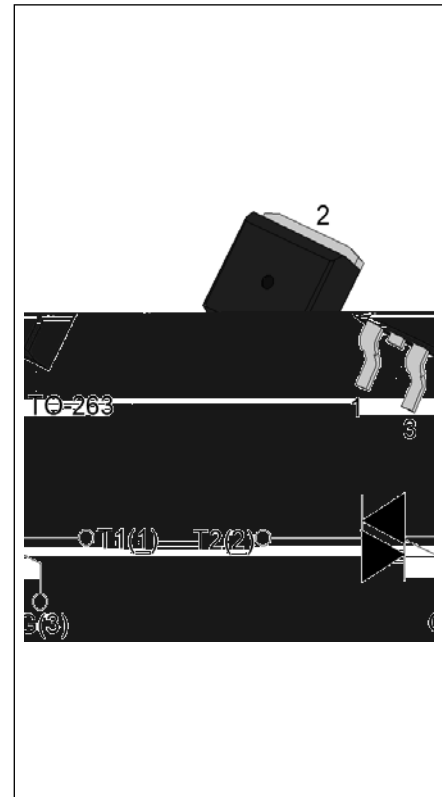


T1610H-8E 16A TRIAC

Rev.A.1.0

DESCRIPTION:

The T1610H-8E 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-8E provides a very high switching capability up to junction temperatures of 150°C. It can be driven directly through the MCU I/O port. Package TO-263 is RoHS compliant.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	800	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}	800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	800	V
RMS on-state current ($T_c \leq 125^\circ\text{C}$)	$I_{T(RMS)}$	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 ($I_G=2\ I_{GT}$, $f=100\text{Hz}$, $T_j=150^\circ\text{C}$)	di/dt	100	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=150^\circ\text{C}$)	I_{GM}	4	A
Average gate power dissipation ($T_j=150^\circ\text{C}$)	$P_{G(AV)}$	1	W

Peak gate power	P_{GM}	10	W
Peak pulse voltage ($T_j=25^\circ\text{C}$; non-repetitive, off-state; FIG.8)	V_{pp}	4	kV

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

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33$	I - II - III	MAX.	10	mA
V_{GT}		I - II - III	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^\circ\text{C}$ $R_L=3.3\text{K}$	I - II - III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III	MAX.	20	mA
		II		35	
I_H	$I_T=500\text{mA}$		MAX.	20	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=150^\circ\text{C}$		MIN.	150	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$, $T_j=150^\circ\text{C}$		MIN.	1.8	A/ms
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^\circ\text{C}$		TYP.	2.5	μs
t_{off}				25	

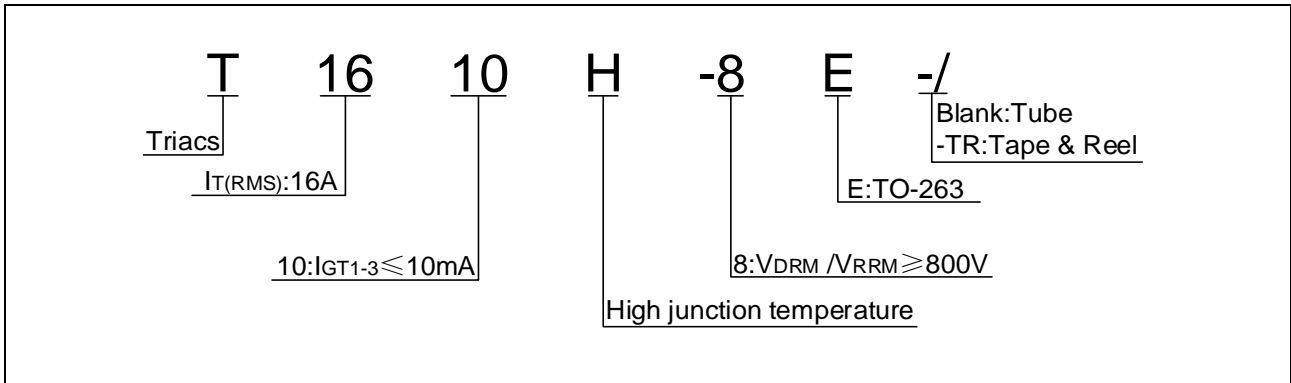
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=22.5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.4	V
V_{TO}	Threshold voltage	$T_j=150^\circ\text{C}$	0.75	V
R_D	Dynamic resistance	$T_j=150^\circ\text{C}$	27	m
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
I_{RRM}		$T_j=150^\circ\text{C}$	2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	1.2	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC, in free air, $S=2\text{cm}^2$)	45	$^\circ\text{C}/\text{W}$

ORDERING INFORMATION



MARKING

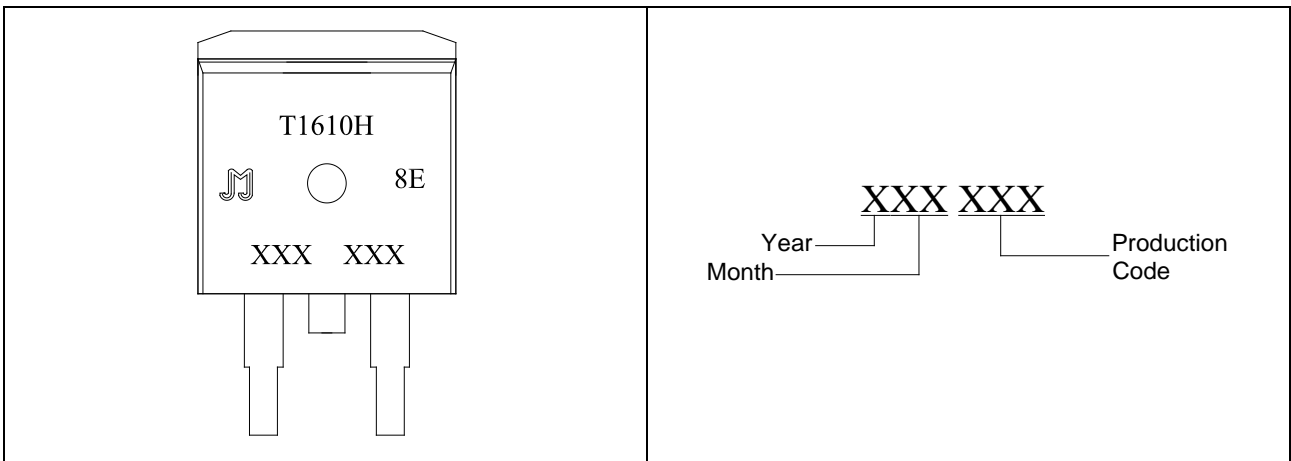


FIG.1 Maximum power dissipation versus RMS on-state current

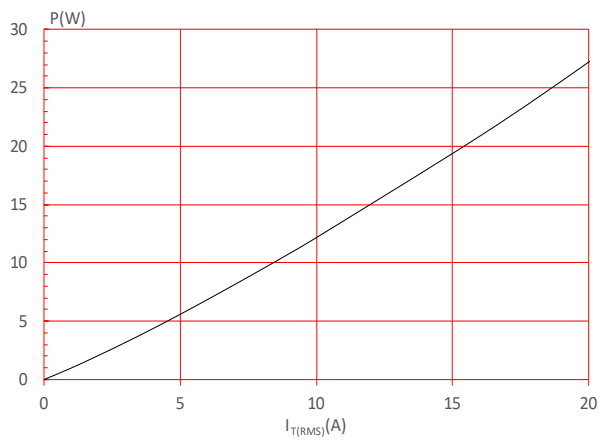


FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35 μ m)(full cycle)

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

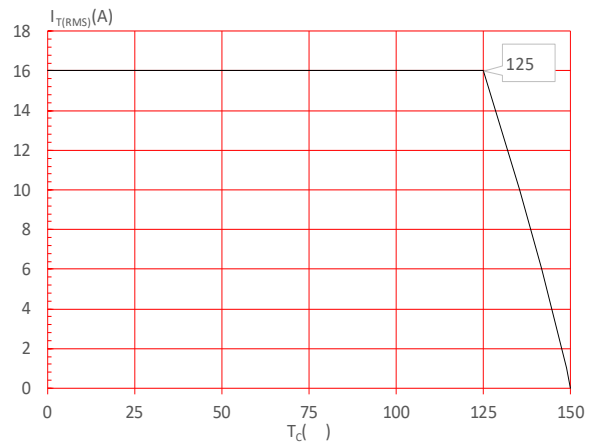


FIG.4: Surge peak on-state current versus number of cycles

FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

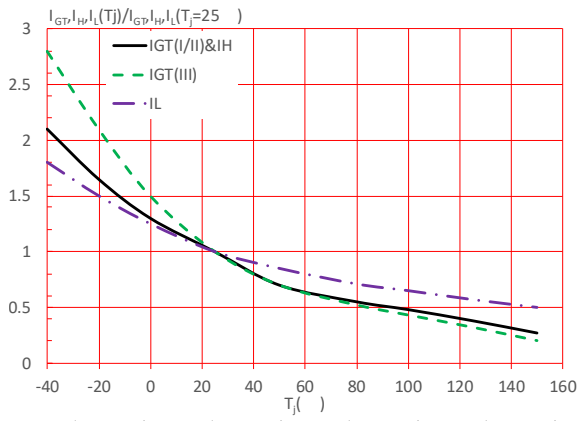
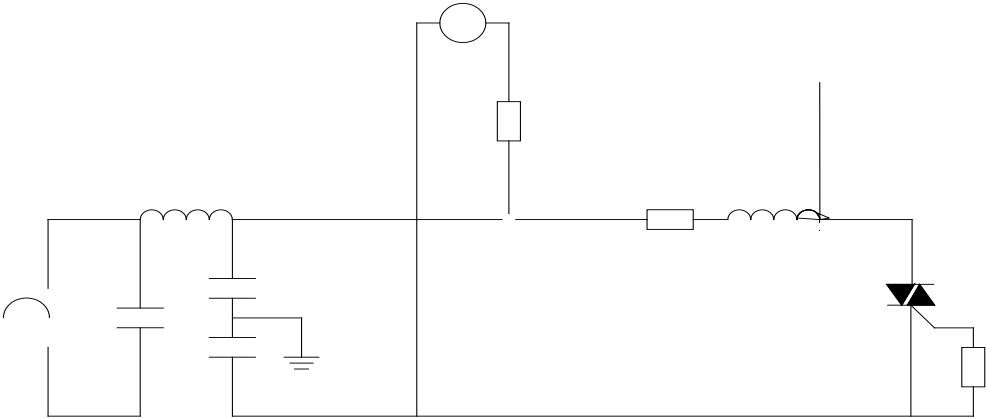


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



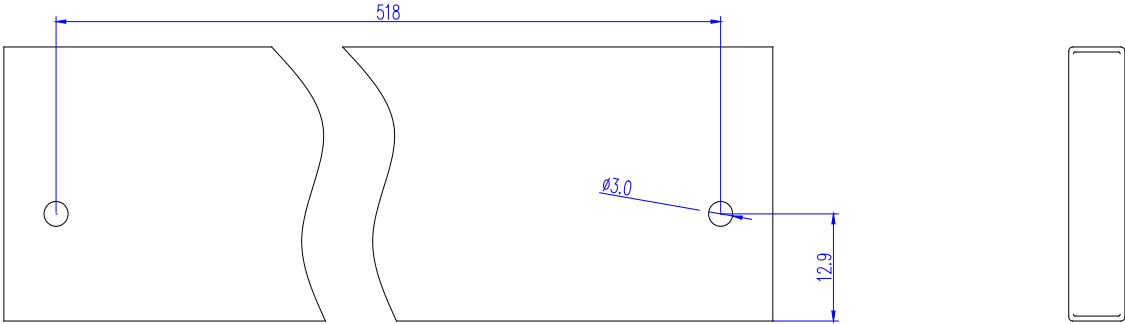
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		- -			
T1610H-8E	800	10	TO-263	50	Tube
T1610H-8E-TR				800	Tape & Reel

Document Revision History

Date	Revision	Changes
Apr.10, 2023	A.1.0	Last updated

DELIVERY MODE



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