

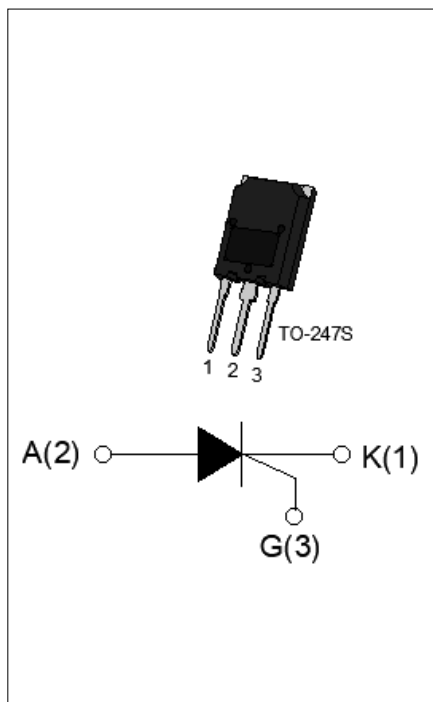


### DESCRIPTION:

With high ability to withstand the shock loading of large current, TYN90H-1600CS SCR provides high dV/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, UPS, SVC, power charger, T-tools etc. Package TO-247S is RoHS compliant.

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(AV)}$	90	A
$V_{DRM}/V_{RRM}$	1600	V
$I_{GT}$	10-80	mA



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	°C
Operating junction temperature range	$T_j$	-40-150	°C
Operating temperature range	$T_{op}$	-40-125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	1600	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	1600	V
Average on-state current ( $T_c \leq 80^\circ\text{C}$ )	$I_{T(AV)}$	90	A
RMS on-state current ( $T_c \leq 80^\circ\text{C}$ )	$I_{T(RMS)}$	141	A
Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	1200	A
Non repetitive surge peak on-state current ( $t_p=8.3\text{ms}$ , $T_j=25^\circ\text{C}$ )		1320	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	7200	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100\text{Hz}$ , $T_j=150^\circ\text{C}$ )	$di/dt$	200	$\text{A}/\mu\text{s}$

Peak gate current ( $t_p=20\mu s$ , $T_j=150^\circ C$ )	$I_{GM}$	12	A
Average gate power dissipation ( $T_j=150^\circ C$ )	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	22	W
Peak pulse voltage ( $T_j=25^\circ C$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	1.5	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12V$ $R_L=33\Omega$	10	-	80	mA
$V_{GT}$		-	-	1.3	V
$V_{GD}$	$V_D=V_{DRM}$ $T_j=150^\circ C$ $R_L=3.3K\Omega$	0.25	-	-	V
$I_L$	$I_G=1.2I_{GT}$	-	-	250	mA
$I_H$	$I_T=500mA$	-	-	150	mA
dV/dt	$V_D=1070V$ Gate Open $T_j=150^\circ C$	2000	-	-	V/ $\mu s$
$t_{on}$	$I_G=100mA$ $I_A=1A$ $I_R=100mA$ $T_j=25^\circ C$	-	7	-	$\mu s$
$t_{off}$		-	200	-	

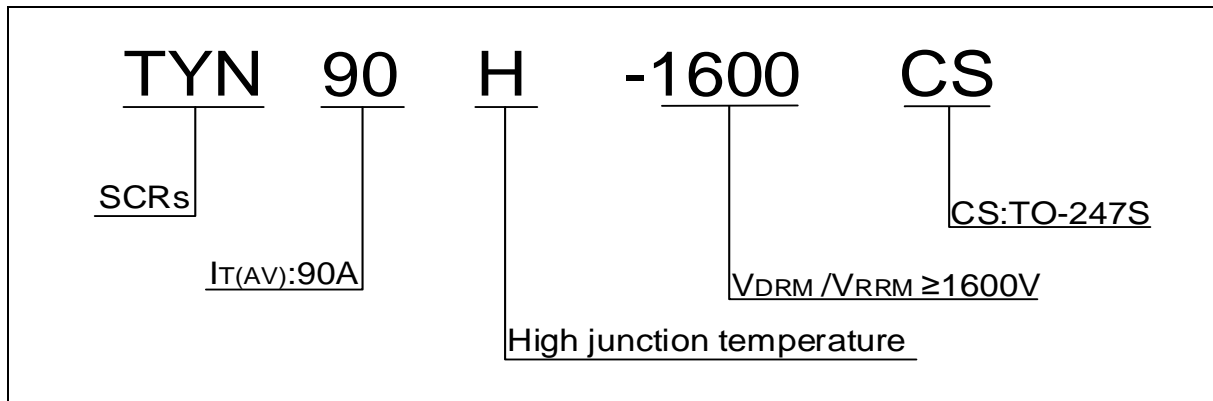
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=130A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.55	V
$V_{TO}$	Threshold voltage	$T_j=150^\circ C$	0.72	V
$R_D$	Dynamic resistance	$T_j=150^\circ C$	5.5	m $\Omega$
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	30	$\mu A$
$I_{RRM}$		$T_j=150^\circ C$	15	mA

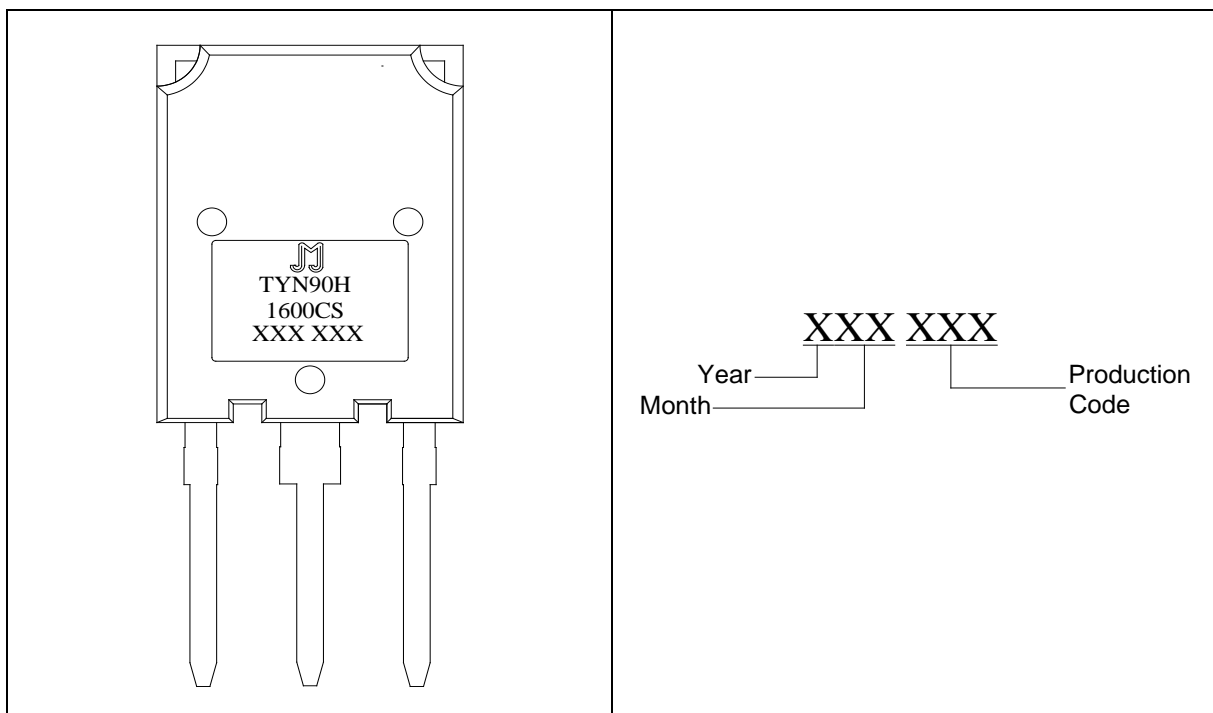
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	0.31	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (DC)	50	$^\circ C/W$

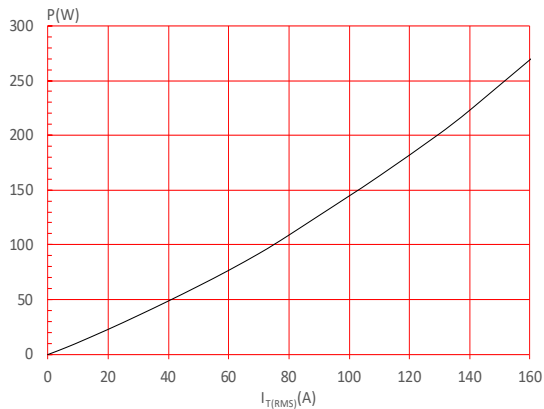
ORDERING INFORMATION



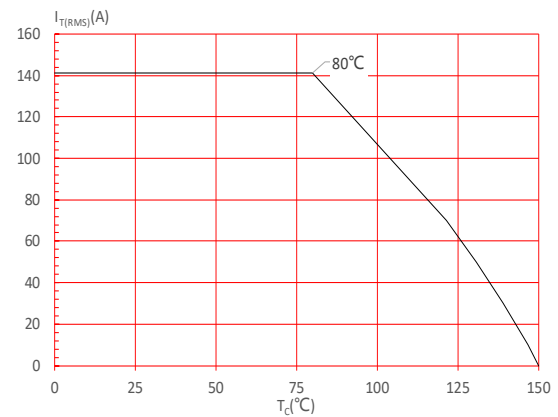
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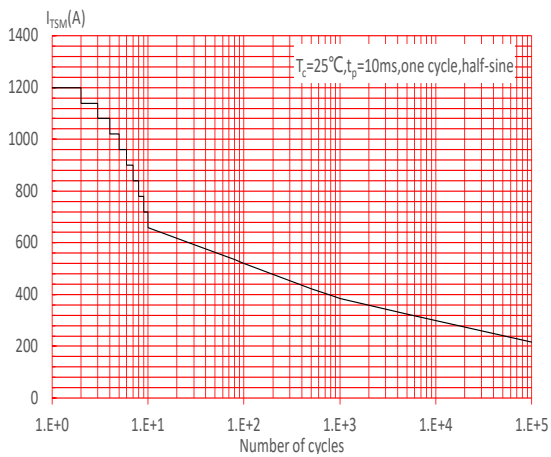
**FIG.1** Maximum power dissipation versus RMS on-state current



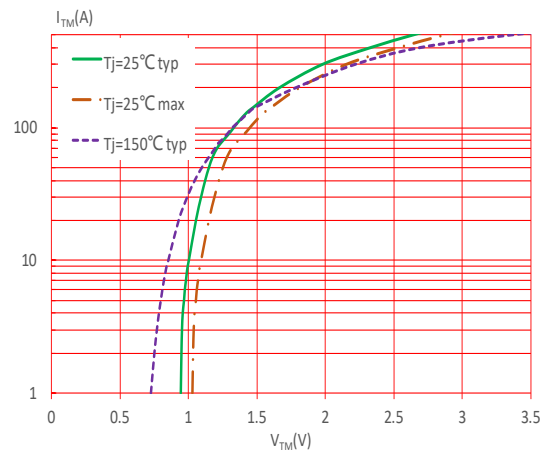
**FIG.2:** RMS on-state current versus case temperature



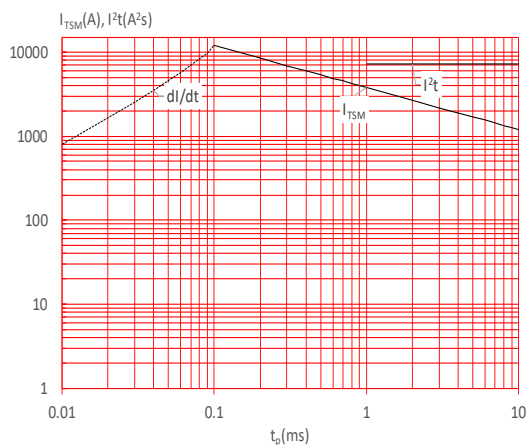
**FIG.3:** Surge peak on-state current versus number of cycles



**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  $I^2t$  ( $di/dt < 200\text{A}/\mu\text{s}$ )



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

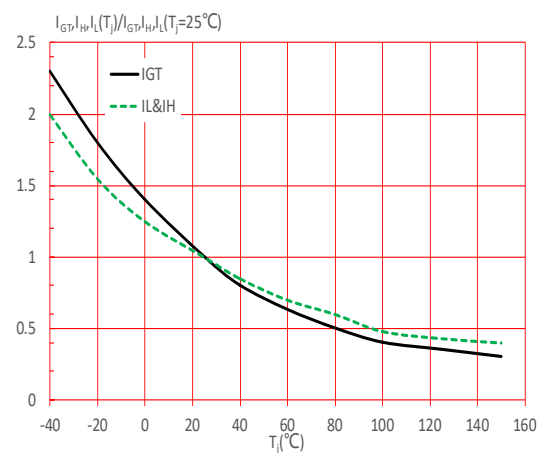
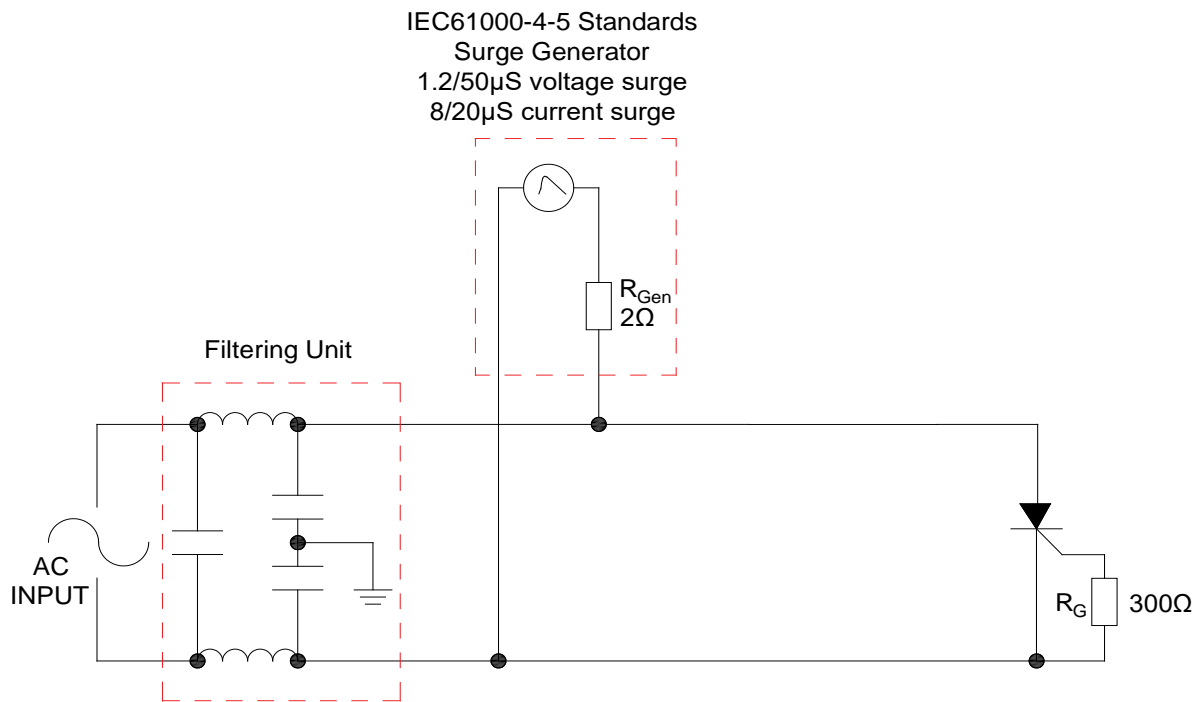


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## SHAPING AND SOLDERING PARAMETERS

Refer to «Instructions for installation of plastic-sealed in-line power devices» released by JieJie

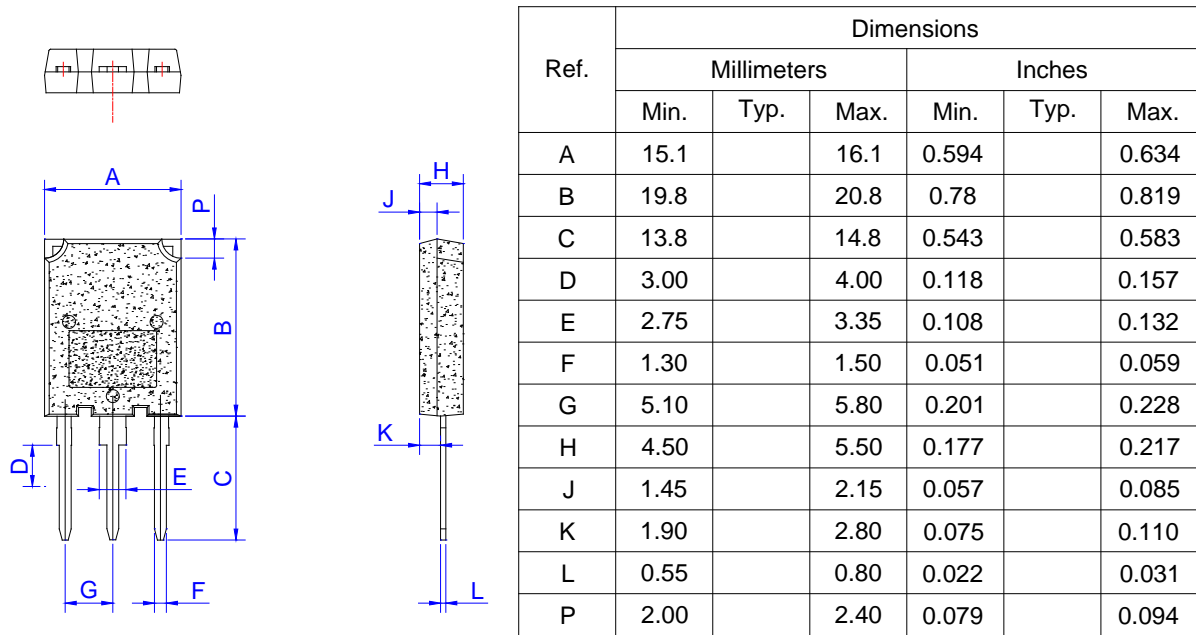
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
TYN90H-1600CS	1600	10-80	TO-247S	30	Tube

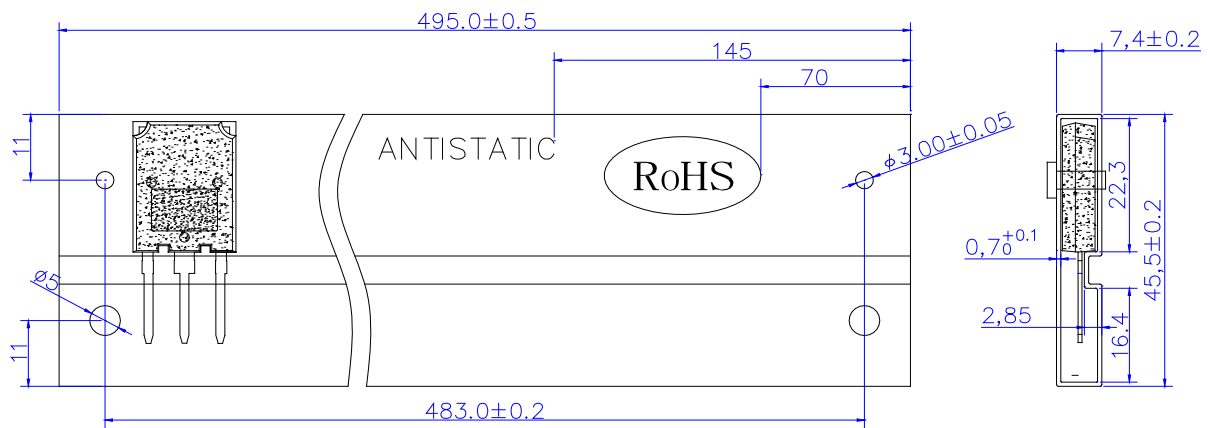
**Document Revision History**

Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update

**PACKAGE MECHANICAL DATA**




**DELIVERY MODE**



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247S	TUBE	30	450	2,250

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