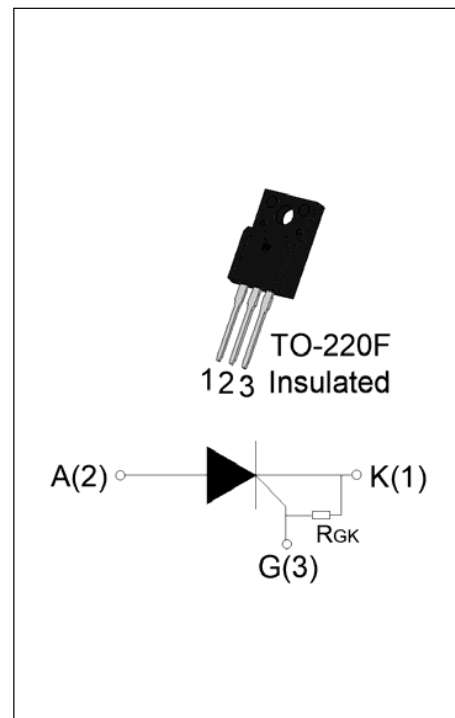


**DESCRIPTION:**

The SR0805F SCR with the parallel resistor between Gate and Cathode,  $R_{GK}=10\sim 80k\Omega$ , is especially recommended for use on straight hair, igniter, anion generator, etc. From all three terminals to external heatsink, SR0805F provides a rated insulation voltage of 2000  $V_{RMS}$ , complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.

**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT}$	$\leq 200$	$\mu A$


**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 <sup>①</sup>	$^{\circ}C$
Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )	$V_{DRM}$	600	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )	$V_{RRM}$	600	V
Average on-state current ( $T_c \leq 92^{\circ}C$ )	$I_{T(AV)}$	5	A
RMS on-state current ( $T_c \leq 92^{\circ}C$ )	$I_{T(RMS)}$	8	A
Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )	$I_{TSM}$	80	A
Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )		88	
$I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )	$I^2t$	32	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, f=100Hz, T_j=125^{\circ}C$ )	$di/dt$	50	$A/\mu s$
Peak gate current ( $t_p=20\mu s, T_j=125^{\circ}C$ )	$I_{GM}$	4	A

Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	5	W
Peak pulse voltage ( $T_j=25^\circ\text{C}$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	0.5	kV

**NOTE 1:** Operating junction temperature  $T_j$  is up to  $125^\circ\text{C}$  when a resistor  $\leq 1\text{k}\Omega$  is connected between Gate and Cathode. Without this resistor, the  $T_j$  is up to  $110^\circ\text{C}$  only.

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	-	200	$\mu\text{A}$
$V_{GT}$		-	-	0.8	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ\text{C}$	0.2	-	-	V
$I_L$	$I_G=1.2 I_{GT}$	-	-	6	mA
$I_H$	$I_T=0.1\text{A}$	-	-	5	mA
dV/dt	$V_D=400\text{V } T_j=125^\circ\text{C } R_{GK}=1\text{k}\Omega$	50	-	-	V/ $\mu\text{s}$
	$V_D=400\text{V } T_j=125^\circ\text{C } R_{GK}=220\Omega$	250	-	-	
$t_{on}$	$I_G=10\text{mA } I_A=20\text{mA } I_R=2\text{mA}$ $T_j=25^\circ\text{C}$	-	2	-	$\mu\text{s}$
$t_{off}$		-	50	-	$\mu\text{s}$

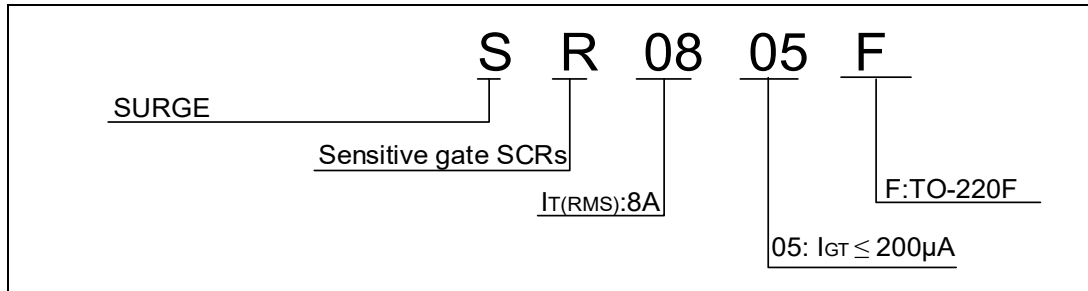
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=16\text{A } t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.55	V
$V_{TO}$	Threshold voltage	$T_j=125^\circ\text{C}$	0.79	V
$R_D$	Dynamic resistance	$T_j=125^\circ\text{C}$	0.02	$\Omega$
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	0.5	mA

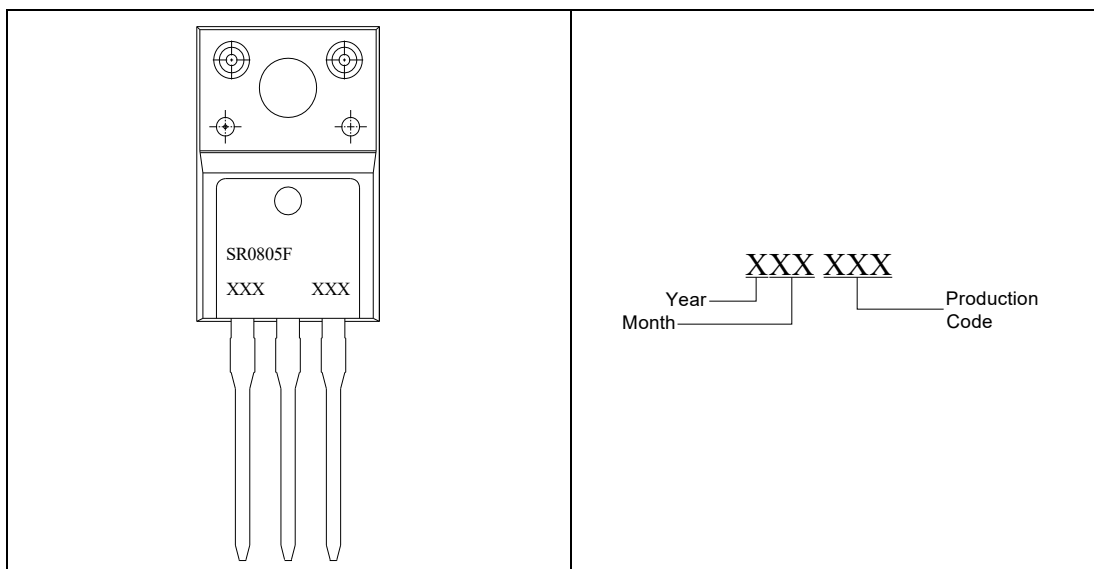
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	3	$^\circ\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC)	60	$^\circ\text{C/W}$

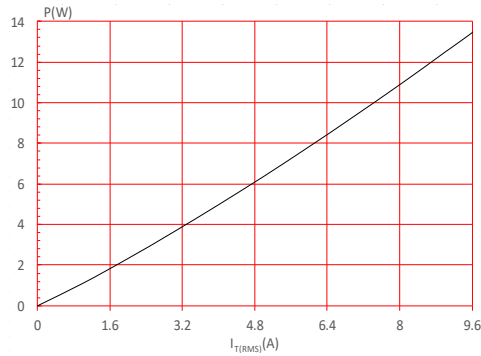
## ORDERING INFORMATION



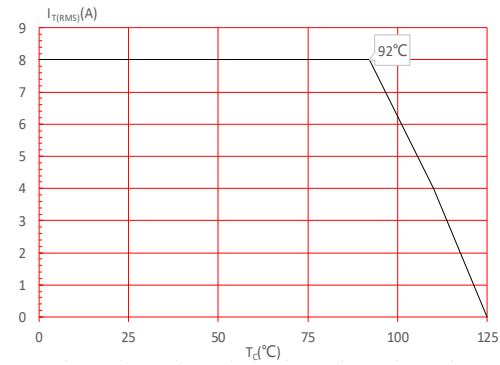
## MARKING



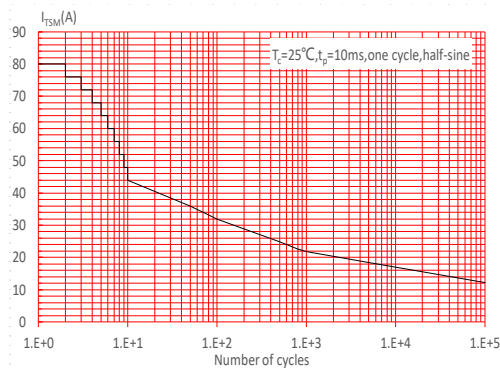
**FIG.1:** Maximum power dissipation versus RMS on-state current



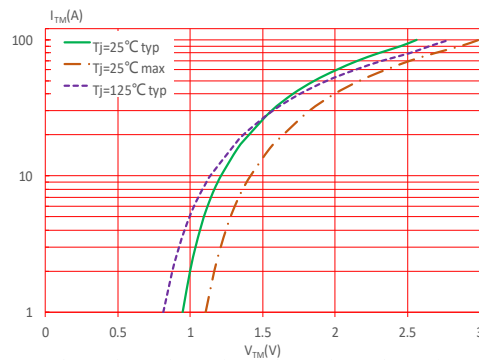
**FIG.2:** RMS on-state current versus case temperature



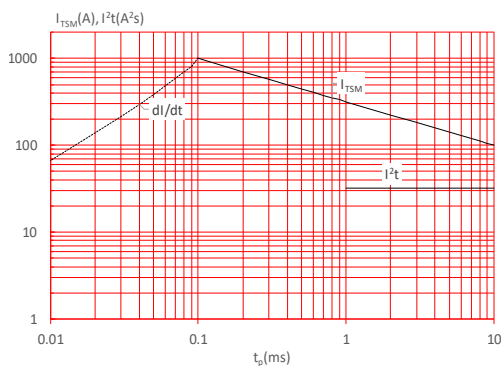
**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics



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

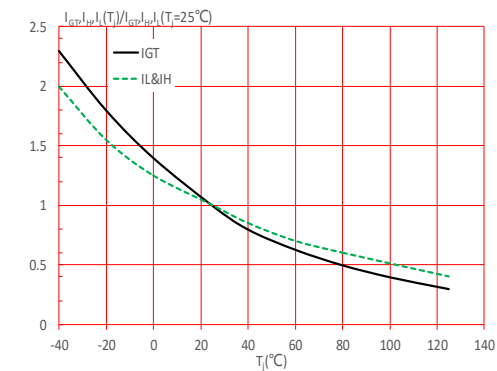
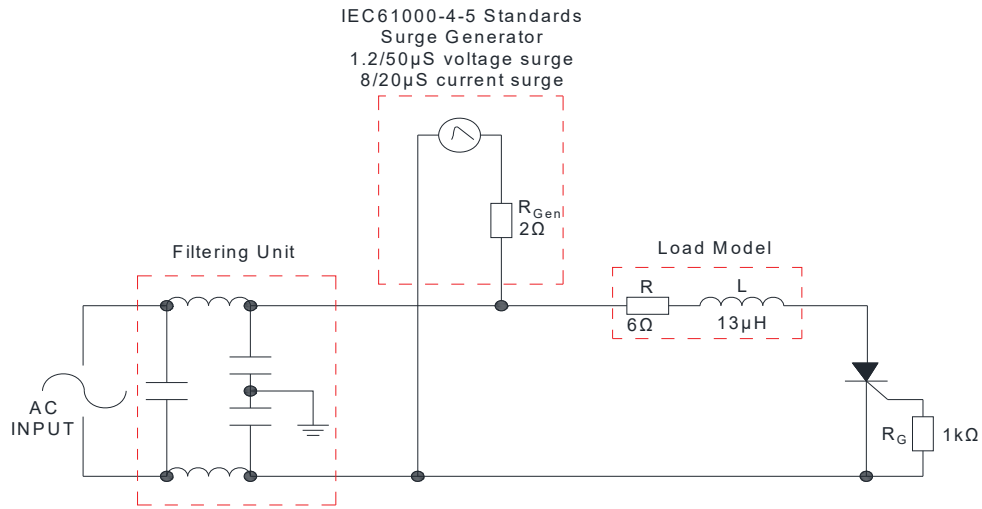


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



### LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package”

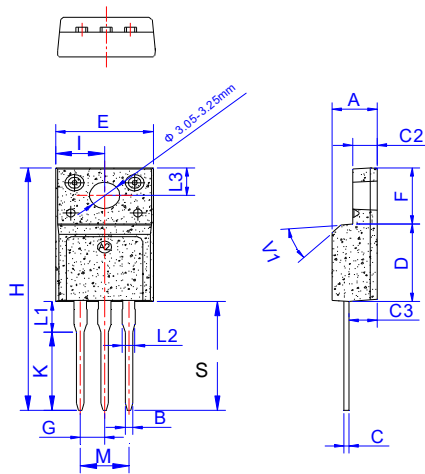
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT( $\mu$ A)	Package	Base qty. (pcs)	Delivery mode
SR0805F	600	$\leq 200$	TO-220F	50	Tube

**Document Revision History**

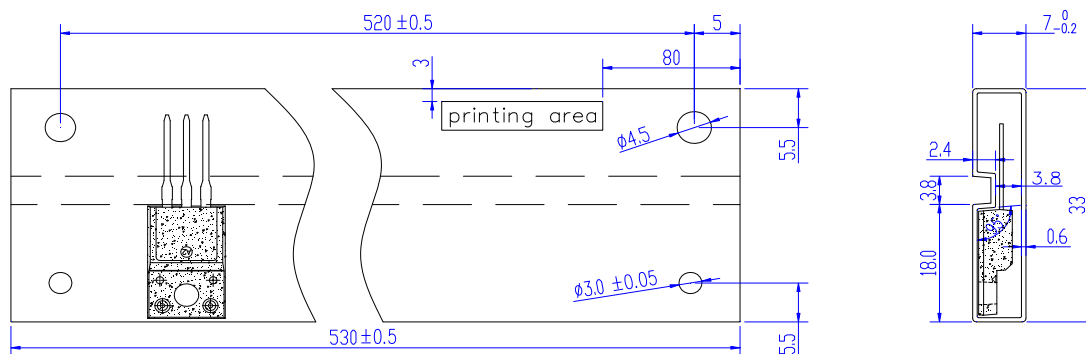
Date	Revision	Changes
Apr.10, 2023	A.1.0	Last update
Oct.10, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

## PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
I	4.80		5.20	0.189		0.205
s	12.60		13.00	0.496		0.512
K	9.60		10.00	0.378		0.394
L1	3.20		3.80	0.126		0.150
L2	1.14		1.70	0.045		0.067
L3	3.20		3.60	0.126		0.142
M	4.80		5.20	0.189		0.205
V1		45°			45°	

## DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220F	TUBE	50	1,000	5,000

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