

TOSHIBA Transistor Silicon NPN Epitaxial Type (Darlington Power)

2SD2719

- Solenoid Drive Applications
- Motor Drive Applications

- High DC current gain: $h_{FE} = 2000$ (min) ($V_{CE} = 2$ V, $I_C = 1$ A)
- Zener diode included between collector and base

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

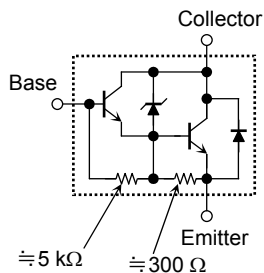
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	60 ± 10	V
Emitter-base voltage	V_{EBO}	8	V
Collector current	DC	I_C	A
	Pulse	I_{CP}	
Base current	I_B	0.5	A
Collector power dissipation	DC	P_C (Note)	W
	$t = 10$ s		
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

Note1: Mounted on an FR4 board (glass-epoxy; 1.6 mm thick; Cu area, 645 mm²)

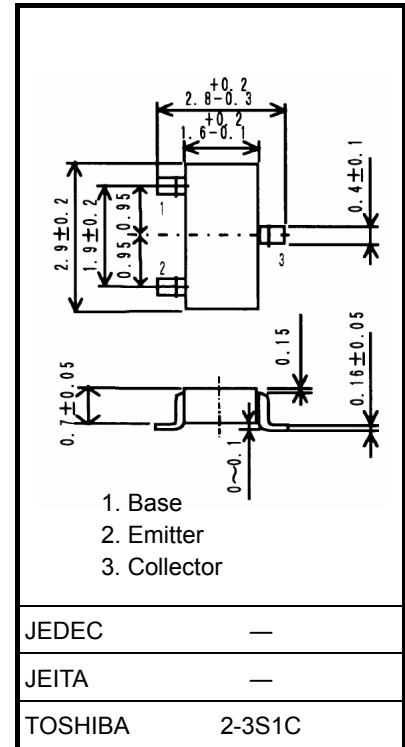
Note2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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



Unit: mm

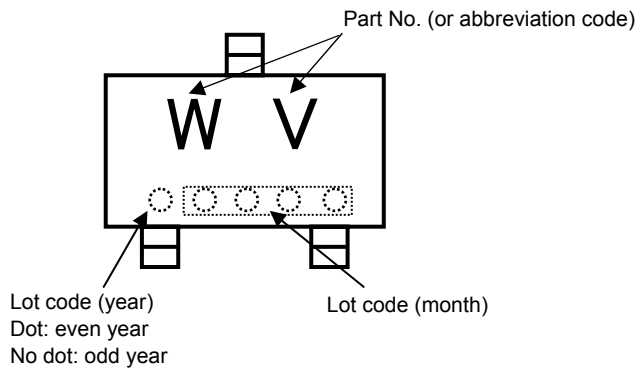


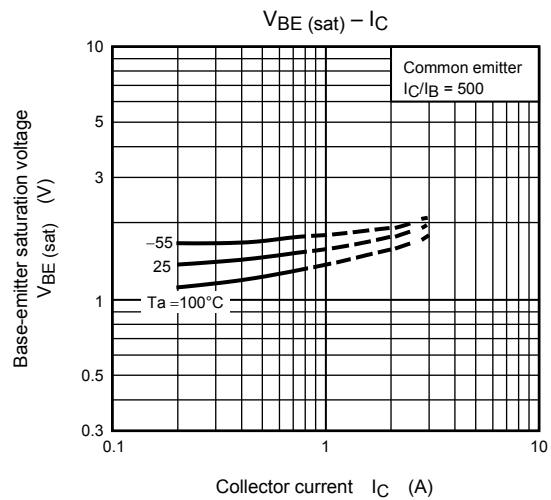
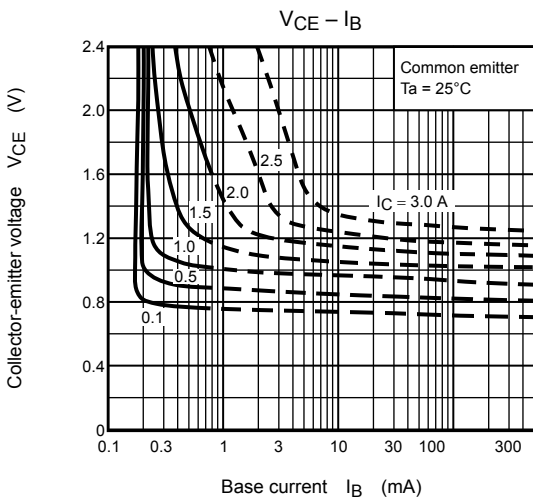
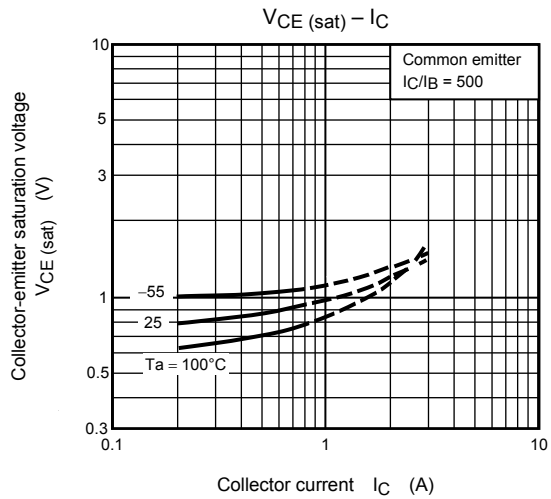
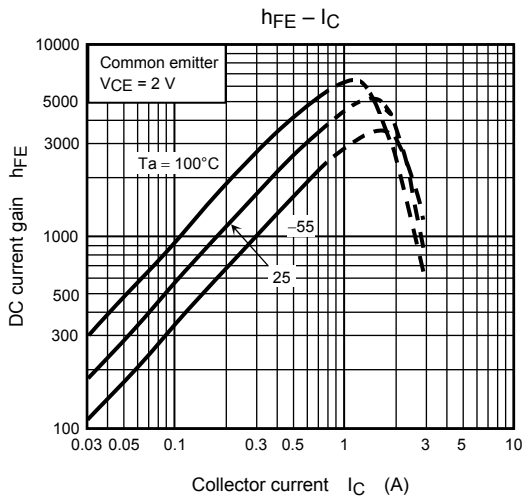
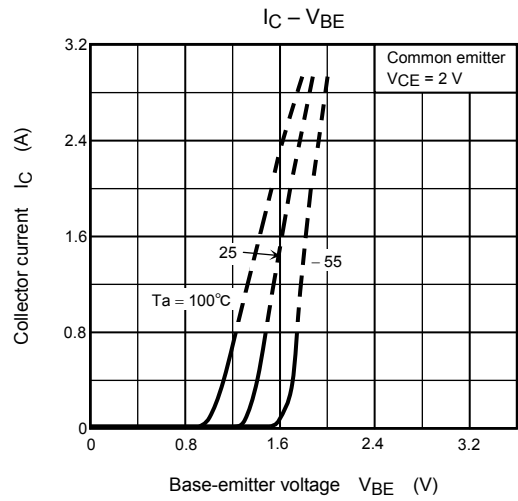
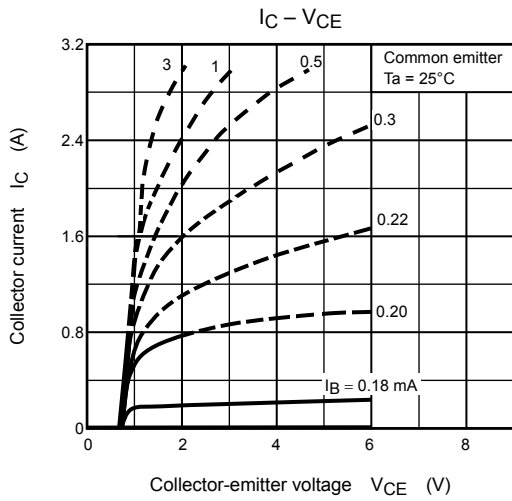
Weight: 0.01 g (typ.)

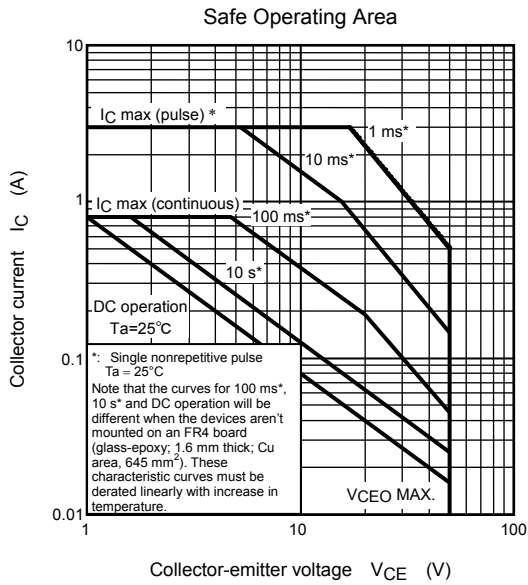
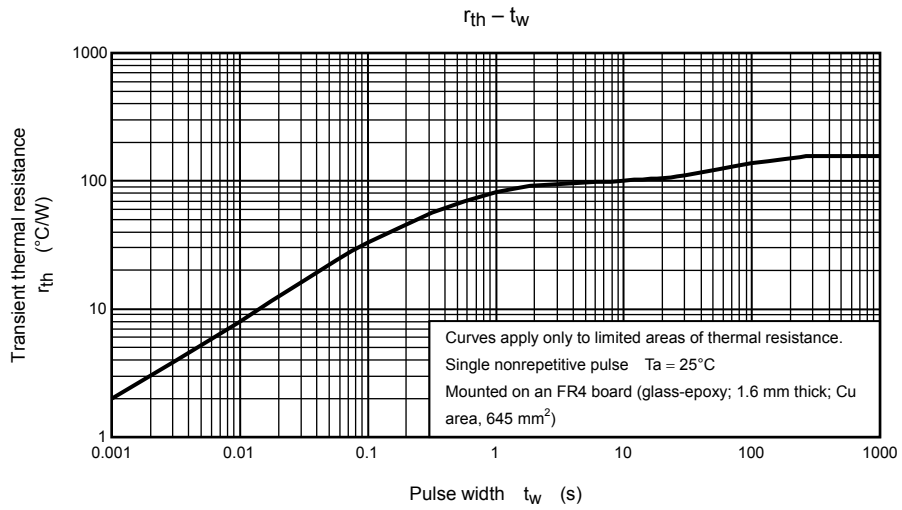
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current		I_{CBO}	$V_{CB} = 45\text{ V}, I_E = 0$	—	—	10	μA
		I_{CEO}	$V_{CE} = 45\text{ V}, I_E = 0$	—	—	10	μA
Emitter cutoff current		I_{EBO}	$V_{EB} = 8\text{ V}, I_C = 0$	0.80	—	4.0	mA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	50	60	70	V
DC current gain		h_{FE}	$V_{CE} = 2\text{ V}, I_C = 1\text{ A}$	2000	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)(1)}$	$I_C = 0.5\text{ A}, I_B = 1\text{ mA}$	—	—	1.2	V
		$V_{CE(sat)(2)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA}$	—	—	1.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA}$	—	—	2.0	V
Switching time	Turn-on time	t_{on}	<p>Input 20 μs 5V Output $R_L = 30\ \Omega$ $V_{CC} = 30\text{ V}$ Duty cycle $\leq 1\%$</p>	—	0.4	—	μs
	Storage time	t_{stg}		—	4.0	—	
	Fall time	t_f		—	0.6	—	

Marking







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