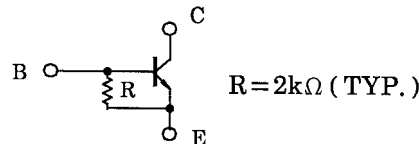


# RN5001

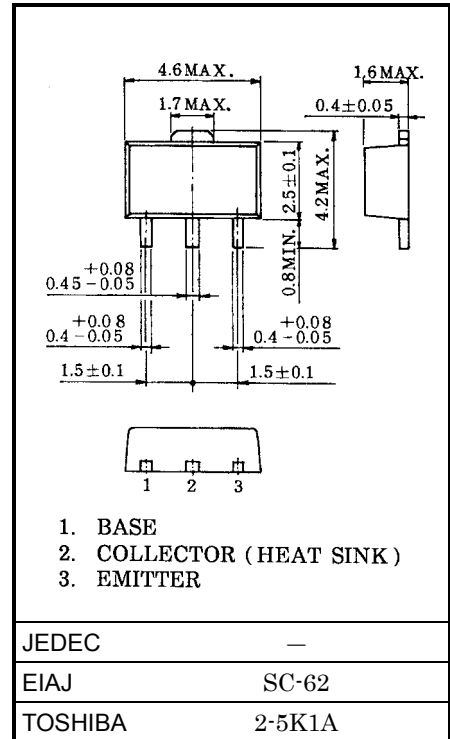
Motor Drive Circuit Applications  
 Power Amplifier Applications  
 Power Switching Applications

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Small flat package
- $P_C = 1\sim 2W$  (mounted on ceramic substrate)
- Complementary to RN6001

### Equivalent Circuit



Unit in mm



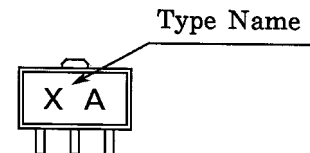
Weight: 0.05g

### Maximum Ratings ( $T_a = 25^\circ C$ )

Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	30	V
Collector-emitter voltage	$V_{CEO}$	30	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	2	A
Base current	$I_B$	0.4	A
Collector power dissipation	$P_C$	500	mW
Collector power dissipation	$P_C^*$	1000	mW
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature range	$T_{stg}$	-55~150	$^\circ C$

\* : Mounted on ceramic substrate ( $250mm^2 \times 0.8t$ )

### Marking



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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

**Electrical Characteristics (Ta = 25°C)**

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	—	$V_{CB} = 30V, I_E = 0$	—	—	0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	—	$V_{EB} = 5V, I_C = 0$	1.92	2.5	3.57	mA
Collector-emitter breakdown voltage	$V_{(BR)CES}$	—	$I_C = 10mA$	30	—	—	V
DC current gain	$h_{FE} (1)$	—	$V_{CE} = 2V, I_C = 0.5A$	100	—	320	—
	$h_{FE} (2)$		$V_{CE} = 2V, I_C = 2.0A$	50	—	—	
Collector-emitter saturation voltage	$V_{CE} (sat)$	—	$I_C = 1A, I_B = 0.05A$	—	—	0.5	V
Base-emitter saturation voltage	$V_{BE} (sat)$	—	$I_C = 1A, I_B = 0.05A$	—	—	1.2	V
Transition frequency	$f_T$	—	$V_{CE} = 2V, I_C = 0.5A$	—	120	—	MHz
Collector output capacitance	$C_{ob}$	—	$V_{CB} = 10V, I_E = 0, f = 1 MHz$	—	40	—	pF
Resistor	R	—	—	1.4	2.0	2.6	k $\Omega$

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