

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07939 U T-33-09

**2SD1405**

SILICON NPN TRIPLE DIFFUSED TYPE

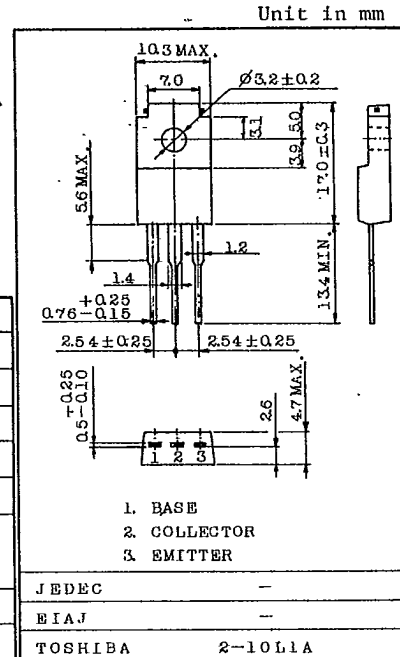
AUDIO FREQUENCY POWER AMPLIFIER APPLICATIONS.

## FEATURES:

- High DC Current Gain of 200 to 1200 at  $V_{CE}=5V$ ,  $I_C=0.5A$
- Low  $V_{CE(sat)}$  of 1.0V (Max.) at  $I_C=1A$ ,  $I_B=0.02A$
- Collector Power Dissipation of 25W at  $T_c=25^\circ C$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	50	V
Collector-Emitter Voltage	$V_{CE0}$	50	V
Emitter-Base Voltage	$V_{EB0}$	7	V
Collector Current	$I_C$	3	A
Base Current	$I_B$	0.5	A
Collector Power Dissipation	$P_C$	$T_a=25^\circ C$	2.0
		$T_c=25^\circ C$	25
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 ~ 150	$^\circ C$

ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

Weight : 2.1g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=50V$ , $I_E=0$	-	-	100	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=7V$ , $I_C=0$	-	-	100	$\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=50mA$ , $I_B=0$	50	-	-	V
DC Current Gain	$h_{FE}$ (Note)	$V_{CE}=5V$ , $I_C=0.5A$	200	-	1200	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A$ , $I_B=0.02A$	-	0.25	1.0	V
Base-Emitter Voltage	$V_{BE}$	$V_{CE}=5V$ , $I_C=0.5A$	-	0.7	1.0	V
Transition Frequency	$f_T$	$V_{CE}=5V$ , $I_C=0.5A$	-	5.0	-	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V$ , $I_E=0$ , $f=1MHz$	-	70	-	pF
Switching Time	Turn-on Time	$t_{on}$	-	2.0	-	$\mu s$
	Storage Time	$t_{stg}$	-	5.0	-	
	Fall Time	$t_f$	-	3.0	-	

$I_{B1}=10mA$   
 $I_{B2}=-20mA$   
DUTY CYCLE < 1%

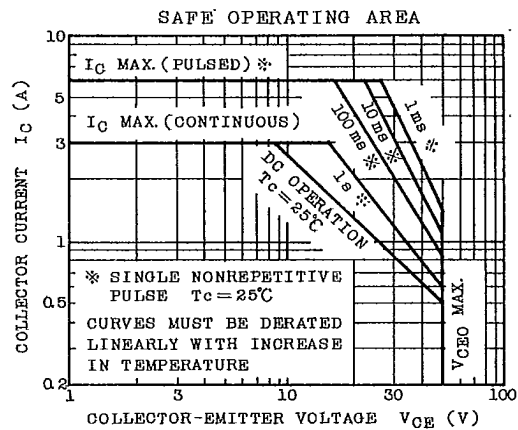
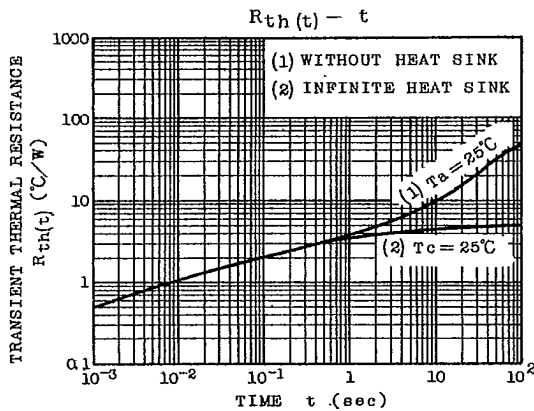
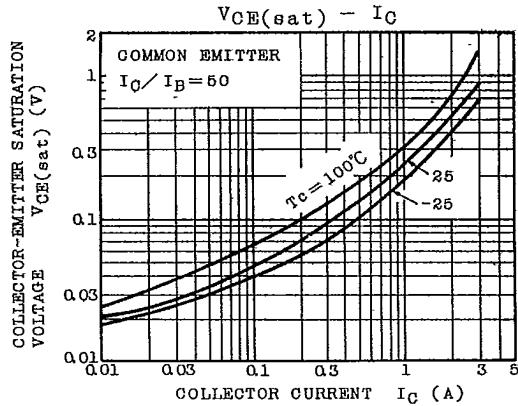
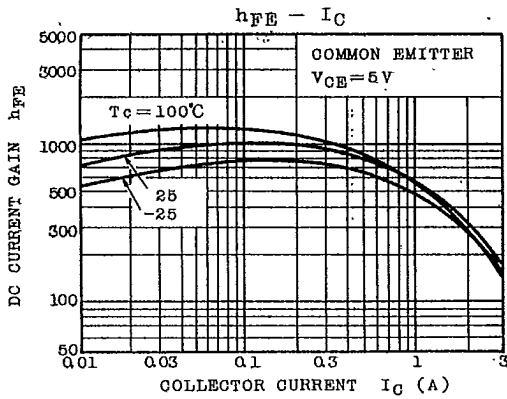
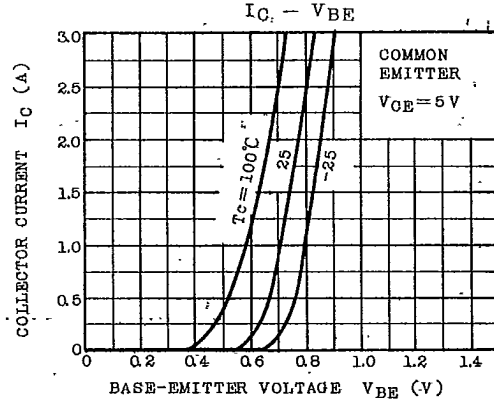
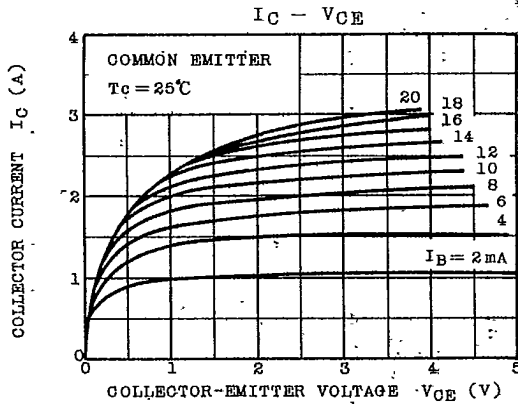
Note :  $h_{FE}$  Classification GR : 200 ~ 400, BL : 350 ~ 700, V : 600 ~ 1200

TOSHIBA CORPORATION

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