

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

# 2SD633, 2SD635

HIGH POWER SWITCHING APPLICATIONS

INDUSTRIAL APPLICATIONS

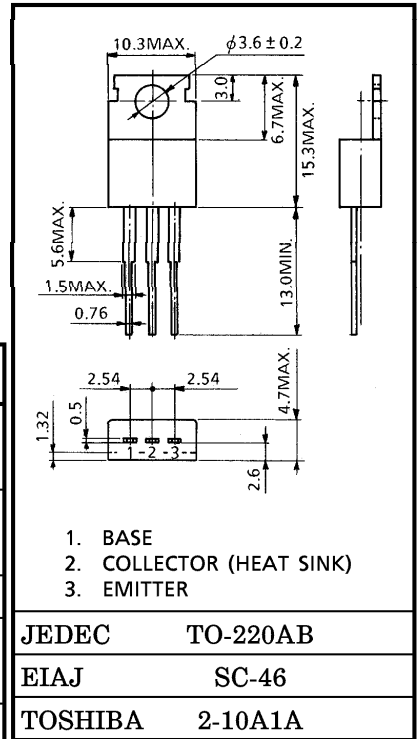
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

Unit in mm

- High DC Current Gain :  $h_{FE} = 2000$  (Min.)
- Low Saturation Voltage :  $V_{CE(sat)} = 1.5V$  (Max.)
- Complementary to 2SB673 and 2SB675.

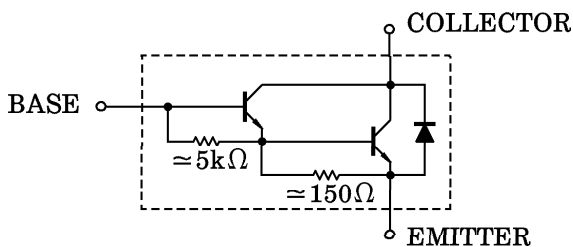
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	100	V
		60	
Collector-Emitter Voltage	$V_{CEO}$	100	V
		60	
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	7	A
	$I_{CP}$		
Base Current	$I_B$	0.7	A
Collector Power Dissipation ( $T_c = 25^\circ C$ )	$P_C$	40	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$



Weight : 1.9g (Typ.)  
Mounting kit No. AC75

EQUIVALENT CIRCUIT



961001EAA2

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	2SD633	I <sub>CB0</sub>	V <sub>CB</sub> = 100V, I <sub>E</sub> = 0	—	—	100	μA
	2SD635		V <sub>CB</sub> = 60V, I <sub>E</sub> = 0	—	—	100	
Emitter Cut-off Current		I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	—	—	3.0	mA
Collector-Emitter Breakdown Voltage	2SD633	V(BR) CEO	I <sub>C</sub> = 50mA, I <sub>B</sub> = 0	100	—	—	V
	2SD635			60	—	—	
DC Current Gain		h <sub>FE</sub> (1)	V <sub>CE</sub> = 3V, I <sub>C</sub> = 3A	2000	—	15000	
		h <sub>FE</sub> (2)	V <sub>CE</sub> = 3V, I <sub>C</sub> = 7A	1000	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub> (1)	I <sub>C</sub> = 3A, I <sub>B</sub> = 6mA	—	0.9	1.5	V
		V <sub>CE(sat)</sub> (2)	I <sub>C</sub> = 7A, I <sub>B</sub> = 14mA	—	1.2	2.0	
Base-Emitter Saturation Voltage		V <sub>BE(sat)</sub>	I <sub>C</sub> = 3A, I <sub>B</sub> = 6mA	—	1.5	2.5	V
Switching Time	Turn-on Time	t <sub>on</sub>	<p>20μs IN-PUT I<sub>B1</sub> I<sub>B2</sub> OUTPUT 15Ω I<sub>C</sub> V<sub>CC</sub> = 45V DUTY CYCLE ≤ 1%</p>	—	0.8	—	μs
	Storage Time	t <sub>stg</sub>		—	3.0	—	
	Fall Time	t <sub>f</sub>		I <sub>B1</sub> = -I <sub>B2</sub> = 6mA, DUTY CYCLE ≤ 1%	—	2.5	

