

SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

# 2SC108A

# 2SC109A

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07406 DT-3/23

Unit in mm

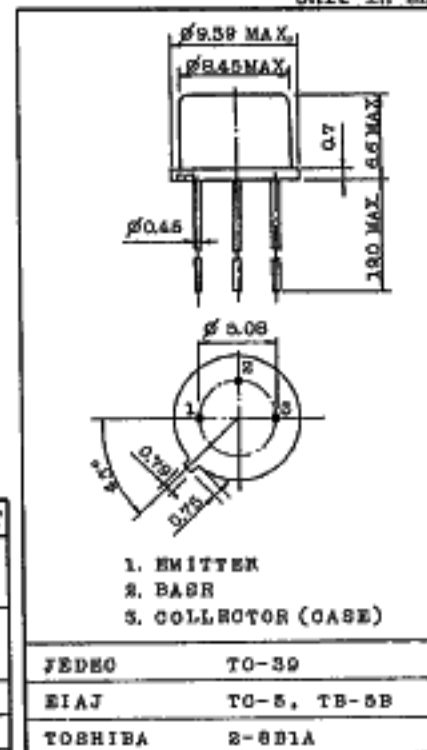
HIGH FREQUENCY AMPLIFIER APPLICATIONS.  
HIGH SPEED SWITCHING APPLICATIONS.

## FEATURES:

- High Switching Speed:  $t_{stg}=60\text{ns}$  (Typ.)
- High Transition Frequency:  $f_T = 150\text{MHz}$  (Typ.)
- High Breakdown Voltage  
:  $V_{CBO}=90\text{V}$  (2SC108A)
- Low Collector Saturation Voltage  
:  $V_{CE(sat)}=0.4\text{V(Max.)}$  at  $I_C=200\text{mA}$ ,  $I_B=20\text{mA}$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	2SC108A	90	V
	2SC109A	70	
Collector-Emitter Voltage	2SC108A	70	V
	2SC109A	50	
Emitter-Base Voltage	$V_{EBQ}$	5	V
Collector Current	$I_C$	800	mA
Base Current	$I_B$	100	mA
Collector Power Dissipation	PC	800	mW
Junction Temperature	$T_j$	175	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65~175	$^\circ\text{C}$



Weight : 1.14g

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT			
Collector Cut-off Current	2SC108A	$V_{CB}=80\text{V}$ , $I_E=0$	-	-	0.5	$\mu\text{A}$			
	2SC109A	$V_{CB}=60\text{V}$ , $I_E=0$	-	-	0.5	$\mu\text{A}$			
Emitter Cut-off Current	$I_{EBQ}$	$V_{EB}=5\text{V}$ , $I_C=0$	-	-	1.0	$\mu\text{A}$			
DC Current Gain	$h_{FE}$ (Note)	$V_{CE}=2\text{V}$ , $I_C=200\text{mA}$	40	-	240				
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C=200\text{mA}$ , $I_B=20\text{mA}$	-	0.2	0.4	V		
	Base-Emitter	$V_{BE(sat)}$	$I_C=200\text{mA}$ , $I_B=20\text{mA}$	-	0.8	1.0			
Transition Frequency	$f_T$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$	100	150	-	MHz			
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$	-	9	15	pF			
Switching Time	Turn-on Time	$t_{on}$				30	70	ns	
	Storage Time	$t_{stg}$				-	60		80
	Fall Time	$t_f$				-	20		40

Note :  $h_{FE}$  Classification R : 40 ~ 80, O : 70 ~ 140, Y : 120 ~ 240

TOSHIBA CORPORATION