

IT(RMS)		4A
VDRM/VRRM		600V
VTM		1.7V

FEATURES

IT(RMS): 4A

VGT: 0.8V

VDRM VRRM:1200V~1600V

High Junction Temperature

Good Commutation Performance

APPLICATIONS

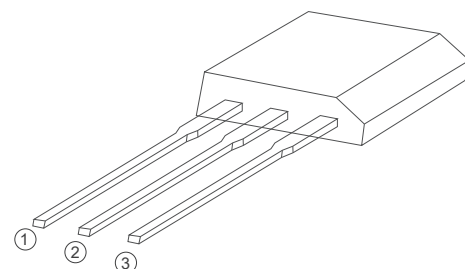
Heater Control

Motor Speed Controller

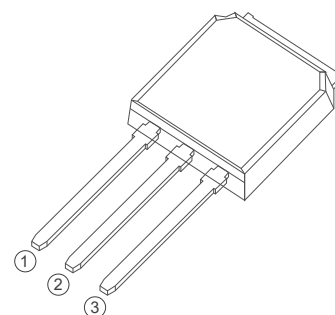
Washing machine

Vacuums

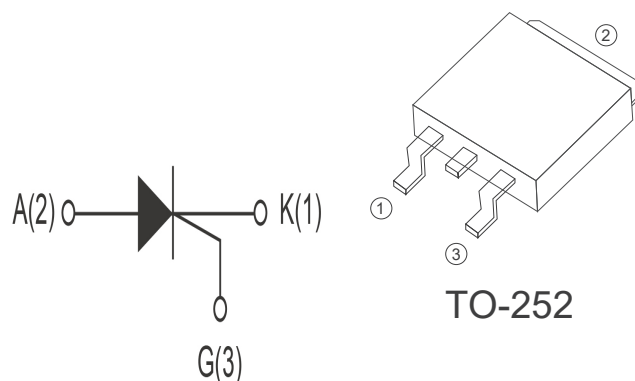
Solid state relay



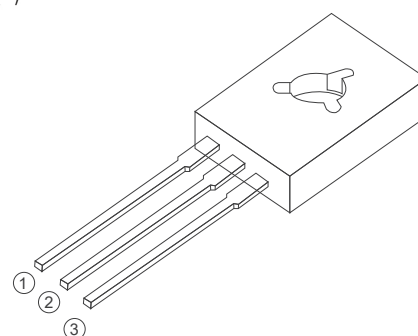
TO-202-3



TO-251



TO-252



TO-126

Absolute Maximum Ratings ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	X0405	600	V
IT(RMS)	R.M.S On-State Current		4	A
IT(AV)	average On-State Current		2.5	A
ITSM	Surge On-State Current	F=50Hz, $t_p=10\text{ms}$	30	A
I^2t	I^2t for fusing	$T_p=10\text{ms}$	4.5	A^2s
IGM	Peak Gate Current	$t_p=20\mu\text{s}$, $T_j=110^{\circ}\text{C}$	1.2	A
PG(AV)	Average Gate Power Dissipation	$T_j=110^{\circ}\text{C}$	0.2	W
PGM	Peak Gate Power Dissipation	$t_p=20\mu\text{s}$, $T_j=110^{\circ}\text{C}$	1	W
T_j	Operating Junction Temperature		$\sim 40\sim 125$	$^{\circ}\text{C}$
TSTG	Storage Temperature		$\sim 40\sim 150$	$^{\circ}\text{C}$

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

Symbol	Parameter	Test Conditions	Value	Unit
IDRM	Repetitive Peak Off-State Current	$T_c=25^{\circ}\text{C}$	≤ 5	μA
		$T_c=110^{\circ}\text{C}$	≤ 100	μA
IRRM	Repetitive Peak Reverse Current	$T_c=25^{\circ}\text{C}$	≤ 5	μA
		$T_c=110^{\circ}\text{C}$	≤ 100	μA
VTM	Forward "on" voltage	$I_T=8\text{A}$ $t_p=380\mu\text{s}$	≤ 1.7	V
VGD	Gate nontrigger voltage	$V_D=V_{DRM}$, $T_j=110^{\circ}\text{C}$, $R_{GK}=1\text{K}\Omega$, $R_L=3.3\text{K}\Omega$	≥ 0.2	V
IL	Latching current	$I_G=1.2I_{GT}$	≤ 6	mA
IH	Holding current	$V_D=12\text{V}$, $I_{GT}=0.1\text{A}$	≤ 5	mA
VGT	Gate trigger voltage	$V_D=12\text{V}$	≤ 0.8	V
IGT	Gate trigger current	$V_D=12\text{V}$, $I_T=0.1\text{A}$	≤ 120	μA
dv/dt	Critical-rate of rise of commutation voltage	$V_D=2/3V_{DRM}$, $T_j=110^{\circ}\text{C}$, $R_{GK}=1\text{K}\Omega$	≥ 10	V/ μs

FIG1

Maximum power dissipation versus RMS on-state current

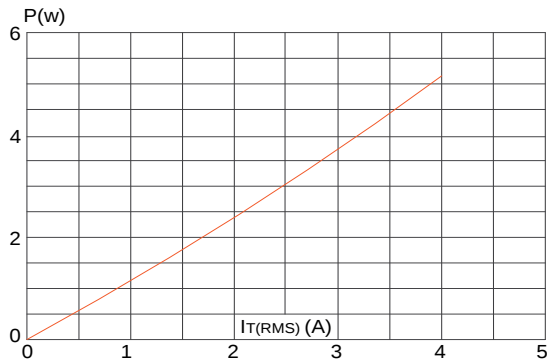


FIG2

RMS on-state current versus case temperature

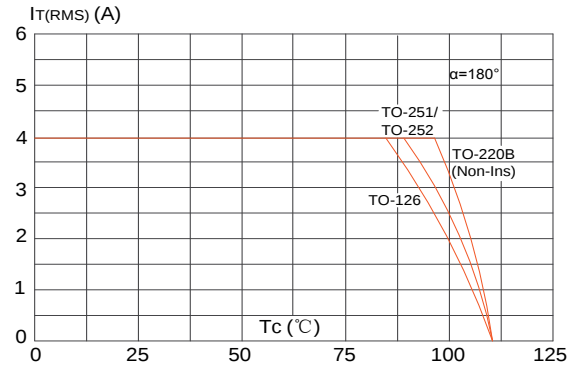


FIG3

Surge peak on-state current versus number of cycles

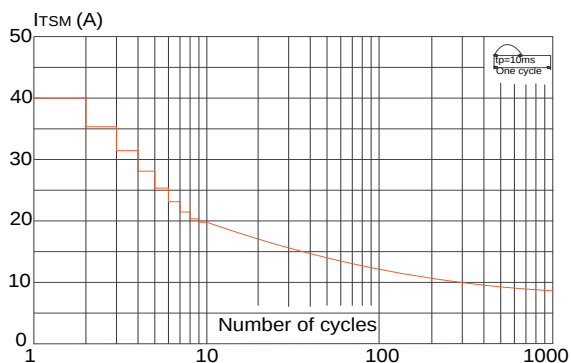


FIG4

On-state characteristics (maximum values)

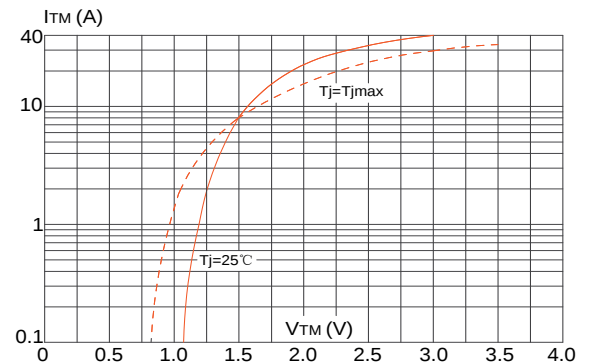


FIG5

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

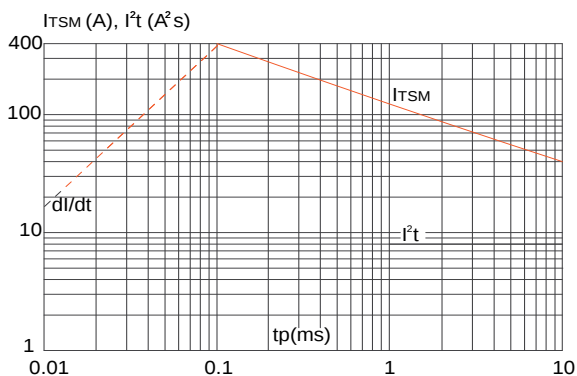
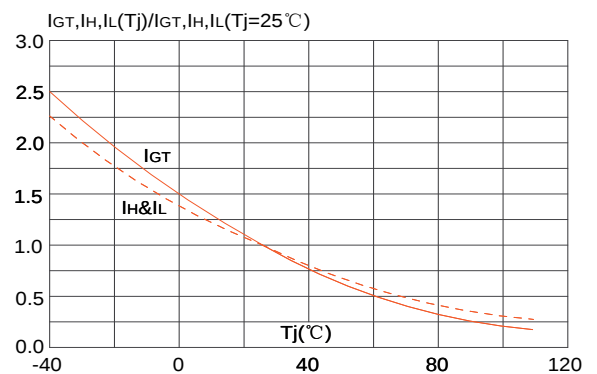
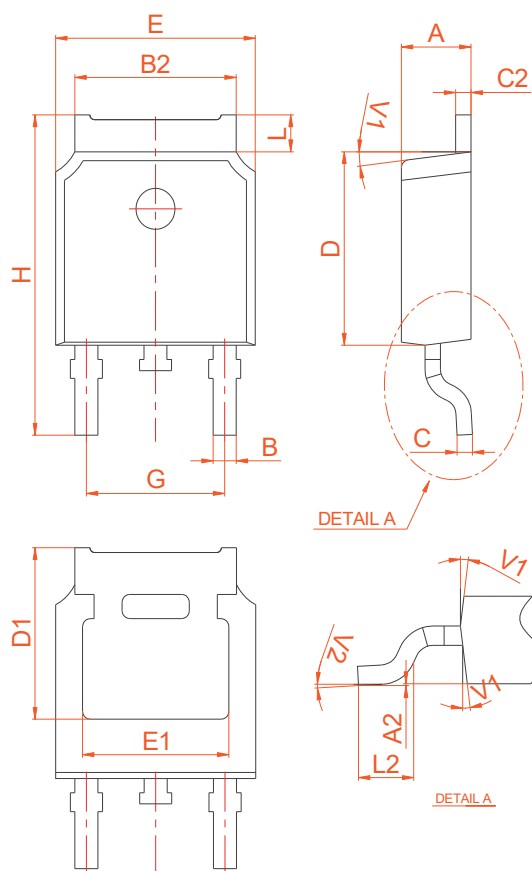


FIG6

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



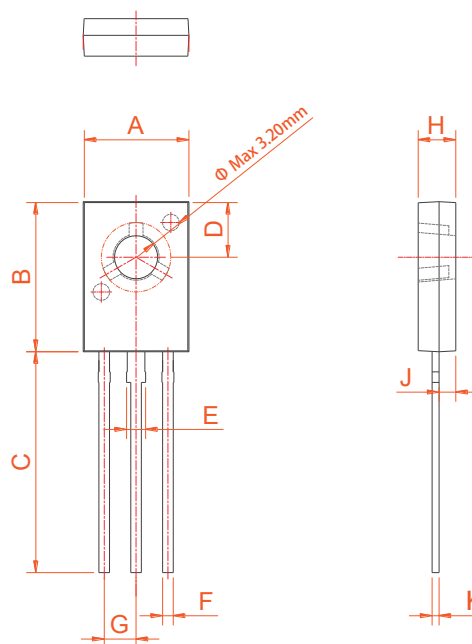
PACKAGE MECHANICAL DATA



TO-252

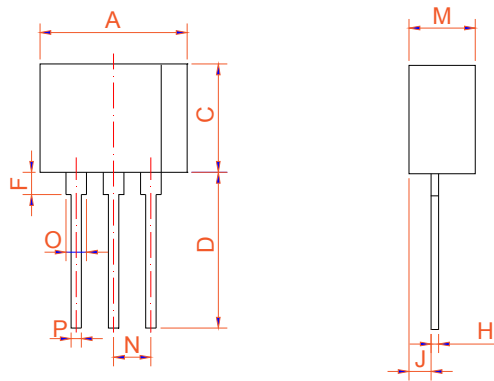
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.55	0.018		0.022
C2	2.70		2.90	0.106		0.114
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
L3		0.8			0.031	
L4		0.8			0.031	
V1		4°			4°	
V2	0°		8°	0°		8°

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.40		7.80	0.291		0.307
B	10.6		11.2	0.417		0.441
C	15.3		16.3	0.602		0.642
D	3.90		4.10	0.154		0.161
E	1.17		1.47	0.046		0.058
F	0.66		0.86	0.026		0.034
G		2.29			0.090	
H	2.50		2.90	0.098		0.114
J	1.10		1.50	0.043		0.059
K	0.45		0.60	0.018		0.024



TO-126

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.30		9.90	0.366		0.390
C	7.0		7.6	0.276		0.299
D	10.5		11.5	0.413		0.453
F	1.50		2.50	0.059		0.098
H	0.45		0.55	0.018		0.022
J	1.50		1.90	0.059		0.075
M	4.40		4.70	0.173		0.185
N		2.54			0.100	
O	1.20		1.50	0.047		0.059
P	0.60		0.80	0.024		0.031

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	

