

TOSHIBA Transistor Silicon NPN Epitaxial Type (Darlington Power Transistor)

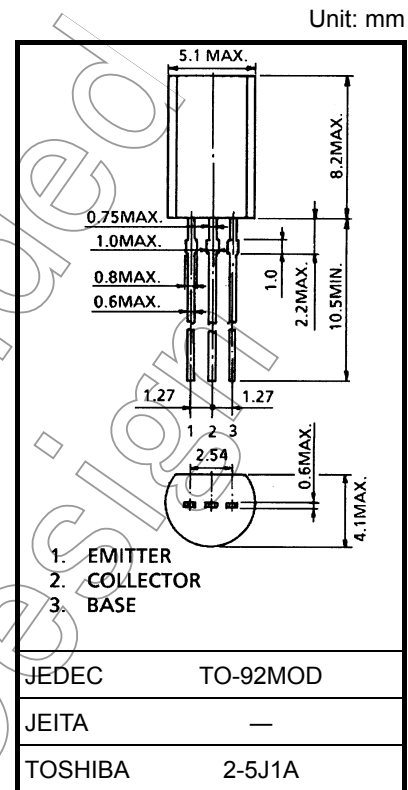
# 2SD2695

Micro Motor Drive, Hammer Drive Applications  
 Switching Applications  
 Power Amplifier Applications

- High DC current gain:  $h_{FE} = 2000$  (min) ( $V_{CE} = 2\text{ V}$ ,  $I_C = 1\text{ A}$ )
- Low saturation voltage:  $V_{CE(sat)} = 1.5\text{ V}$  (max) ( $I_C = 1\text{ A}$ ,  $I_B = 1\text{ mA}$ )
- Zener diode included between collector and base

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

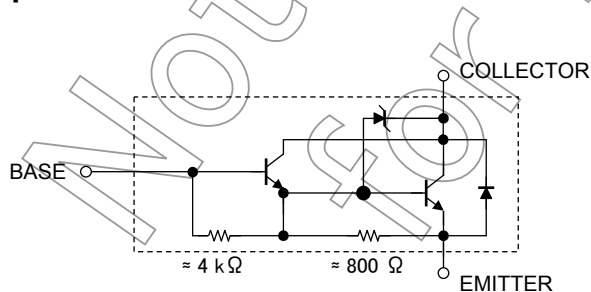
Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	50	V
Collector-emitter voltage	$V_{CEO}$	$60 \pm 10$	V
Emitter-base voltage	$V_{EBO}$	8	V
Collector current	$I_C$	2	A
Base current	$I_B$	0.5	A
Collector power dissipation	$P_C$	0.9	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$



Weight: 0.36 g (typ.)

Note1: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

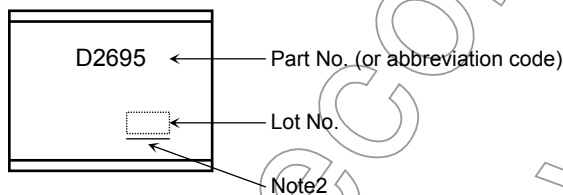
### Equivalent Circuit



## Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 45\text{ V}, I_E = 0$	—	—	10	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 8\text{ V}, I_C = 0$	—	—	4	$\text{mA}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	50	60	70	$\text{V}$
DC current gain		$h_{FE}$	$V_{CE} = 2\text{ V}, I_C = 1\text{ A (pulsed)}$	2000	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA (pulsed)}$	—	—	1.5	$\text{V}$
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA (pulsed)}$	—	—	2.0	$\text{V}$
Transition frequency		$f_T$	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A (pulsed)}$	—	100	—	$\text{MHz}$
Collector output capacitance		$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	20	—	$\text{pF}$
Unclamped inductive load energy		$E_{S/B}$	$L = 10\text{ mH}, I_C = 2.0\text{ A}, I_B = \pm 50\text{ mA}$	20	—	—	$\text{mJ}$
Switching time	Turn-on time	$t_{on}$		—	0.4	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	4.0	—	
	Fall time	$t_f$		$I_{B1} = 1\text{ mA}, I_{B2} = 1\text{ mA}$ duty cycle $\leq 1\%$	—	0.6	

## Marking

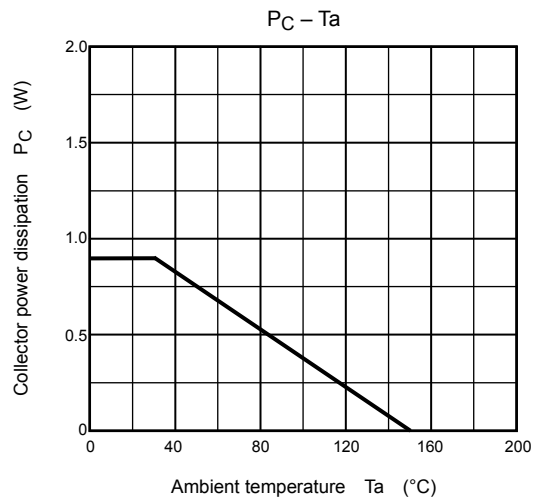
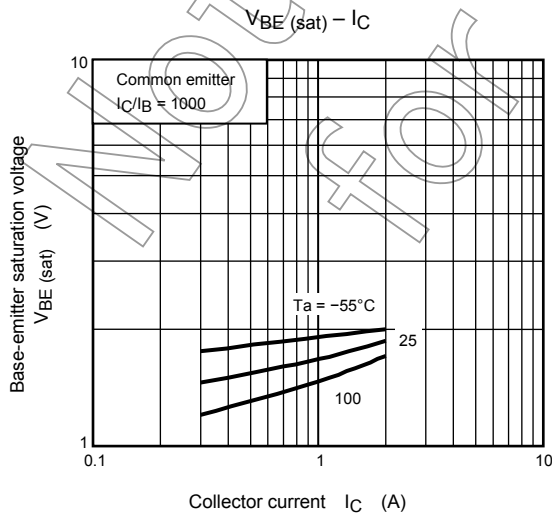
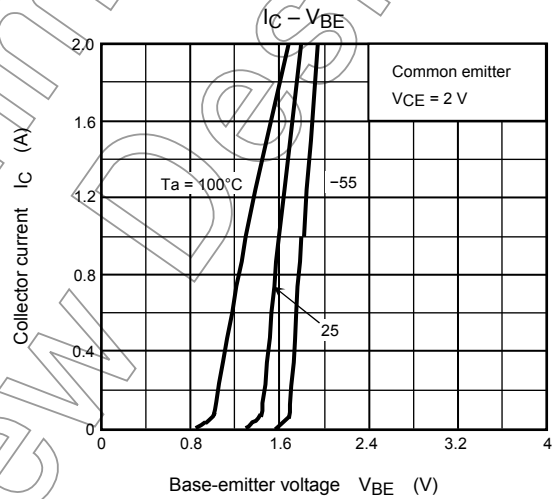
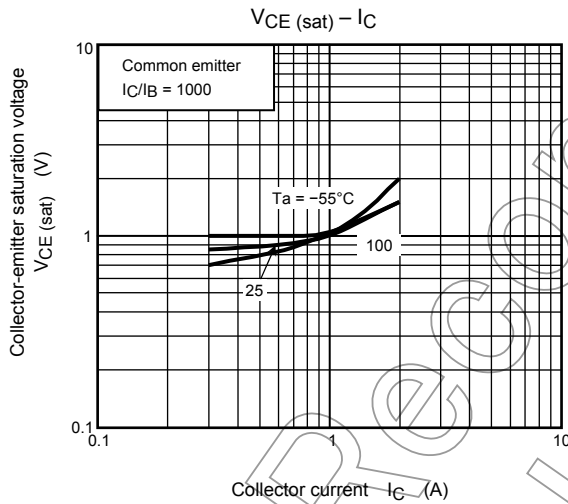
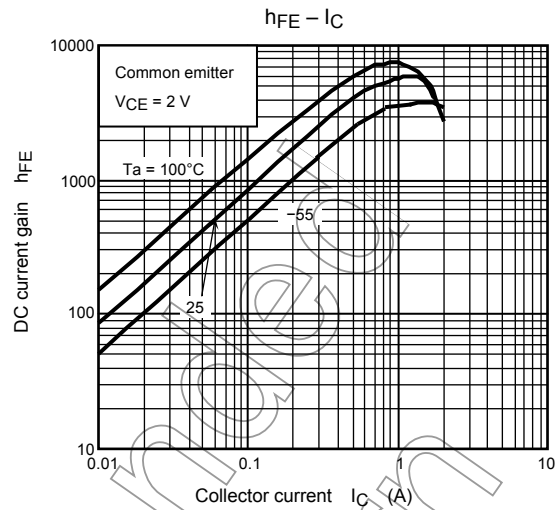
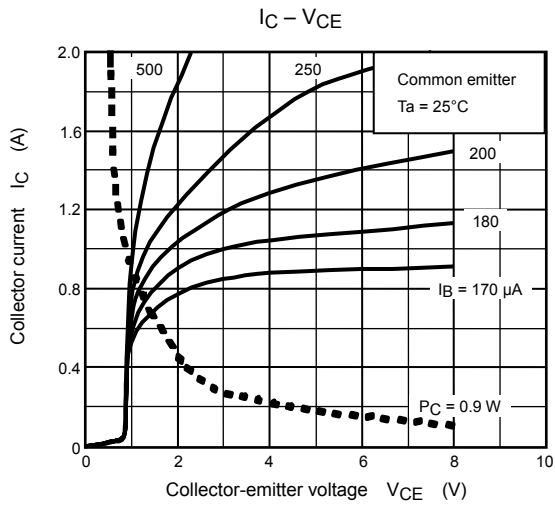


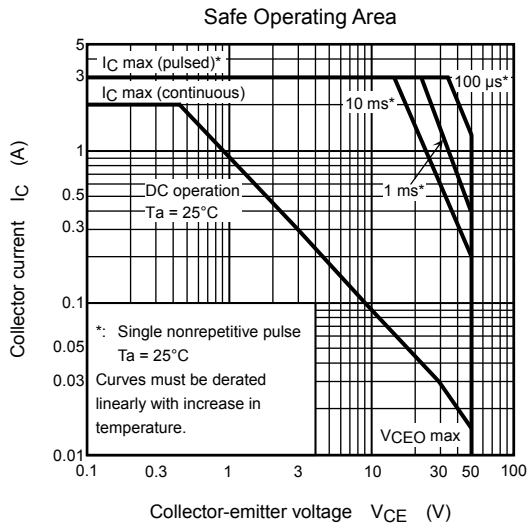
Note2: A line under a Lot No. identifies the indication of product Labels.

Not underlined:  $[[Pb]]/INCLUDES > MCV$

Underlined:  $[[G]]/RoHS COMPATIBLE$  or  $[[G]]/RoHS [[Pb]]$

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.





Not Recommended for New Design

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