Preliminary TOSHIBA Transistor Silicon NPN Epitaxial Type (Darlington power transistor)

2SD2248

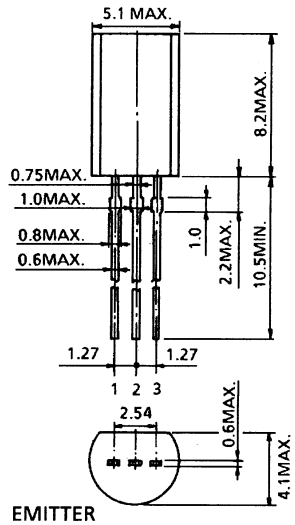
Hammer Drive, Pulse Motor Drive Applications
For Inductive Load Drive

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

Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	80 ± 10	V
Collector-emitter voltage		V_{CEO}	80 ± 10	V
Emitter-base voltage		V_{EBO}	8	V
Collector current	DC	I_C	±2	A
	Pulse	I_{CP}	±3	
Base current		I_B	0.5	A
Collector power dissipation (Ta = 25°C)		P_C	0.9	W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

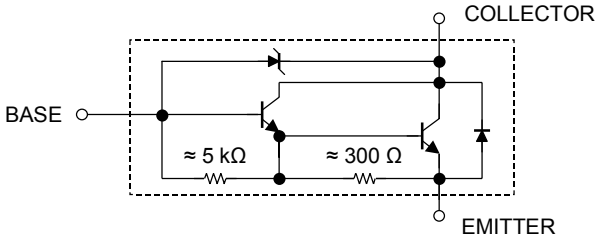
Unit: mm



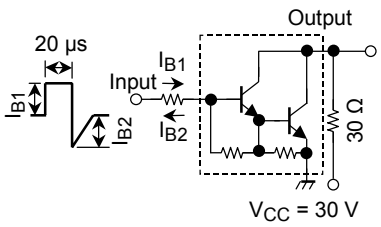
JEDEC	TO-92M0D
JEITA	—
TOSHIBA	2-5J1A

Weight: 0.36 g (typ.)

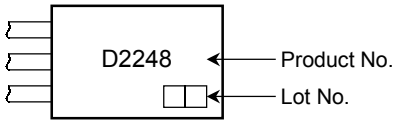
Equivalent Circuit



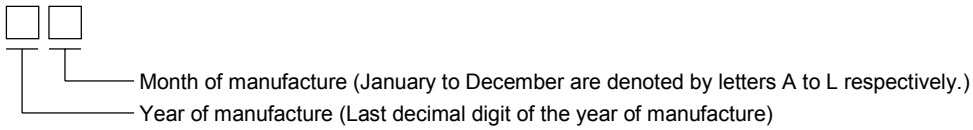
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = 60 V, I_E = 0	—	—	10	μA
Emitter cut-off current		I_{EBO}	V_{EB} = 8 V, I_C = 0	0.8	—	4.0	mA
Collector-base breakdown voltage		$V_{(BR)\ CBO}$	I_C = 100 μA, I_E = 0	70	80	90	V
Collector-emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	70	80	90	V
DC current gain		$h_{FE\ (1)}$	V_{CE} = 2 V, I_C = 1 A	2000	—	—	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 1 A, I_B = 1 mA	—	—	1.5	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 1 A, I_B = 1 mA	—	—	2.0	V
Emitter-collector forward voltage		V_{ECF}	I_E = 1 A, I_B = 0	—	1.2	2.0	V
Transition frequency		f_T	V_{CE} = 2 V, I_C = 0.5 A	—	100	—	MHz
Collector output capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	20	—	pF
Unclamped inductive load energy		E S/B	L = 10 mH, I_C = 1.2 A, I_B = ±50 mA	7.2	—	—	mJ
Switching time	Turn-on time	t_{on}		—	0.2	—	μs
	Storage time	t_{stg}		—	4.0	—	
	Fall time	t_f	$I_{B1} = -I_{B2}$ = 1 mA, duty cycle ≤ 1%	—	0.6	—	

Marking



Explanation of Lot No.



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