

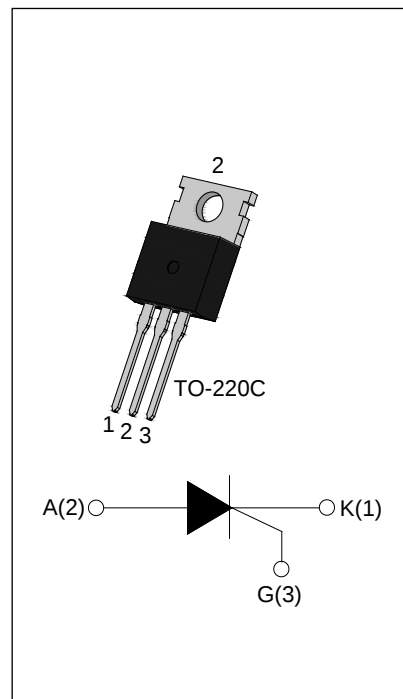


DESCRIPTION:

With high ability to withstand the shock loading of large current, TYN20H-800C of silicon controlled rectifiers provides high dV/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-220C is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(AV)}$	20	A
V_{DRM}/V_{RRM}	800	V
I_{GT}	≤ 30	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-150	$^{\circ}C$
Operating temperature range	T_{op}	-40-125	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	800	V
Average on-state current ($T_c \leq 121^{\circ}C$)	$I_{T(AV)}$	20	A
RMS on-state current ($T_c \leq 121^{\circ}C$)	$I_{T(RMS)}$	31	A
Non repetitive surge peak on-state current ($t_p=10ms$, $T_j=25^{\circ}C$)	I_{TSM}	300	A
Non repetitive surge peak on-state current ($t_p=8.3ms$, $T_j=25^{\circ}C$)		330	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	450	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=150^{\circ}C$)	di/dt	150	$A/\mu s$

Peak gate current ($t_p=20\mu s$, $T_j=150^\circ C$)	I_{GM}	5	A
Average gate power dissipation ($T_j=150^\circ C$)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive, off-state; FIG.7)	V_{pp}	0.5	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	-	-	30	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^\circ C$ $R_L=3.3k\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	70	mA
I_H	$I_T=500mA$	-	-	60	mA
dV/dt	$V_D=540V$ Gate Open $T_j=150^\circ C$	700	-	-	V/ μs
t_{on}	$I_G=20mA$ $I_A=200mA$ $I_R=20mA$ $T_j=25^\circ C$	-	2	-	μs
t_{off}		-	50	-	

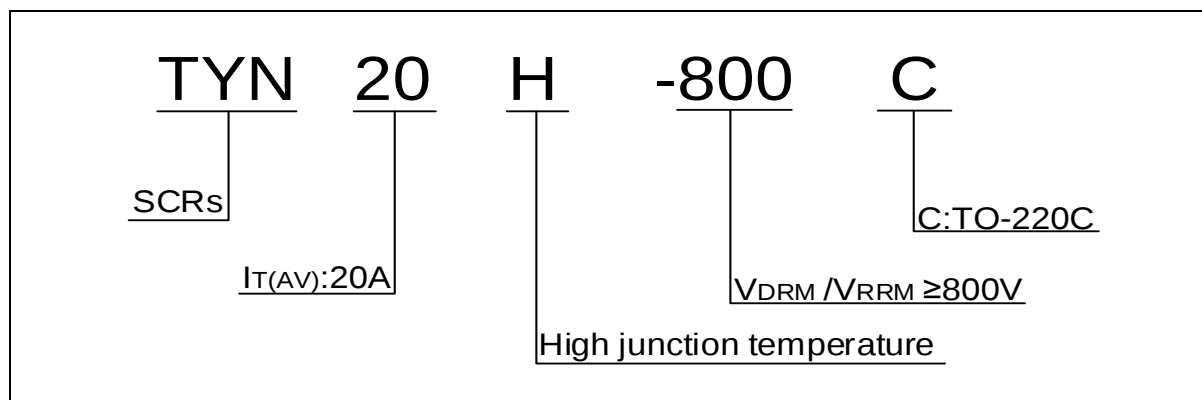
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=50A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.5	V
V_{TO}	Threshold voltage	$T_j=150^\circ C$	0.7	V
R_D	Dynamic resistance	$T_j=150^\circ C$	17.6	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}		$T_j=150^\circ C$	1	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	0.7	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (DC)	60	$^\circ C/W$

ORDERING INFORMATION



MARKING

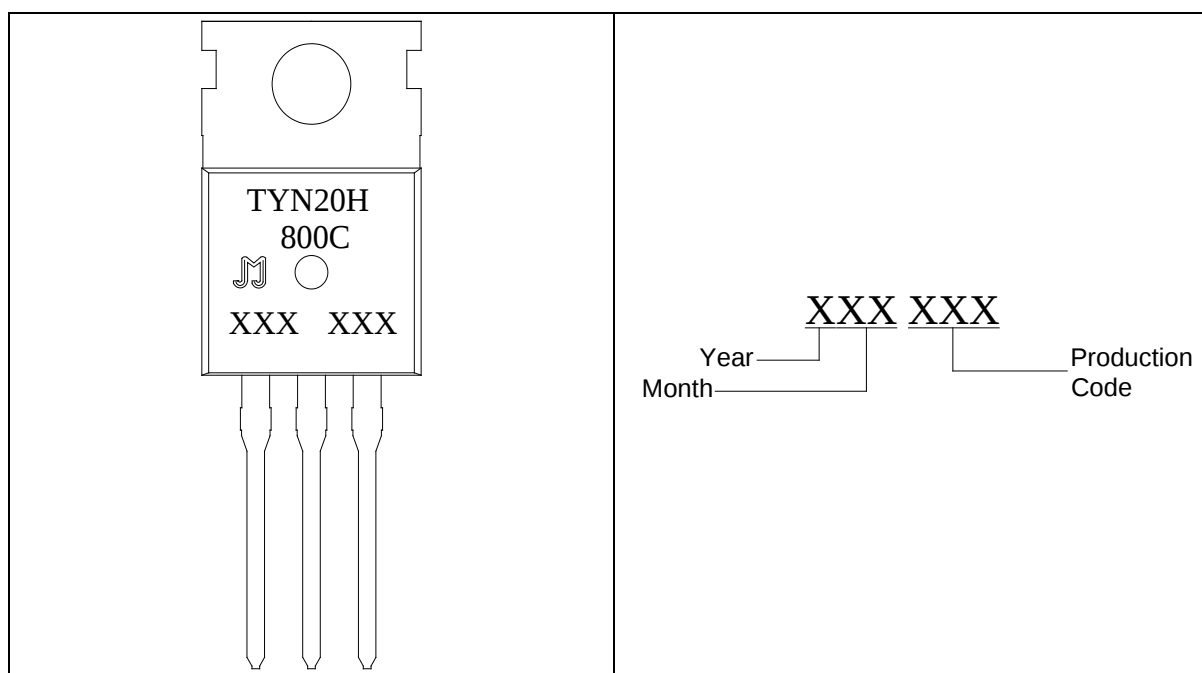


FIG.1: Maximum power dissipation versus RMS on-state current

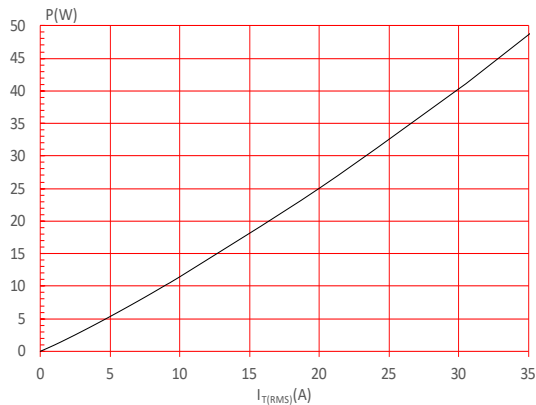


FIG.3: Surge peak on-state current versus number of cycles

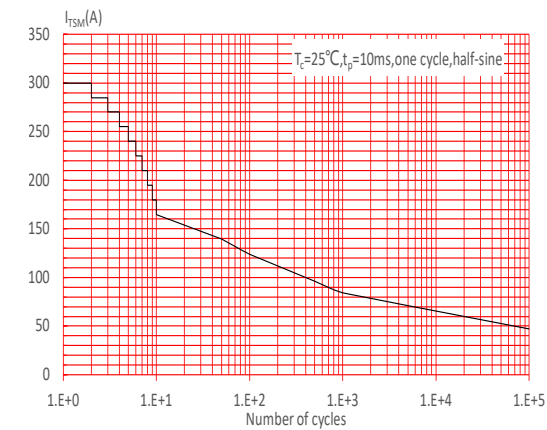


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 150A/\mu s$)

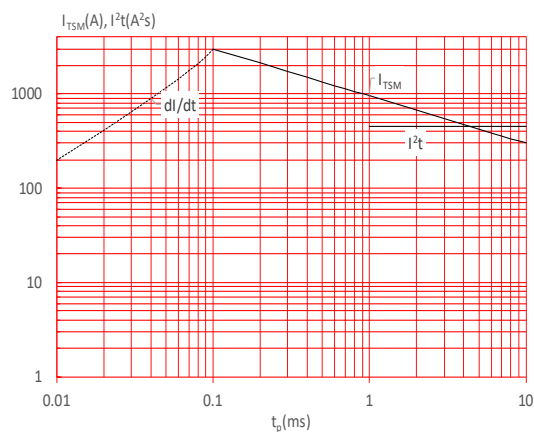


FIG.2: RMS on-state current versus case temperature

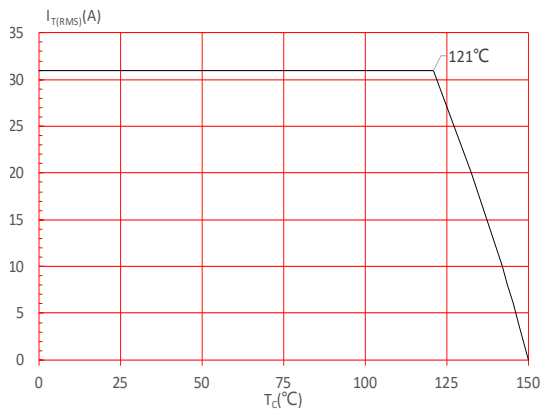


FIG.4: On-state characteristics

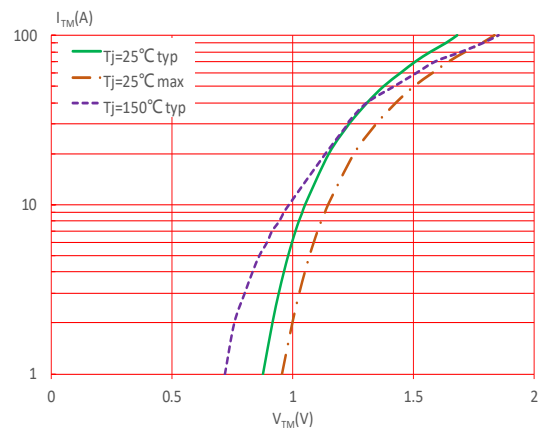


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

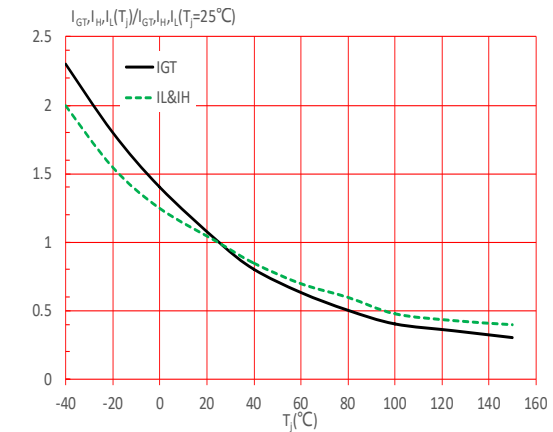
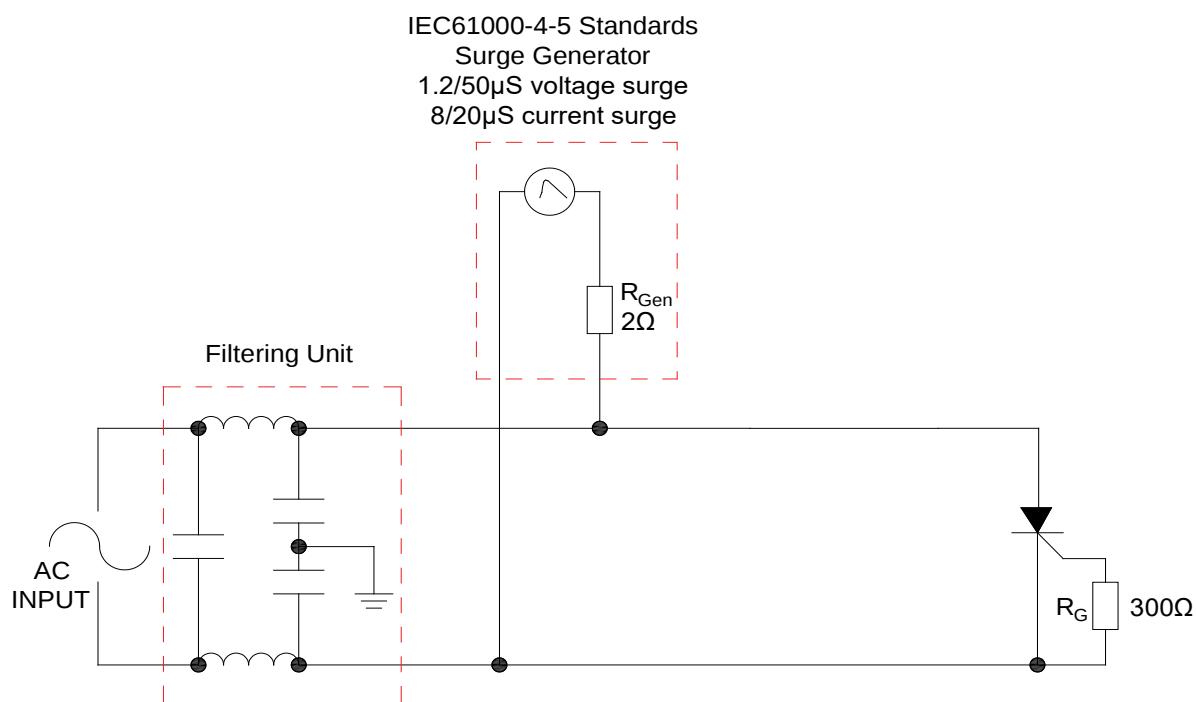


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



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 $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
TYN20H-800C	800	30	TO-220C	50	Tube

Document Revision History

Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update
Oct.14, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin connector. The drawing includes a top view, a front view, and a side view. Dimensions are labeled as follows:

- A**: Total height of the connector.
- B**: Width of the base.
- C**: Width of the pins.
- D**: Height of the main body.
- E**: Width of the top flange.
- F**: Width of the top flange (labeled on the right side view).
- G**: Width of the pins at the base.
- H**: Total height of the connector (labeled on the left side view).
- I**: Height of the top flange.
- J**: Height of the main body.
- K**: Height of the pins.
- L**: Length of the pins.
- M**: Total length of the connector.
- N**: Width of the pins (labeled on the right side view).
- O**: Width of the pins (labeled on the right side view).
- P**: Width of the pins (labeled on the right side view).
- Q**: Width of the pins (labeled on the right side view).
- R**: Width of the pins (labeled on the right side view).
- S**: Width of the pins (labeled on the right side view).
- T**: Width of the pins (labeled on the right side view).
- U**: Width of the pins (labeled on the right side view).
- V**: Width of the pins (labeled on the right side view).
- W**: Width of the pins (labeled on the right side view).
- X**: Width of the pins (labeled on the right side view).
- Y**: Width of the pins (labeled on the right side view).
- Z**: Width of the pins (labeled on the right side view).

Note: $\phi 3.45-3.65\text{mm}$ (indicated on the top view).

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.18
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.30	0.390		0.406
E1	0.80		1.20	0.031		0.047
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.00		29.80	1.102		1.173
H1	2.15		2.55	0.085		0.100
I	4.70		5.10	0.185		0.201
K	9.90		10.30	0.390		0.406
L1	2.70		3.30	0.106		0.130
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
M	4.80		5.20	0.189		0.205

Technical drawing of a 3D printed part showing top, front, and side views with dimensions.

Top View:

- Overall width: 520 ± 0.5
- Overall height: 530 ± 0.5
- Left side features a circular hole and a rectangular section with three vertical slots.
- Right side features a "printing area" label, a circular hole with diameter $\varnothing 4.5 \pm 0.05$, and a circular hole with diameter $\varnothing 3 \pm 0.05$.
- Dimensions on the right side: 5, 5.5, 5.5.

Front View:

- Overall height: 18
- Left side features a circular hole and a rectangular section with three vertical slots.
- Right side features a circular hole with diameter $\varnothing 3 \pm 0.05$.
- Dimensions on the right side: 5.5, 5.5.

Side View:

- Overall width: 7 ± 0.2
- Overall height: 33
- Left side features a circular hole and a rectangular section with three vertical slots.
- Right side features a circular hole with diameter $\varnothing 3 \pm 0.05$.
- Dimensions on the right side: 2.4, 3.8, 3.8, 0.6.

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

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