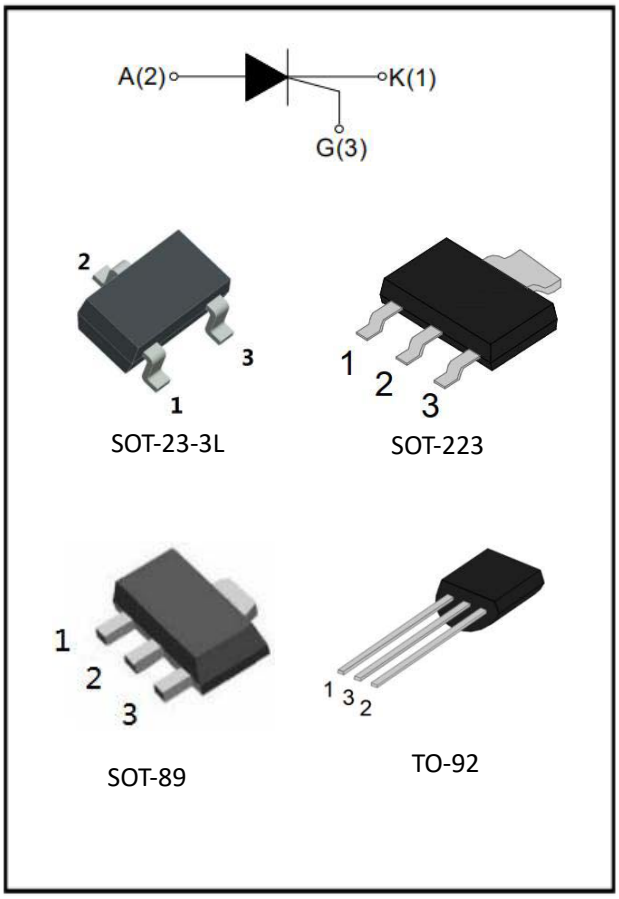
1A Sensitive SCRs



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} 200μA

Applications

- Ground Fault Circuit Interrupters (GFCI)
- General purpose switching and phase control
- Ignition circuits, CDI
- Motor control - e.g. small kitchen appliances

Mechanical Data

- Case Material: “Green” Molding Compound
- Package:

DEVICE	PACAKGE
YC0810S1	SOT-23-3L
YC0810S2	TO-92 SOT-223
YC0810S3	SOT-89
YC0810T9	TO-92
YC0810S4	SOT-223-2L

Main Characteristics

SYMBOL	LIMITS	UNIT
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	800	V
I_{GT}	200	μA

■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Storage junction temperature range	Tstg	-40~150	℃
Operating junction temperature range	Tj	-40~125	℃
Repetitive surge peak Off-state voltage (Tj=25℃)	V_{DRM}	800	V
Repetitive peak reverse voltage (Tj=25℃)	V_{RRM}	800	V
RMS on-state current (TC=80℃)	$I_{T(RMS)}$	1	A
Non-repetitive surge peak on-state current (half sine wave,tp=10ms,Tj=25℃)	I_{TSM}	8	A
I^2t value for fusing (tp=10ms)	I^2t	0.5	A^2s
Critical rate of rise of on-state current (IG=2×I_{GT})	di/dt	50	A/μs
Peak gate current	I_{GM}	0.2	A
Average gate power dissipation	$P_{G(AV)}$	0.1	W
Peak gate power	P_{GM}	0.5	W

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MIN	TYP	MAX
Gate trigger current	I_{GT}	μA	V_D=12V, R_L=33Ω		20	200
Gate trigger voltage	V_{GT}	V	V_D=12V, R_L=33Ω		0.5	1.0
Non-triggering gate voltage	V_{GD}	V	V_D=V_{DRM} Tj=110℃ R_L=3.3kΩ	0.2		
Holding current	I_H	mA	I_T=50mA			2
Latching current	I_L	mA	I_G=1.2 I_{GT}			3
Rate of rise of off-state voltage	dV/dt	V/μs	V_D=0.66×V_{DRM} Tj=110℃ Gate open R_{GK}=1KΩ	20		

■Thermal Characteristics （T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MAX
Peak on-state voltage	V_{TM}	V	I_{TM}=1.4A t_p=380μS	1.5
Peak off-state current Peak reverse current	I_{DRM} I_{RRM}	μA	V_{DRM}= V_{RRM}, Tj=25℃, R_{GK}=1KΩ	5
		mA	V_{DRM}= V_{RRM}, Tj=125℃, R_{GK}=1KΩ	0.5

■Thermal Resistance （Ta=25℃ Unless otherwise specified）

PARAMETER		SYMBOL	UNIT	Pacakge	Value
Thermal Resistance (Typical)	Junction to case	$R_{θJ-C}$	℃/W	TO-92/SOT-23	50
			℃/W	SOT-89	28
			℃/W	SOT-223	18

■ Characteristics (Typical)

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

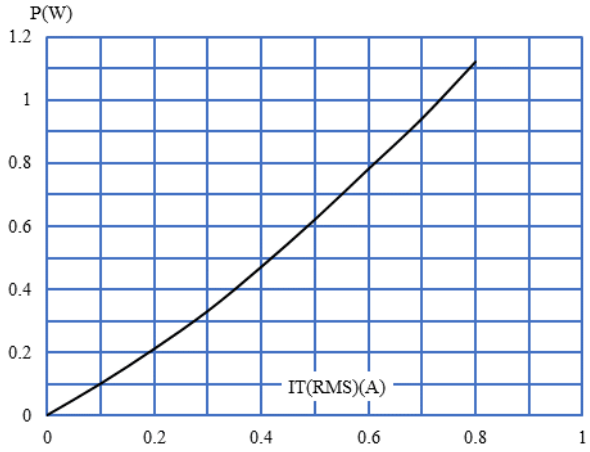


FIG.2: RMS on-state current versus case temperature

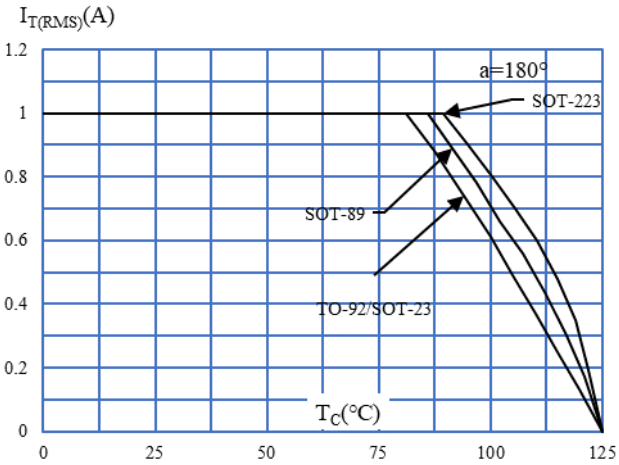


FIG.3: Surge peak on-state current versus number of cycles

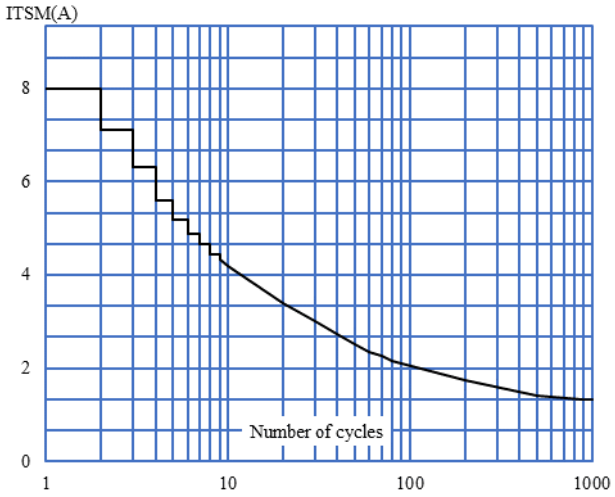


FIG.4: On-state characteristics (maximum values)

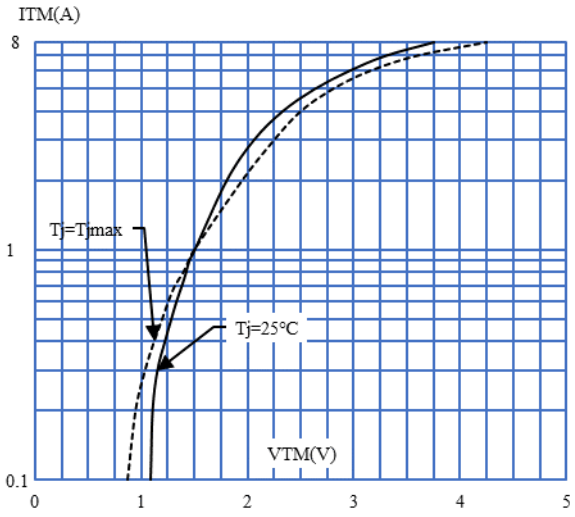


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I2 t (dI/dt < 50A/μs)

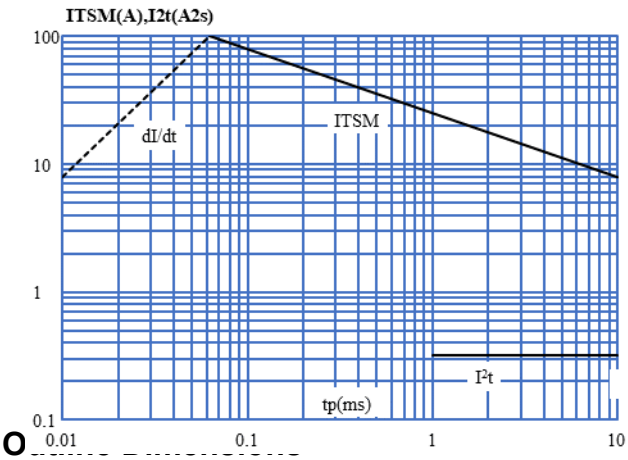
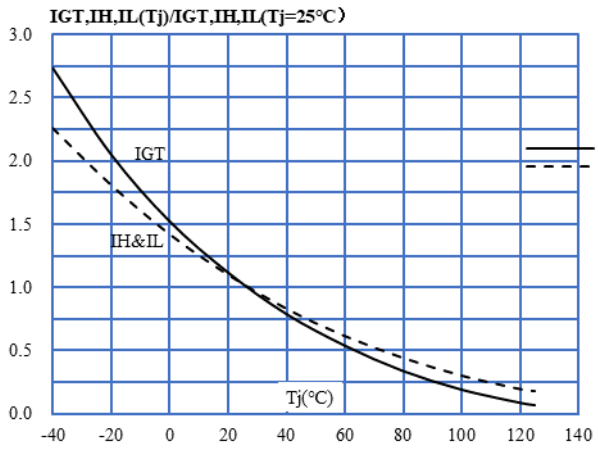
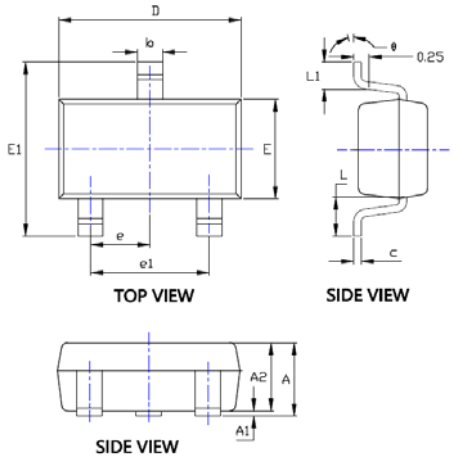


FIG.6: Relative variations of gate trigger current, holding current and latching



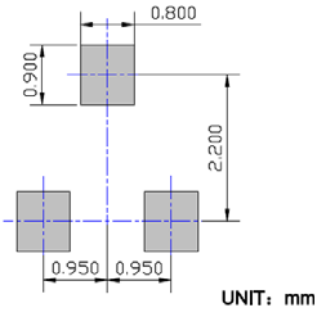
■ O

➢ SOT-23-3L Package Outline Dimensions

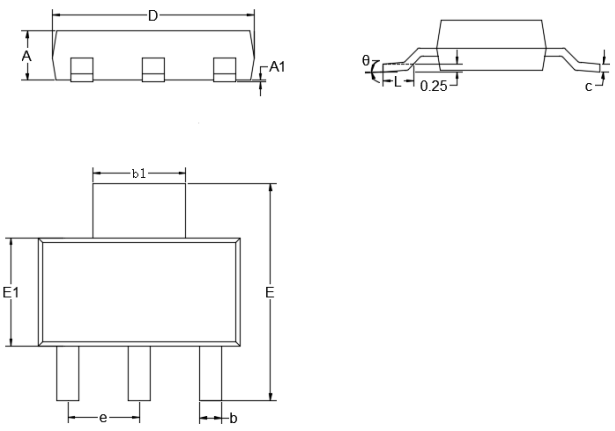


DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.041	0.049	1.050	1.250
A1	0.000	0.008	0.000	0.200
A2	0.041	0.045	1.050	1.150
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.111	0.119	2.820	3.020
E	0.059	0.067	1.500	1.700
E1	0.104	0.116	2.650	2.950
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.024REF		0.600REF	
L1	0.012	0.024	0.300	0.600
ø	0°	8°	0°	8°

SOT-23-3L Suggested Pad Layou

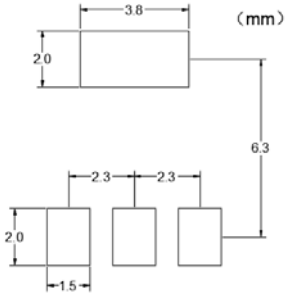


➢ SOT-223 Package Outline Dimensions



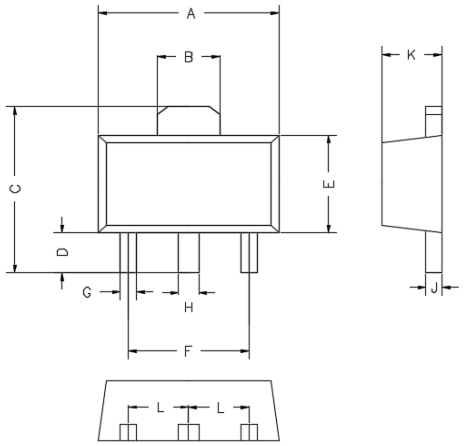
DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	MAX
A	0.0591	0.0670	1.5000	1.7000
A1	0.0008	0.0039	0.0200	0.1000
b	0.0259	0.0330	0.6600	0.8400
b1	0.1140	0.1220	2.9000	3.1000
c	0.0090	0.0138	0.2300	0.3500
D	0.2480	0.2640	6.3000	6.7000
E	0.2637	0.2874	6.7000	7.3000
E1	0.1290	0.1460	3.3000	3.7000
e	0.0866	0.0945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

SOT-223 Suggested Pad Layout



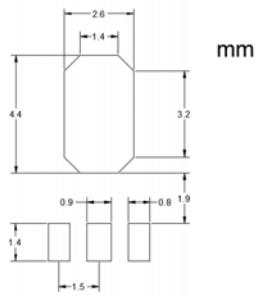
➢

➢ SOT-89 Package Outline Dimensions

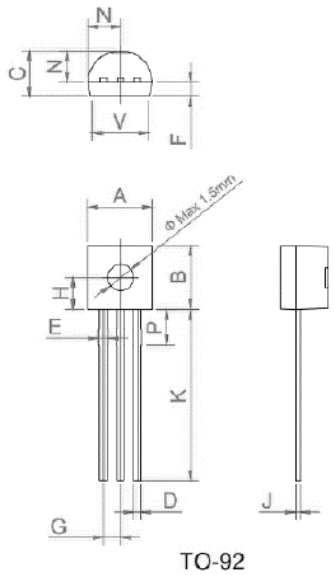


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP
G	0.013	0.020	0.33	0.52	
H	0.016	0.023	0.40	0.58	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059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

SOT-89 Suggested Pad Layout



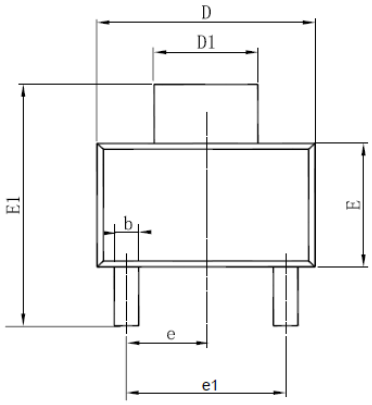
➢ TO-92 Package Outline Dimensions

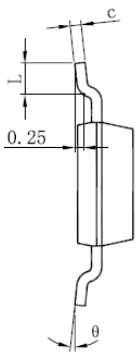


TO-92

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

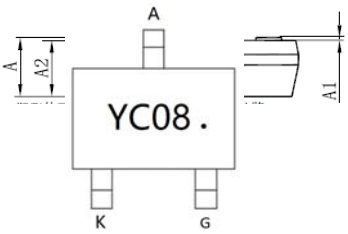
➢ SOT-223-2L Package Outline Dimensions



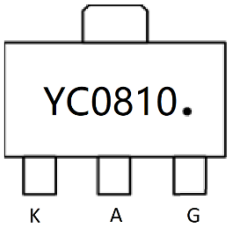


Ref.	Dimensions					
	Inches			Millimeters		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			0.0709	/	/	1.80
A1	0.00079		0.0039	0.02	/	0.10
A2	0.0591	0.063	0.0667	1.50	1.60	1.70
b	0.026	0.028	0.0331	0.66	0.71	0.84
c	0.0091	0.0118	0.0138	0.23	0.30	0.35
D	0.248	0.256	0.264	6.30	6.50	6.70
D1	0.114	0.118	0.122	2.90	3.00	3.10
E	0.13	0.138	0.146	3.30	3.50	3.70
E1	0.264	0.276	0.287	6.70	7.00	7.30
e	0.0906 BASIC			2.30 BASIC		
e1	0.181 BASIC			4.60 BASIC		
L	0.0295	/	/	0.75	/	/
θ	0°	/	10°	0°	/	10°

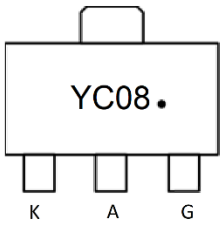
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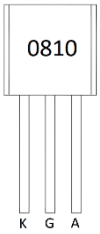
YC0810S1
(SOT-23 Package)



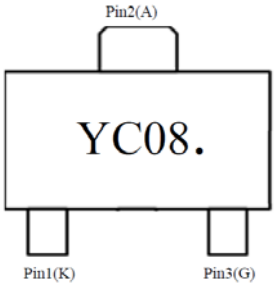
YC0810S2
(SOT-223-3L Package)



YC0810S3
(SOT-89 Package)



YC0810T9
(TO-92)



YC0810S4
(SOT-223-2L Package)

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