



## Features

- Blocking voltage to 600 V
- RMS on-state current to 0.8 A
- General purpose bidirectional switching

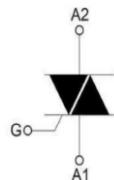
1. ANODE
2. ANODE
3. GATE



**SOT-23**

## Package Marking and Ordering Information

Product ID	Pack	Packing Method	Qty(PCS)
MAC97A6	SOT-23	Tape & Reel	3000



## Maximum Ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Value	Unit
$V_{DRM} / V_{RRM}$	repetitive peak off-state voltage		600	V
$I_{T(RMS)}$	RMS on-state current		0.8	A
$I_{TSM}$	Non repetitive surge peak on-state current	$t = 20\text{ms}$ $T_j = 25^\circ\text{C}$	8	A
		$t = 16.7\text{ms}$ $T_j = 25^\circ\text{C}$	6	
$I^2 t$	$I^2 t$ for fusing	$t = 10\text{ ms}$	0.5	$\text{A}^2\text{s}$
$dI/dt$	Critical-rate of rise of commutation current	I II III IV $I_G = 2I_{GT}t_r \leq 100\text{ns}$ $F = 120\text{Hz}$	50 10	$\text{A}/\mu\text{s}$
$I_{GM}$	Peak Gate Current	$T_j = 125^\circ\text{C}$ $t_p = 20\mu\text{s}$	0.3	A
$V_{GM}$	Peak gate voltage	$T_j = 125^\circ\text{C}$	1	V
$P_{GM}$	Peak gate power	$T_j = 125^\circ\text{C}$	0.6	W
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125^\circ\text{C}$	0.3	W
$T_j$	Junction Temperature	-	-40 ~ 125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-	-40 ~ 150	$^\circ\text{C}$

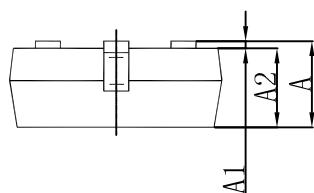
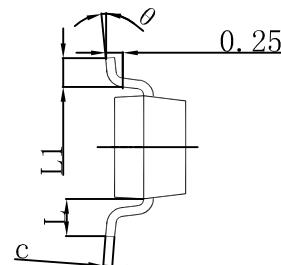
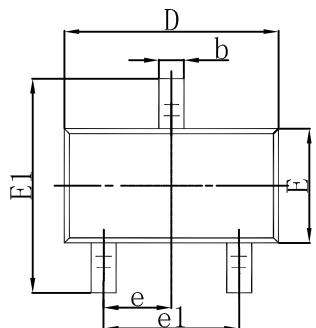


### Electrical Characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit	
<b>Repetitive Peak Off-State Current</b> <b>Repetitive Peak Reverse Current</b>	$I_{DRM}, I_{RRM}$	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ C$			5	$\mu A$	
		$V_{DRM} = V_{RRM}$	$T_j = 125^\circ C$			1	mA	
<b>Gate non-trigger voltage</b>		$V_{GD}$		$V_D = 1/2 V_{DRM}$	0.2		V	
<b>On-state voltage</b>		$V_{TM}$		$I_T = 0.8 A, t_p = 380 \mu s$		1.65	V	
<b>Gate trigger current</b>	I	$I_{GT}$	$T_2(+), G(+)$	$V_D = 12V$ $R_L = 100\Omega$		5	mA	
	II		$T_2(+), G(-)$			5		
	III		$T_2(-), G(-)$			5		
	IV		$T_2(-), G(+)$			-		
<b>Gate trigger voltage</b>	I	$V_{GT}$	$T_2(+), G(+)$	$V_D = 12V$ $R_L = 100\Omega$		0.8	V	
	II		$T_2(+), G(-)$			0.8		
	III		$T_2(-), G(-)$			0.8		
	IV		$T_2(-), G(+)$			0.8		
<b>Holding current</b>		$I_H$	$V_D = 12V, I_{GT} = 100mA$			30	mA	
<b>Critical-rate of rise of commutation voltage</b>		$dV/dt$	$V_{DM} = 67\% V_{DRM}$ Gate open $T_j = 125^\circ C$			50	V/us	
<b>Rate of change of commutating voltage</b>		$(dI/dt)_c$	$V_{DM} = 400V$ $T_j = 125^\circ C$ $(dI/dt)_c = 5.4A/ms$ Gate open			20	V/us	
<b>Turn-on time</b>		$t_{gt}$	$I_{TM} = 16A, V_{DM} = V_{DRM(MAX)}$ $I_G = 0.1A, dI_G/dt = 5A \mu s$			2	us	

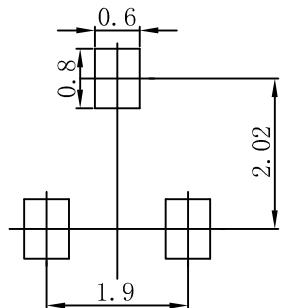


## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purposes only.



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