

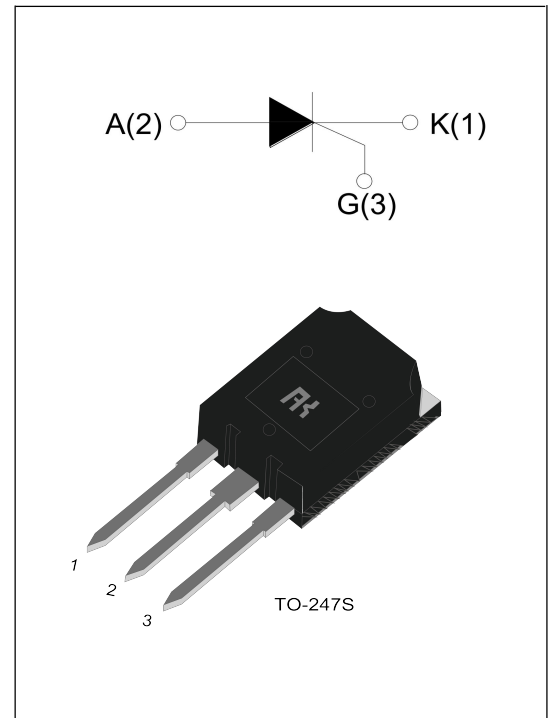
## TYN1690/ 1890 Serial 90A SCRs

### GENERAL DESCRIPTION:

TYN1690/1890 series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools, etc.

### Main Features:

$I_{T(RMS)}$	$V_{DRM}/V_{RRM}$	$I_{GT}$
90A	1600V and 1800 V	10 - 80 mA



### Absolute Ratings(limiting values) :

Symbol	Parameter		Value	Unit
$T_{stg}$	Storage junction temperature range		- 40 to + 150	°C
$T_j$	Operating junction temperature range		- 40 to + 125	°C
$I_{T(AV)}$	Average on-state current	TO-247S (TC=80°C)	56	A
$I_{T(RMS)}$	RMS on-state current	TO-247S (TC=80°C)	90	A
$I_{TSM}$	Non repetitive surge peak on-state current (tp=10ms)		1250	A
$V_{DRM}$	Repetitive peak off-state voltage(Tj =25°C)		1600 and 1800	V
$V_{RRM}$	Repetitive peak reverse voltage(Tj =25°C)		1600 and 1800	V
$I^2t$	$I^2t$ value for fusing tp = 10 ms		7800	A <sup>2</sup> s
$dI/dt$	Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )		150	A/μs
$I_{GM}$	Peak gate current		4	A

<b>P<sub>G(AV)</sub></b>	Average gate power dissipation	1	W
<b>P<sub>GM</sub></b>	Peak gate power	5	W

**Electrical Characteristics : (T<sub>j</sub>=25°C unless otherwise specified)**

Symbol	Test Condition	Value			Unit
		MIN	TYP	MAX	
<b>I<sub>GT</sub></b>	V <sub>D</sub> =12V R <sub>L</sub> =30Ω	10	-	80	mA
<b>V<sub>GT</sub></b>		--	-	1.5	V
<b>V<sub>GD</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =125°C	0.25	--	--	V
<b>I<sub>L</sub></b>	I <sub>G</sub> =1.2 I <sub>GT</sub>	--	--	200	mA
<b>I<sub>H</sub></b>	I <sub>T</sub> = 1A	--	--	150	mA
<b>dv/dt</b>	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C	1000	--	--	V/μs

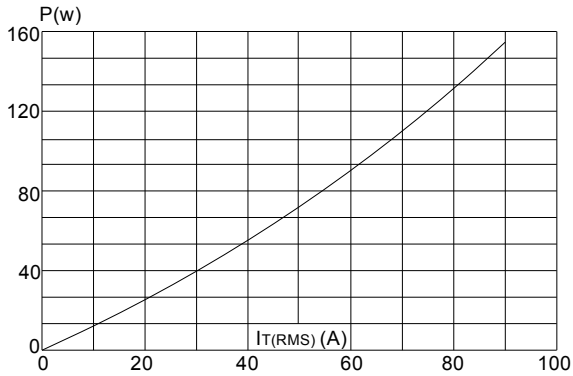
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
<b>V<sub>TM</sub></b>	I <sub>TM</sub> = 100A tp= 380μs	T <sub>j</sub> =25°C	1.8	V
<b>I<sub>DRM</sub></b> <b>I<sub>RRM</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	50	μ A
		T <sub>j</sub> =125°C	10	mA

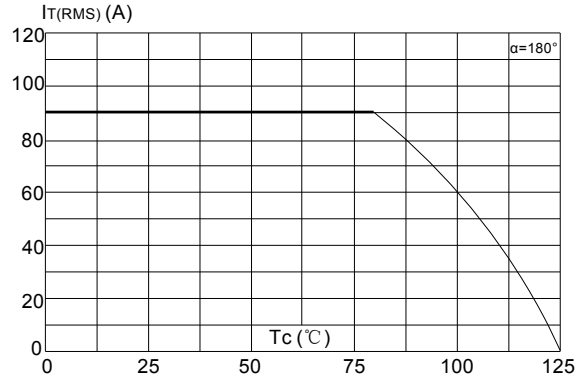
**Thermal Resistances :**

Symbol	Parameter		Value	Unit
<b>R<sub>th(j-e)</sub></b>	junction to case(DC)	TO-247S	0.43	°C/W

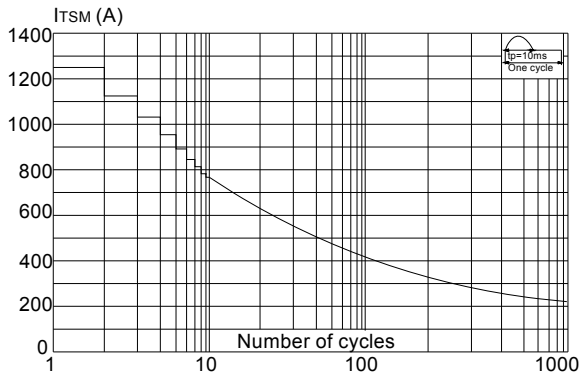
**FIG.1** Maximum power dissipation versus RMS on-state current



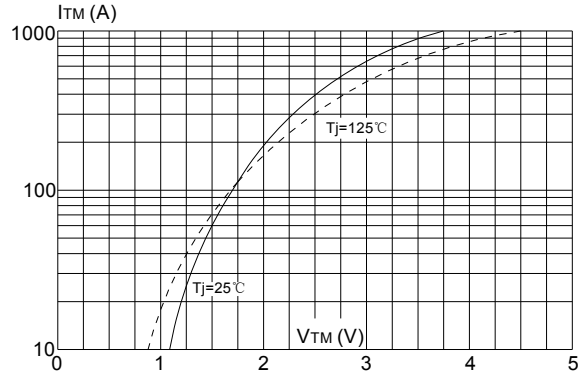
**FIG.2:** RMS on-state current versus case temperature



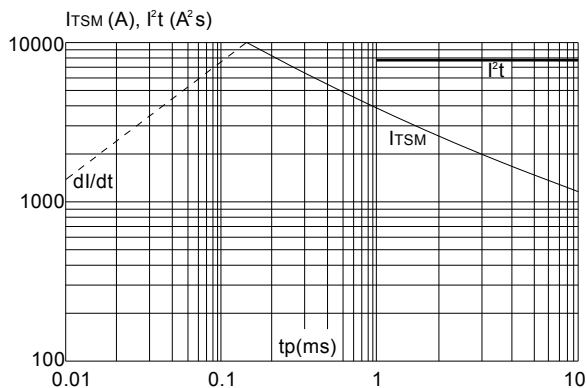
**FIG.3:** Surge peak on-state current versus number of cycles



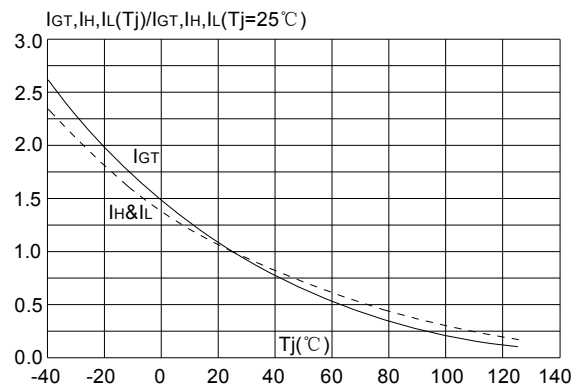
**FIG.4:** On-state characteristics (maximum values)



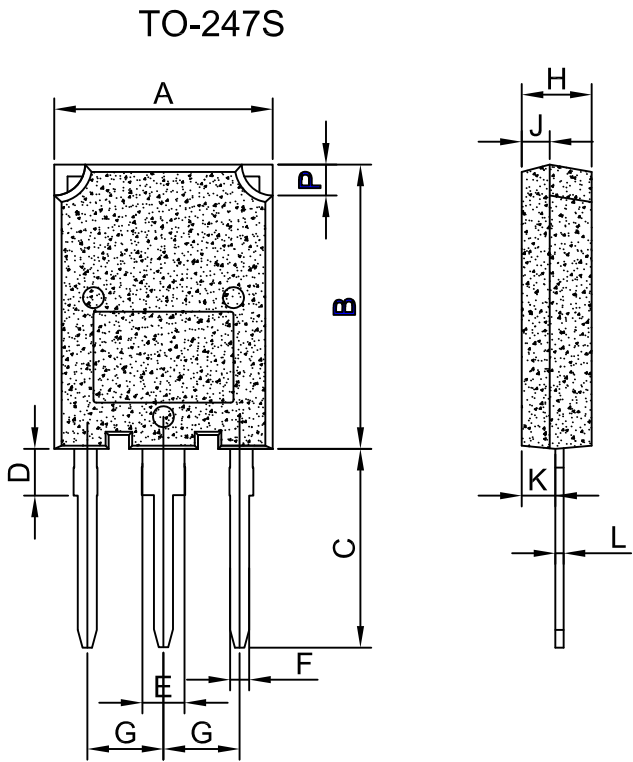
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$



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



**Package Mechanical Data :**



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	15.1	16.1	0.595	0.632
B	19.8	20.8	0.78	0.818
C	13.8	14.8	0.544	0.582
D	3.0	4.0	0.118	0.157
E	2.75	3.35	0.108	0.132
F	1.3	1.5	0.051	0.059
G	5.1	5.8	0.201	0.228
H	4.5	5.5	0.178	0.216
J	1.45	2.15	0.058	0.084
K	1.9	2.8	0.075	0.110
L	0.55	0.8	0.022	0.032
P	2	2.4	0.079	0.095

**Ordering Information:**

