

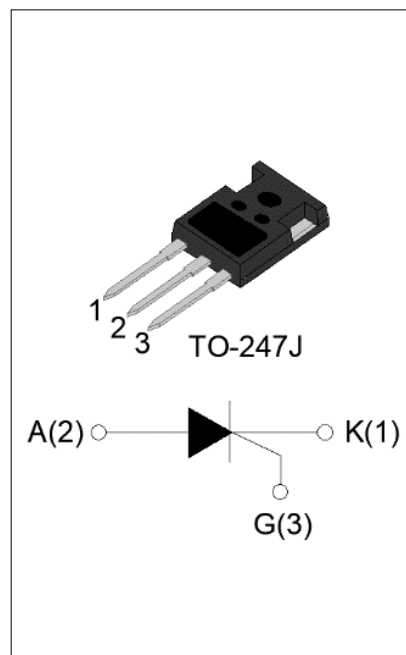


### DESCRIPTION:

With high ability to withstand the shock loading of large current, TYN50H-1600SJ 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-247J is RoHS compliant.

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(AV)}$	50	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 ( $T_c \leq 94^\circ\text{C}$ )	$I_{T(AV)}$	50	A
RMS on-state current ( $T_c \leq 94^\circ\text{C}$ )	$I_{T(RMS)}$	79	A
Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	850	A
Non repetitive surge peak on-state current ( $t_p=8.3\text{ms}$ , $T_j=25^\circ\text{C}$ )		935	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	3613	$\text{A}^2\text{s}$
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 ( $t_p=20\mu\text{s}$ , $T_j=150^\circ\text{C}$ )	$I_{GM}$	12	A

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

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	10	-	80	mA
$V_{GT}$		-	-	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_j=150^{\circ}\text{C } R_L=3.3\text{K}\Omega$	0.25	-	-	V
$I_L$	$I_G=1.2I_{GT}$	-	-	250	mA
$I_H$	$I_T=500\text{mA}$	-	-	200	mA
dV/dt	$V_D=1070\text{V}$ Gate Open $T_j=150^{\circ}\text{C}$	2000	-	-	V/ $\mu\text{s}$
$t_{on}$	$I_G=100\text{mA } I_A=1\text{A } I_R=100\text{mA}$ $T_j=25^{\circ}\text{C}$	-	8	-	$\mu\text{s}$
$t_{off}$		-	150	-	

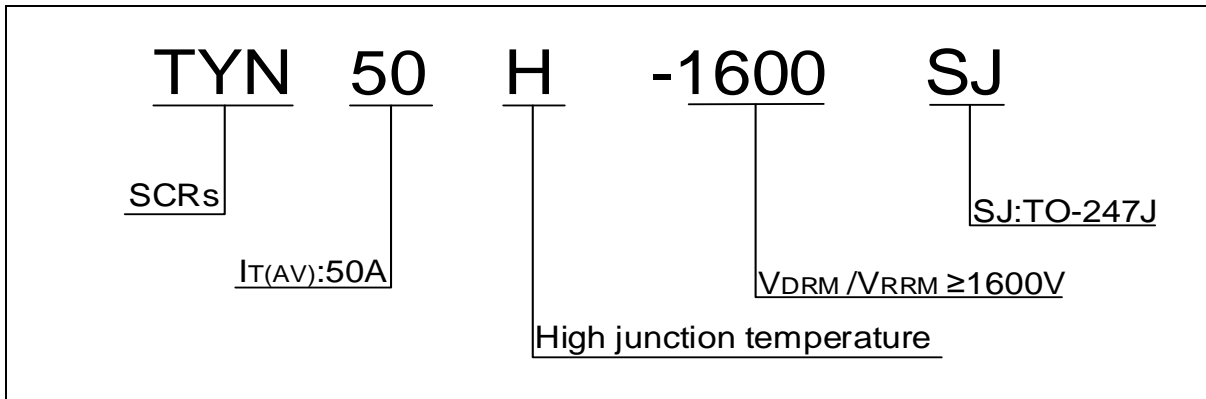
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=100\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.65	V
$V_{TO}$	Threshold voltage	$T_j=150^{\circ}\text{C}$	0.81	V
$R_D$	Dynamic resistance	$T_j=150^{\circ}\text{C}$	7.3	m $\Omega$
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	20	$\mu\text{A}$
$I_{RRM}$		$T_j=150^{\circ}\text{C}$	10	mA

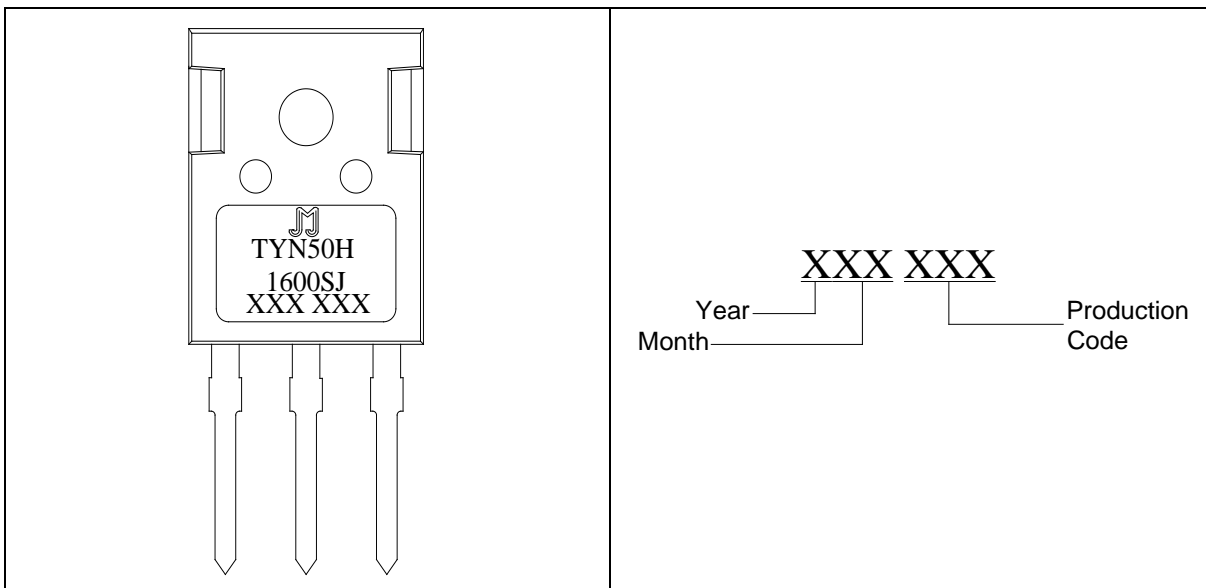
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	0.45	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC)	55	$^{\circ}\text{C/W}$

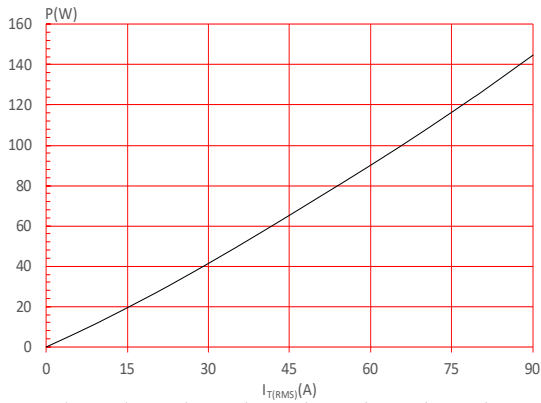
ORDERING INFORMATION



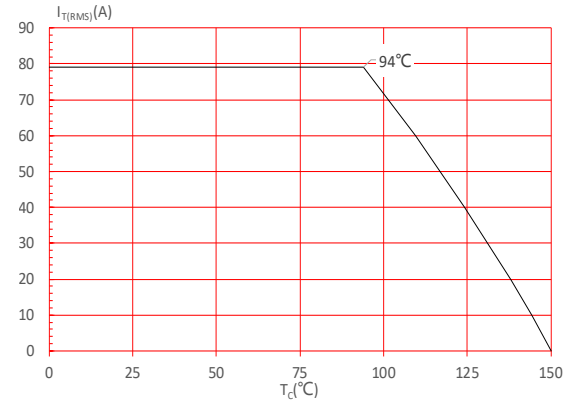
MARKING



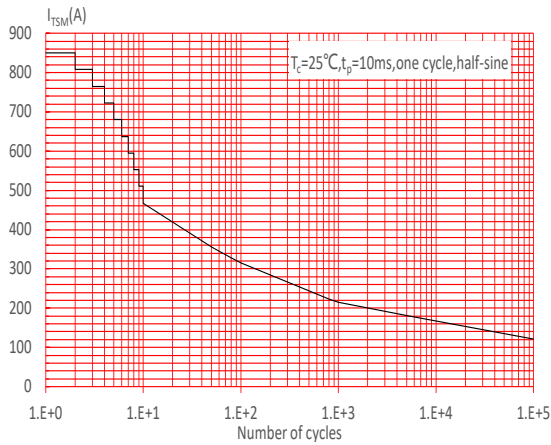
**FIG.1** Maximum power dissipation versus RMS on-state current



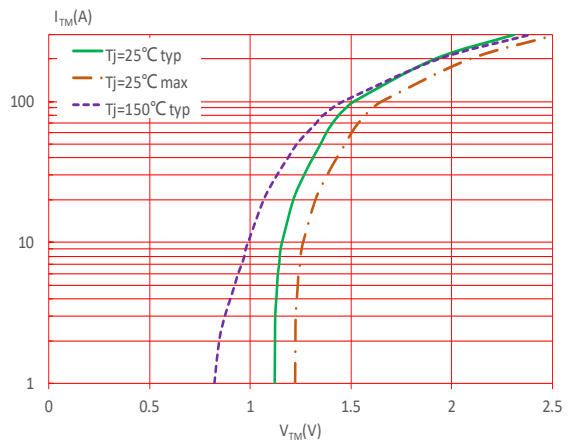
**FIG.2:** RMS on-state current versus case temperature



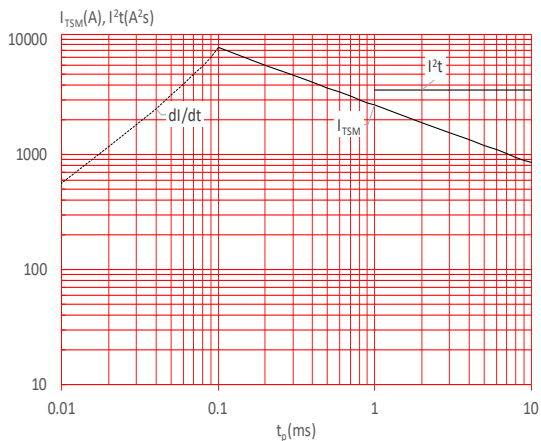
**FIG.3:** Surge peak on-state current versus number of cycles



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



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

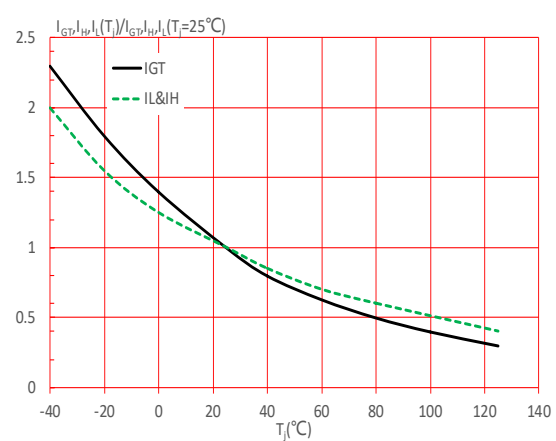
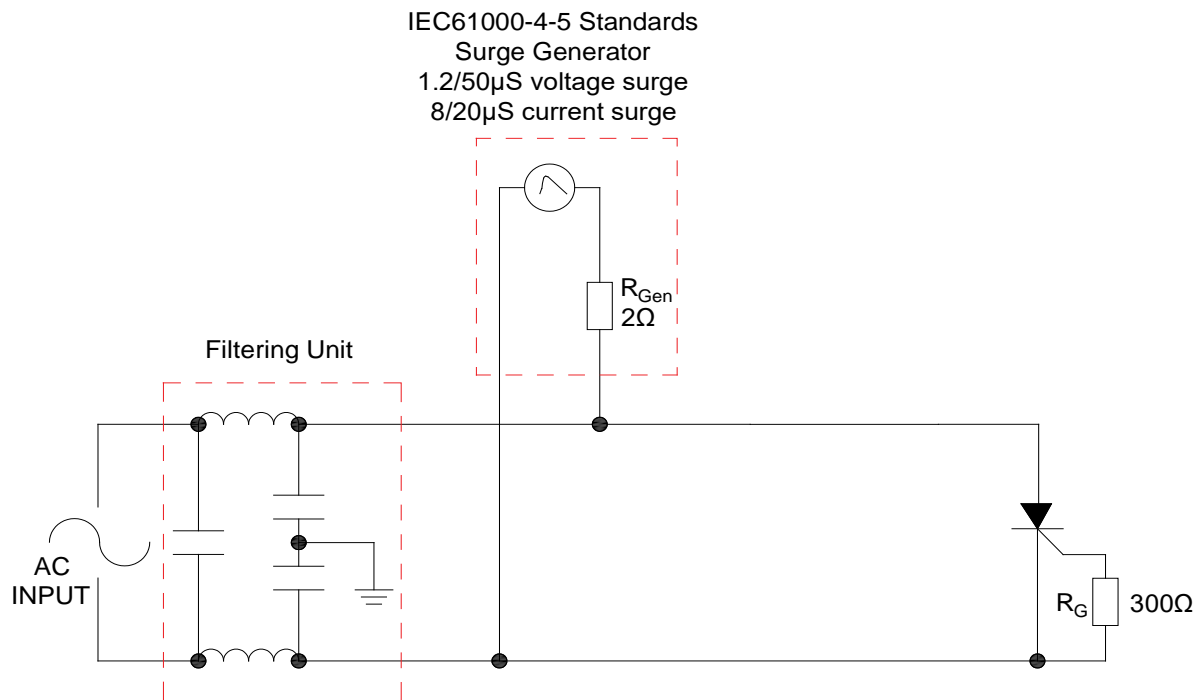


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Power Discretes in Through-hole Packages” released by JieJie Microelectronics

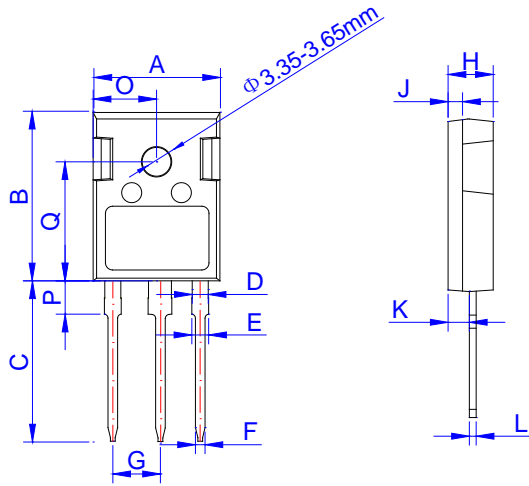
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
TYN50H-1600SJ	1600	10-80	TO-247J	30	Tube

**Document Revision History**

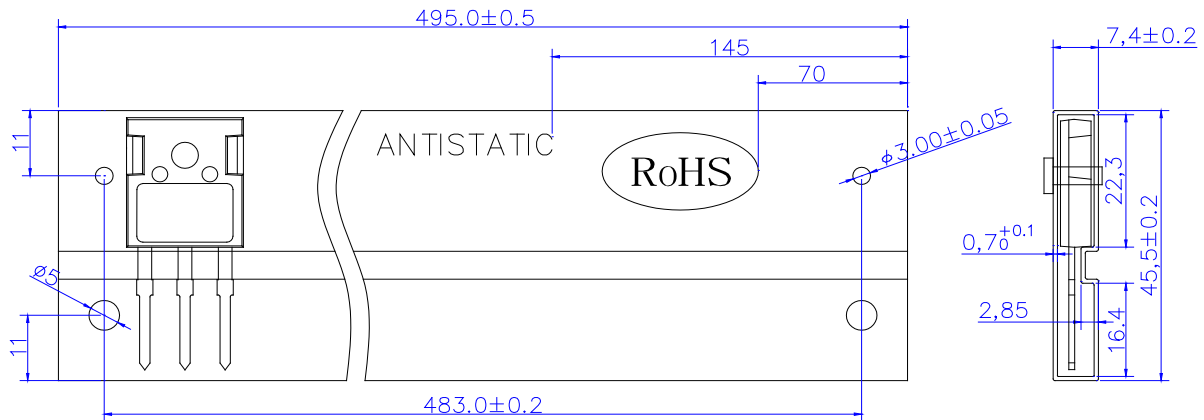
Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update

**PACKAGE MECHANICAL DATA**




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	21.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031
O		7.90			0.312	
P	4.05	4.15	4.25	0.016	0.024	0.031
Q		14.85			0.587	

**DELIVERY MODE**



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

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