

TOSHIBA Transistor Silicon NPN Epitaxial Type (Darlington Power Transistor)

# 2SD2536

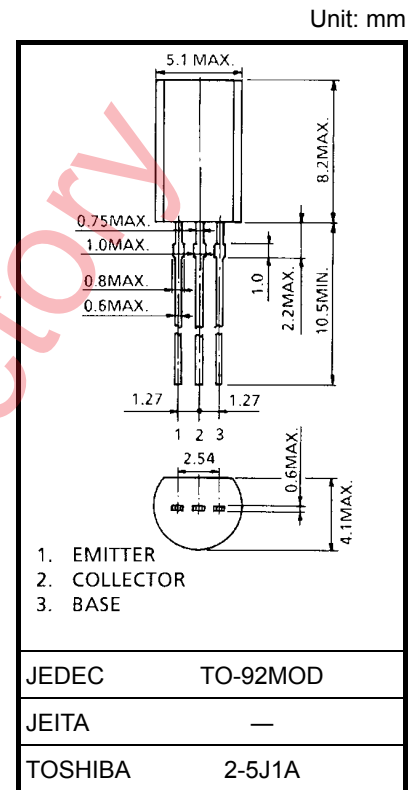
## Switching Applications

Micro Motor Drive, Hammer Drive Applications

- High DC current gain:  $h_{FE} = 2000$  (min) ( $V_{CE} = 2\text{ V}$ ,  $I_C = 1\text{ A}$ )
- Low saturation voltage:  $V_{CE(sat)} = 1.2\text{ V}$  (max) ( $I_C = 0.7\text{ A}$ ,  $V_{BH} = 4.2\text{ V}$ )
- Zener diode included between collector and base

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

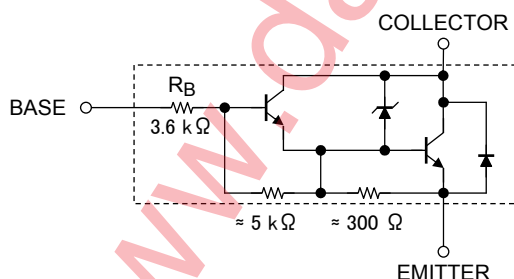
Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	85	V
Collector-emitter voltage	$V_{CEO}$	$100 \pm 15$	V
Emitter-base voltage	$V_{EBO}$	6	V
Bias voltage	$V_B$	20	V
Collector current	$I_C$	2	A
Base current	$I_B$	0.5	A
Collector power dissipation	$P_C$	0.9	W
Junction temperature	$T_j$	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).

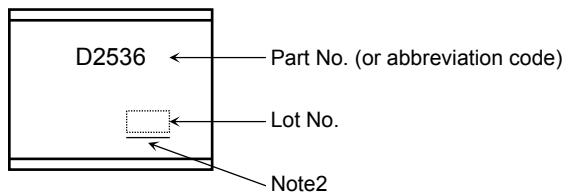
## Equivalent Circuit



## Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 80\text{ V}, I_E = 0$	—	—	10	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 6\text{ V}, I_C = 0$	0.3	—	1.5	$\text{mA}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	85	100	115	$\text{V}$
Base resistance		$R_B$	—	2.5	3.6	4.7	$\text{k}\Omega$
DC current gain		$h_{FE}$	$V_{CE} = 2\text{ V}, I_C = 1\text{ A}$	2000	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)(1)}$	$I_C = 0.7\text{ A}, V_{BH} = 4.2\text{ V}$	—	—	1.2	$\text{V}$
		$V_{CE(sat)(2)}$	$I_C = 1\text{ A}, V_{BH} = 4.2\text{ V}$	—	—	1.5	
Input threshold voltage		$V_{BL}$	$V_{CE} = 50\text{ V}, I_C = 100\text{ }\mu\text{A}$	—	—	0.7	$\text{V}$
Collector output capacitance		$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	20	—	$\text{pF}$
Unclamped inductive load energy		$E_{S/B}$	$L = 10\text{ mH}, I_C = 1\text{ A}, V_{BH} = 10\text{ V}$	5	—	—	$\text{mJ}$
Switching time	Turn-on time	$t_r$		—	0.3	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	4.0	—	
	Fall time	$t_f$		—	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  $[[G]]/RoHS\ [[Pb]]$

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