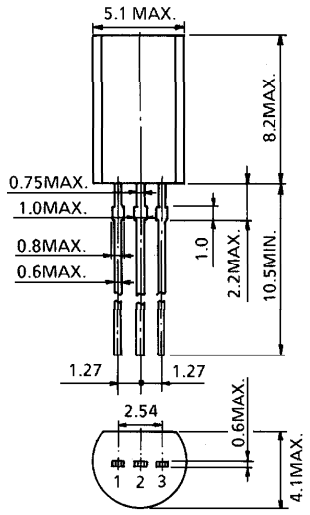
TENTATIVE TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

2SD2248

HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS
FOR INDUCTIVE LOAD DRIVE

Unit in mm



1. EMITTER
2. COLLECTOR
3. BASE

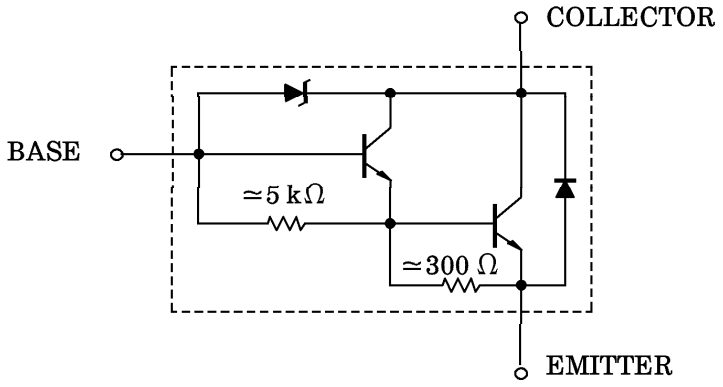
JEDEC	TO-92MOD
EIAJ	—
TOSHIBA	2-5J1A

- High DC Current Gain
  : h_{FE} = 2000 (Min.) (V_{CE} = 2 V, I_C = 1 A)
- Low Saturation Voltage
  : $V_{CE\,(sat)}$ = 1.5V (Max.) (I_C = 1 A, I_B = 1 mA)
- Built-in Zener Diode between Collector and Base

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		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}	−55~150	°C

EQUIVALENT CIRCUIT



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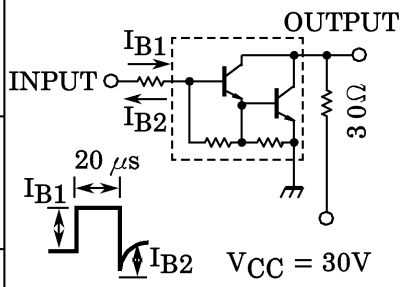
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		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}	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 = 0.5A	—	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}	 $I_{B1} = -I_{B2}$ = 1 mA, DUTY CYCLE ≦ 1%	—	0.2	—	μs
	Storage Time	t_{stg}		—	4.0	—	
	Fall Time	t_f		—	0.6	—	