

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

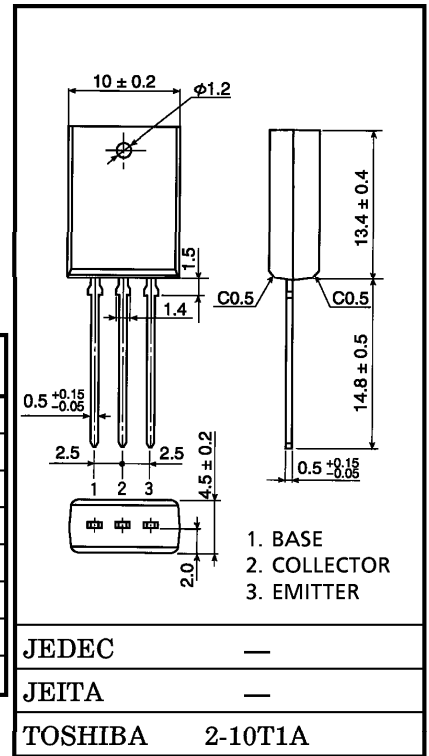
2SA1933

HIGH CURRENT SWITCHING APPLICATIONS

- Low Saturation Voltage
: $V_{CE(sat)} = -0.4V$ (Max.) at $I_C = -2 A$
- High Speed Switching Time : $t_{stg} = 1.0 \mu s$ (Typ.)
- Complementary to 2SC5175

INDUSTRIAL APPLICATIONS

Unit in mm



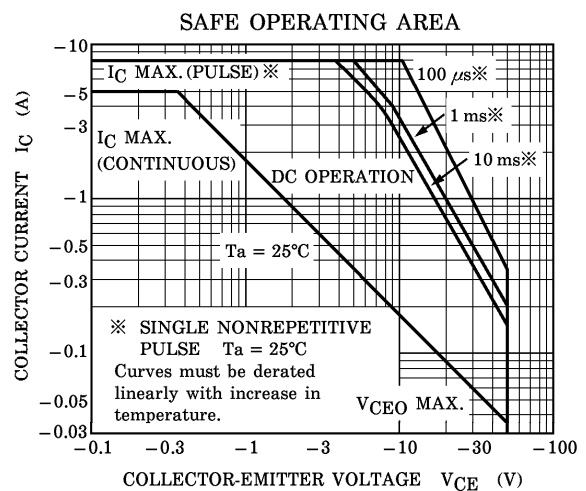
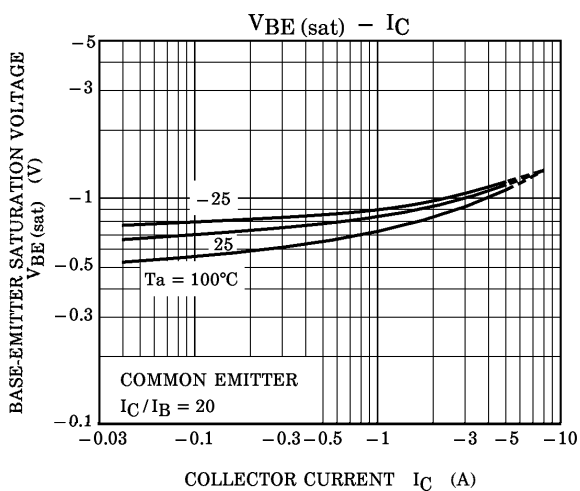
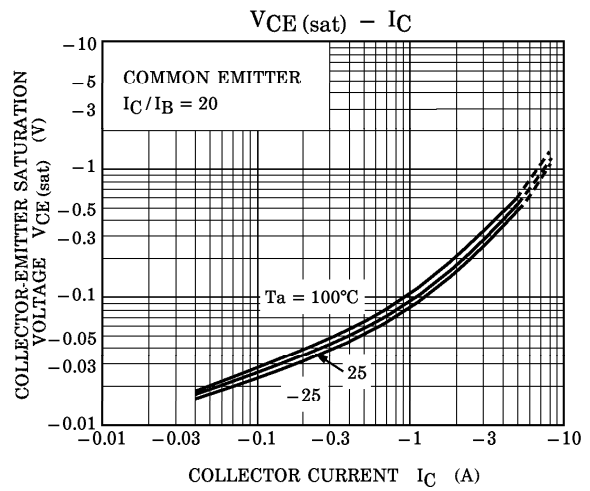
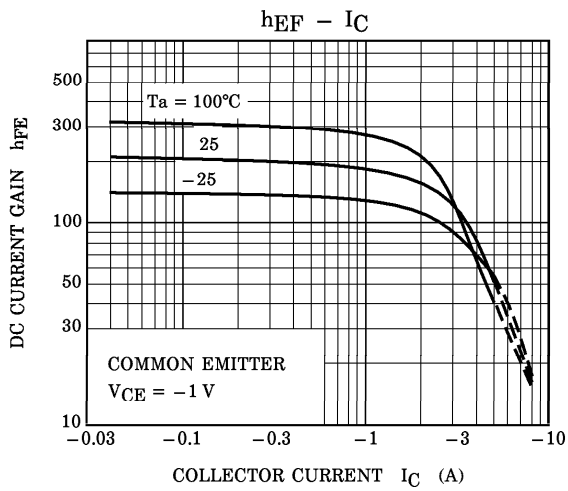
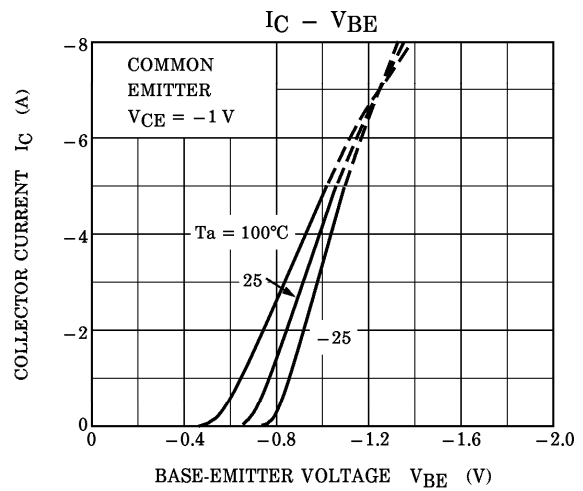
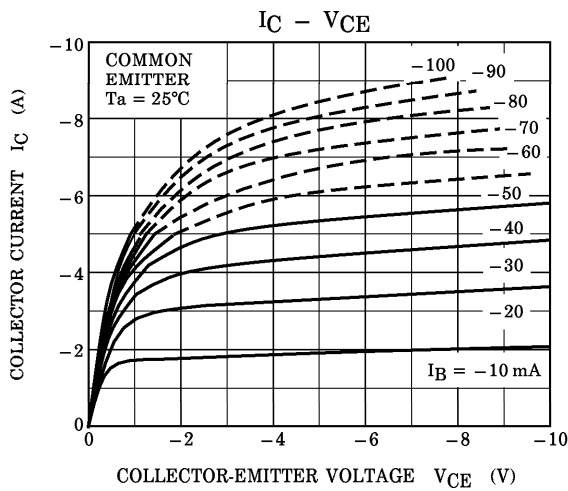
Weight : 1.5 g (Typ.)

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	-5	A
Base Current	I_B	-1	A
Collector Power Dissipation	P_C	1.8	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}	$V_{CB} = -50 V, I_E = 0$	—	—	-1	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -5 V, I_C = 0$	—	—	-1	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = -10 mA, I_B = 0$	-50	—	—	V
DC Current Gain		$h_{FE(1)}$	$V_{CE} = -1 V, I_C = -1 A$	100	—	320	
		$h_{FE(2)}$	$V_{CE} = -1 V, I_C = -3 A$	60	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C = -2 A, I_B = -0.15 A$	—	-0.2	-0.4	V
	Base-Emitter	$V_{BE(sat)}$	$I_C = -3 A, I_B = -0.15 A$	—	-0.9	-1.5	
Transition Frequency		f_T	$V_{CE} = -4 V, I_C = -1 A$	—	60	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = -10 V, I_E = 0, f = 1 MHz$	—	170	—	pF
Switching Time	Turn-on Time	t_{on}	<p>INPUT I_{B2} OUTPUT I_{B1} $20 \mu s$ $-I_{B1} = I_{B2} = 0.15 A$ DUTY CYCLE $\leq 1\%$ $V_{CC} = -30 V$</p>	—	0.1	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.1	—	



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