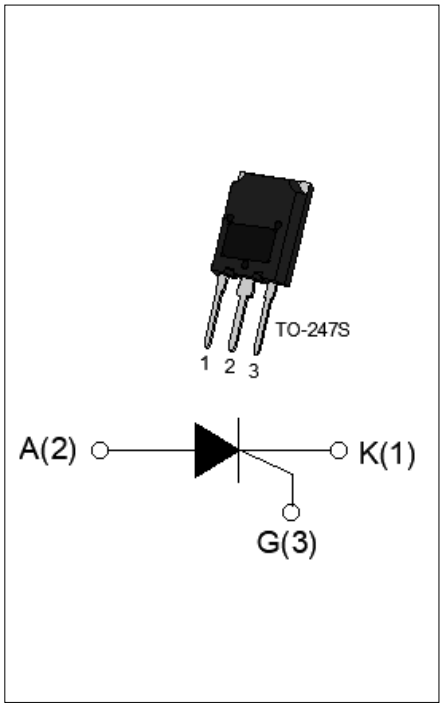
TYN90H-1600CS 90A SCR

Rev.A.1.1

ESCRIPTION:

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	℃
Operating junction temperature range	T_j	-40-150	℃
Operating temperature range	T_{op}	-40-125	℃
Repetitive peak off-state voltage (T_j=25℃)	V_{DRM}	1600	V
Repetitive peak reverse voltage (T_j=25℃)	V_{RRM}	1600	V
Average on-state current (T_C≤80℃)	$I_{T(AV)}$	90	A
RMS on-state current (T_C≤80℃)	$I_{T(RMS)}$	141	A
Non repetitive surge peak on-state current (t_p=10ms, T_j=25℃)	I_{TSM}	1200	A
Non repetitive surge peak on-state current (t_p=8.3ms, T_j=25℃)		1320	
I^2t value for fusing (t_p=10ms , T_j=25℃)	I^2t	7200	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT}, f=100Hz , T_j=150℃)	dI/dt	200	A/μs

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

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	10	-	80	mA
V_{GT}		-	-	1.3	V
V_{GD}	V_D=V_{DRM} T_j=150℃ R_L=3.3kΩ	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℃	2000	-	-	V/μs
t_{on}	I_G=100mA I_A=1A I_R=100mA T_j=25℃	-	7	-	μs
t_{off}		-	200	-	

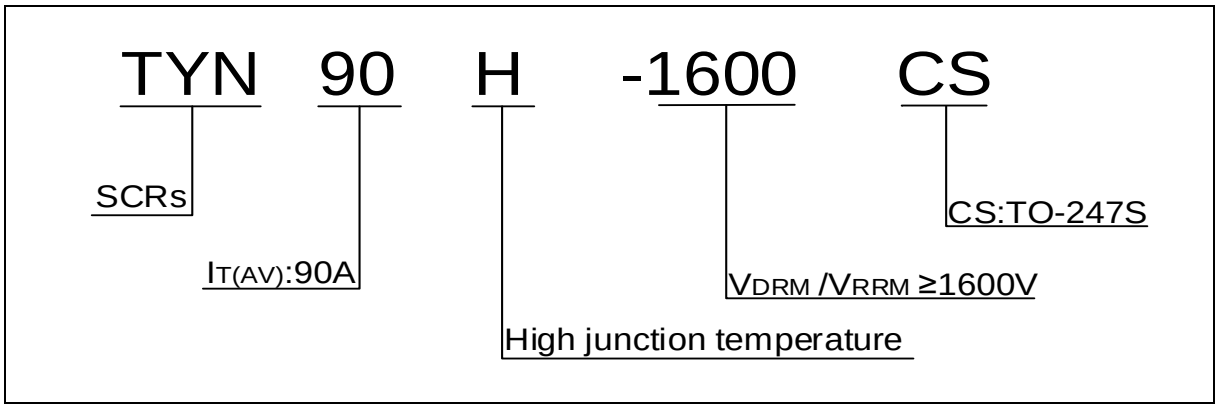
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=130A t_p=380μs	T_j=25℃	1.55	V
V_{TO}	Threshold voltage	T_j=150℃	0.72	V
R_D	Dynamic resistance	T_j=150℃	5.5	mΩ
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	30	μA
I_{RRM}		T_j=150℃	15	mA

THERMAL RESISTANCES

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

ORDERING INFORMATION



MARKING

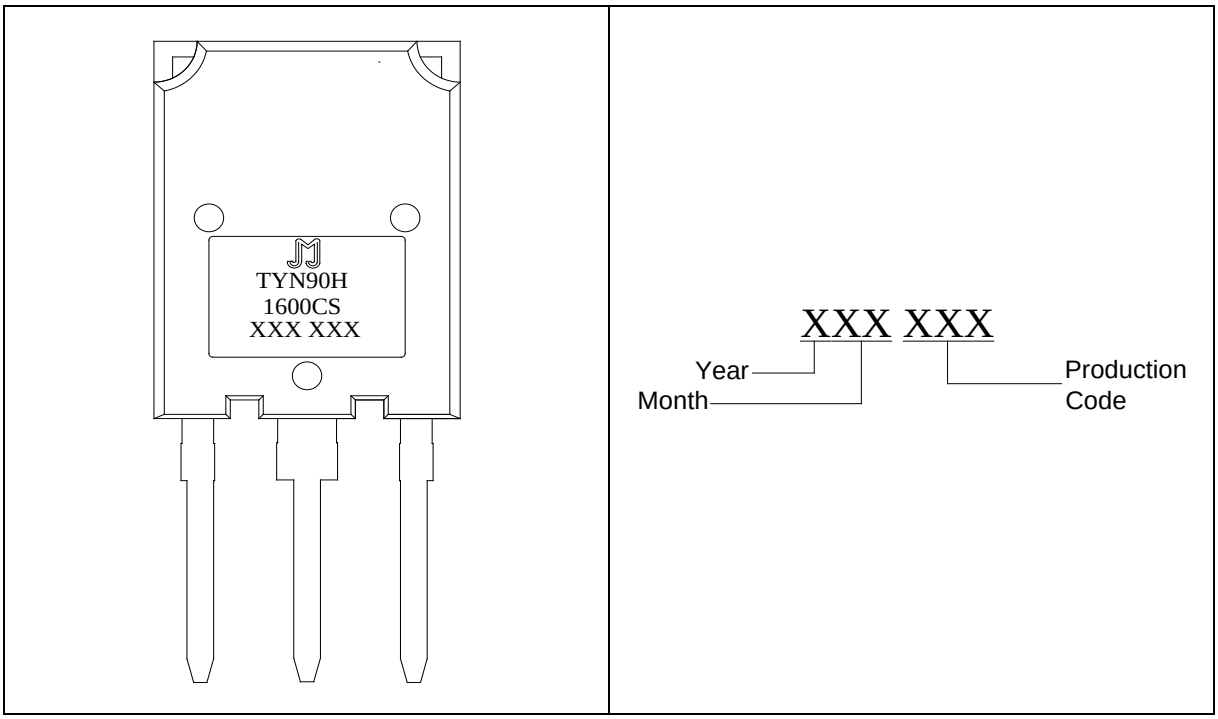


FIG.1: Maximum power dissipation versus RMS on-state current

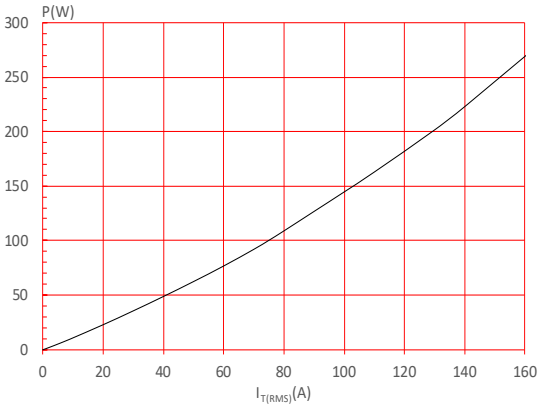


FIG.2: RMS on-state current versus case temperature

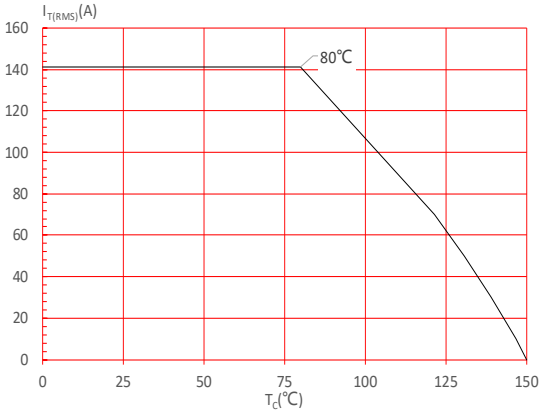


FIG.3: Surge peak on-state current versus number of cycles

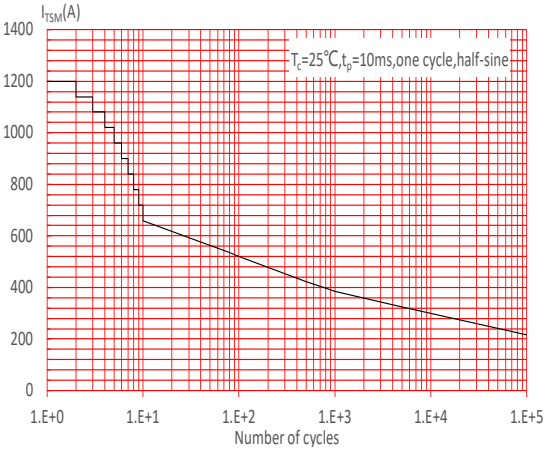


FIG.4: On-state characteristics

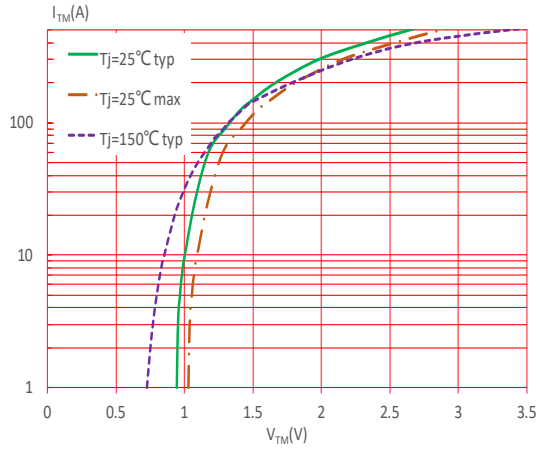


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<10ms, and corresponding value of I^2t (dI/dt<200A/μs)

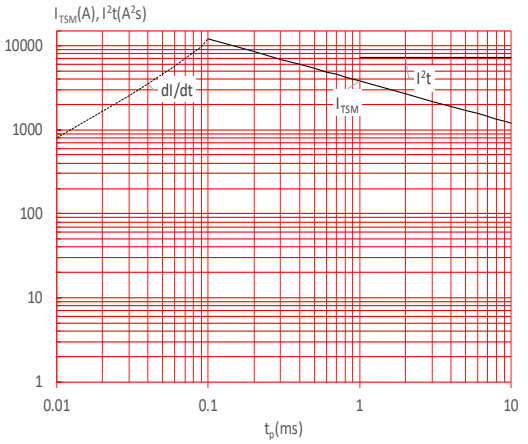


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

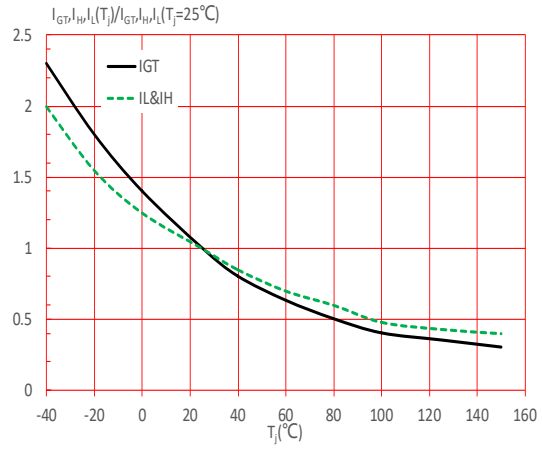
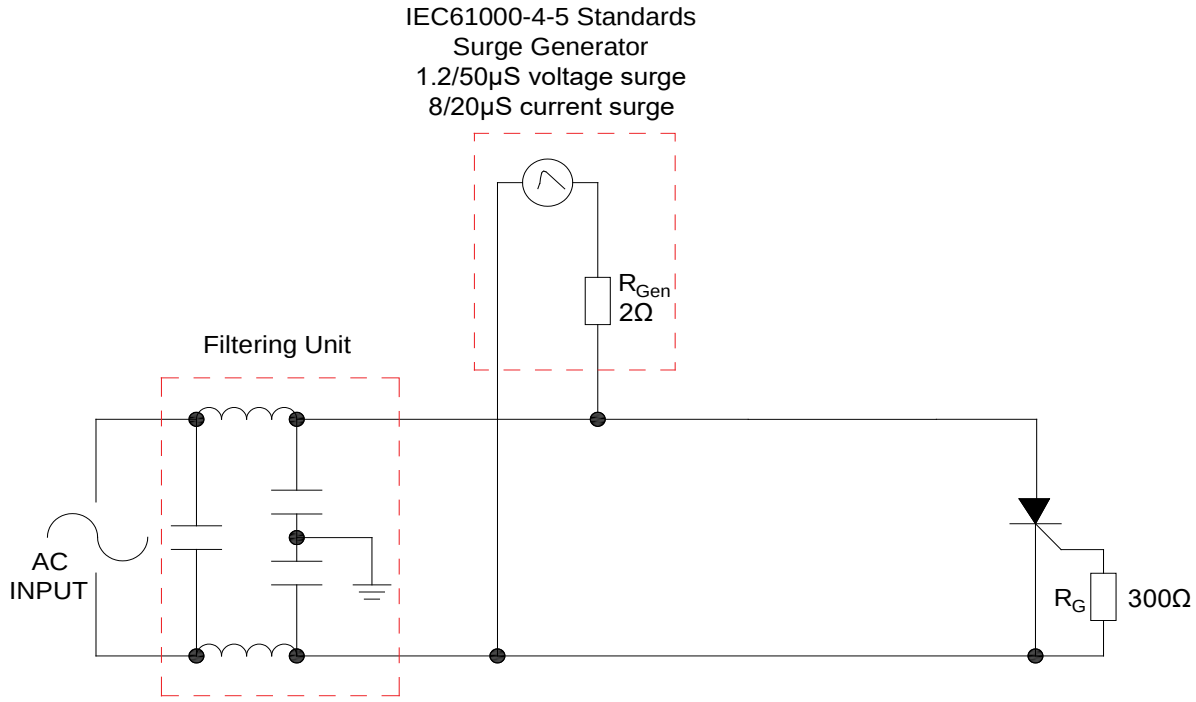


FIG.7：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



LEAD FORMING AND SOLDERING

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

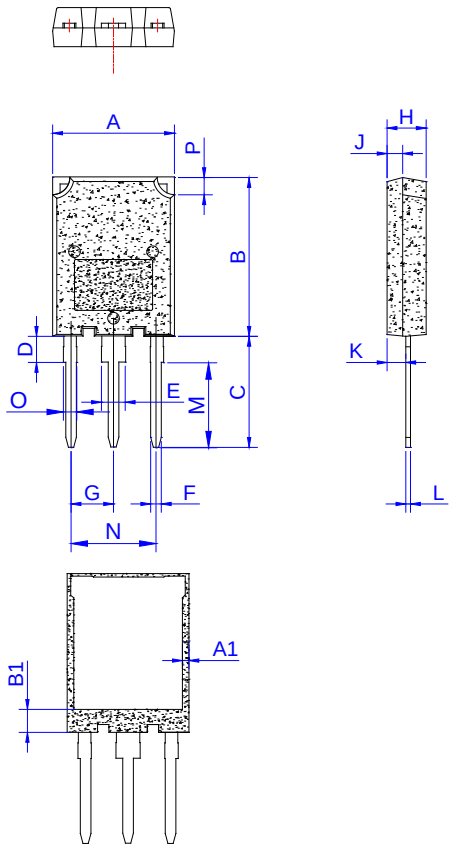
ORDERING INFORMATION

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

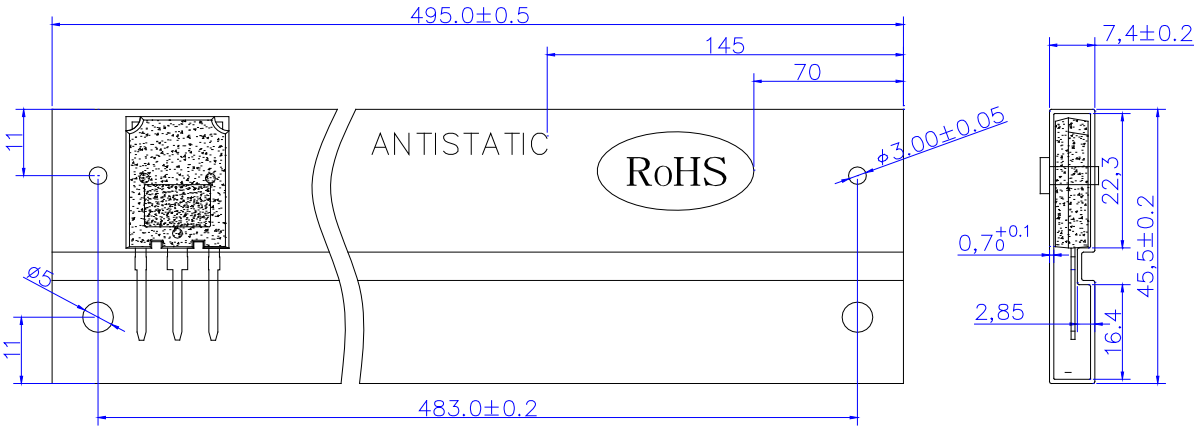
Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update
Oct.16, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.10		16.10	0.594		0.634
A1	0.80		1.20	0.031		0.047
B	19.80		20.80	0.780		0.819
B1	3.30		3.70	0.130		0.146
C	13.80		14.80	0.543		0.583
D	3.00		4.00	0.118		0.157
E	2.75		3.35	0.108		0.132
F	1.30		1.50	0.051		0.059
G	5.10		5.80	0.201		0.228
H	4.50		5.50	0.177		0.217
J	1.45		2.15	0.057		0.085
K	1.90		2.80	0.075		0.110
L	0.55		0.80	0.022		0.031
M	10.60		11.00	0.417		0.433
N	10.70		11.10	0.421		0.437
O	1.50		1.90	0.059		0.075
P	2.00		2.40	0.079		0.094

DELIVERY MODE



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