

● **Description:**

High current density due to single mesa technology;  
SIPOS and Glass Passivation.

● **Applications:**

T4XX series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation light dimmers, motor speed controllers.

● **Features:**

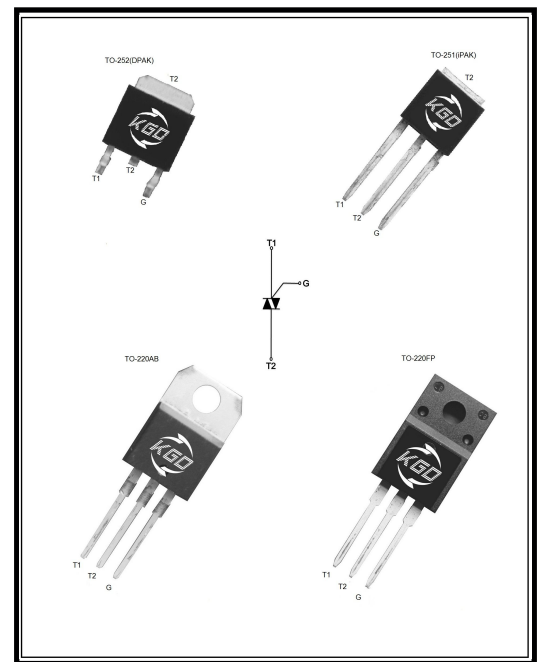
T4XX are 3 Quadrants TRIACs, They are specially recommended for use on inductive loads.

Blocking voltage to 600 & 800V

On-state RMS current to 4A

Non-repetitive peak on-state current to 35A

● **Absolute Maximum Ratings**



Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DRM}$	Repetitive peak off-state voltage	$T_j=25^\circ C$	600	800	V
$I_{T(RMS)}$	RMS on-state current	TO-251/TO-252/TO-220AB( $T_c=105^\circ C$ )	-	4	A
		TO-220FP( $T_c=95^\circ C$ )	-	4	A
$I_{TSM}$	Non-repetitive peak On-state current	F=50Hz, t=20ms	-	35	A
		F=60Hz, t=16.7ms	-	38	A
$I^2t$	$I^2t$ for fusing	$T_p=10ms$	-	8	A <sup>2</sup> S
di/dt	Rate of rise of on-state current	$I_G=2 \times I_{GT}, t_r \leq 100ns, T_j=125^\circ C$	-	50	A/ $\mu s$
$I_{GM}$	Peak gate current		-	4	A
$P_{GM}$	Peak gate power	$t_p=20\mu s, T_j=150^\circ C$	-	5	W
$P_{G(AV)}$	Average gate power		-	1	W
$T_{STG}$	Storage temperature		-40	150	$^\circ C$
$T_j$	Junction temperature		-40	125	$^\circ C$

**● Thermal Characteristics**

Symbol	Parameter	Value	Unit	
$R_{th(j-c)}$	Junction to Case(AC)	TO-251/TO-252/TO-220AB	2.6	$^{\circ}C/W$
		TO-220FP	4.8	$^{\circ}C/W$

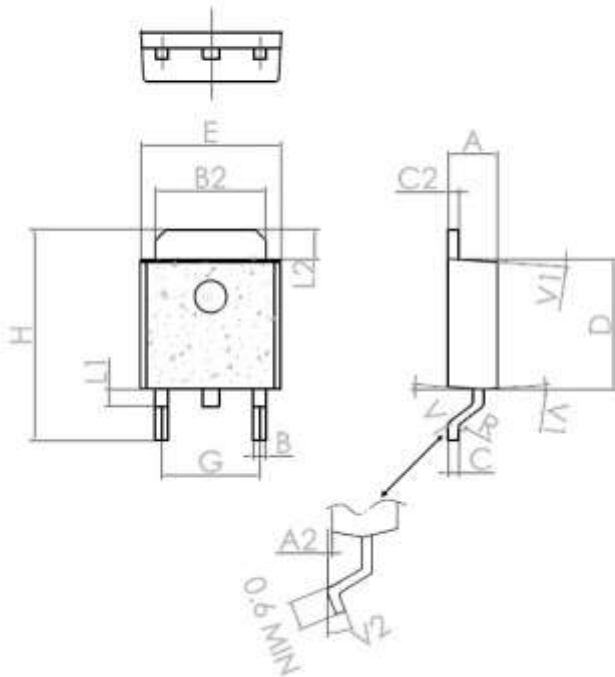
**● Electrical Characteristics**

Symbol	Conditions	Quadrant	Numerical			Unit
			T405	T410	T435	
$V_{TM}$	$I_T=5.5A, t_p=380\mu s$	$T_J=25^{\circ}C$ MAX		1.6		V
$I_{DRM}$ $I_{RRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_J=25^{\circ}C$ MAX		5.0		$\mu A$
		$T_J=125^{\circ}C$ MAX		1.0		mA
$I_{GT}$	$V_D=12V, R_L=33\Omega$	I-II-III MAX	5	10	35	mA
$V_{GT}$		I-II-III MAX		1.3		V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3K\Omega, T_J=125^{\circ}C$	I-II-III MIN		0.2		V
$I_L$	$I_T=1.2I_{GT}$	I-III MAX	10	25	50	mA
		II MAX	15	30	60	mA
$I_H$	$I_T=100mA$	MAX	10	15	35	Ma
dv/dt	$V_D=2/3V_{DRM}, \text{gate open}, T_J=125^{\circ}C$	MIN	20	40	400	V/ $\mu s$

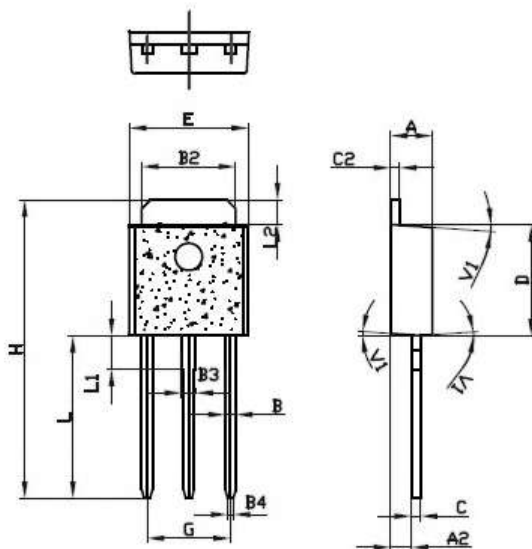
**● Ordering Information**

<b>T</b> <b>4</b> <b>xx</b> <b>x</b> <b>B</b>
Kacoda TRIAC SERIES
$I_{T(RMS)}: 4A$
05: $I_{GT1}/I_{GT2}/I_{GT3} \leq 05mA$ 10: $I_{GT1}/I_{GT2}/I_{GT3} \leq 10mA$ 35: $I_{GT1}/I_{GT2}/I_{GT3} \leq 35mA$
F:TO-220FP T:TO-220AB B:TO-252/DPAK H:TO-251/IPAK 6: $V_{DRM}/V_{RRM} \geq 600V$ 8: $V_{DRM}/V_{RRM} \geq 800V$

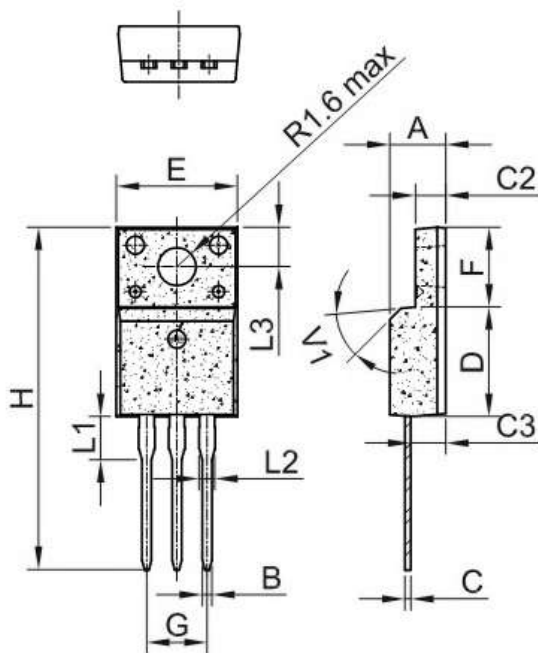
## ● Package Outline Dimensions

**TO-252 / DPAK**


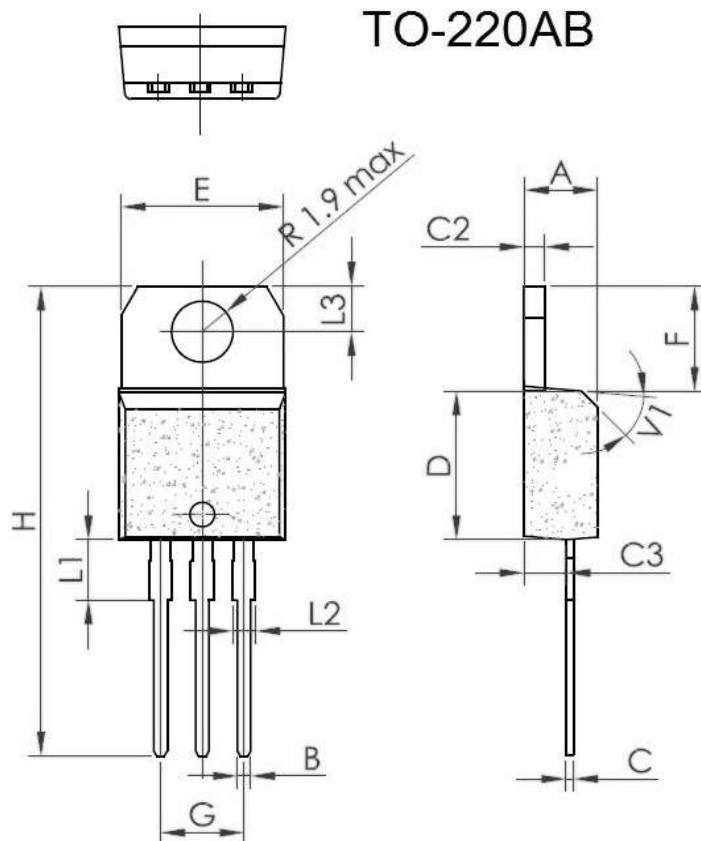
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.2		5.4	0.204		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.6	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.1	0.368		0.397
L1		0.8			0.031	
L2	1.37		1.5	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

**TO-251(iPAK)**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.9		1.1	0.035		0.043
B	0.55		0.65	0.021		0.026
B2	5.1		5.4	0.200		0.212
B3	0.76		0.85	0.030		0.033
B4		0.32			0.013	
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.7	0.252		0.264
G	4.4		4.7	0.173		0.185
H	16.0		16.7	0.630		0.658
L	8.9		9.4	0.350		0.370
L1	1.8		1.9	0.071		0.075
L2	1.37		1.5	0.054		0.059
V1		4°			4°	

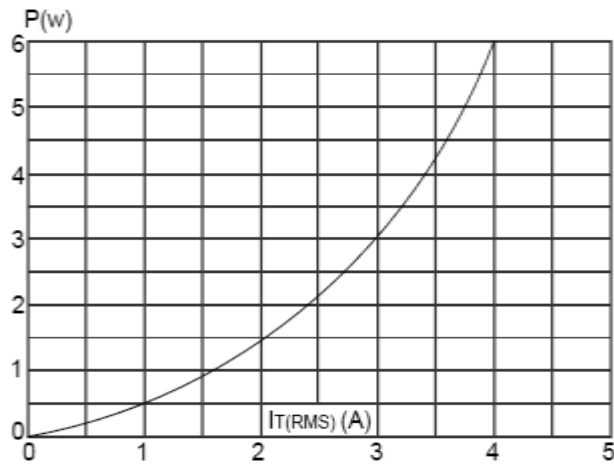
**TO-220F**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.8	0.173		0.189
B	0.74	0.8	0.83	0.029	0.031	0.033
C	0.5		0.75	0.020		0.030
C2	2.4		2.7	0.094		0.106
C3	2.6		3.0	0.102		0.118
D	8.8		9.3	0.346		0.367
E	9.7		10.3	0.382		0.406
F	6.4		6.8	0.252		0.268
G	5.0		5.2	0.197		0.205
H	28.0		29.8	11.0		11.7
L1		3.63			0.143	
L2	1.14		1.7	0.044		0.067
L3		3.3			0.130	
V1		40°			40°	

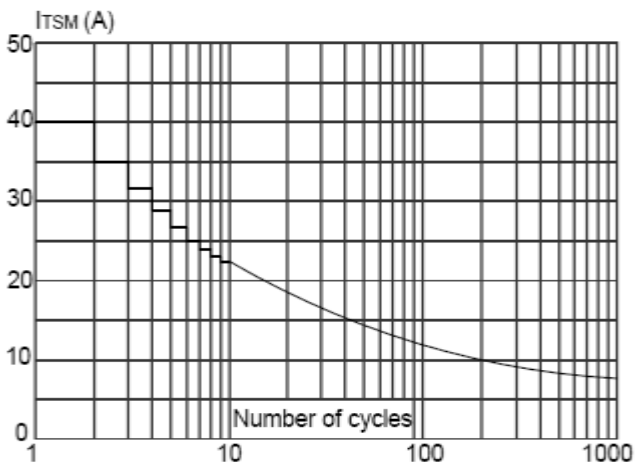
**TO-220AB**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.61		0.88	0.024		0.034
C	0.49		0.70	0.019		0.027
C2	1.23		1.32	0.048		0.051
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.338		0.382
E	10		10.4	0.393		0.409
F	6.2		6.6	0.244		0.259
G	4.8		5.4	0.189		0.213
H	28.0		29.8	11.0		11.7
L1		3.75			0.147	
L2	1.14		1.7	0.044		0.066
L3	2.65		2.95	0.104		0.116
V1		40°			40°	

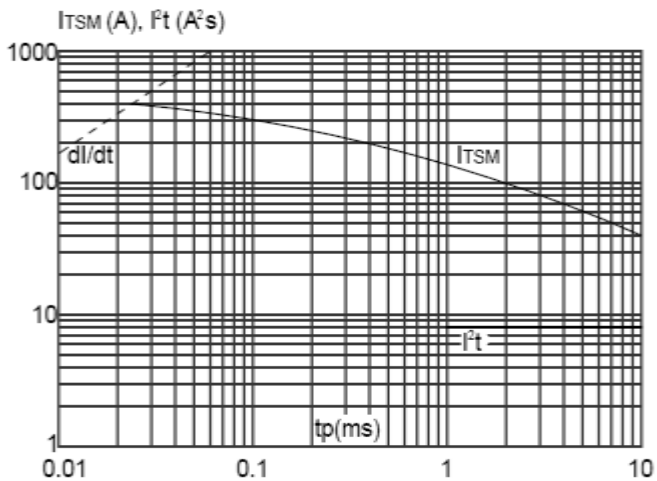
**FIG.1** Maximum power dissipation versus RMS on-state current



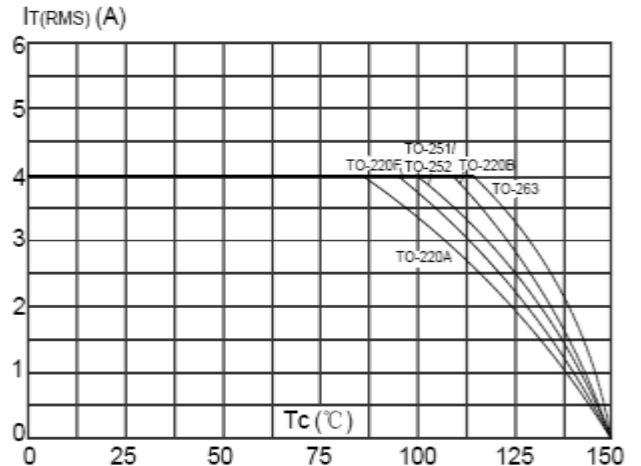
**FIG.3:** Surge peak on-state current versus number of cycles



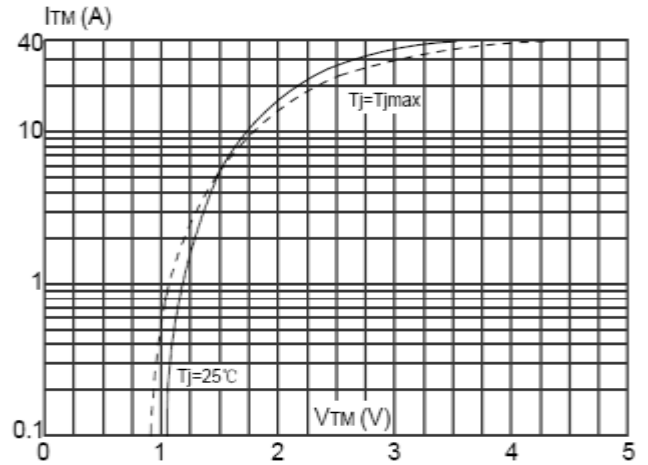
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



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



**FIG.4:** On-state characteristics (maximum values)



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

