TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SC3405

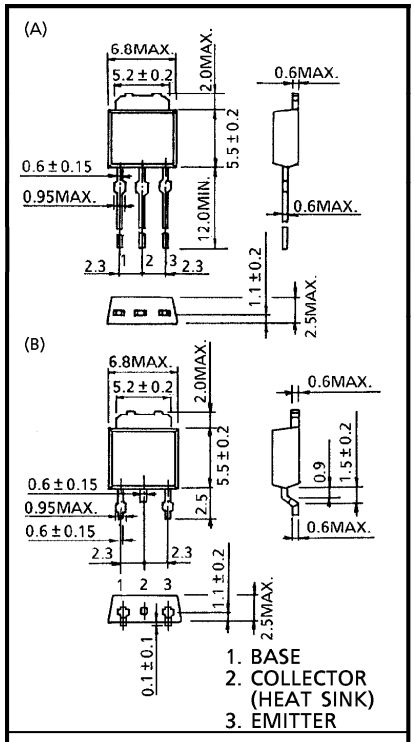
SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING APPLICATIONS

HIGH SPEED DC-DC CONVERTER APPLICATIONS

INDUSTRIAL APPLICATIONS

- Excellent Switching Times (I_C = 0.3 A)
  : t_r = 1.0 μs (Max.), t_f = 1.0 μs (Max.)
- High Collector Breakdown Voltage : V_{CEO} = 800 V

Unit in mm



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

Weight : 0.36 g

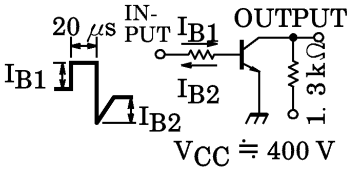
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	900	V
Collector-Emitter Voltage		V_{CEO}	800	V
Emitter-Base Voltage		V_{EBO}	8	V
Collector Current	DC	I_C	0.8	A
	Pulse	I_{CP}	1.5	
Base Current		I_B	0.2	A
Collector Power Dissipation	Ta = 25°C	P_C	1.0	W
	Tc = 25°C		20	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

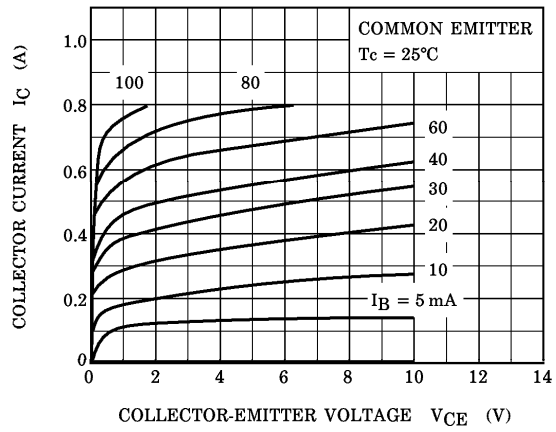
961001EAA1

- 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.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

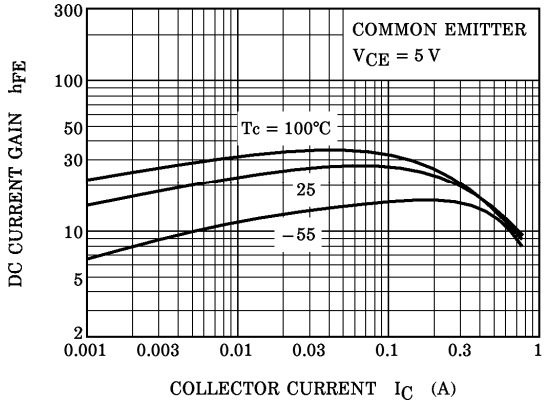
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 800 V, I_E = 0	—	—	100	μA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 8 V, I_C = 0	—	—	1	mA
Collector-Base Breakdown Voltage		$V_{(BR)\,CBO}$	I_C = 1 mA, I_E = 0	900	—	—	V
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	I_C = 10 mA, I_B = 0	800	—	—	V
DC Current Gain		$h_{FE\,(1)}$	V_{CE} = 5 V, I_C = 1 mA	6	—	—	
		$h_{FE\,(2)}$	V_{CE} = 5 V, I_C = 0.3 A	10	—	—	
Collector-Emitter Saturation Voltage		$V_{CE\,(sat)}$	I_C = 0.3 A, I_B = 0.06 A	—	—	0.5	V
Base-Emitter Saturation Voltage		$V_{BE\,(sat)}$	I_C = 0.3 A, I_B = 0.06 A	—	—	1.2	V
Switching Time	Rise Time	t_r		—	—	1.0	μs
	Storage Time	t_{stg}		—	—	4.0	
	Fall Time	t_f	$I_{B1} = -I_{B2}$ = 0.06 A, DUTY CYCLE ≦ 1%	—	—	1.0	

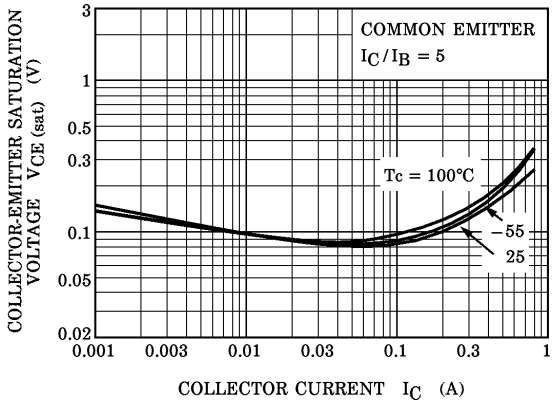
$I_C - V_{CE}$



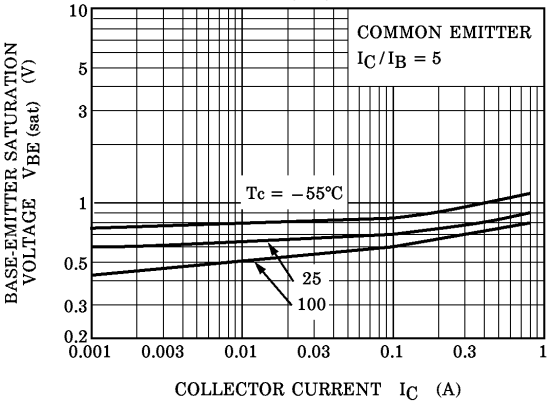
$h_{FE} - I_C$



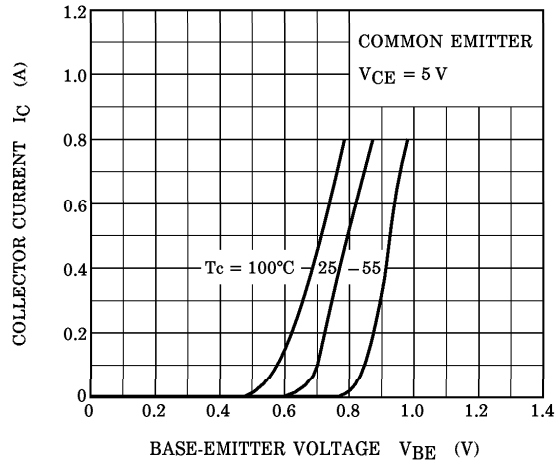
$V_{CE\,(sat)} - I_C$



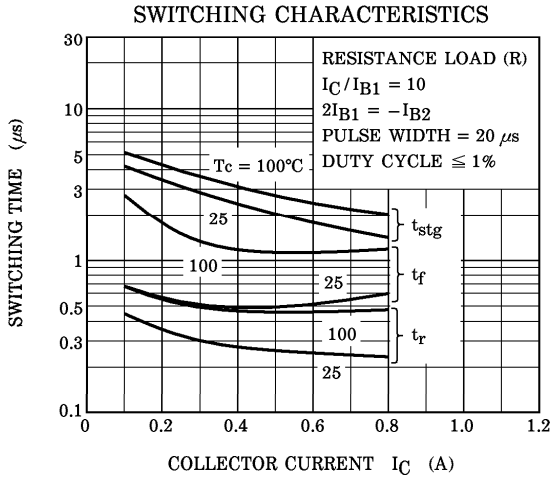
$V_{BE\,(sat)} - I_C$



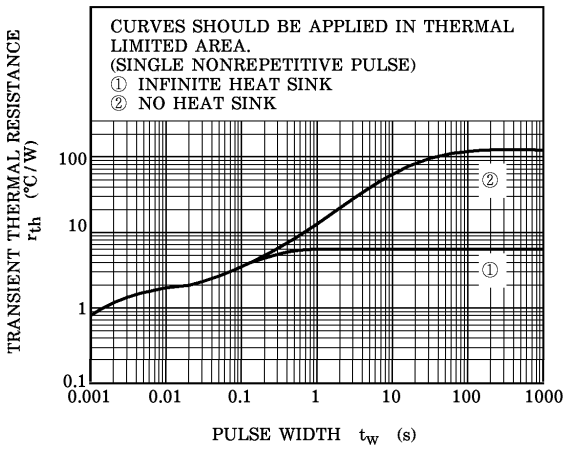
$I_C - V_{BE}$



SWITCHING CHARACTERISTICS



$r_{th} - t_w$



SAFE OPERATING AREA