

DESCRIPTION:

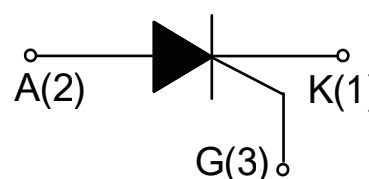
The P0102DA SCR provides high dv/dt rate with strong resistance to electromagnetic interface. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.



TO-92

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	0.8	A
I_{GT}	≤ 200	μA
V_{DRM} / V_{RRM}	600	V



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-125 ^①	$^{\circ}C$
Repetitive peak off-state voltage	V_{DRM}	600	V
Repetitive peak reverse voltage	V_{RRM}	600	V
RMS on-state current	TO-92/TO-92UR ($T_c=65^{\circ}C$) $I_{T(RMS)}$	0.8	A
Non repetitive surge peak on-state current (F=50Hz tp=10ms)	I_{TSM}	8	A
Non repetitive surge peak on-state current (F=60Hz tp=8.3ms)	I_{TSM}	9	A
I^2t value for fusing (tp=10ms)	I^2t	0.32	A^2s
Critical rate of rise of on-state current	dI/dt	50	$A/\mu s$
Peak gate current (tp=20 μs , $T_j=125^{\circ}C$)	I_{GM}	0.2	A
Peak gate power (tp=20 μs , $T_j=125^{\circ}C$)	P_{GM}	0.5	W
Average gate power dissipation($T_j=125^{\circ}C$)	$P_{G(AV)}$	0.1	W

NOTE 1: When we parallel connect a $\leq 1K\Omega$ resistor between Gate and Cathode, the T_j can reach $125^{\circ}C$; if without this resistor, the T_j only can reach $110^{\circ}C$.

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	20	50	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	4	mA
I_H	$I_T=0.05\text{A}$	-	-	3	mA
dV/dt	$V_D=400\text{V } T_j=125^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	600	-	-	$\text{V}/\mu\text{s}$
dV/dt	$V_D=400\text{V } T_j=125^{\circ}\text{C } R_{GK}=220\Omega$	1000	-	-	$\text{V}/\mu\text{s}$
t_{on}	$I_G=10\text{mA } I_A=4\text{mA } I_R=0.4\text{mA}$ $T_j=25^{\circ}\text{C}$	-	2	-	μs
t_{off}		-	50	-	μs
R_d	Dynamic Resistance $T_j=125^{\circ}\text{C}$	-	-	35	$\text{m}\Omega$

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_T=1.1\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	100	μA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	TO-92/TO-92UR	75	$^{\circ}\text{C}/\text{W}$



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

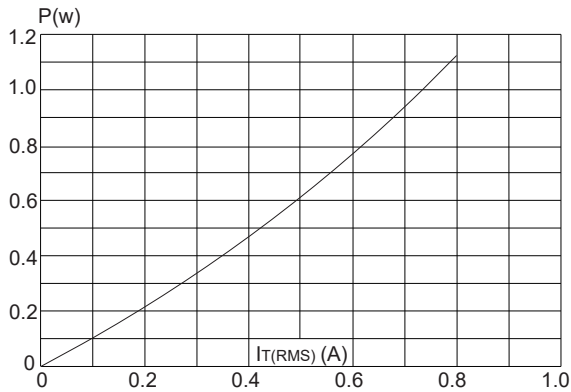


FIG.3: Surge peak on-state current versus number of cycles

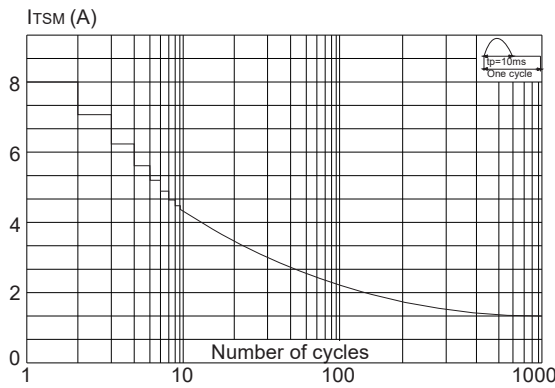


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

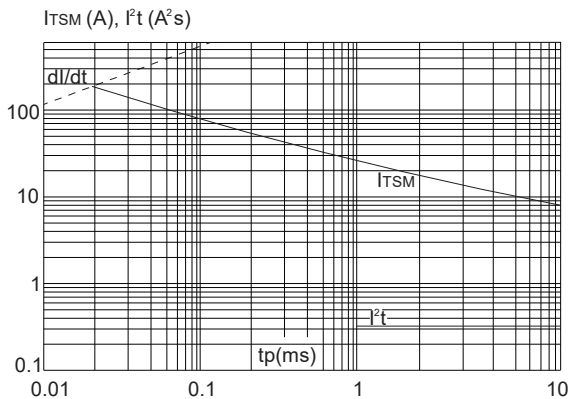


FIG.2: RMS on-state current versus case temperature

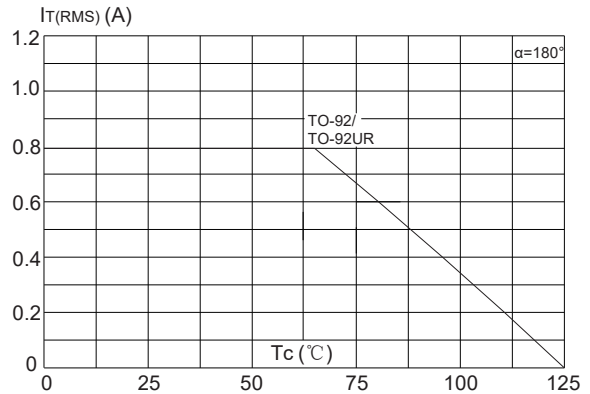


FIG.4: On-state characteristics (maximum values)

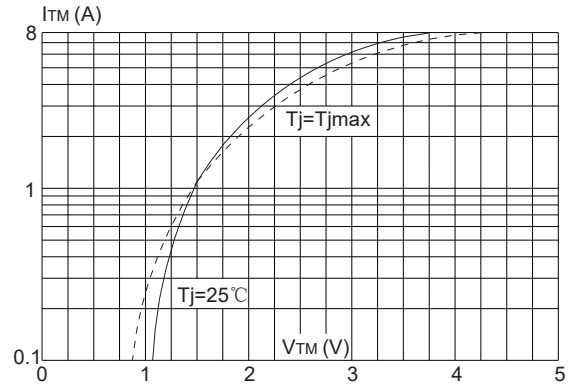


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

