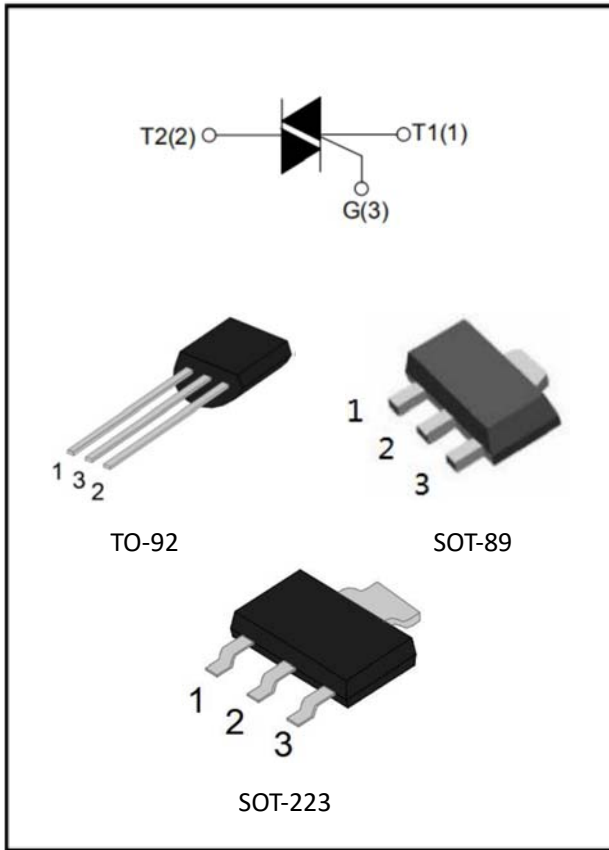


## 1A 4Q Triac



### Features

- On-state rms current,  $I_{T(RMS)}$  1 A
- Repetitive peak off-state voltage,  $V_{DRM}/V_{RRM}$  800 V
- Triggering gate current,  $I_{GT(Q1)}$  5 mA

### Applications

- General purpose switching and phase control
- General purpose low power switching
- Solid-state relay

### Mechanical Data

- Case Material: "Green" Molding Compound
- Package:

DEVICE	PACAKGE
ACY0810S2	SOT-223
ACY0810S3	SOT-89
ACY0810T9	TO-92

### Main Characteristics

SYMBOL	LIMITS	UNIT
$I_{T(RMS)}$	1	A
$V_{DRM}/V_{RRM}$	800	V
$I_{GT}$	5	mA

### Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Storage junction temperature range	$T_{stg}$	-40~150	°C
Operating junction temperature range	$T_j$	-40~125	°C
Repetitive surge peak Off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	800	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	800	V
RMS on-state current ( $T_C=80^\circ\text{C}$ )	$I_{T(RMS)}$	1	A
Non-repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )	$I_{TSM}$	16	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	1.28	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	di/dt	I - II - III	50
		IV	10
Peak gate current	$I_{GM}$	2	A
Average gate power dissipation	$P_{G(AV)}$	0.5	W
Peak gate power	$P_{GM}$	5	W



# ACY0810 Series

## ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	QUADRANT	MIN	TYP	MAX
Gate trigger current	I <sub>GT</sub>	mA	V <sub>D</sub> =12V, R <sub>L</sub> =33Ω	I - II - III			5
				IV			10
Gate trigger voltage	V <sub>GT</sub>	V	V <sub>D</sub> =12V, R <sub>L</sub> =33Ω	I - II - III - IV			1.3
Non-triggering gate voltage	V <sub>GD</sub>	V	V <sub>D</sub> =V <sub>DRM</sub>	I - II - III - IV	0.2		
Holding current	I <sub>H</sub>	mA	I <sub>T</sub> =100mA	I - II - III - IV			7
Latching current	I <sub>L</sub>	mA	I <sub>G</sub> =1.2 I <sub>GT</sub>	I - III - IV			5
				II			20
Rate of rise of off-state voltage	dV/dt	V/μs	V <sub>D</sub> =0.66×V <sub>DRM</sub> T <sub>j</sub> =125°C Gate open	I - II - III - IV	50		

## ■Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MAX
Peak on-state voltage	V <sub>TM</sub>	V	I <sub>TM</sub> =1.4A t <sub>p</sub> =380μs	1.5
Peak off-state current Peak reverse current	I <sub>DRM</sub> I <sub>RRM</sub>	μA	V <sub>DRM</sub> =V <sub>RRM</sub> , T <sub>j</sub> =25°C	5
		mA	V <sub>DRM</sub> =V <sub>RRM</sub> , T <sub>j</sub> =125°C	0.5

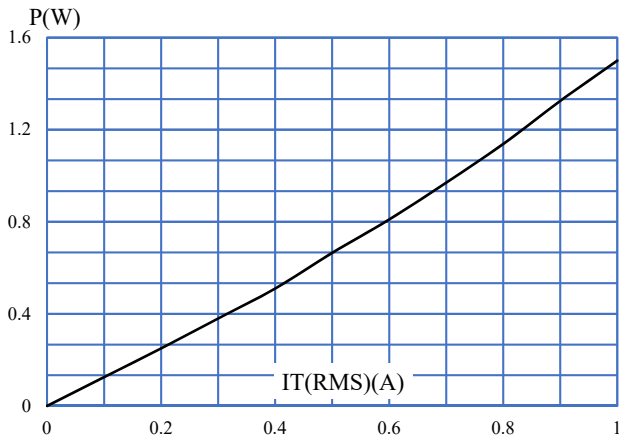
## ■Thermal Resistance (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Pacakge	Value	
Thermal Resistance (Typical)	Junction to case	R <sub>θJ-c</sub>	°C/W	TO-92	60
			°C/W	SOT-89	31
			°C/W	SOT-223	18

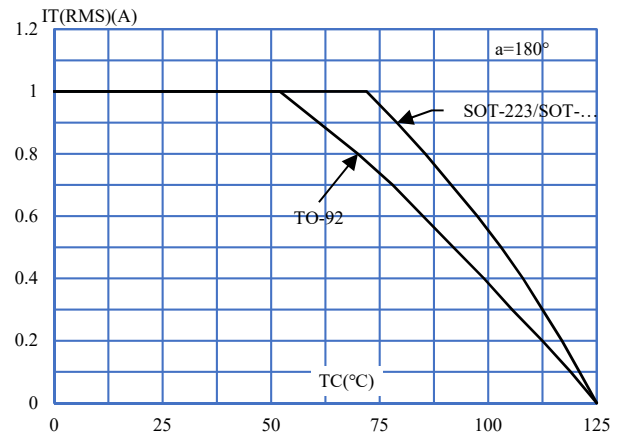


## ■ Characteristics (Typical)

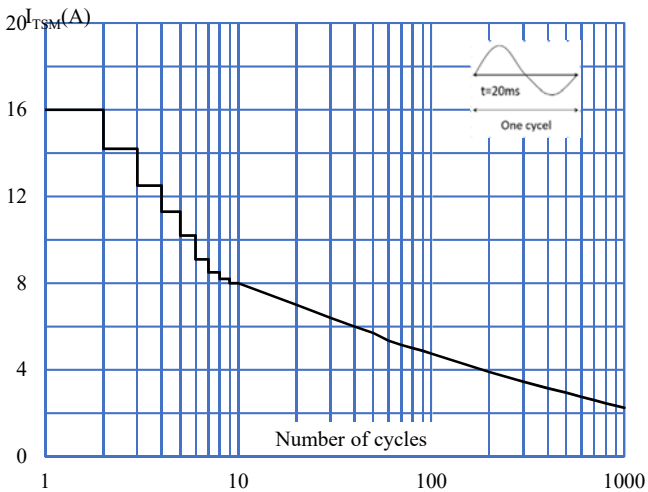
**FIG.1:** Maximum power dissipation versus RMS on-state current



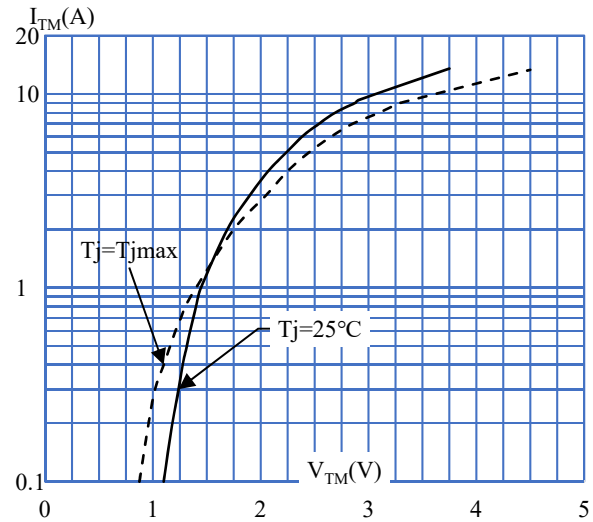
**FIG.2:** RMS on-state current versus case temperature



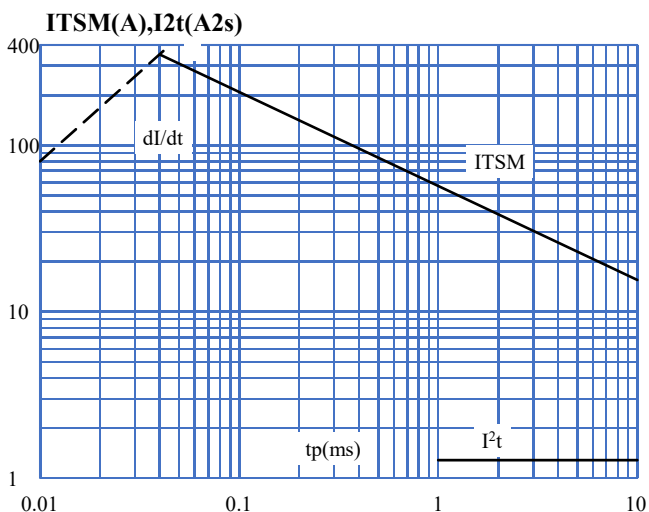
**FIG.3:** Surge peak on-state current versus number of cycles



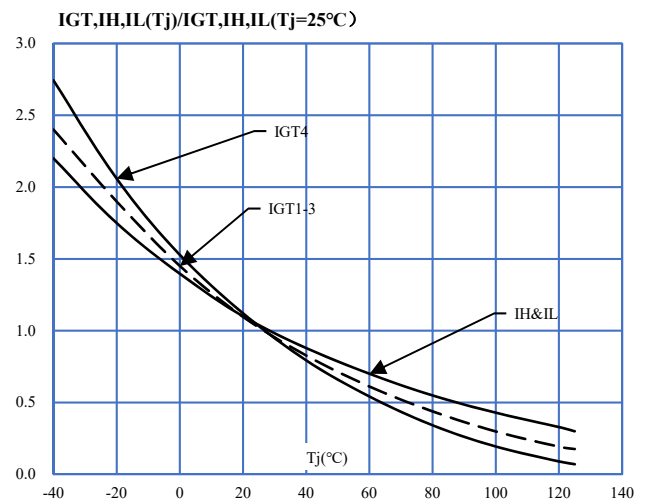
**FIG.4:** On-state characteristics (maximum values)



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I_2 t$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )



**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

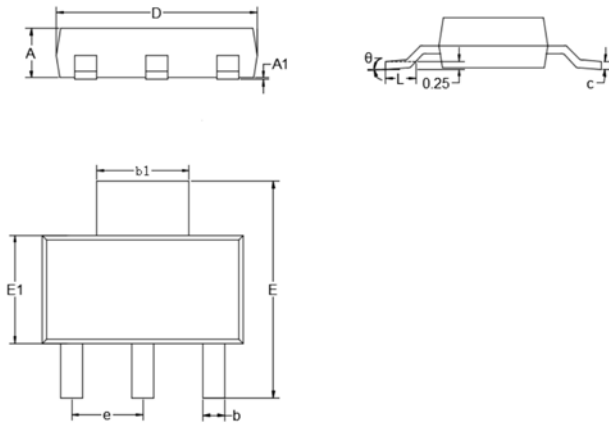




# ACY0810 Series

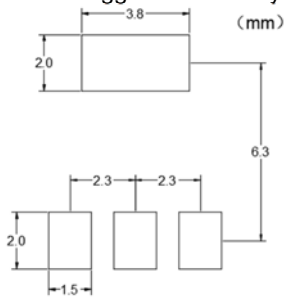
## ■ Outline Dimensions

### ➤ SOT-223 Package Outline Dimensions

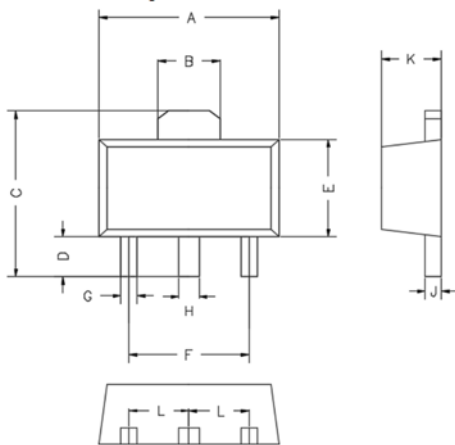


DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.0591	0.0670	1.5000	1.7000
A1	0.0008	0.0039	0.0200	0.1000
b	0.0259	0.0330	0.6600	0.8400
b1	0.1140	0.1220	2.9000	3.1000
c	0.0090	0.0138	0.2300	0.3500
D	0.2480	0.2640	6.3000	6.7000
E	0.2637	0.2874	6.7000	7.3000
E1	0.1290	0.1460	3.3000	3.7000
e	0.0866	0.0945	2.2000	2.4000
L	0.0295	0.0492	0.7500	1.2500
$\theta$	0°	10°	0°	10°

### SOT-223 Suggested Pad Layout

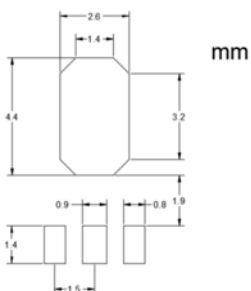


### ➤ SOT-89 Package Outline Dimensions



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP
G	0.013	0.020	0.33	0.52	
H	0.016	0.023	0.40	0.58	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059		1.50		TYP

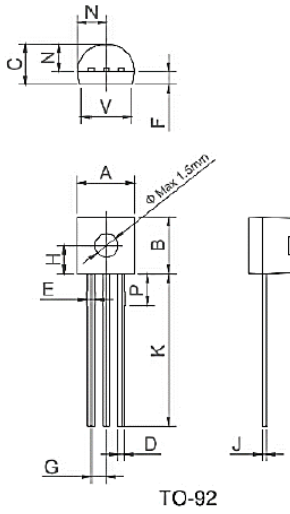
### SOT-89 Suggested Pad Layout





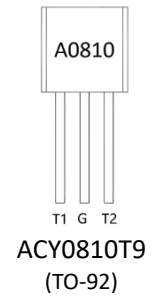
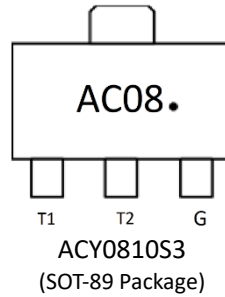
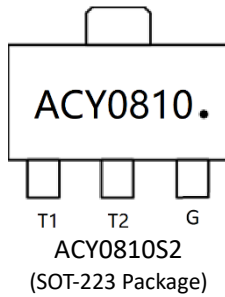
# ACY0810 Series

## ➤ TO-92 Package Outline Dimensions



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45	4.6	5.2	0.175	0.181	0.205
B	4.32	4.6	5.33	0.17	0.181	0.21
C	3.18	3.55	4.19	0.125	0.14	0.165
D	0.407		0.533	0.016		0.021
E	0.5		0.7	0.020		0.028
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.05	-
H	-	2.3	-	-	0.091	-
J	0.36	0.38	0.5	0.014	0.015	0.02
K	12.7		15	0.5		0.591
N	2.04	2.3	2.66	0.08	0.091	0.105
P	1.86		2.06	0.073		0.081
V			4.3			0.169

## ■ Marking Information





## ACY0810 Series

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