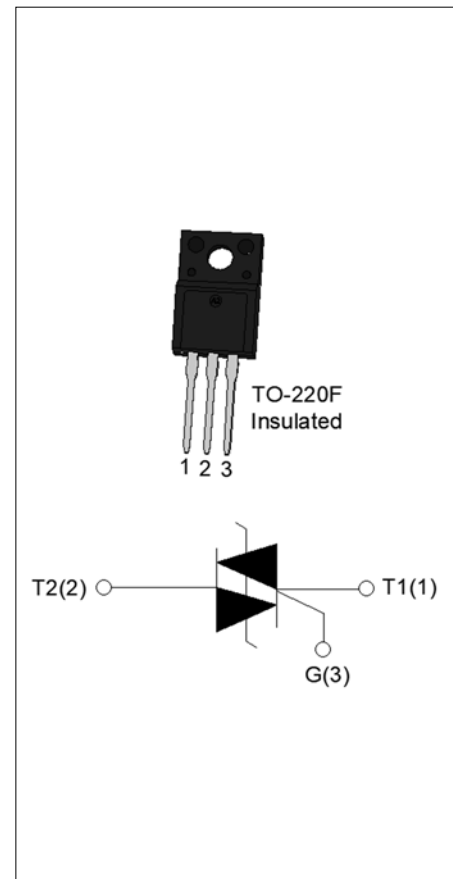


DESCRIPTION:

The ACST410-8FP 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. The ACST410-8FP embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. By using an external plastic package, ACST410-8FP provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	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	-40-125	°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
RMS on-state current ($T_c \leq 105^{\circ}C$)	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current (full cycle , $t_p=20ms$, $T_j=25^{\circ}C$)	I_{TSM}	40	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6ms$, $T_j=25^{\circ}C$)		44	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	8	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^{\circ}C$)	di/dt	50	A/ μs
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)	I_{GM}	4	A

Average gate power dissipation ($T_j=125^{\circ}\text{C}$)	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	10	W
Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	3	kV

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

Symbol	Test Condition	Quadrant	Value		Unit
I _{GT}	V _D =12V R _L =33Ω	I - II -III	MAX.	10	mA
V _{GT}		I - II -III	MAX.	1	V
V _{GD}	V _D =V _{DRM} T _j =125°C R _L =3.3kΩ	I - II -III	MIN.	0.2	V
I _L	I _G =1.2I _{GT}	I -III	MAX.	30	mA
		II		45	
I _H	I _T =100mA		MAX.	25	mA
dV/dt	V _D =540V Gate Open T _j =125°C		MIN.	500	V/μs
(dI/dt) _c	(dV/dt) _c =10V/μs, T _j =125°C		MIN.	3	A/ms
t _{on}	I _G =20mA I _A =200mA I _R =20mA		TYP.	2.5	μs
t _{off}	T _j =25°C			25	
V _{CL}	I _{CL} =0.1mA t _p =1ms		MIN.	850	V

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=5.6\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.73	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	171	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.25	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	3.5	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

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

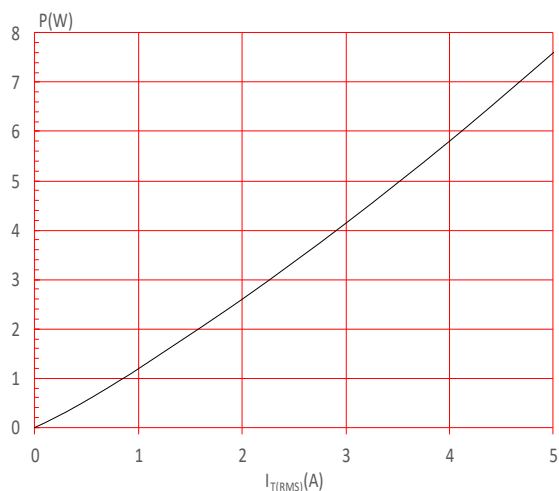


FIG.2: RMS on-state current versus case temperature

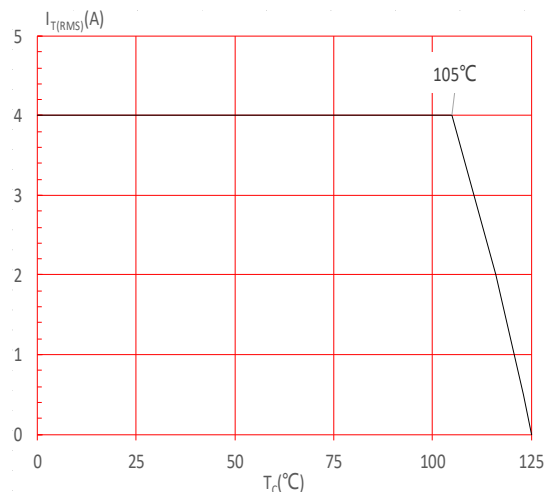


FIG.3: Surge peak on-state current versus number of cycles

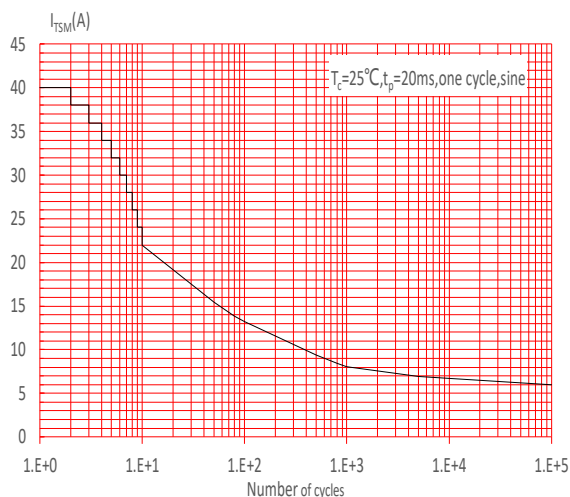


FIG.4: On-state characteristics

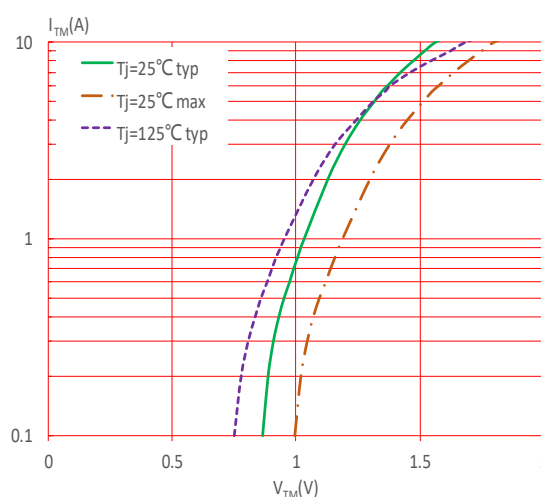


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

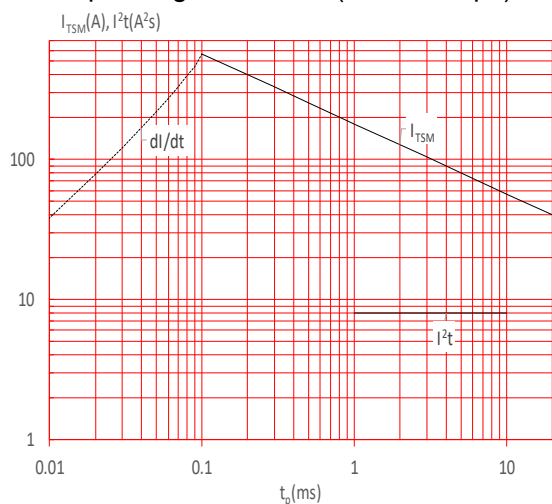


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

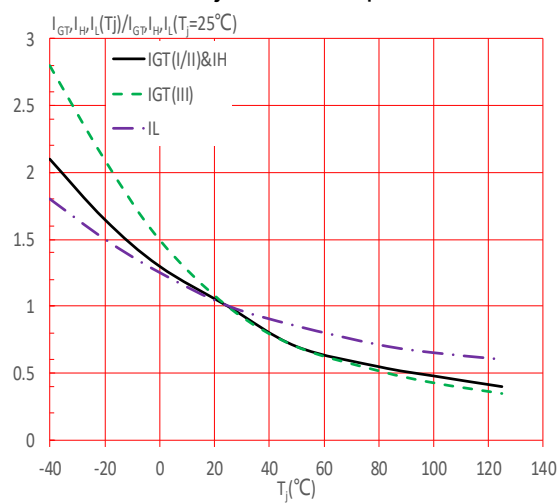
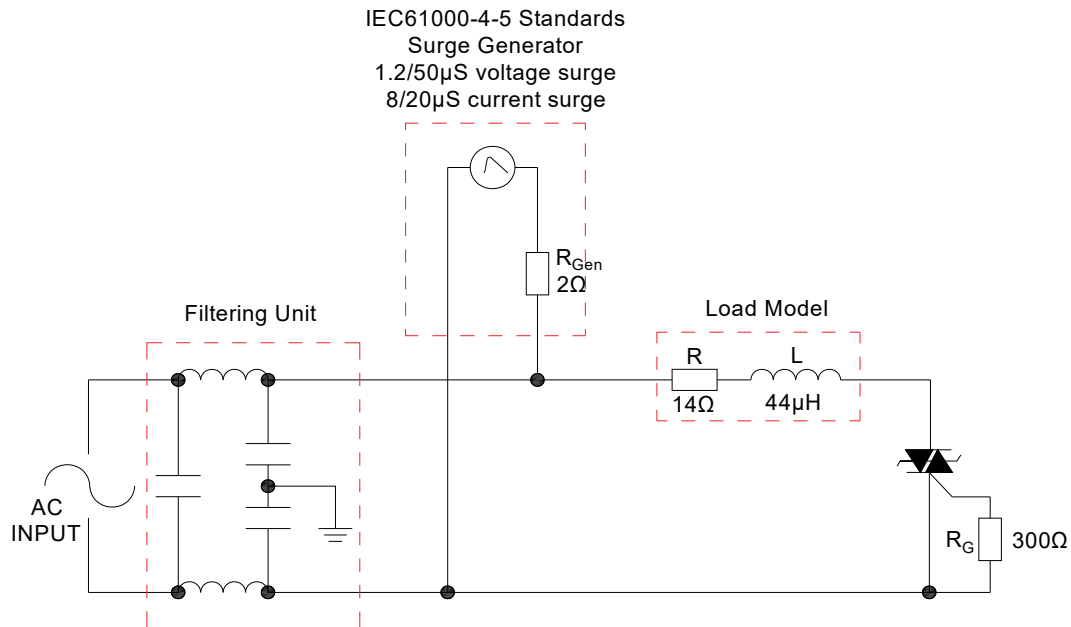
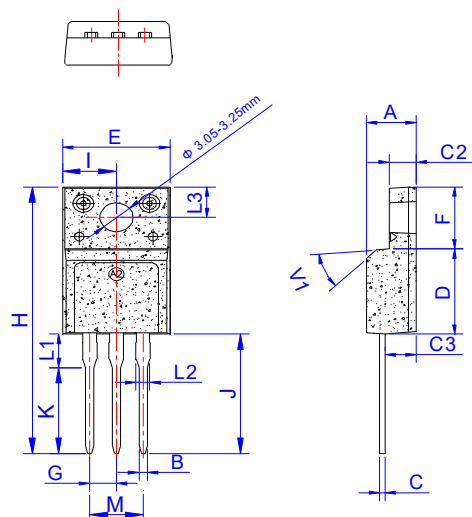


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

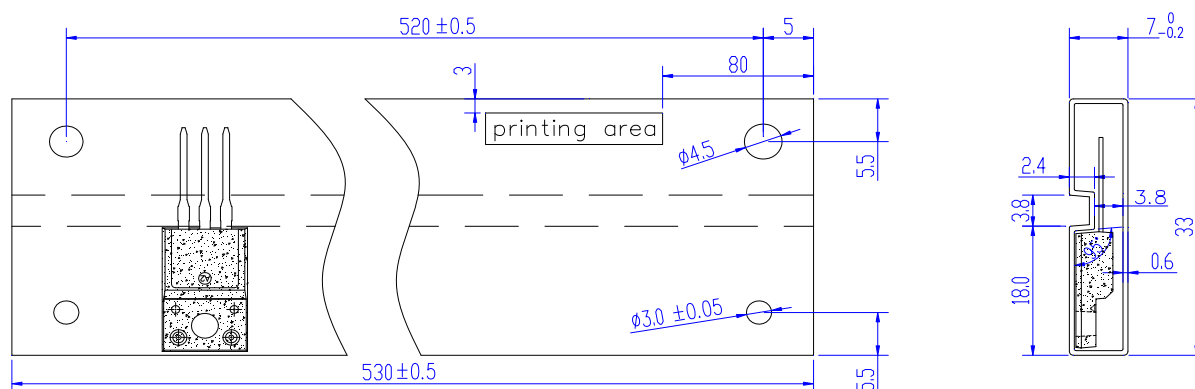


PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
I	4.80		5.20	0.189		0.205
J	12.60		13.00	0.496		0.512
K	9.60		10.00	0.378		0.394
L1	3.20		3.80	0.126		0.150
L2	1.14		1.70	0.045		0.067
L3	3.20		3.60	0.126		0.142
M	4.80		5.20	0.189		0.205
V1		45°			45°	

DELIVERY MODE



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