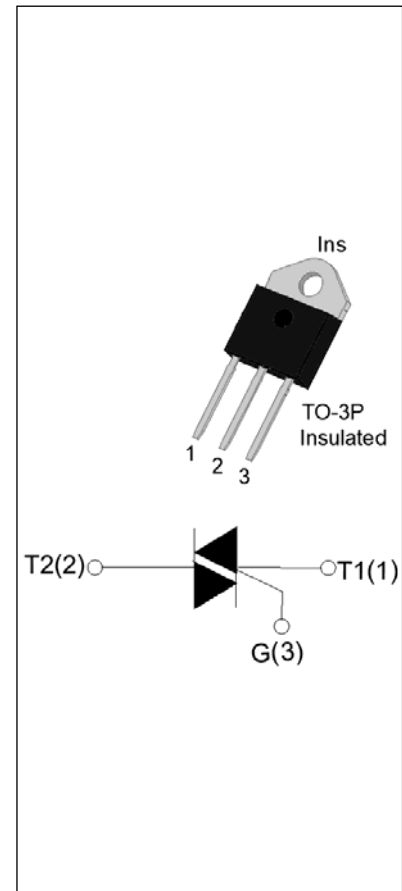


JST41Z-600TW 40A TRIAC

Rev.A.1.0

DESCRIPTION:

The JST41Z-600TW 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. JST41Z-600TW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. By using an internal ceramic pad, JST41Z-600TW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-3P is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III}$	5/5/5	mA

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	°C
Operating junction temperature range	T_j	-40-125	°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 ($T_c \leq 81^\circ\text{C}$)	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	420	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		462	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	1000	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$)	di/dt	50	$\text{A}/\mu\text{s}$

Peak gate current ($t_p=20\mu s$, $T_j=125^\circ C$)	I_{GM}	8	A
Average gate power dissipation ($T_j=125^\circ C$)	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	40	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive, off-state; FIG. 7)	V_{pp}	1	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.	5	mA
V_{GT}		I - II - III	MAX.	1.3	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K\Omega$	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.	15	mA
dV/dt	$V_D=400V$ Gate Open $T_j=125^\circ C$		MIN.	200	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20V/\mu s$ $T_j=125^\circ C$		MIN.	2	A/ms
t_{on}	$I_G=10mA$ $I_A=200mA$ $I_R=20mA$ $T_j=25^\circ C$		TYP.	3	μs
t_{off}				25	

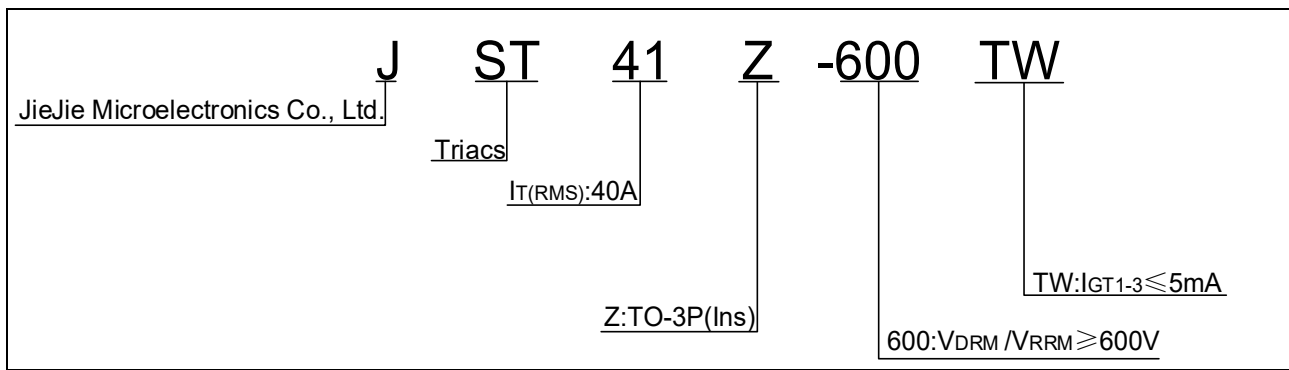
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=60A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.4	V
V_{TO}	Threshold voltage	$T_j=125^\circ C$	0.73	V
R_D	Dynamic resistance	$T_j=125^\circ C$	10	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	5	μA
I_{RRM}		$T_j=125^\circ C$	3	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	0.85	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (AC)	50	$^\circ C/W$

ORDERING INFORMATION



MARKING

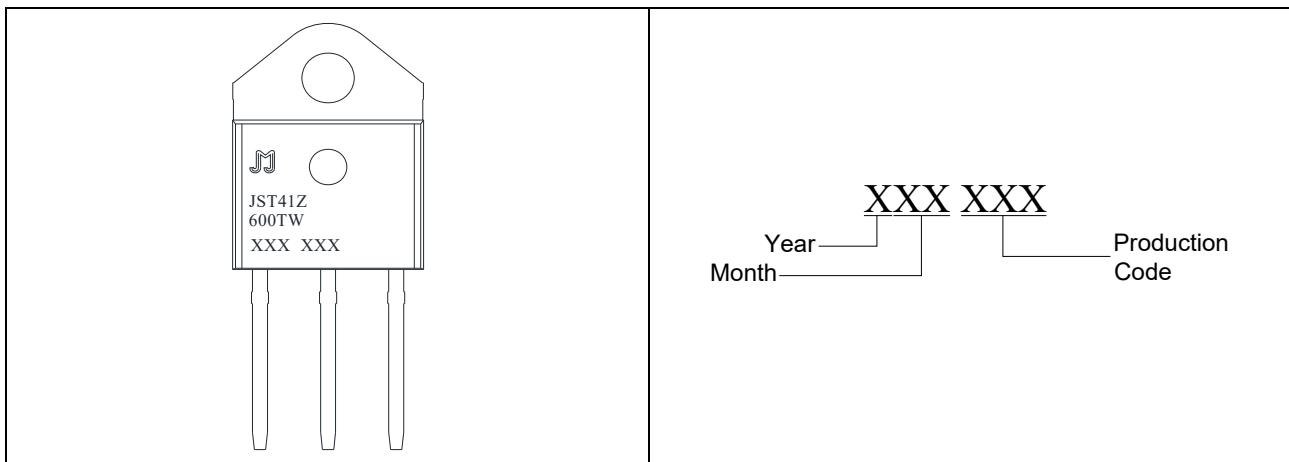


FIG.1 Maximum power dissipation versus RMS on-state current

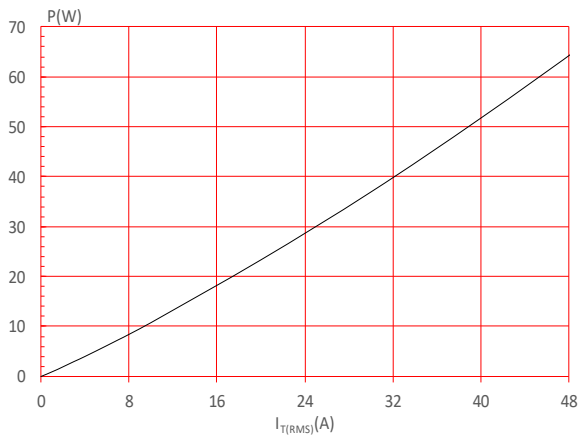


FIG.3: Surge peak on-state current versus number of cycles

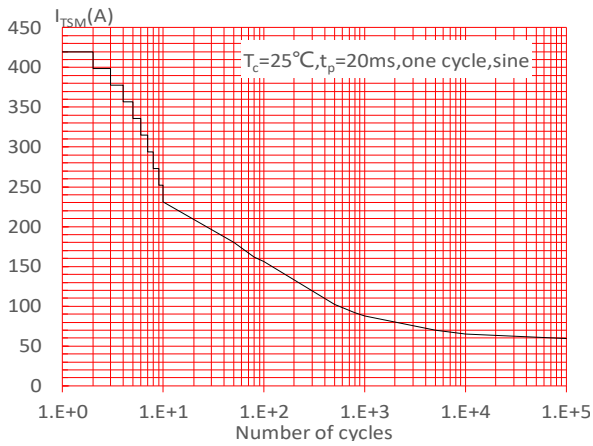


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

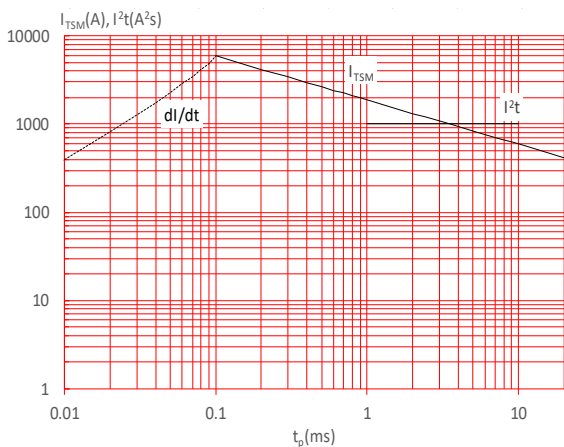


FIG.2: RMS on-state current versus case temperature

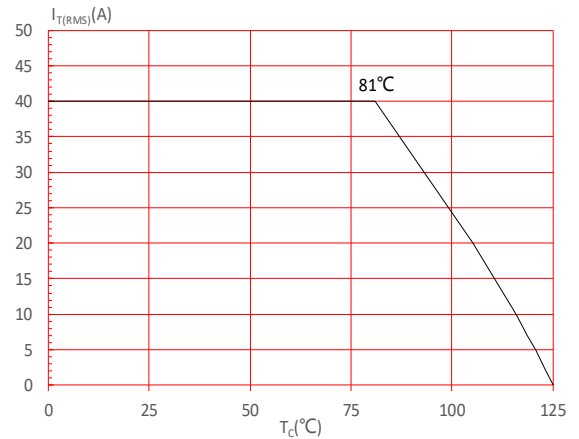


FIG.4: On-state characteristics

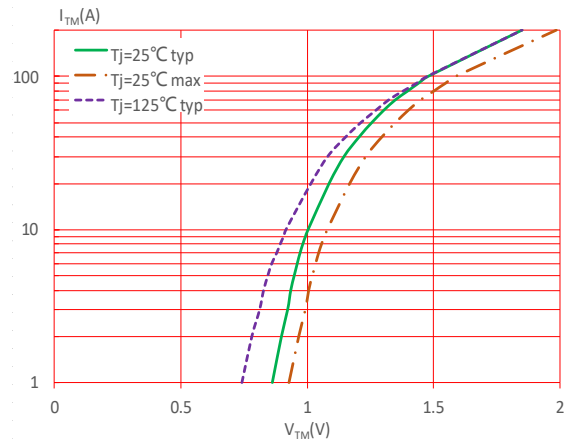


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

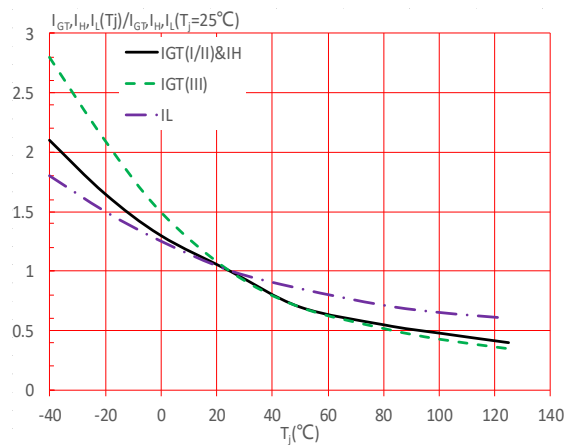
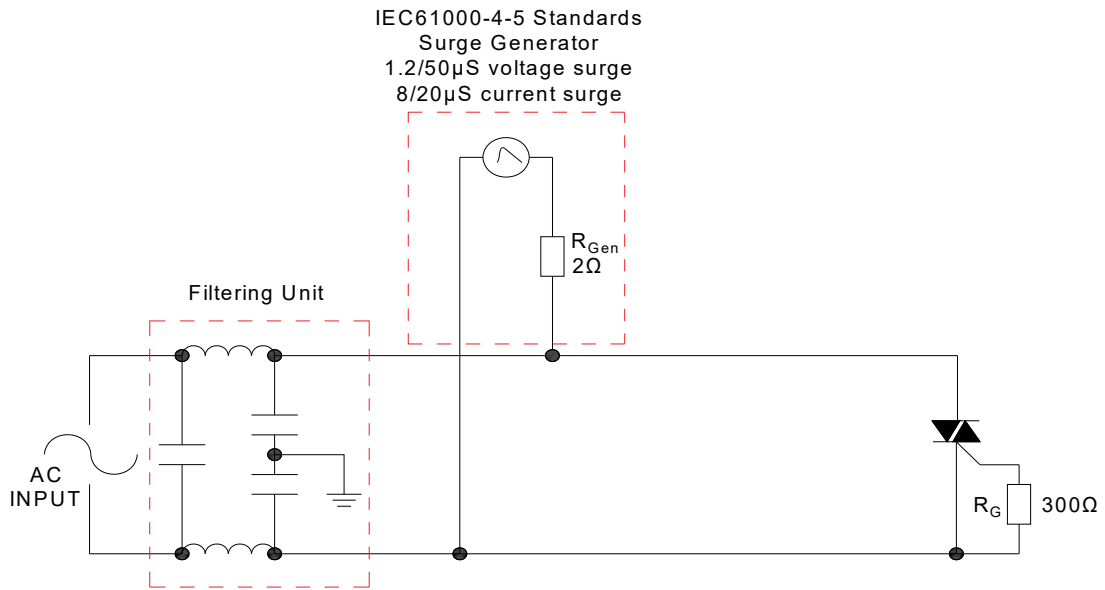


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

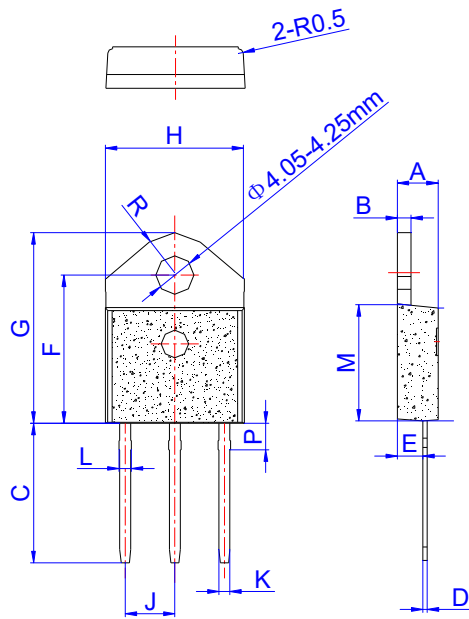
ORDERING INFORMATION

Order code	Voltage V _{DRM} /V _{RPM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST41Z-600TW	600	5	TO-3P(Ins)	30	Tube

Document Revision History

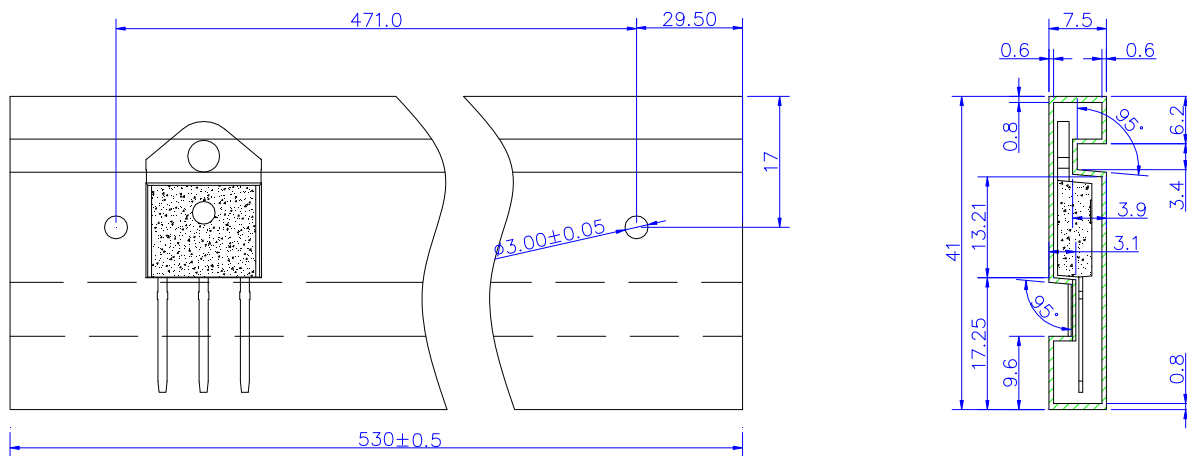
Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.25		1.45	0.049		0.057
M	12.37		12.77	0.487		0.503
P	2.80		3.00	0.110		0.118
R		4.35			0.171	


DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-3P	TUBE	30	450	2,250

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