

IT(RMS)		40A
VDRM/VRRM		600V
VTM		1.6V

FEATURES

IT(RMS):40A

VG_T: 1.3V

VDRM VRRM:600V

High Junction Temperature

Good Commutation Performance

APPLICATIONS

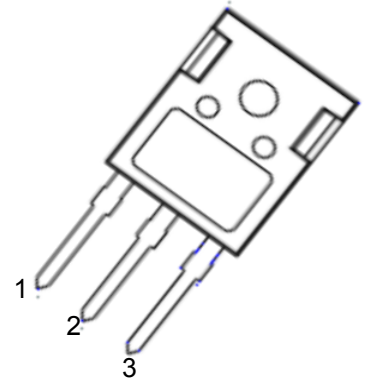
Heater Control

Motor Speed Controller

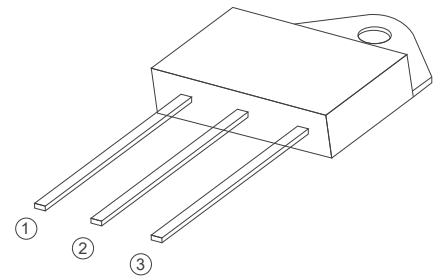
Washing machine

Vacuums

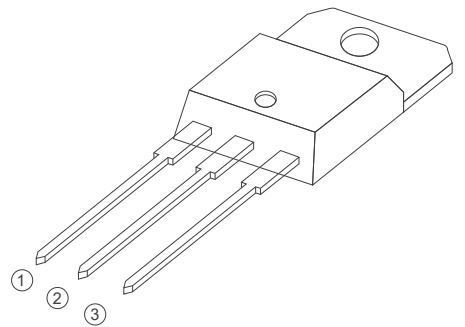
Solid state relay



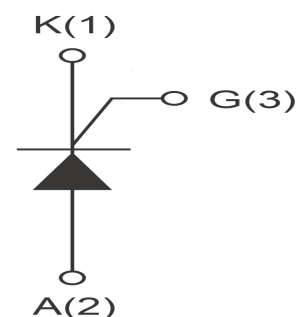
TO-247J



TO-3P Insulated



TO-220B Non-Insulated



Absolute Maximum Ratings (T_J=25°C unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
V _{DRM} V _{RRM}	Repetitive Peak Off-State Voltage	TYN640/TYN840/TYN1040 TYN1240/TYN1640	600~1600	V
I _{T(RMS)}	R.M.S On-State Current		40	A
I _{T(AV)}	average On-State Current		25	A
I _{TSM}	Surge On-State Current	F=50Hz, t _p =10ms/8.3ms	460/480	A
I ² t	I ² t for fusing	T _p =10ms	1060	A ² s
P _{G(AV)}	Average Gate Power Dissipation	T _J =125°C	1	W
I _{GM}	Peak Gate Current	t _p =10us	4	A
P _{GM}	Peak Gate Current	T _J =125°C	5	W
T _J	Operating Junction Temperature		~40~125	°C
T _{STG}	Storage Temperature		~40~150	°C

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Value	Unit
I _{DRM}	Repetitive Peak Off-State Current	T _c =25°C	≤5	uA
		T _c =125°C	≤4	mA
I _{RRM}	Repetitive Peak Reverse Current	T _c =25°C	≤5	uA
		T _c =125°C	≤4	mA
V _{TM}	Forward "on" voltage	I _T =60A t _p =380us	≤1.6	V
V _{GD}	Gate nontrigger voltage	V _D =V _{DRM} , T _J =125°C, R _L =3.3KΩ	≥0.2	V
I _L	Latching current	I _G =1.2I _{GT}	≤60	mA
I _H	Holding current	V _D =12V, I _{GT} =0.1A	≤50	mA
V _{GT}	Gate trigger voltage	V _D =12V	≤1.3	V
I _{GT}	Gate trigger current	V _D =12V, I _T =0.1A	≤30	mA
dv/dt	Critical-rate of rise of commutation voltage	V _D =2/3V _{DRM} , T _J =125°C, gate open circuit	≥800	V/us
di/dt	Critical-rate of rise of commutation current	I _G =2X I _G , t _r 100us, T _J =125°C	≥50	A/us

FIG1

Maximum power dissipation versus RMS on-state current

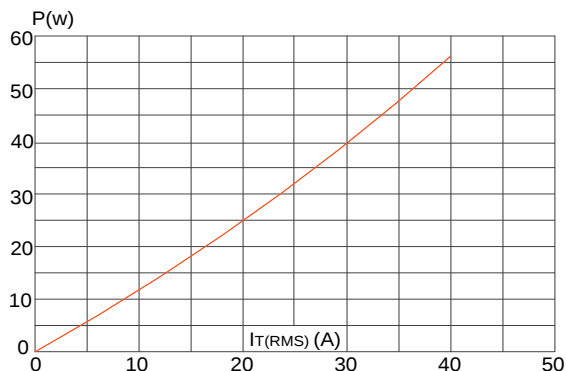


FIG2

RMS on-state current versus case temperature

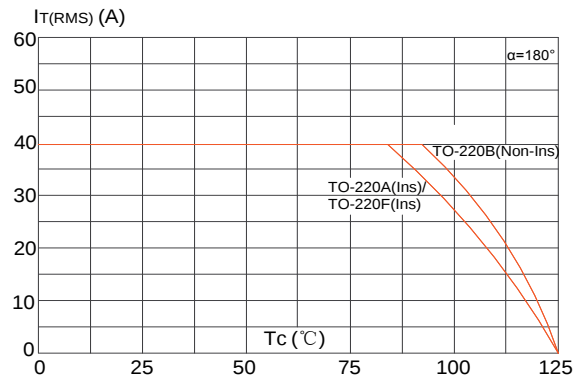


FIG3

Surge peak on-state current versus number of cycles

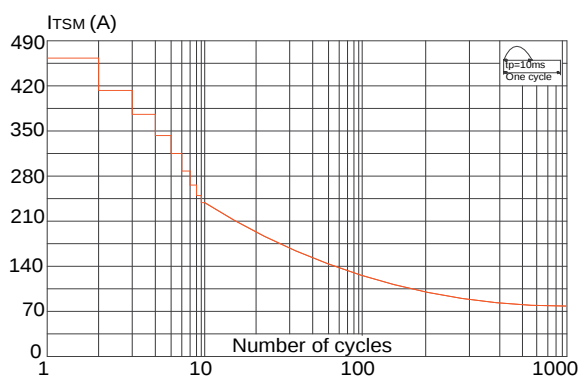


FIG4

On-state characteristics (maximum values)

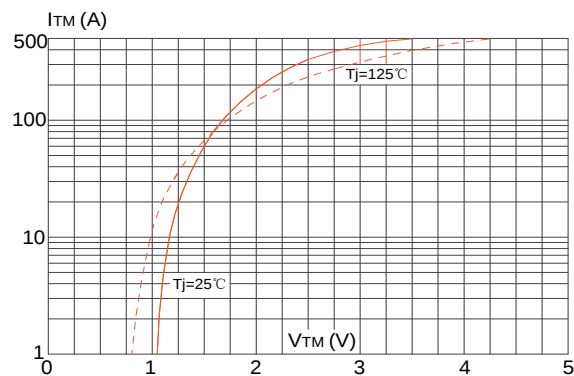


FIG5

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

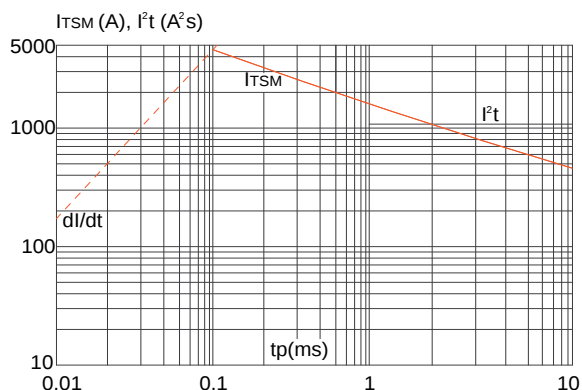
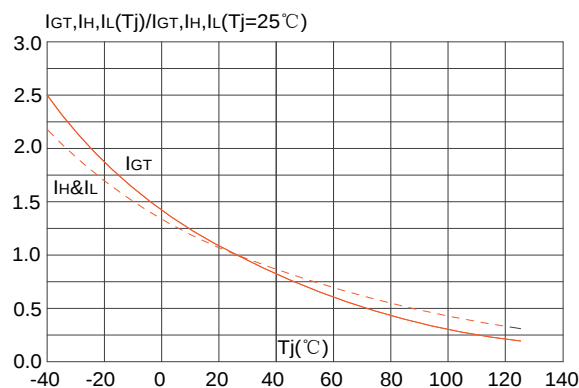
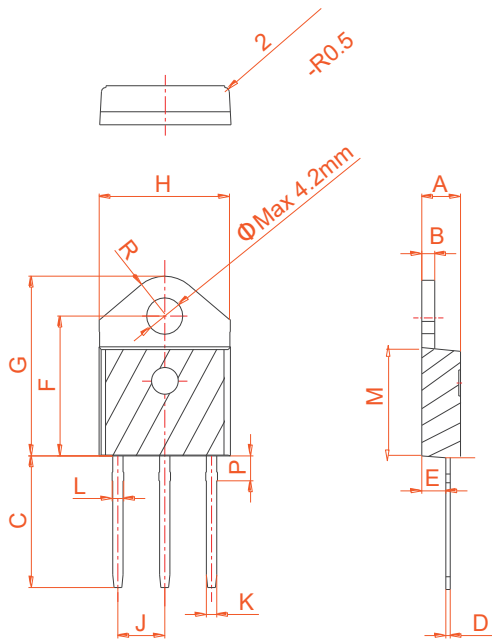


FIG6

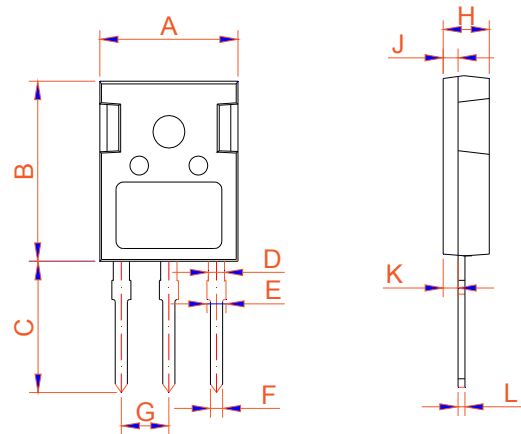
Relative variations of gate trigger current, holding current and latching current versus junction temperature



PACKAGE MECHANICAL DATA

TO-3P Ins

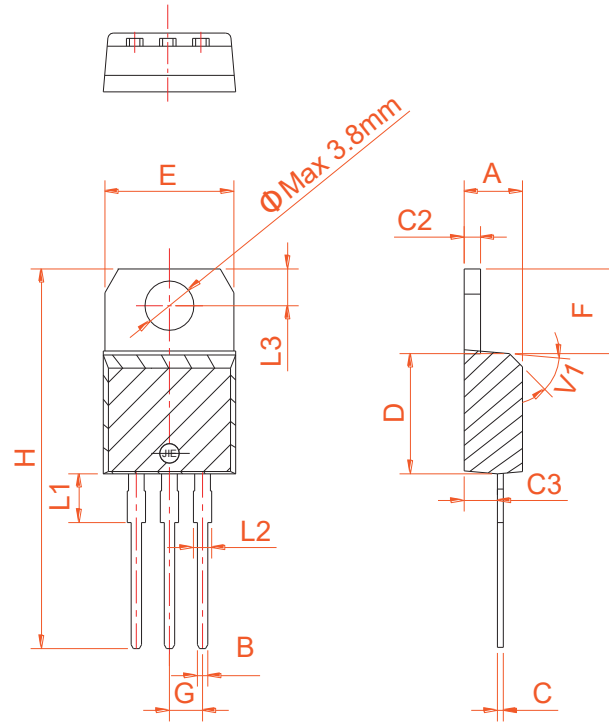
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65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

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.828	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031


TO-247J

PACKAGE MECHANICAL DATA

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220B Non-Ins