

TOSHIBA Transistor Silicon NPN Triple Diffused Type

# 2SC3405

Switching Regulator and High Voltage Switching Applications

High Speed DC-DC Converter Applications

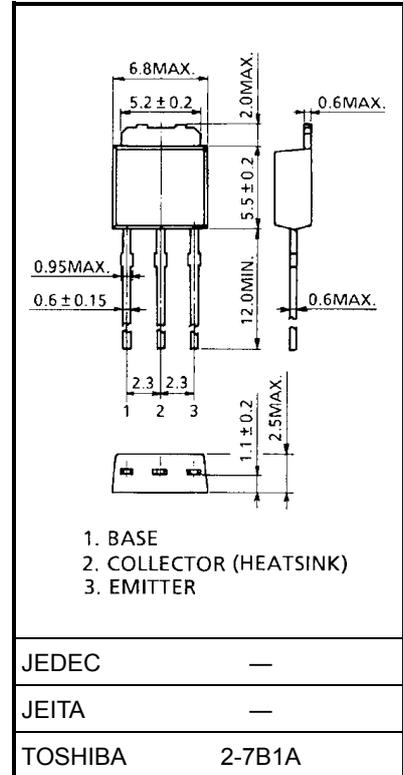
- Excellent switching times:  $t_r = 1.0 \mu s$  (max)  
 $t_f = 1.0 \mu s$  (max), ( $I_C = 0.3 A$ )
- High collector breakdown voltage:  $V_{CEO} = 800 V$

### Maximum Ratings ( $T_a = 25^\circ C$ )

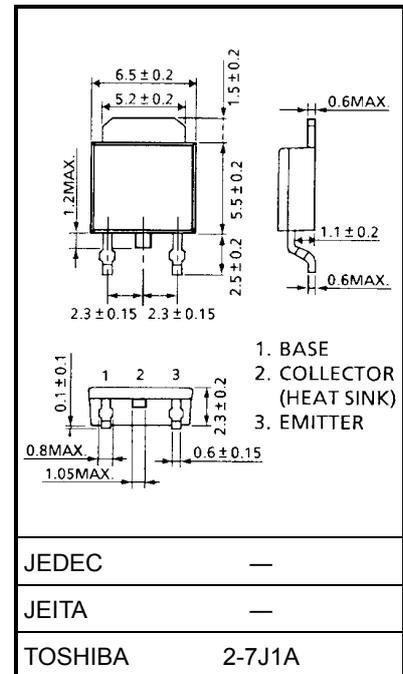
Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	900	V
Collector-emitter voltage		$V_{CEO}$	800	V
Emitter-base voltage		$V_{EBO}$	8	V
Collector current	DC	$I_C$	0.8	A
	Pulse	$I_{CP}$	1.5	
Base current		$I_B$	0.2	A
Collector power dissipation	$T_a = 25^\circ C$	$P_C$	1.0	W
	$T_c = 25^\circ C$		20	
Junction temperature		$T_j$	150	$^\circ C$
Storage temperature range		$T_{stg}$	-55 to 10	$^\circ C$

Industrial Applications

Unit: mm



Weight: 0.36 g (typ.)

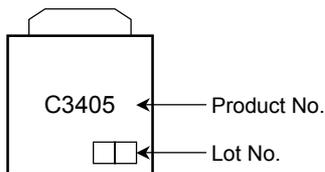


Weight: 0.36 g (typ.)

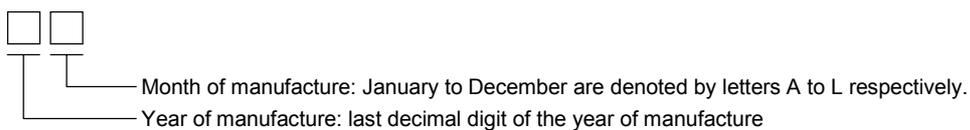
## Electrical Characteristics (Ta = 25°C)

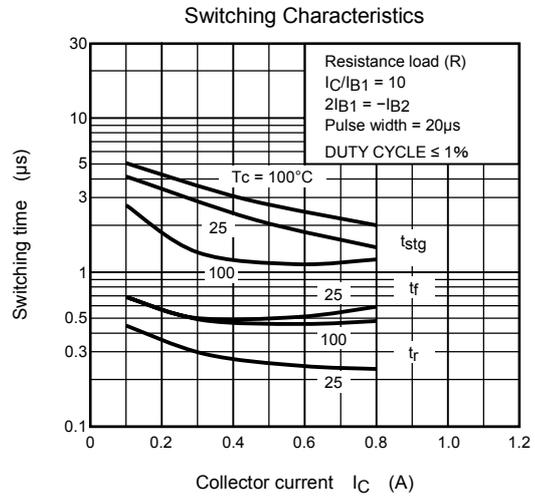
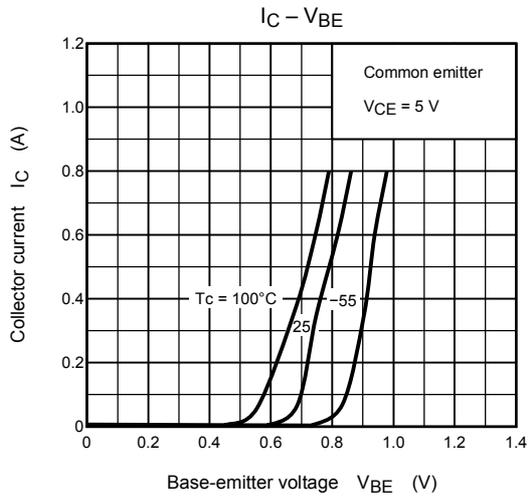
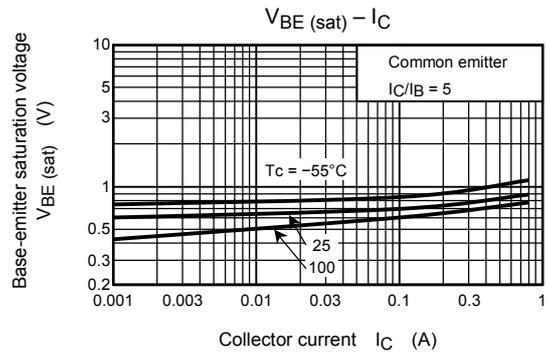
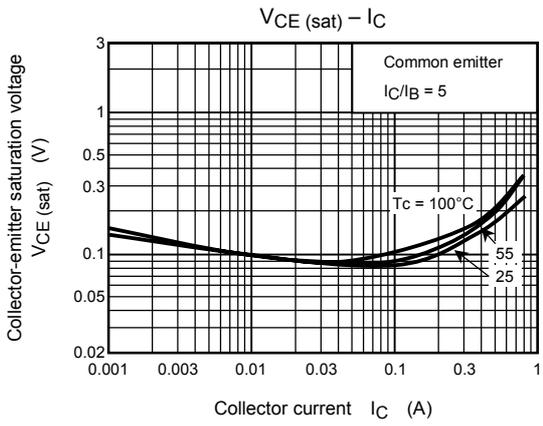
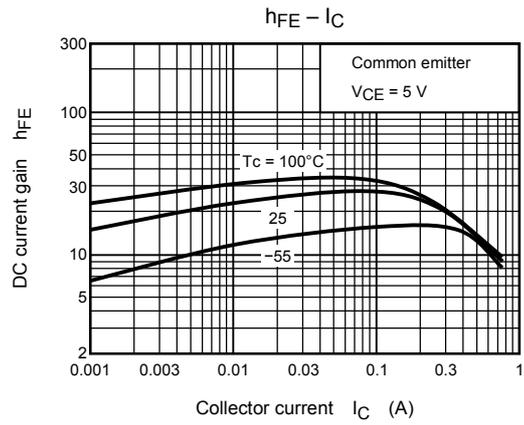
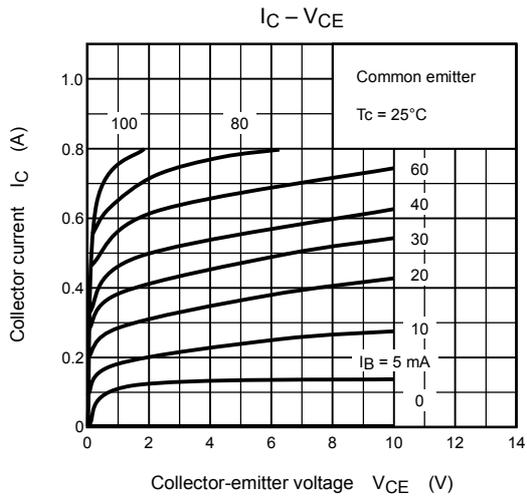
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 800\text{ V}, I_E = 0$	—	—	100	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 8\text{ V}, I_C = 0$	—	—	1	$\text{mA}$
Collector-base breakdown voltage		$V_{(BR)CBO}$	$I_C = 1\text{ mA}, I_E = 0$	900	—	—	$\text{V}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	800	—	—	$\text{V}$
DC current gain		$h_{FE}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	6	—	—	
			$V_{CE} = 5\text{ V}, I_C = 0.3\text{ A}$	10	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 0.3\text{ A}, I_B = 0.06\text{ A}$	—	—	0.5	$\text{V}$
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 0.3\text{ A}, I_B = 0.06\text{ A}$	—	—	1.2	$\text{V}$
Switching time	Rise time	$t_r$		—	—	1.0	$\mu\text{s}$
	Storage time	$t_{stg}$		—	—	4.0	
	Fall time	$t_f$		$I_{B1} = -I_{B2} = 0.06\text{ A},$ $\text{DUTY CYCLE} \leq 1\%$	—	—	

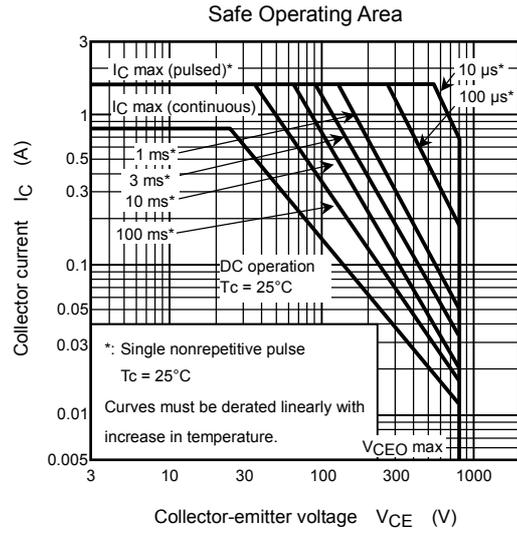
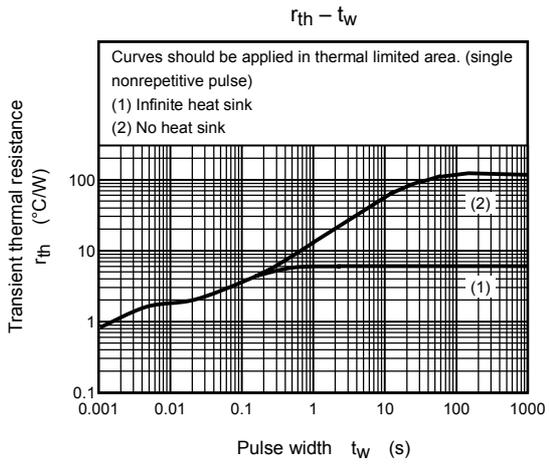
## Marking



## Explanation of Lot No.







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