

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07677 DT-33-09

**2SC3299**

SILICON NPNEPITAXIAL TYPE (PCT PROCESS)

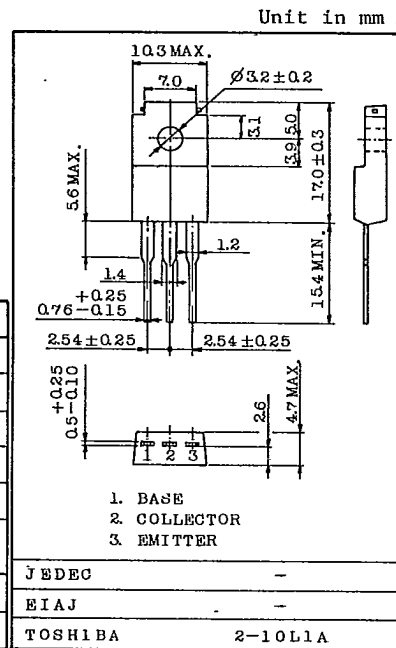
HIGH CURRENT SWITCHING APPLICATIONS.

## FEATURES:

- Low Collector Saturation Voltage  
:  $V_{CE(sat)}=0.4V(\text{Max.})$  at  $I_C=3A$
- High Speed Switching Time :  $t_{stg}=1.0\mu s(\text{Typ.})$
- Complementary to 2SA1307

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	5	A
Base Current	$I_B$	1	A
Collector Power Dissipation	$P_C$	$T_a=25^\circ C$	2.0
		$T_c=25^\circ C$	20
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 ~ 150	$^\circ C$



Weight : 2.1g

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=50V, I_E=0$	-	-	1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$	-	-	1	$\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	50	-	-	V
DC Current Gain	$h_{FE(1)}$ (Note)	$V_{CE}=1V, I_C=1A$	70	-	240	
	$h_{FE(2)}$	$V_{CE}=1V, I_C=3A$	30	-	-	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	-	0.2	0.4	V
	Base-Emitter	$V_{BE(sat)}$	-	0.9	1.2	
Transition Frequency	$f_T$	$V_{CE}=4V, I_C=1A$	-	120	-	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$	-	80	-	pF
Switching Time	Turn-on Time	$t_{on}$	-	0.1	-	$\mu s$
	Storage Time	$t_{stg}$	-	1.0	-	
	Fall Time	$t_f$	-	0.1	-	

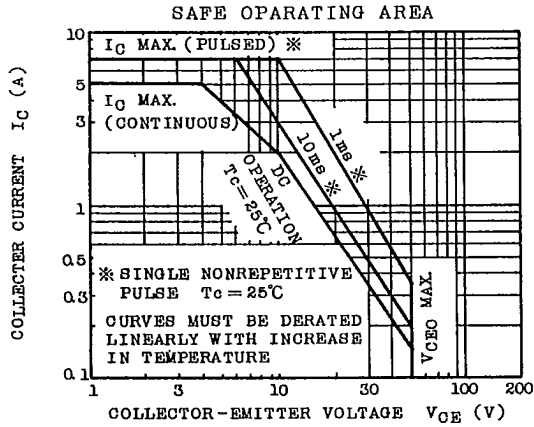
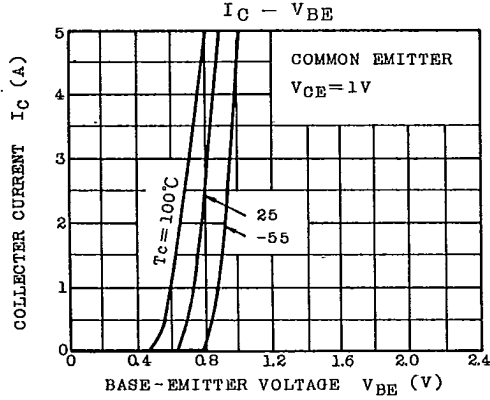
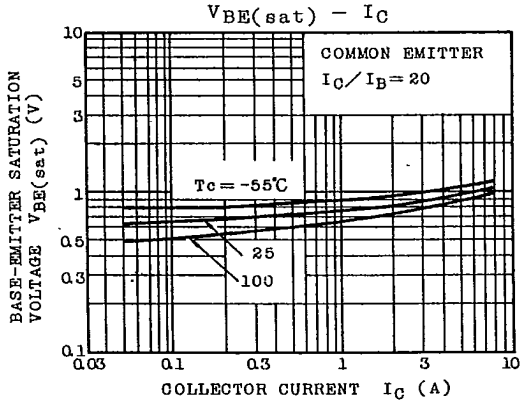
$I_{B1}$  INPUT  $I_{B2}$  OUTPUT  
 $I_{B1} = -I_{B2} = 0.15A$   
 $V_{CC} = 30V$   
 $20\mu s$   
 DUTY CYCLE  $\leq 1\%$

Note :  $h_{FE(1)}$  Classification O : 70~140, Y : 120~240

TOSHIBA CORPORATION



**2SC3299**



TOSHIBA CORPORATION