



Jiangsu Weida Semiconductor Co., Ltd.

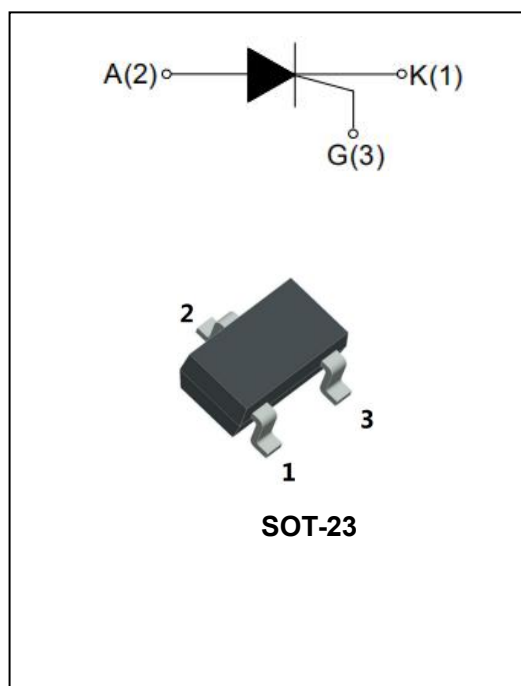
PCR406 Series 0.5A Sensitive SCRs

DESCRIPTION:

The PCR406 SCR series widely used in circuit control of christmas lights,color lamp,CFL.

MAIN FEATURES:

symbol	value	unit
$I_{T(RMS)}$	0.5	A
V_{DRM}/V_{RRM}	600	V
V_{TM}	≤ 1.7	V



ABSOLUTE MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40~150	$^{\circ}C$
Operating junction temperature range	T_j	-40~110	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	600	V
RMS on-state current	$I_{T(RMS)}$	0.5	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	6	A
I^2t value for fusing ($t_p=10ms$)	I^2t	0.32	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	$A/\mu s$
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



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ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN	TYPE	MAX	
I_{GT}	$V_D=12\text{V}, R_L=33\Omega$	-	20	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=110^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	0.2	-	-	V
I_H	$I_T=50\text{mA}$	-	-	5	mA
I_L	$I_G=1.2I_{GT}$	-	-	6	mA
dV/dt	$V_D=0.66 \times V_{DRM} T_j=110^{\circ}\text{C}$ Gate open $R_{GK}=1\text{k}\Omega$	10	-	-	V/ μs

STATIC CHARACTERISTICS

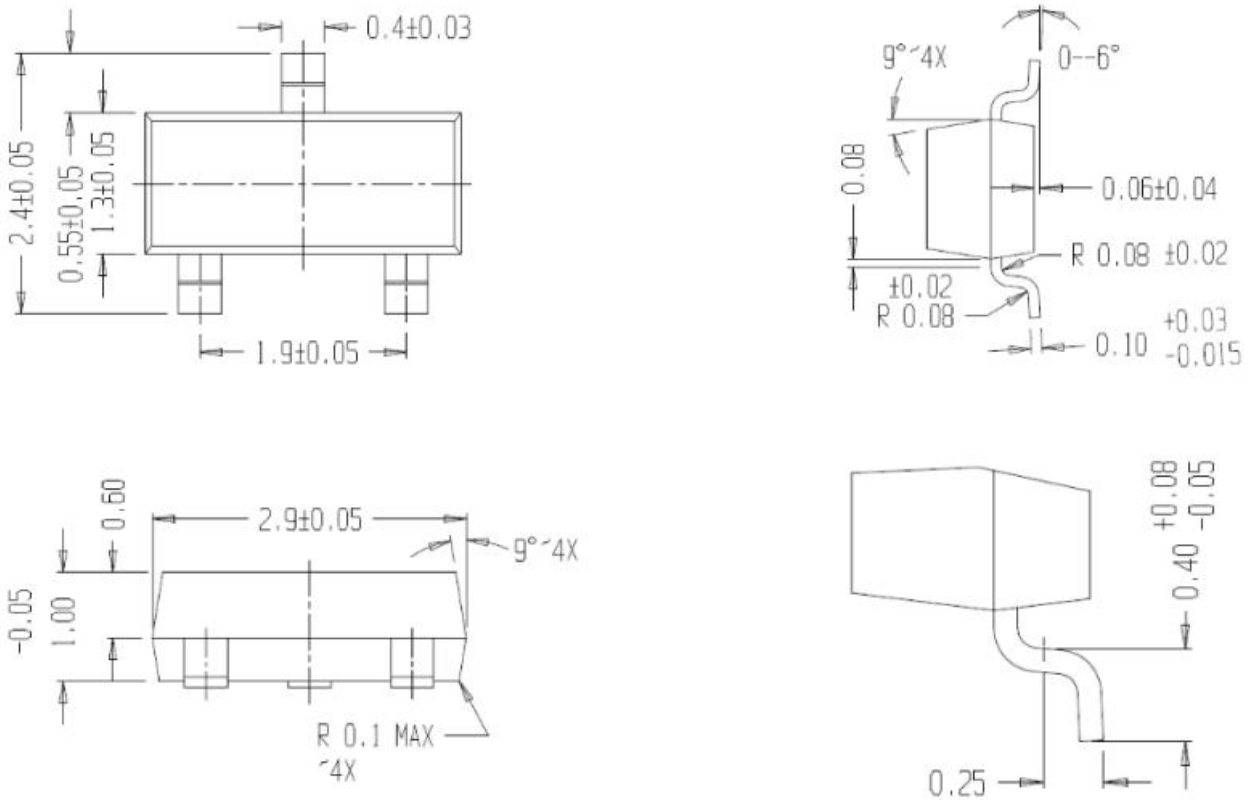
Symbol	Test Condition		Value	Unit
V_{TM}	$I_{TM}=0.6\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	MAX	1.7 V
I_{DRM}	$R_{GK}=1\text{k}\Omega$	$T_j=25^{\circ}\text{C}$	MAX	5 μA
		$T_j=110^{\circ}\text{C}$		100 μA

THERMAL RESISTANCES

Symbol	Test Condition		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	SOT-23	80	$^{\circ}\text{C/W}$



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PACKAGE MECHANICAL DATA



SOT-23

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

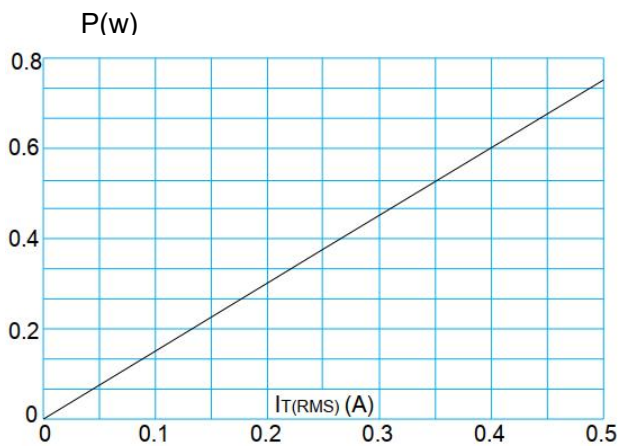
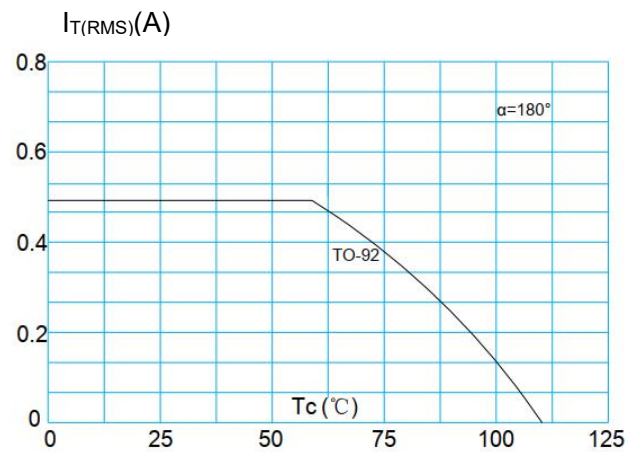


FIG.2: RMS on-state current versus case temperature





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

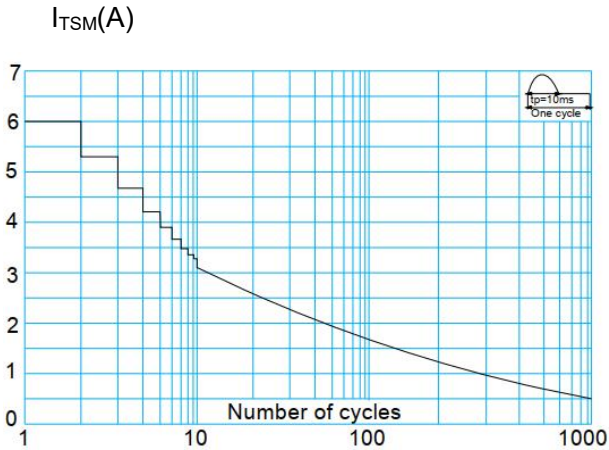


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

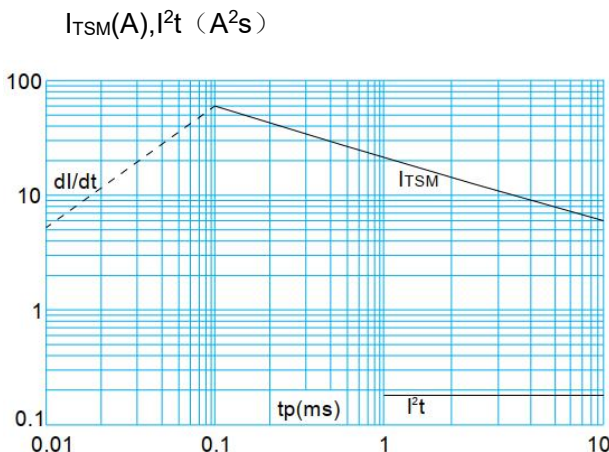


FIG.4: On-state characteristics (maximum values)

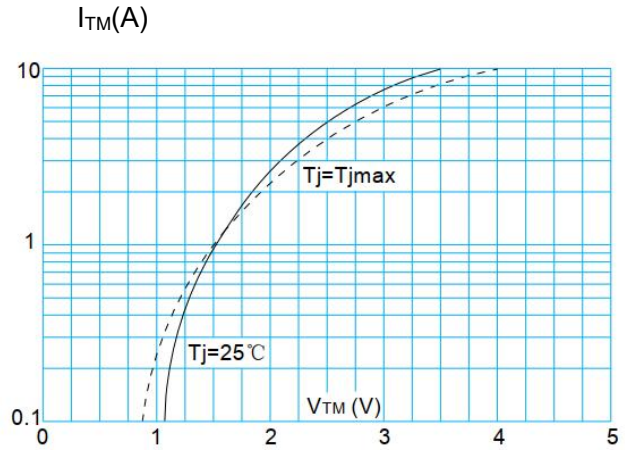
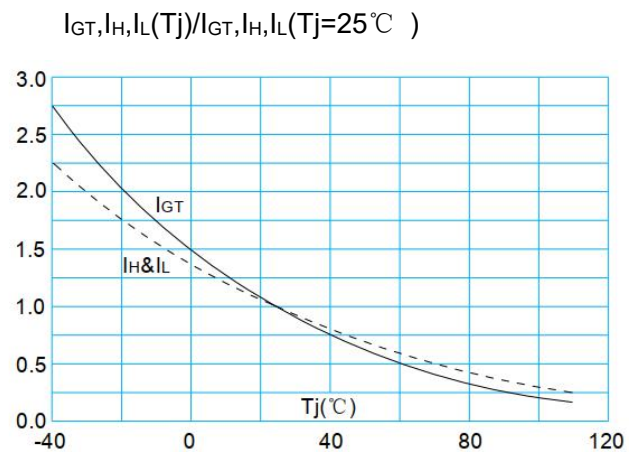


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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