

FEATURES

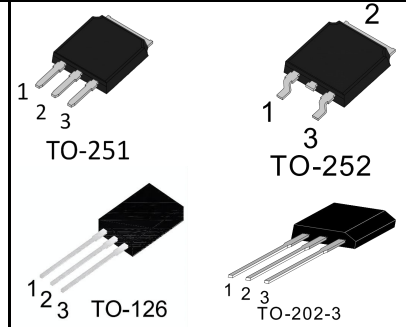
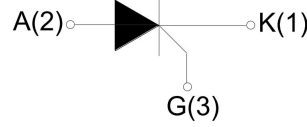
- Sensitive gate
- Direct triggering from low power drivers and logic ICs
- Surface mountable package

APPLICATIONS

- Ground Fault Circuit Interrupters (GFCI)
- General purpose switching and phase control
- Ignition circuits, CDI for 2- and 3-wheelers
- Motor control - e.g. small kitchen appliances

Parameters Summary

VD/VR:600V IT(RMS):4A IGT :200μA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 ~150	°C
Operating junction temperature range	Tj	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	600	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	600	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{RRM} +100	V
RMS on-state current (T =60°C)	I _{T(RMS)}	4.0	A
Non repetitive surge peak on-state current(180° conduction angle, F=50Hz)	I _{TSM}	30	A
Average on-state current (180° conduction angle)	I _{T(AV)}	2.5	A
I²t value for fusing (tp=10ms)	I²t	4.5	A²S
Critical rate of rise of on-state current(I =2×IGT, tr ≤ 100 ns)	dI/dt	50	A/μS
Peak gate current	I _{GM}	1.2	A
Average gate power dissipation	P _{G(AV)}	0.2	W

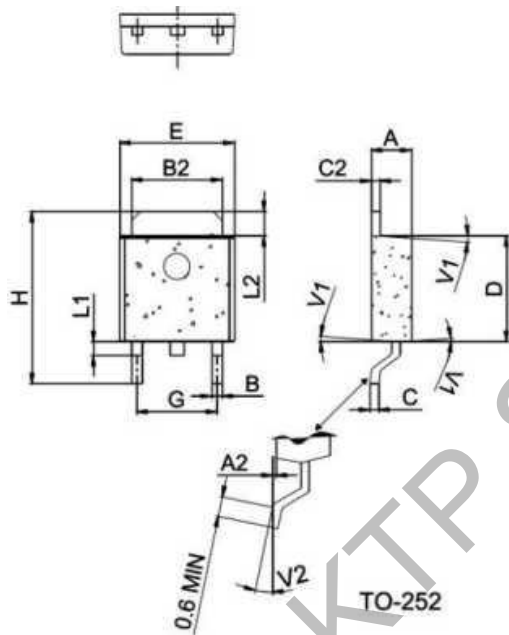
Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-t)	Junction to tab (DC)	X0405U TO-251	6.5
		X0405S TO-252	6.5
		X0405D TO-126	7.2
		X0405MF TO-202-3	15

ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)				
Symbol	Test Condition		Value	Unit
I_{GT}	$V = 12V \ R = 140\Omega$	MAX.	200	μA
V_{GT}		MAX.	0.8	V
V_{GD}	$V_D = V_{DRM} \ T_j = 125^\circ C \ R = 1K\Omega$	MIN.	0.1	V
I_L	$I_G = 1.2I_{GT}$	MAX.	6	mA
I_H	$I_T = 50mA$	MAX.	5	mA
dV/dt	$V_D = 2/3V_{DRM} \ \text{Gate Open} \ T_j = 125^\circ C$	MIN.	10	V/ μs

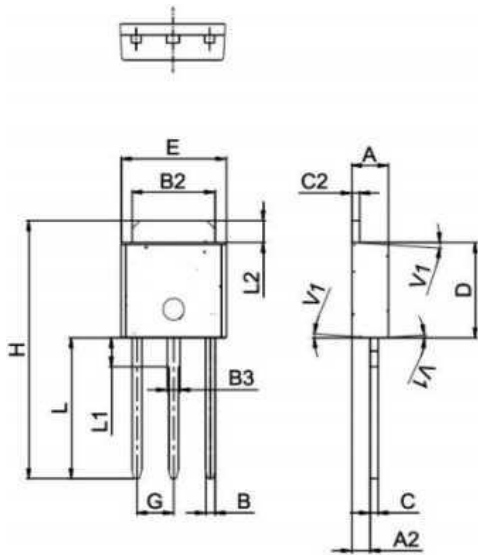
STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$ITM = 8.0A \ tp = 380\mu s$	$T_j = 25^\circ C$	1.65	V
I_{DRM}	$V_D = V_{DRM} \ V_R = V_{RRM}$	$T_j = 25^\circ C$	5	μA
I_{RRM}		$T_j = 125^\circ C$	1	mA

TO-252 Package Mechanical Data



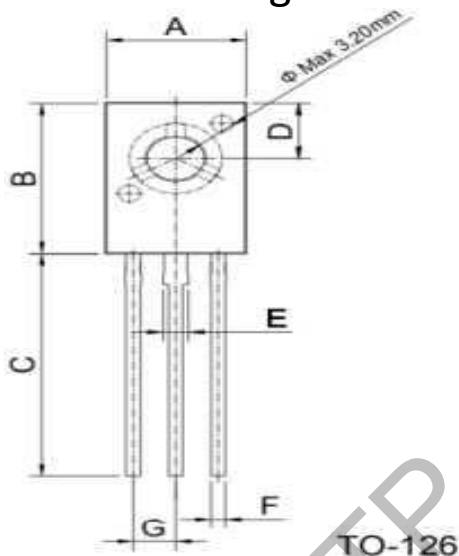
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20	2.30	2.40	0.086	0.09	0.095
A2	0.03		0.23	0.001		0.009
B	0.55	0.60	0.65	0.022	0.024	0.026
B2	5.10	5.25	5.40	0.200		0.213
C	0.45	0.50	0.62	0.018		0.024
C2	0.71	0.80	0.99	0.019		0.024
D	5.80	6.00	6.20	0.228	0.236	0.244
E	6.40	6.60	6.70	0.252		0.264
G	4.40	4.60	4.70	0.173		0.185
H	9.35	10.00	10.60	0.368		0.417
L1	0.50	0.70	0.90			
L2	0.90	1.05	1.30			
V1		7°			7°	
V2	0°		5°	0°		5°

TO-251 Package Mechanical Data



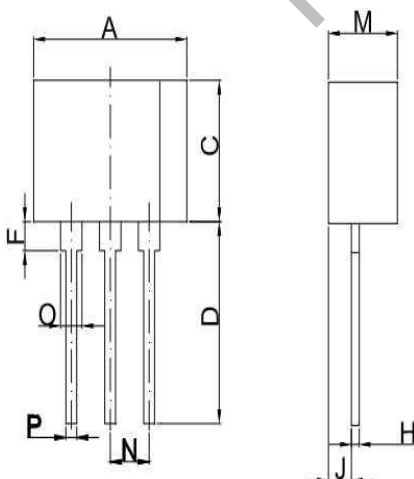
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20	2.30	2.40	0.086	0.09	0.095
A2	0.90		1.50	0.035		0.059
B	0.55	0.60	0.65	0.022	0.024	0.026
B2	5.10	5.25	5.40	0.200	0.206	0.213
B3	0.76		0.85	0.030		0.033
C	0.45	0.50	0.62	0.018	0.019	0.024
C2	0.66	0.80	0.94	0.025	0.031	0.037
D	5.80	6.00	6.20	0.228	0.236	0.244
E	6.40		6.70	0.252		0.264
G		2.30				
H	15.25	15.40	15.65	0.600	0.603	0.616
L	7.80	8.00	8.8	0.307	0.314	0.346
L1	1.50	1.70	1.90	0.059	0.066	0.075
L2	1.10	1.20	1.50	0.043	0.047	0.059
V1		4°			4°	

TO-126 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.43	7.80	8.23	0.292	0.307	0.324
B	10.07	10.68	11.27	0.396	0.420	0.443
C	15.40	16.00	17.40	0.606	0.630	0.685
D	3.50	3.80	4.20	0.138	0.150	0.165
E	1.17	1.30	1.47	0.046	0.05	0.058
F	0.48	0.72	0.88	0.018	0.028	0.034
G		2.29			0.090	

TO-202-3 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.30	9.60	9.90	0.366	0.377	0.390
C	7.00	7.40	7.60	0.276	0.291	0.299
D	10.50	10.80	11.5	0.413	0.425	0.453
F	1.50	2.00	2.50	0.059	0.078	0.098
H	0.45	0.50	0.55	0.018	0.019	0.022
J	1.50	1.80	1.90	0.059	0.070	0.075
M	4.40	4.50	4.70	0.173	0.177	0.185
N	-	2.54	-	-	0.100	-
O	1.10	1.30	1.50	0.043	0.051	0.059
P	0.55	0.65	0.80	0.021	0.026	0.031

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

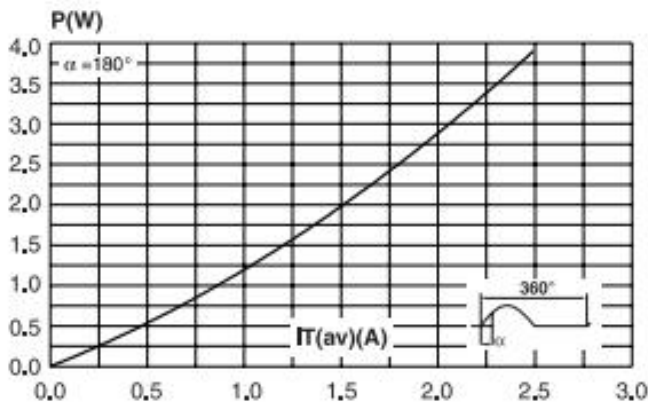


FIG.2: on-state current versus case temperature

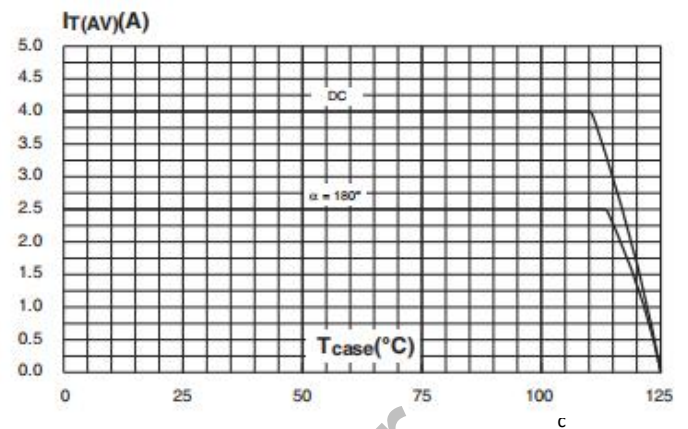


FIG.3: Surge peak on-state current versus number of cycles

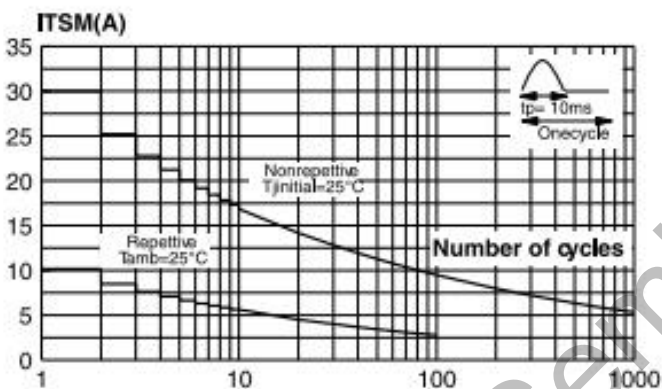


FIG.4: On-state characteristics (maximum values)

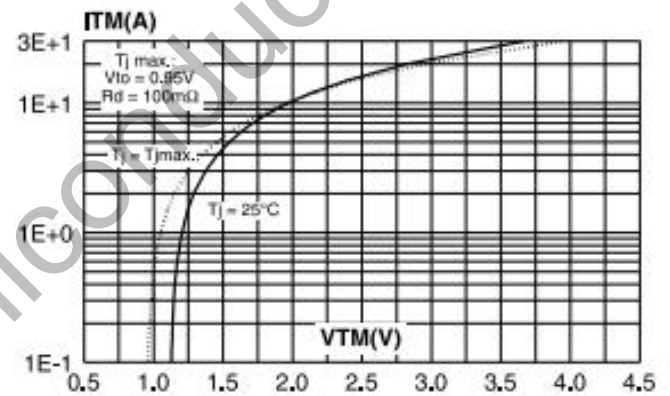


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $12 t (dI/dt < 50\text{A}/\mu\text{s})$

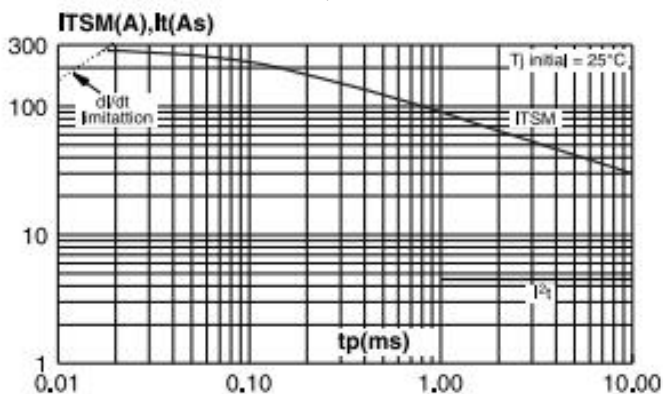


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

