

# MAC97A8

Rev.E Mar.-2016

## 描述 / Descriptions

TO-92 塑封封装双向可控硅。 Triac in a TO-92 Plastic Package.

## 特征 / Features

四种灵敏的门触发模式适合于各种组合的触发电源。

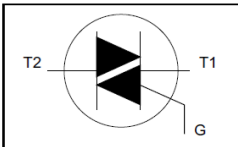
Sensitive Gate Triggering in Four Trigger Modes for all possible Combinations of Trigger Sources..

## 用途 / Applications

用于固态继电器、微处理器面板、TTL 逻辑门、工业灯具。

Used in solid state relays. MPU interface. TTL logic and any other industrial application.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Main Terminal 2

PIN 2 : Gate

PIN 3 : Main Terminal 1

## 放大及印章代码 / $h_{FE}$ Classifications & Marking

见印章说明。 See Marking Instructions.

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit	
Repetitive peak off-state voltages	$V_{DRM}$	600	V	
RMS on-state current	$I_{T(RMS)}$	0.6	A	
Non-repetitive peak on-state current	$I_{TSM}(t=20ms)$	8.0	A	
Non-repetitive peak on-state current	$I_{TSM}(t=16.7ms)$	8.8	A	
$I^2_t$ for fusing	$I^2t(t=10ms)$	0.32	A <sup>2</sup> S	
Repetitive rate of rise of on-state current after triggering	$d_{IT}/dt$ $I_{TM}=1A,$ $I_G=0.2A$ $d_{IG}/dt=$ $0.2A/\mu s$	T2+G+	A/ $\mu$ S	
Repetitive rate of rise of on-state current after triggering		T2+G-		50
Repetitive rate of rise of on-state current after triggering		T2-G-		50
Repetitive rate of rise of on-state current after triggering		T2-G+		10
Peak gate current	$I_{GM}(t=2\mu s_{max})$	1.0	A	
Peak gate voltages	$V_{GM}(t=2\mu s_{max})$	5.0	V	
Peak gate power	$P_{GM}(t=2\mu s_{max})$	5.0	W	
Average gate power	$P_{G(AV)}$ (Tcase=80°C t=2 $\mu$ smax)	0.1	W	
Peak gate current	$I_{GM}$	1.0	A	
Junction Temperature	$T_j$	-40~125	°C	
Storage Temperature Range	$T_{stg}$	-40~150	°C	

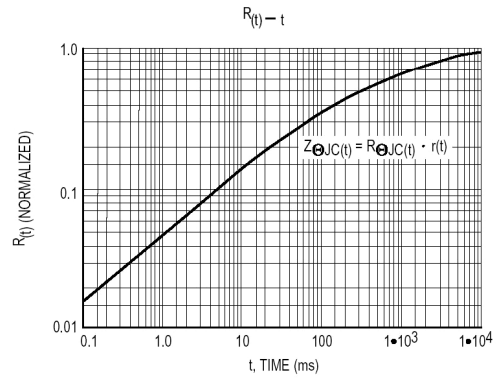
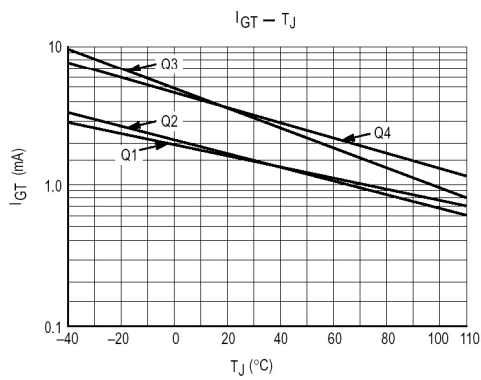
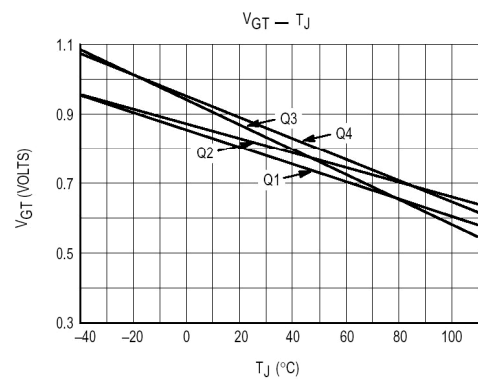
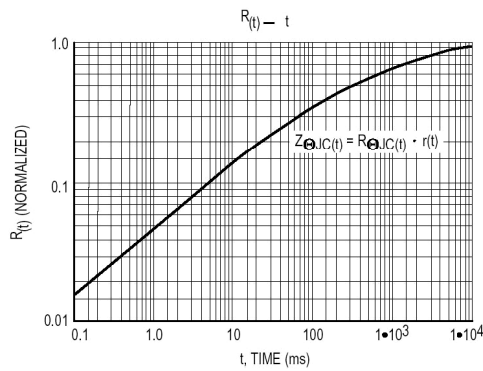
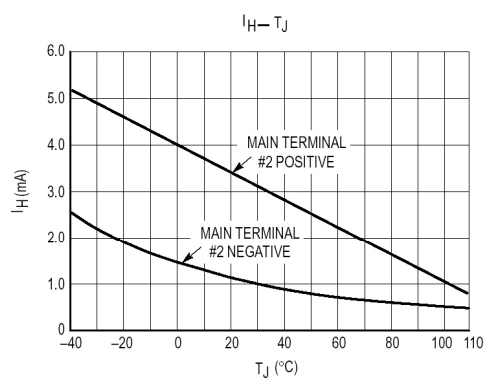
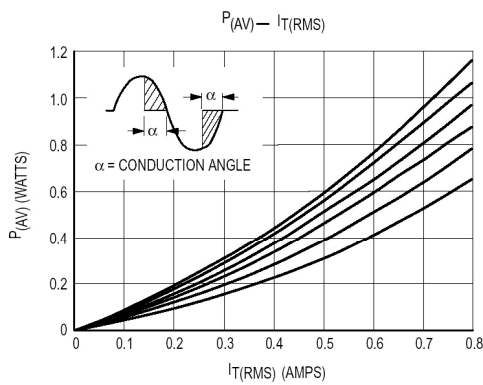
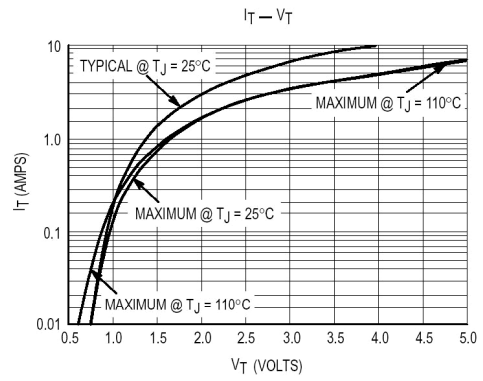
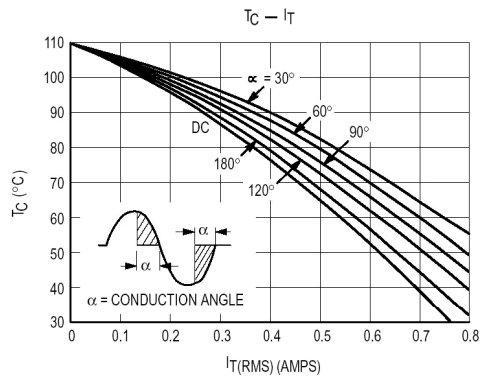
**电性能参数 / Electrical Characteristics(Ta=25°C)**

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Gate trigger current	$I_{GT}$	$V_D=12V,$ $I_T=0.1A$	T2+G+	1.0	5.0	mA
			T2+G-	2.0	5.0	
			T2-G-	2.0	5.0	
			T2-G+	4.0	7.0	
Latching current	$I_L$	$V_D=12V;$ $I_{GT}=0.1A$	T2+G+	1.0	10	mA
			T2+G-	5.0	10	
			T2-G-	1.0	10	
			T2-G+	2.0	10	
Holding current	$I_H$	$V_D=12V$ $I_{GT}=0.1A$		1.0	10	mA
On-state voltage	$V_T$	$I_T=0.85A$		1.4	1.9	V

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Gate trigger voltage	$V_{GT}$	$V_D=12V$ $I_T=0.1A$		0.9	2.0	V
		$V_D=V_{DRM}$ $I_T=0.1A$ $T_J=110^\circ C$	0.1	0.7		
Off-state leakage current	$I_D$	$V_D=V_{DRM(max)}$ $T_J=110^\circ C$		3.0	100	$\mu A$
Gate Controlled Turn-On Time	tgt	$I_{TM}=1.0A$ $V_D=V_{DRM}$ $I_G=25mA, d_{IG}/dt=5A/\mu s$		2.0		$\mu s$
Critical Rate-of-Rise of Commutation Voltage	$d_{VD}/dt$	$V_D=67\%$ of $V_{DM(max)}$ , $T_{case}=110^\circ C$ exponential waveform gate open circuit	30	45		V/ $\mu s$
Critical Rate-of-Rise of Off State Voltage	$d_{Vcom}/dt$	$V_D=rated V_{DRM}$ $T_{case}=50^\circ C$ $I_{TM}=0.84A$ , commutating $d_I/dt=0.3A/\mu s$		5.0		V/ $\mu s$
Critical rate of rise of off-state current	$I_{DRM}$	$V_{DRM}=600V$			0.5	mA
Repetitive peak off-state current	$I_{RRM}$	$V_{RRM}=600V$			0.5	mA

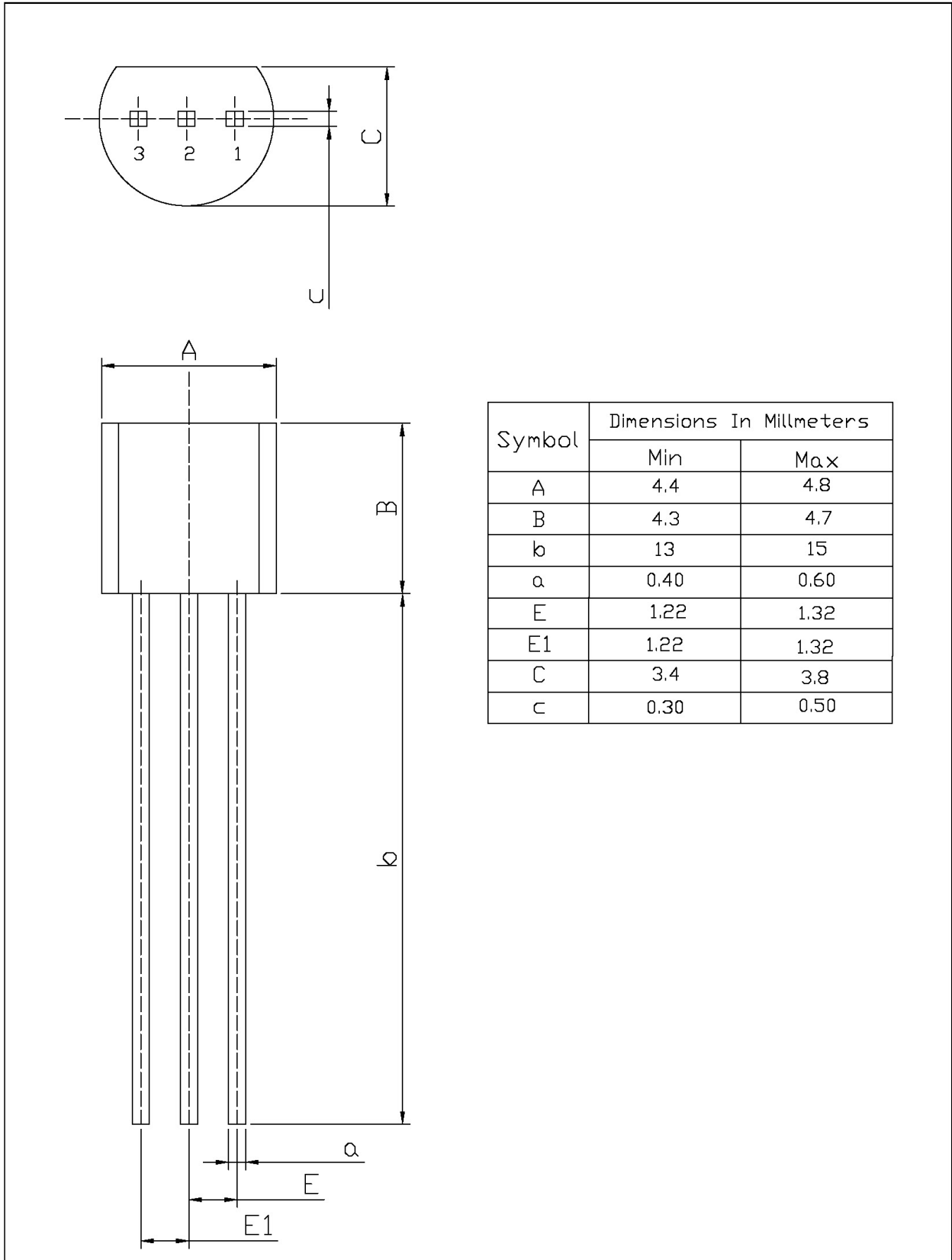
**电参数曲线图 / Electrical Characteristic Curve**



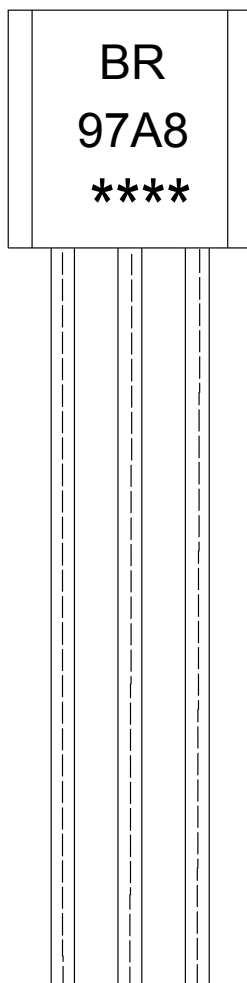
外形尺寸图 / Package Dimensions

TO-92

Unit: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

97A8： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

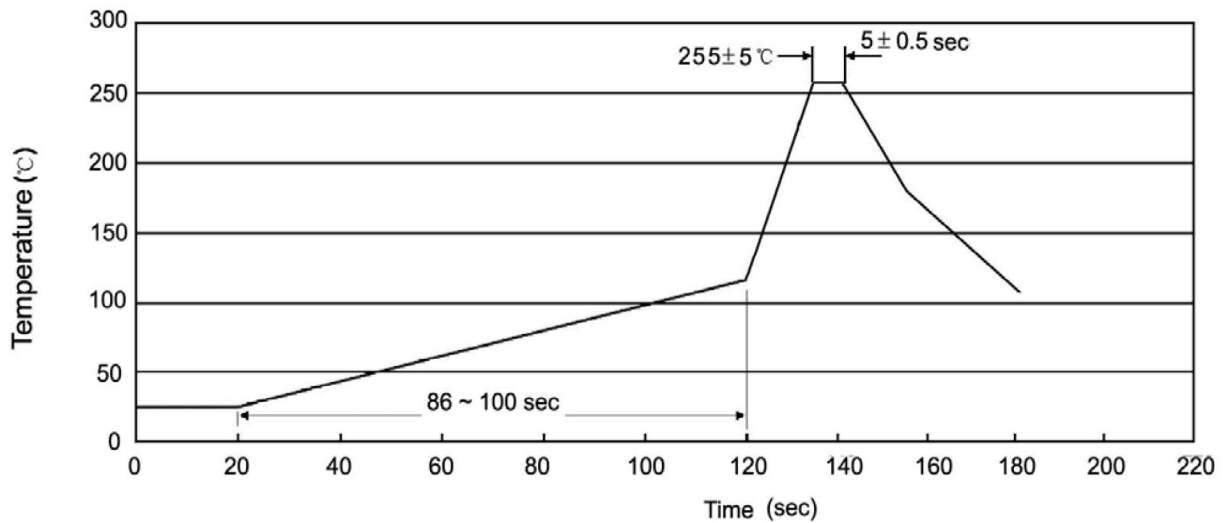
Note:

BR: Company Code.

97A8: Product Type.

\*\*\*\*: Lot No. Code, code change with Lot No.

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25 ~ 150°C，时间 60 ~ 90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：270±5°C

时间：10±1 sec.

Temp.:270±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

散件包装 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-92	1,000	10	10,000	5	50,000	135×190	237×172×102	560×245×195
	1,000	10	10,000	10	100,000	135×190	237×172×102	560×245×375

编带包装 / AMMO

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)	
	Units/tape 只/纸带	Tape/Inner Box 纸带/盒	Rows/Inner Box 纸带层/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Inner Box 盒	Outer Box 箱
TO-92	3,000	1	120	10	30,000	328×230×42	小箱 480×346×235, 大箱 547×407×268

**使用说明 / Notices**