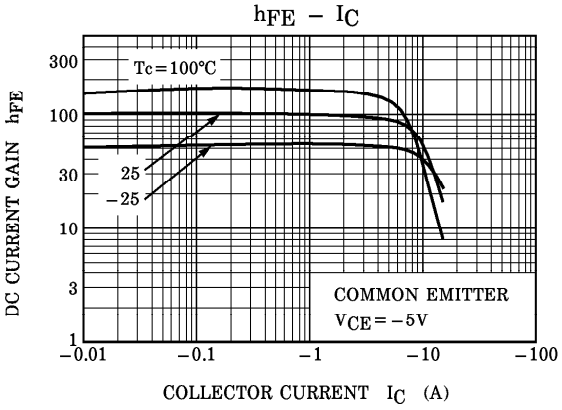
I_C – V_{BE}



$V_{CE\,(sat)}$ – I_C



h_{FE} – I_C



SAFE OPERATING AREA