

**TOSHIBA**

**2SD1631**

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS) (DARLINGTON)

# 2SD1631

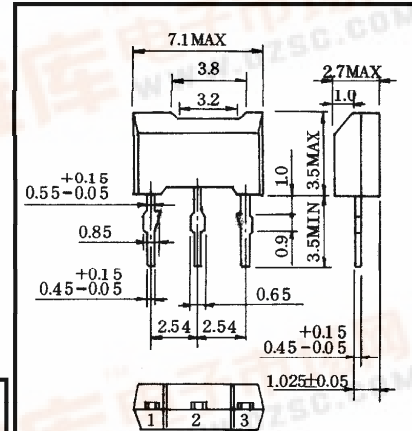
MICRO MOTOR DRIVE, HAMMER DRIVE APPLICATIONS.  
SWITCHING APPLICATIONS.  
POWER AMPLIFIER APPLICATIONS.

Unit in mm

- High DC Current Gain :  $h_{FE} = 4000$  (Min.)  
( $V_{CE} = 2V, I_C = 150mA$ )
- Low Saturation Voltage :  $V_{CE(sat)} = 1.5V$  (Max.)  
( $I_C = 1A, I_B = 1mA$ )

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	$V_{EBO}$	10	V
Continuous Collector Current	$I_C$	1.5	A
Continuous Base Current	$I_B$	50	mA
Collector Power Dissipation	$P_C$	1000	mW
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$

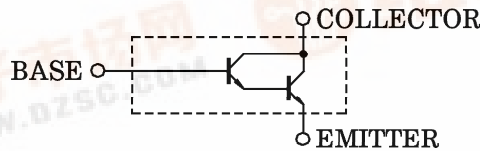


1. BASE
2. COLLECTOR
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-7D101A

Weight : 0.20g

EQUIVALENT CIRCUIT



961001FAA2

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		$I_{CBO}$	$V_{CB} = 30V, I_E = 0$	—	—	10	$\mu A$
Emitter Cut-off Current		$I_{EBO}$	$V_{EB} = 10V, I_C = 0$	—	—	10	$\mu A$
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	30	—	—	V
DC Current Gain		$h_{FE}$	$V_{CE} = 2V, I_C = 150mA$	4000	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 1A, I_B = 1mA$	—	—	1.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 1A, I_B = 1mA$	—	—	2.2	V
Switching Time	Turn-on Time	$t_{on}$	<p> <math>I_{B(1)} = -I_{B(2)} = 1mA</math>  <math>I_C = 1A, P_W = 20\mu s, Du \leq 1\%</math> </p>	—	0.20	—	$\mu s$
	Storage Time	$t_{stg}$		—	0.6	—	$\mu s$
	Fall Time	$t_f$		—	0.3	—	$\mu s$

