

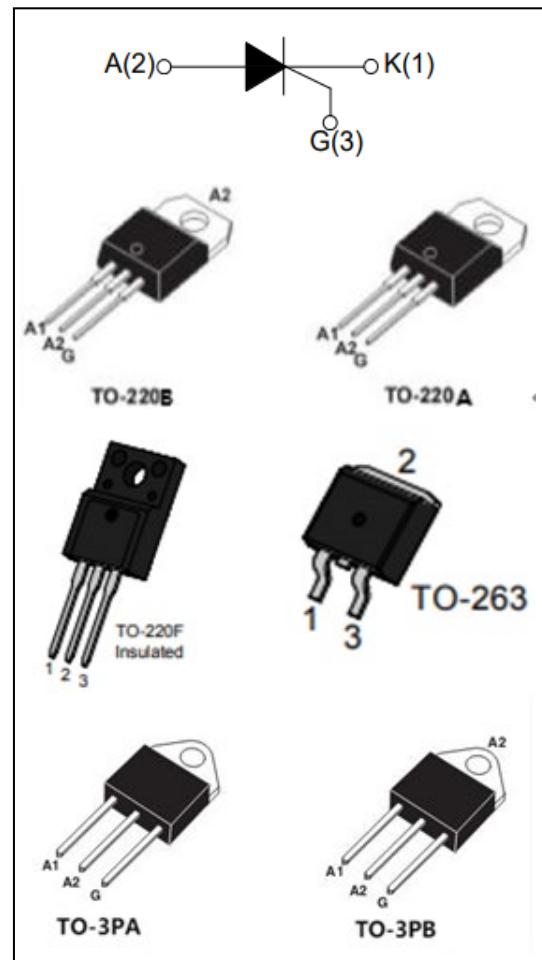
●Feature and Application

Features:

- Single side grooving technology with independent intellectual property rights, table glass passivation technology;
- Multi-layer metallized electrode;
- High blocking voltage and high temperature stability

Applications:

Vacuum cleaners, power tools and other motor speed controllers; Solid state relays; Heating controllers (temperature regulation); And other phase control circuits.



●Characteristics

Table 1. Absolute maximum ratings ($T_{VJ} = 25^{\circ}\text{C}$ unless otherwise stated)

Symbol	Parameter and test conditions	value	Unit
$I_{T(AV)}$	On state average current $T_c=125^{\circ}\text{C}$ $T_{VJ}=150^{\circ}\text{C}$	16	A
$I_{T(RMS)}$	RMS on-state current (full sine wave) $T_c=125^{\circ}\text{C}$	25	A

I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_{VJ} initial = 25°C)	F=50HZ	$t=10ms$	250	A
I^2t	I^2t value for fusing	$t_p=10ms$ f=50HZ	$T_{VJ}=45^{\circ}C$	313	A ² S
$(di/dt)_{cr}$	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq$ 100 ns	$T_{VJ}=150^{\circ}C$;f=50Hz		50	A/us
$V_{RRM/DRM}$	max. repetitive reverse/forward blocking voltage	$T_{VJ}=25^{\circ}C$		800	V
I_{GM}	Peak gate current	$t_p=20us$ $T_{VJ}=125^{\circ}C$		4	A
$P_{G(AV)}$	Average gate power dissipation	$T_C=150^{\circ}C$		1	W
T_{stg} T_{VJ}	Storage junction temperature range Operating junction temperature range			-40to+150 -40to+125	$^{\circ}C$

Table 2. Dynamic electrical characteristics ($T_{VJ}=25^\circ C$, unless otherwise specified)

Symbol	Parameter and test conditions			value	Unit
I _{GT}	V _D =12V	25°C -40°C	MAX	30	mA
				50	
V _{GT}		25°C -40°C	MAX	1.5	V
				1.6	
V _{GD}	V _D = ² / ₃ V _{DRM} T _{VJ} = 150°C		MAX	0.2	V
I _{GD}				3	mA
I _H	V _D = 12V R _{GK} = ∞ T _{VJ} = 25°C		MAX	80	mA
I _L	t _p =10us I _G =0,3A; di _G /dt =0,3A/μs; T _{VJ} = 25°C		MAX	100	mA

t_{gd}	$V_D=1/2 V_{DRM} \quad T_{VJ}=25^{\circ}\text{C}$ $I_G=0,3\text{A}; \quad di_G/dt=0,3\text{A}/\mu\text{s}$	MAX	2	us
t_q	$V_R=100\text{V} \quad I_T=80\text{A} \quad V=2/3 V_{DRM} \quad T_{VJ}=125^{\circ}\text{C}$ $di/dt=20\text{A}/\mu\text{s} \quad dv/dt=20\text{V}/\mu\text{s} \quad t_p=200\mu\text{s}$	Typ	200	us
$(dv/dt)_{cr}$	$V_D=2/3 V_{DRM} \quad R_{GK}=\infty \quad T_{VJ}=150^{\circ}\text{C}$	MAX	500	V/us

Table 3. Static electrical characteristics

Symbol	Parameter and test conditions			value	Unit
V_{TM}	$I_{TM}=50\text{A}$	$T_{VJ}=25^{\circ}\text{C}$	MAX	1.60	V
V_{T0}	Threshold on-state voltage	$T_{VJ}=150^{\circ}\text{C}$	MAX	0.88	V
R_d	Dynamic resistance	$T_{VJ}=125^{\circ}\text{C}$	MAX	14.6	m Ω
$I_{R/D}$	$V_{R/D}=800\text{V}$ $V_{R/D}=800\text{V}$	$T_{VJ}=25^{\circ}\text{C}$ $T_{VJ}=125^{\circ}\text{C}$	MAX	5	uA
				1	mA
$R_{th(j-c)}$	Junction to ambient	BCA		2.05	$^{\circ}\text{C}/\text{W}$
		BCB		1.25	

Typical Characteristic Curves:

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

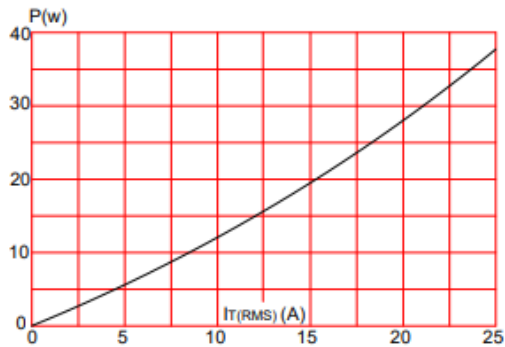


FIG.2: RMS on-state current versus case temperature

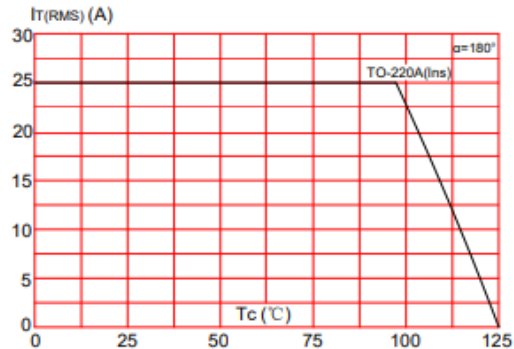


FIG.3: Surge peak on-state current versus number of cycles

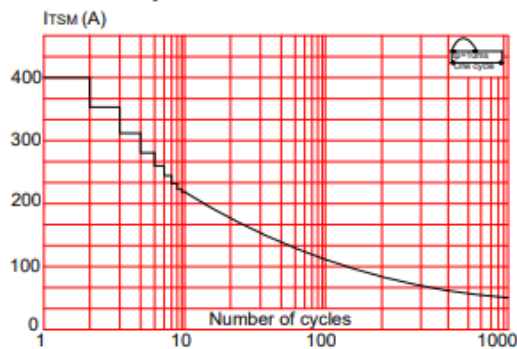


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 150\text{A}/\mu\text{s}$)

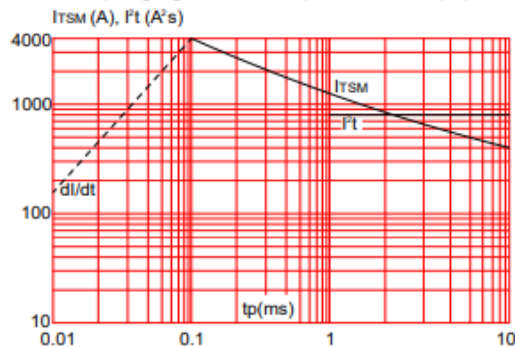


FIG.4: On-state characteristics (maximum values)

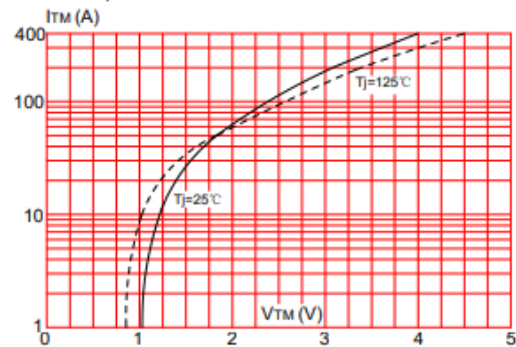
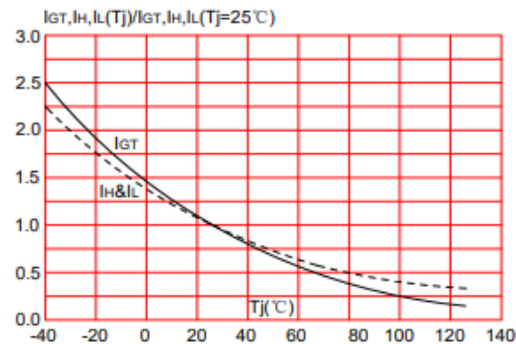
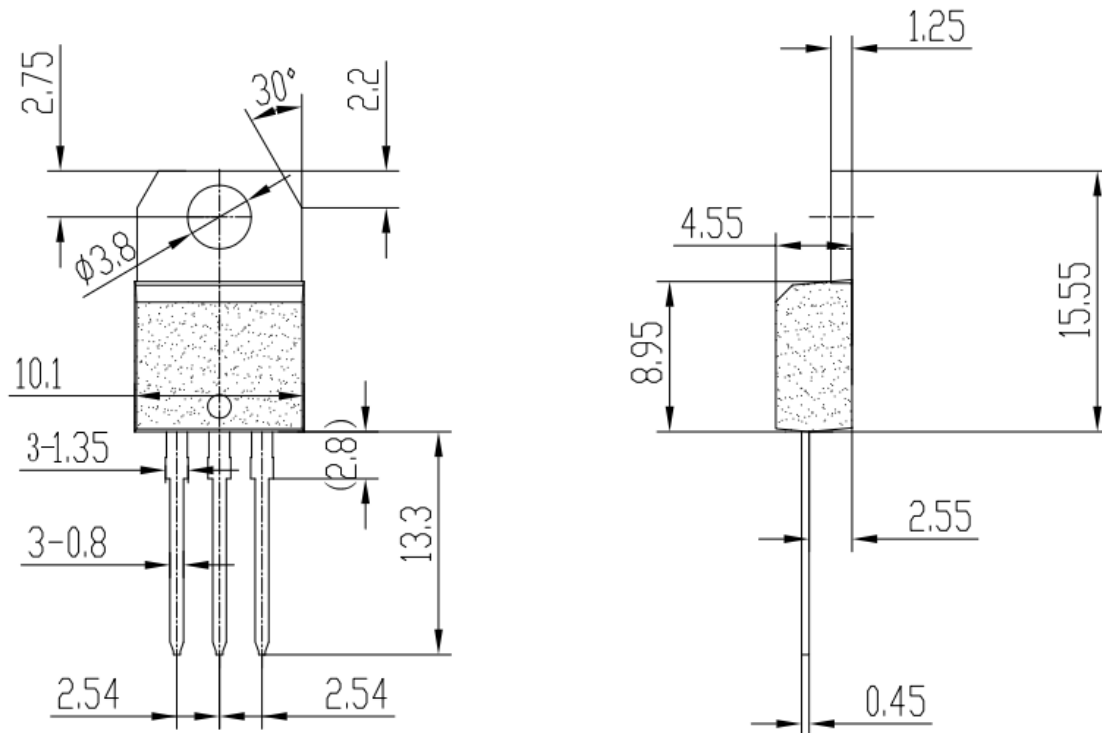


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



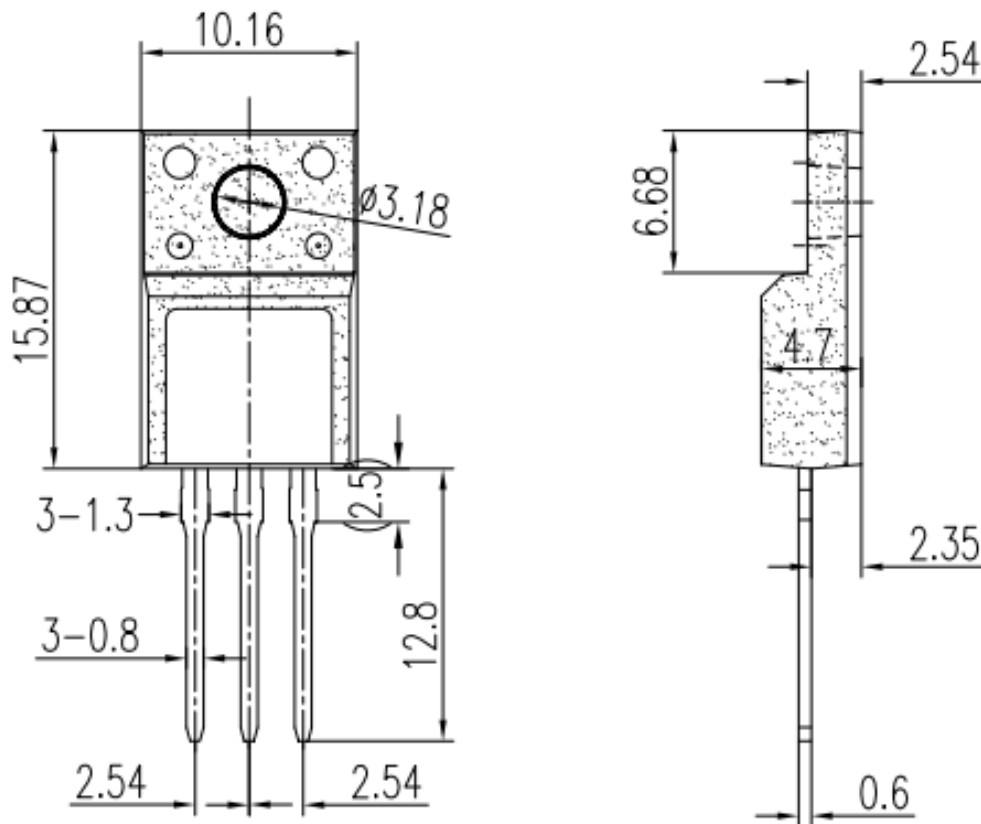
● TO-220 Dimensional drawing:

Unit: mm (± 0.1)



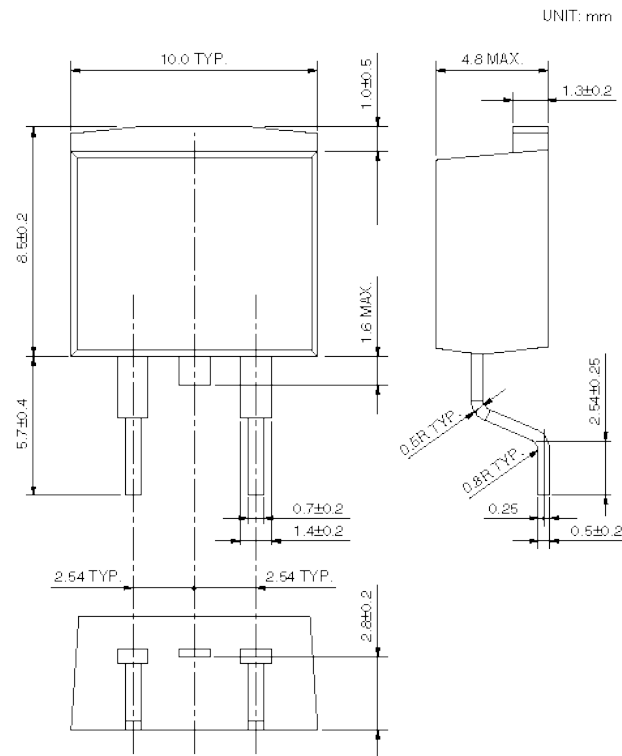
● TO-220F Dimensional drawing:

Unit: mm (± 0.1)



● TO-263 Dimensional drawing:

Unit: mm (± 0.1)



: The area without solder plated

