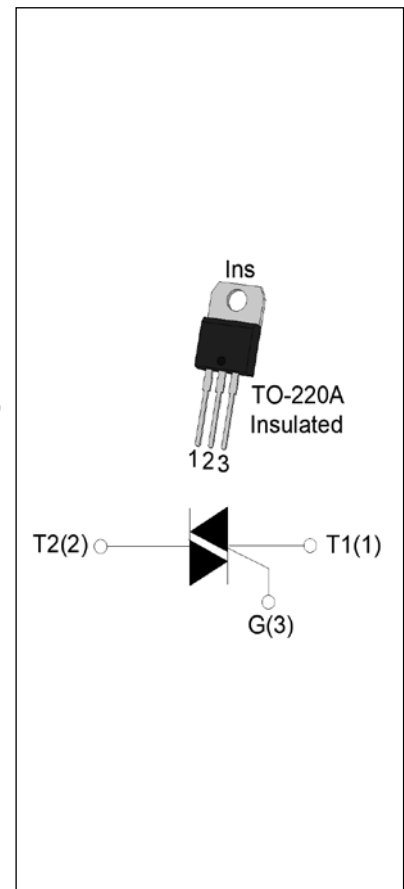


T1610H-6A 16A TRIAC

Rev.A.1.1

DESCRIPTION:

The T1610H-6A triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Compared to traditional triacs, T1610H-6A provides a very high switching capability up to junction temperatures of 150°C. It can be driven directly through the MCU I/O port. By using an internal ceramic pad, T1610H-6A provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III}$	10/10/10	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
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	600	V
RMS on-state current ($T_c \leq 108^\circ\text{C}$)	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	160	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		176	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	128	A^2s
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	100	$\text{A}/\mu\text{s}$

Peak gate current ($t_p=20\mu s$, $T_j=150^\circ C$)	I_{GM}	4	A
Average gate power dissipation ($T_j=150^\circ C$)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	10	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive, off-state; FIG. 7)	V_{pp}	4	kV

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

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II - III	MAX.	10	mA
V_{GT}		I - II - III	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^\circ C$ $R_L=3.3k\Omega$	I - II - III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III	MAX.	20	mA
		II		35	
I_H	$I_T=500mA$		MAX.	20	mA
dV/dt	$V_D=400V$ Gate Open $T_j=150^\circ C$		MIN.	200	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20V/\mu s$, $T_j=150^\circ C$		MIN.	1.8	A/ms
t_{on}	$I_G=20mA$ $I_A=200mA$ $I_R=20mA$ $T_j=25^\circ C$		TYP.	2.5	μs
t_{off}				25	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=22.5A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.4	V
V_{TO}	Threshold voltage	$T_j=150^\circ C$	0.75	V
R_D	Dynamic resistance	$T_j=150^\circ C$	27	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}		$T_j=150^\circ C$	1.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.0	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^\circ C/W$

ORDERING INFORMATION

<u>T</u>	<u>16</u>	<u>10</u>	<u>H</u>	<u>-6</u>	<u>A</u>
Triacs	$I_T(RMS):16A$				$A:TO-220A(Ins)$
	$10:I_{GT1-3} \leq 10mA$			$6:V_{DRM} / V_{RRM} \geq 600V$	
			High junction temperature		

MARKING

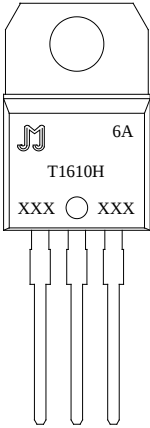
	<u>XXX</u> <u>XXX</u> Year——— Month——— Production Code
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FIG.1: Maximum power dissipation versus RMS on-state current

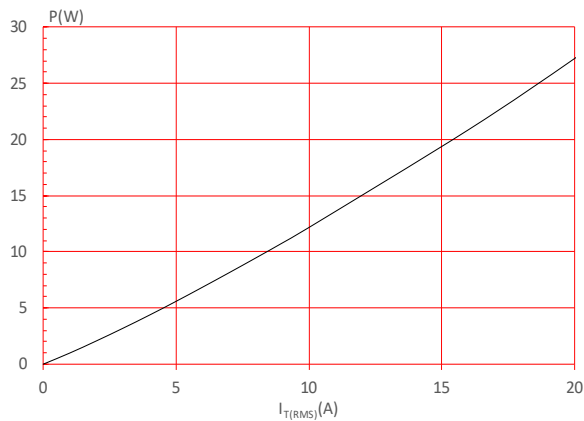


FIG.2: RMS on-state current versus case temperature

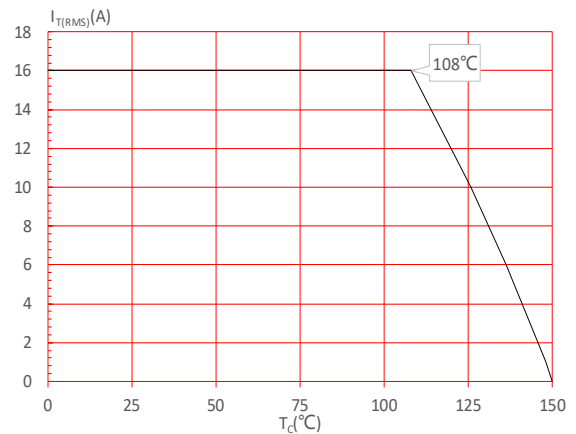


FIG.3: Surge peak on-state current versus number of cycles

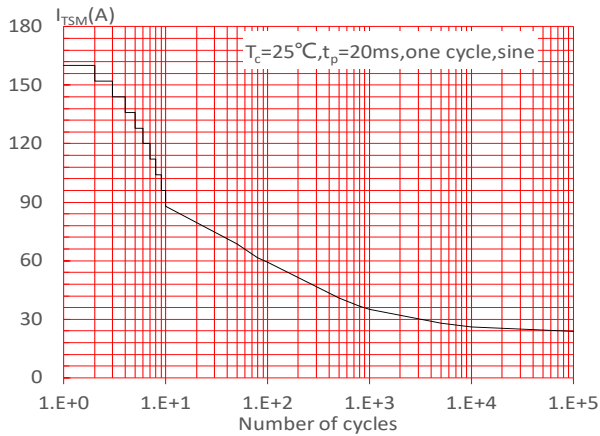


FIG.4: On-state characteristics

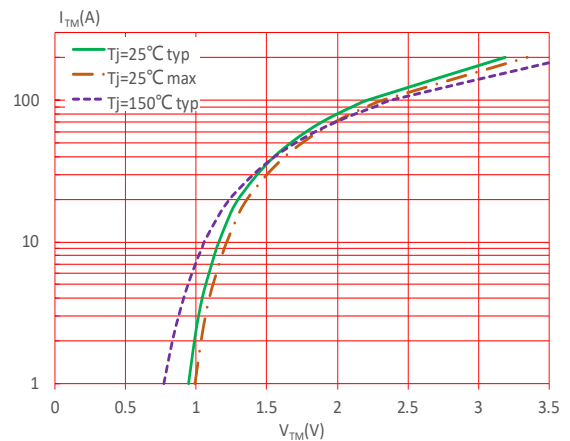


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 100A/\mu s$)

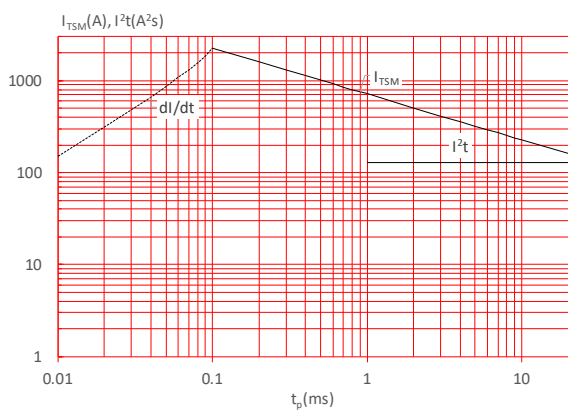


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

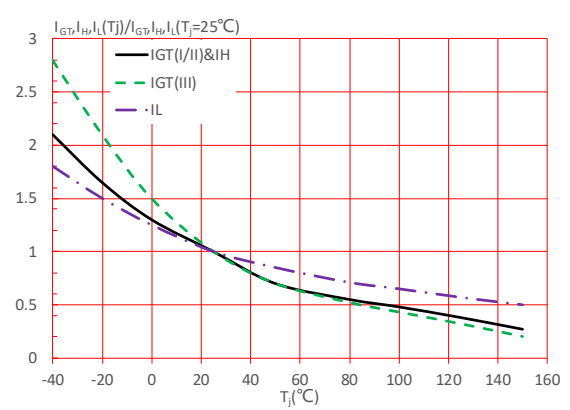
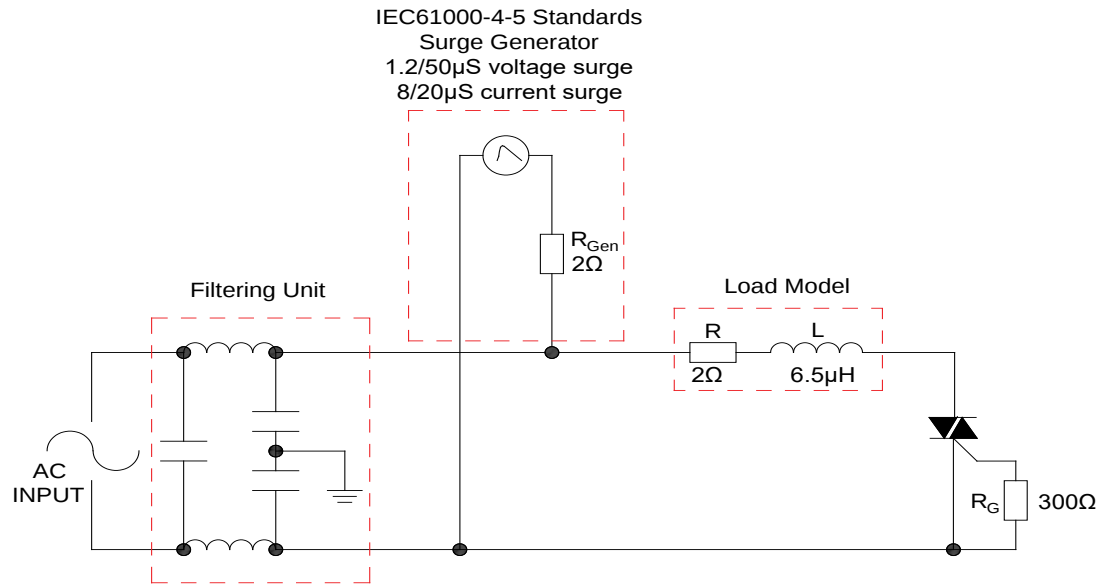


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for 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
		I - II - III			
T1610H-6A	600	10	TO-220A(Ins)	50	Tube

Document Revision History

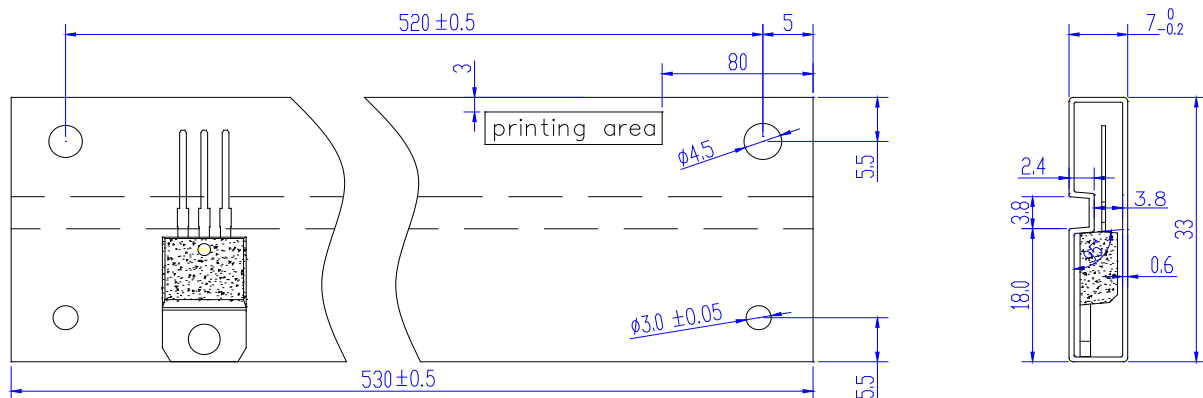
Date	Revision	Changes
Apr.10, 2023	A.1.0	Last updated
Oct.11, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

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

- E**: Total width of the connector body.
- I**: Width of the top flange.
- L3**: Height of the top flange.
- H**: Total height of the connector body.
- L1**: Height of the top flange from the base of the pins.
- J**: Height of the main body from the base of the pins.
- L2**: Width of the main body.
- B**: Width of the base of the pins.
- G**: Width of the base of the pins.
- K**: Width of the base of the pins.
- A**: Width of the top flange from the base of the pins.
- C2**: Width of the top flange from the base of the pins.
- F**: Height of the top flange from the base of the pins.
- D**: Height of the main body from the base of the pins.
- C3**: Width of the main body from the base of the pins.
- C**: Width of the base of the pins.
- V1**: Chamfer angle on the top flange.
- E1**: Width of the base of the pins.
- H1**: Height of the base of the pins.

A note indicates a diameter of $\Phi 37-3.9\text{mm}$.

DELIVERY MODE



<http://www.jjwdz.com>

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