

**2SD633**  
**2SD634**  
**2SD635**

SILICON NPN TRIPLE DIFFUSED TYPE  
 (DARLINGTON POWER)

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07731 D T-33-29

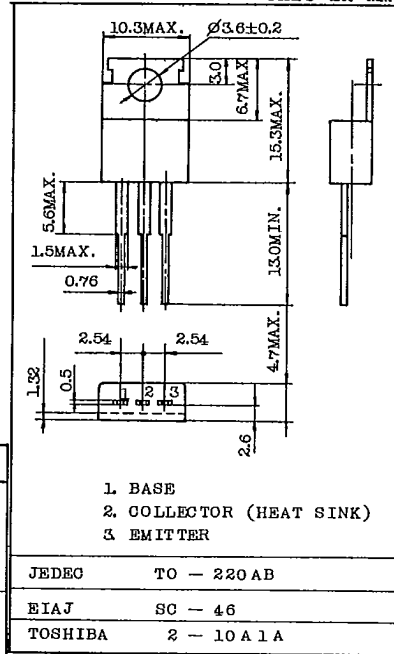
HIGH POWER SWITCHING APPLICATIONS.  
 HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS.

FEATURES:

- High DC Current Gain  
 :  $h_{FE}=2000$  (Min.) ( $V_{CE}=3V$ ,  $I_C=3A$ )
- Low Saturation Voltage  
 :  $V_{CE(sat)}=1.5V$  (Max.), ( $I_C=3A$ )
- Complementary to 2SB673, 2SB674, and 2SB675.

INDUSTRIAL APPLICATIONS

Unit in mm

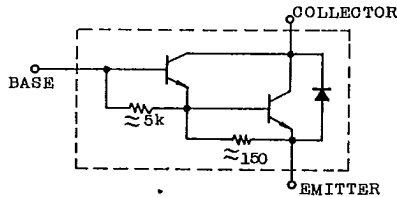


MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage	2SD633	$V_{CBO}$	100	V
	2SD634		80	
	2SD635		60	
Collector-Emitter Voltage	2SD633	$V_{CEO}$	100	V
	2SD634		80	
	2SD635		60	
Emitter-Base Voltage		$VEBO$	5	V
Continuous Collector Current		$I_C$	7	A
Continuous Base Current		$I_B$	0.2	A
Collector Power Dissipation ( $T_c=25^\circ C$ )		$PC$	40	W
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	-55~150	$^\circ C$

Mounting Kit No. AC75  
 Weight : 1.9g

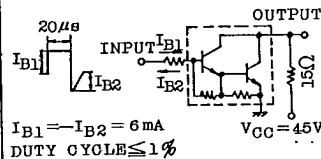
EQUIVALENT CIRCUIT



TOSHIBA CORPORATION

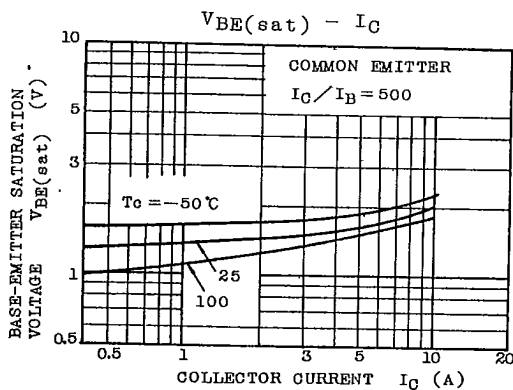
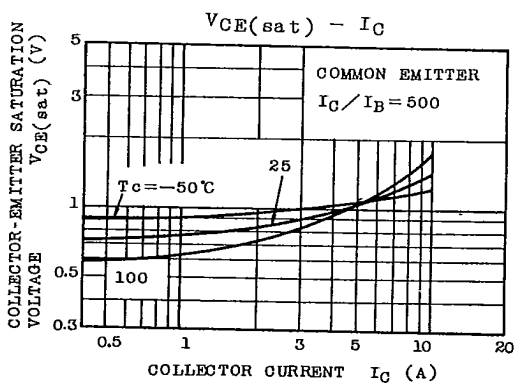
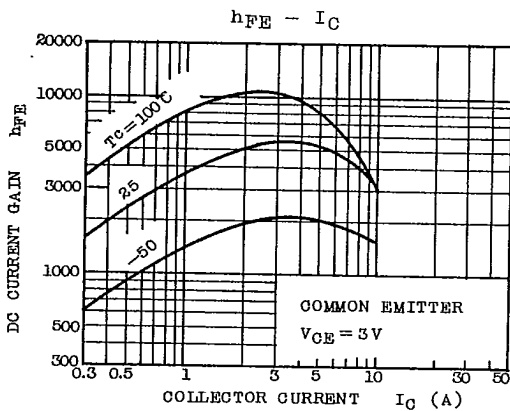
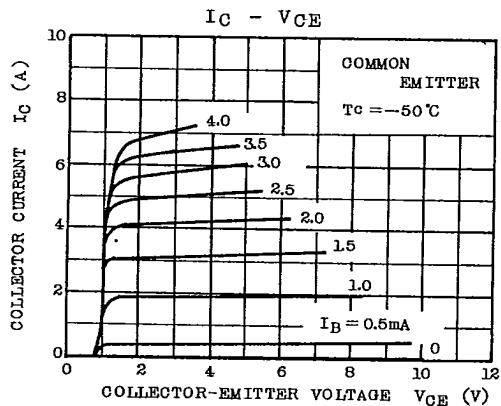
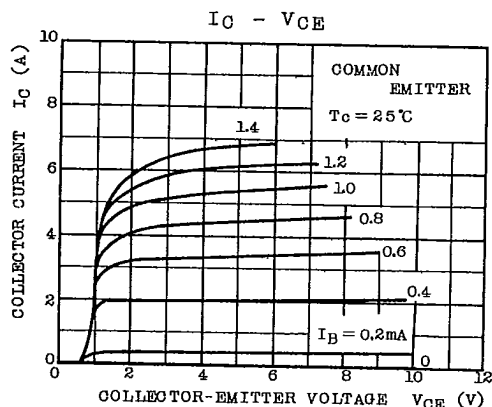
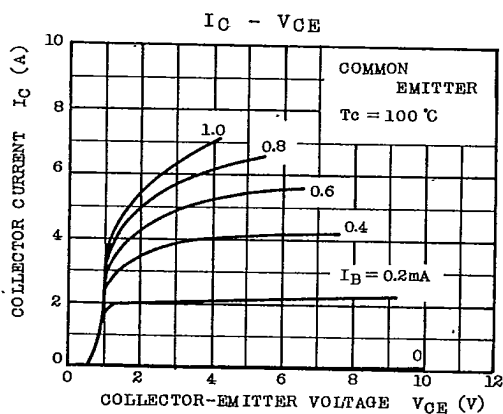
**2SD633 • 2SD634 • 2SD635**

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	2SD633	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0	-	-	100	μA	
	2SD634		V <sub>CB</sub> =80V, I <sub>E</sub> =0	-	-	100		
	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 <sub>(BR)CEO</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =0	100	-	-	V	
	2SD634			80	-	-		
	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 I<sub>B1</sub> INPUT I<sub>B1</sub> I<sub>B2</sub> I<sub>B2</sub> I<sub>C</sub> OUTPUT R<sub>L</sub> V<sub>CC</sub>=45V</p>	-	0.8	-	μs	
	Storage Time	t <sub>stg</sub>		I <sub>B1</sub> = -I <sub>B2</sub> = 6mA DUTY CYCLE ≤ 1%	-	3.0		-
	Fall Time	t <sub>f</sub>			-	2.5		-

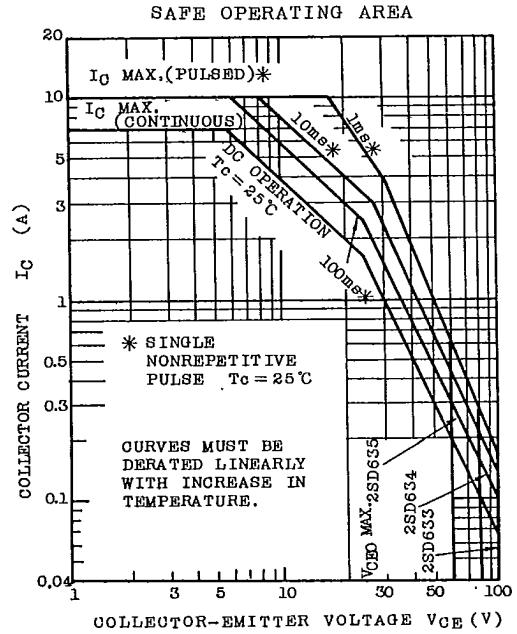
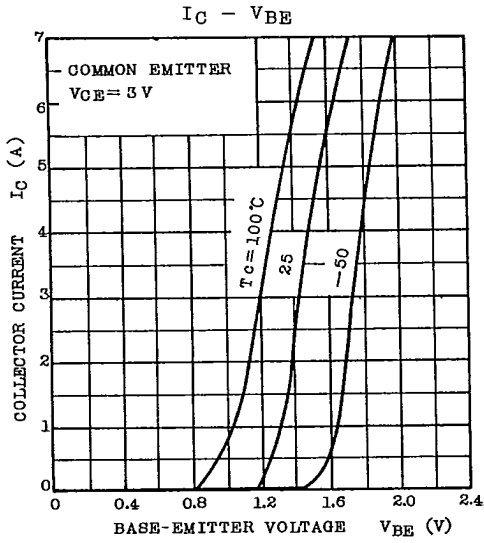
TOSHIBA CORPORATION

**2SD633 • 2SD634 • 2SD635**



TOSHIBA CORPORATION

**2SD633 • 2SD634 • 2SD635**



TOSHIBA CORPORATION