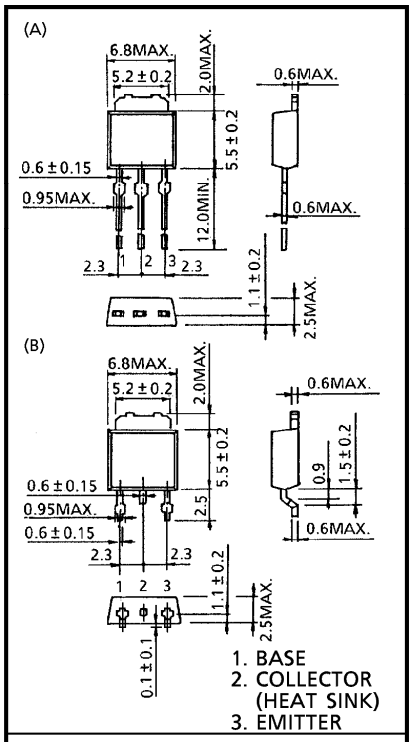
TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

2SB908

SWITCHING APPLICATIONS
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS
POWER AMPLIFIER APPLICATIONS

- High DC Current Gain
  : $h_{FE\,(1)}$ = 2000 (Min.) (V_{CE} = −2 V, I_C = −1 A)
- Low Saturation Voltage : $V_{CE\,(sat)}$ = −1.5 V (Max.) (I_C = −3 A)
- Complementary to 2SD1223.

Unit in mm



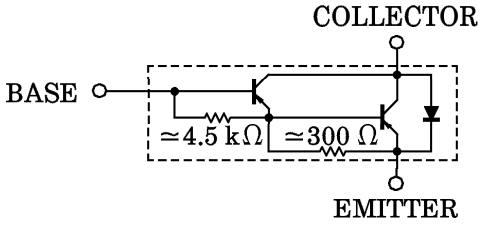
JEDEC	—
EIAJ	—
TOSHIBA	(A) 2-7B1A (B) 2-7B2A

Weight : 0.36 g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	−100	V
Collector-Emitter Voltage		V_{CEO}	−80	V
Emitter-Base Voltage		V_{EBO}	−5	V
Collector Current		I_C	−4	A
Base Current		I_B	−0.4	A
Collector Power Dissipation	Ta = 25°C	P_C	1.0	W
	Tc = 25°C		15	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

EQUIVALENT CIRCUIT



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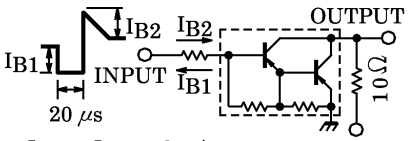
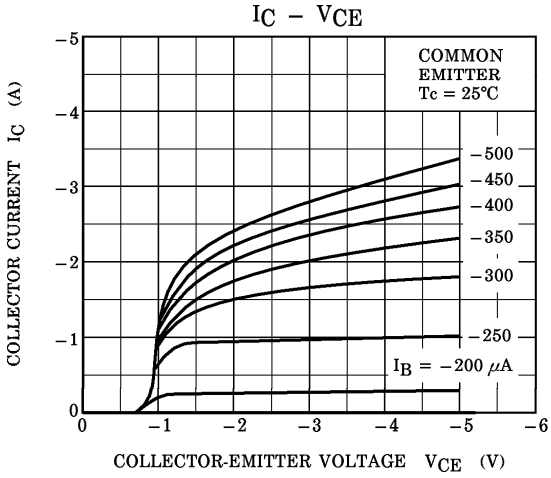
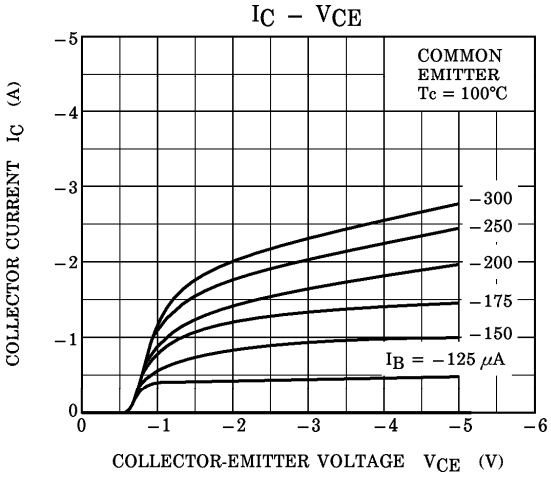
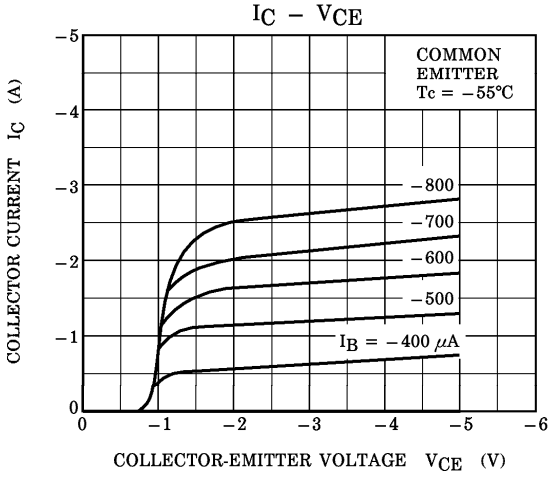
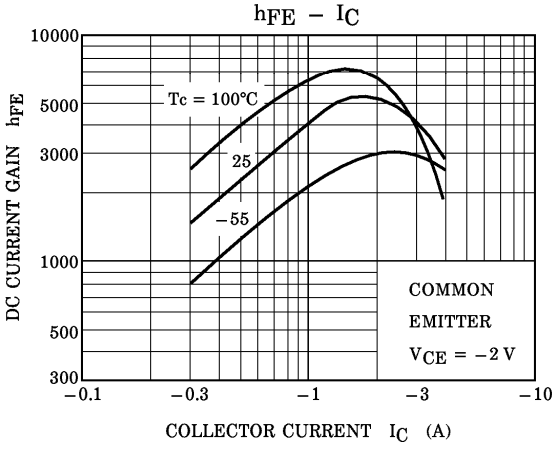
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

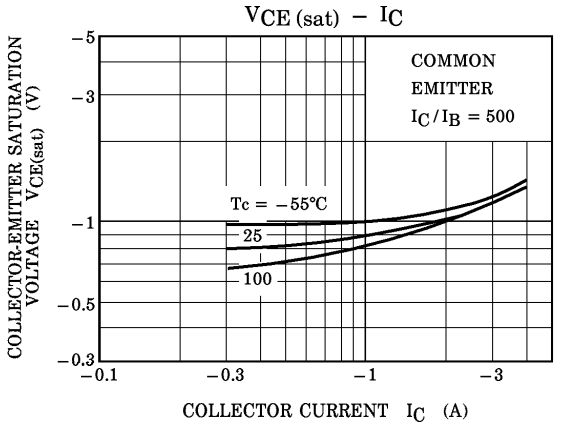
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = -100$ V, $I_E = 0$	—	—	−20	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -5$ V, $I_C = 0$	—	—	−2.5	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	$I_C = -10$ mA, $I_B = 0$	−80	—	—	V
DC Current Gain		$h_{FE\,(1)}$	$V_{CE} = -2$ V, $I_C = -1$ A	2000	—	—	
		$h_{FE\,(2)}$	$V_{CE} = -2$ V, $I_C = -3$ A	1000	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE\,(sat)}$	$I_C = -3$ A, $I_B = -6$ mA	—	—	−1.5	V
	Base-Emitter	$V_{BE\,(sat)}$	$I_C = -3$ A, $I_B = -6$ mA	—	—	−2.0	
Switching Time	Turn-on Time	t_{on}	 $-I_{B1} = I_{B2} = 6$ mA DUTY CYCLE ≦ 1% $V_{CC} \fallingdotseq -30$ V	—	0.15	—	μs
	Storage Time	t_{stg}		—	0.80	—	
	Fall Time	t_f		—	0.40	—	

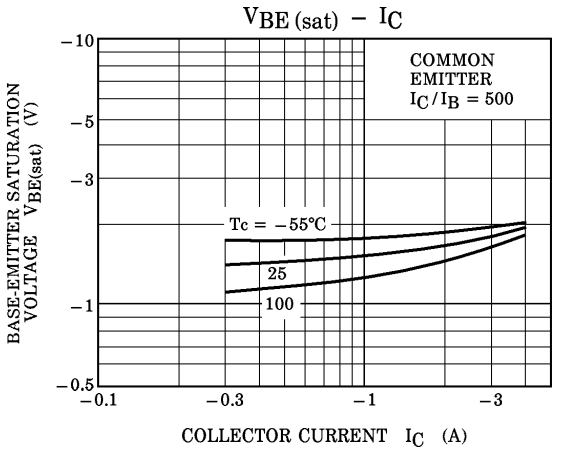

$I_C - V_{CE}$
COMMON EMITTER
Tc = 25°C
−500
−450
−400
−350
−300
−250
I_B = −200 μA
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)


$I_C - V_{CE}$
COMMON EMITTER
Tc = 100°C
−300
−250
−200
−175
−150
I_B = −125 μA
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

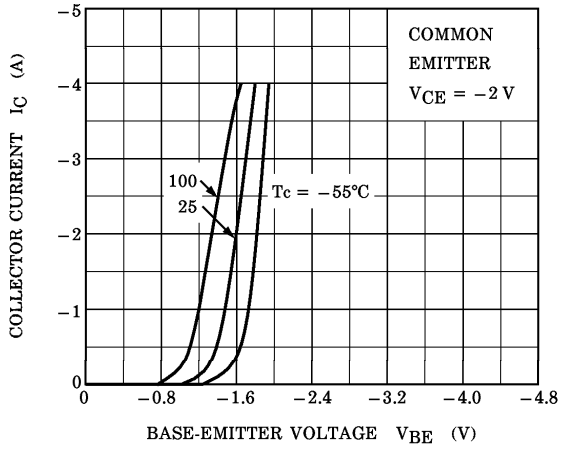

$I_C - V_{CE}$
COMMON EMITTER
Tc = −55°C
−800
−700
−600
−500
I_B = −400 μA
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)


$h_{FE} - I_C$
Tc = 100°C
25
−55
COMMON EMITTER
V_{CE} = −2 V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (A)

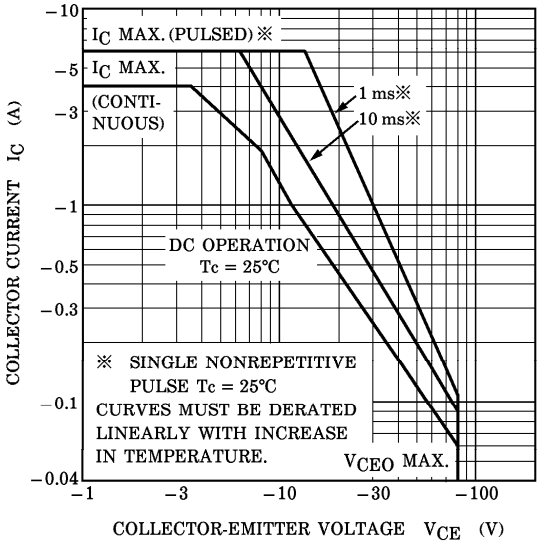

$V_{CE\,(sat)} - I_C$
COMMON EMITTER
I_C / I_B = 500
Tc = −55°C
25
100
COLLECTOR-EMITTER SATURATION VOLTAGE $V_{CE(sat)}$ (V)
COLLECTOR CURRENT I_C (A)


$V_{BE\,(sat)} - I_C$
COMMON EMITTER
I_C / I_B = 500
Tc = −55°C
25
100
BASE-EMITTER SATURATION VOLTAGE $V_{BE(sat)}$ (V)
COLLECTOR CURRENT I_C (A)

I_C – V_{BE}



SAFE OPERATING AREA



P_C – Ta