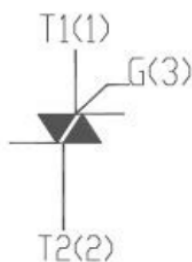


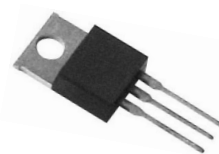
Features

- High current triac
- Low thermal resistance with clip bonding
- High commutation (4 quadrant) or very high commutation (3 quadrant) capability

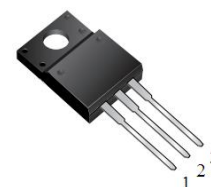


VOLTAGE RANGE 600/800 Volts

CURRENT 12 Ampere



TO-220AB



ITO-220AB



TO-252

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BT138S-600	600	V
		BT138S-800	800	V
IT(RMS)	R.M.S On-State Current	$T_c = 110^\circ\text{C}$	12	A
ITSM	Surge On-State Current	$t_p = 16.7\text{ms}/t_p = 10\text{ms}$	115/120	A
I^2t	I^2t for fusing	$T_p = 10\text{ms}$	70	A^2s
PG(AV)	Average Gate Power Dissipation	$T_j = 125^\circ\text{C}$	1	W
IGM	Peak Gate Current	$t_p = 20\mu\text{s}$ $T_j = 125^\circ\text{C}$	4	A
T_j	Operating Junction Temperature		$\sim 40 \sim 125$	$^\circ\text{C}$
TSTG	Storage Temperature		$\sim 40 \sim 150$	$^\circ\text{C}$

BT138S

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

Symbol	Parameter		Test Conditions	Value				Unit
				D	E	F	G	
IDRM	Repetitive Peak Off-State Current		T _J =25°C	≤5				uA
			T _J =125°C	≤1				mA
IRRM	Repetitive Peak Reverse Current		T _J =25°C	≤5				uA
			T _J =125°C	≤1				mA
VTM	Forward "on" voltage		I _T =35A t _p =380us	≤1.55				V
VGT	Gate trigger voltage		V _D =12V ,R _L =30Ω	≤1.5				V
di/dt	Critical-rate of rise of commutation current.	I, II, III	T _J =125°C ,I _G =2XIGT, t _r ≤100ns, F=100Hz	≥50				A /us
		IV		≥10				A /us
IGT	Gate trigger current	I, II, III	V _D =12V R _L =30Ω	≤5	≤10	≤25	≤50	mA
		IV		≤10	≤25	≤70	≤100	mA
IH	Holding current		I _T =0.2A	≤10	≤25	≤30	≤60	mA
VGD	Gate non-trigger voltage	ALL	V _D =V _{DRM} T _J =125°C, R _L =3.3KΩ	≥0.2				V
dv/dt	Critical-rate of rise of commutation voltage		T _J =125°C V _D =2/3V _{DRM} Gate	≥5	≥10	≥50	≥200	V/us

RATING AND CHARACTERISTIC CURVES (BT138S)

FIG.6:Maximum power dissipation versus RMS on-state current

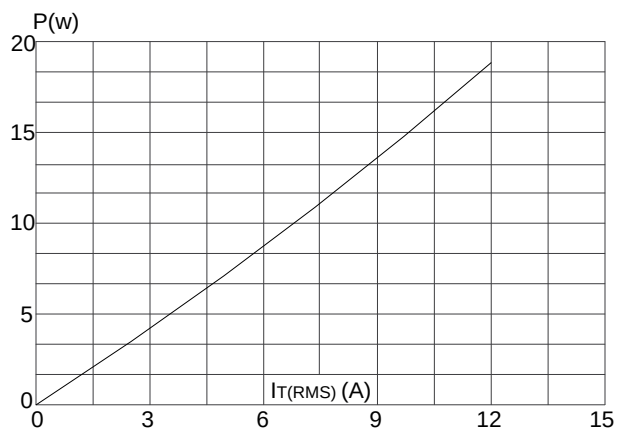


FIG.6:RMS on-state current versus case temperature

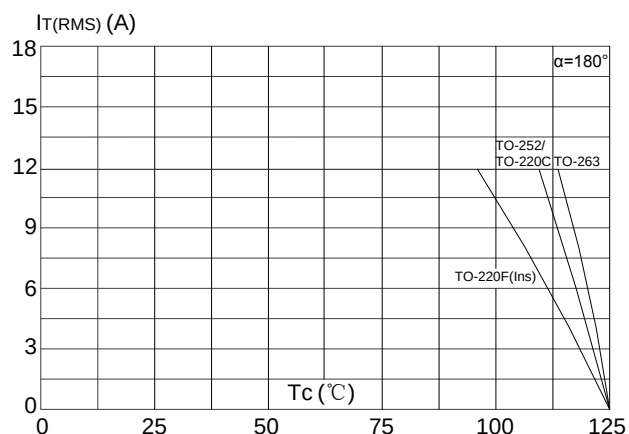


FIG.6:Surge peak on-state current versus number of cycles

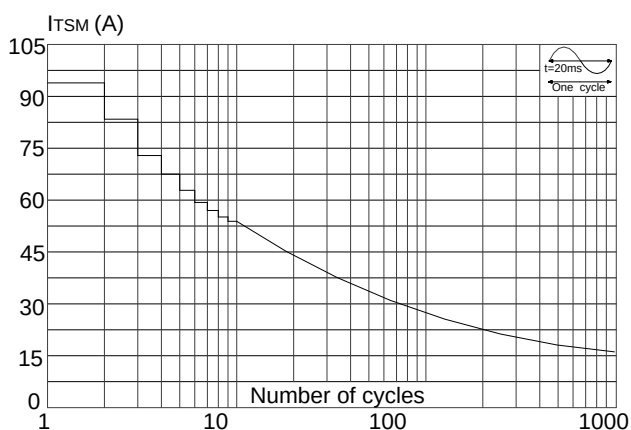


FIG.6:On-state characteristics (maximum values)

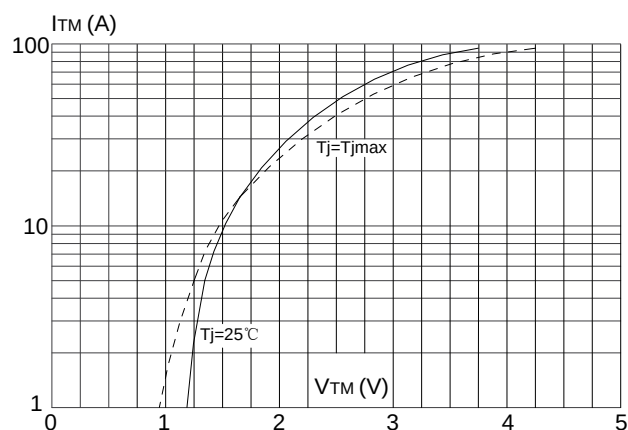


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of $I^2 t$ ($di/dt < 100A/\mu s$)

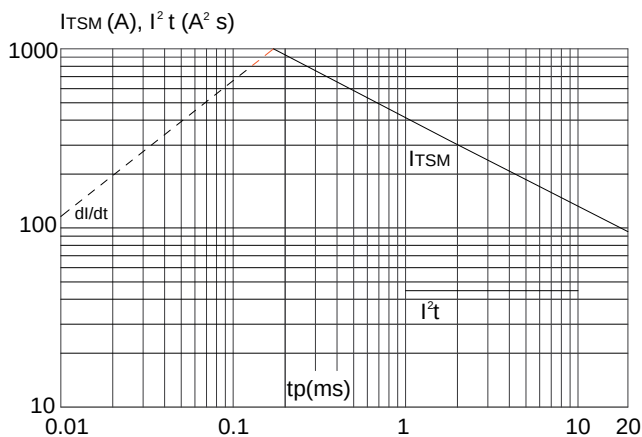
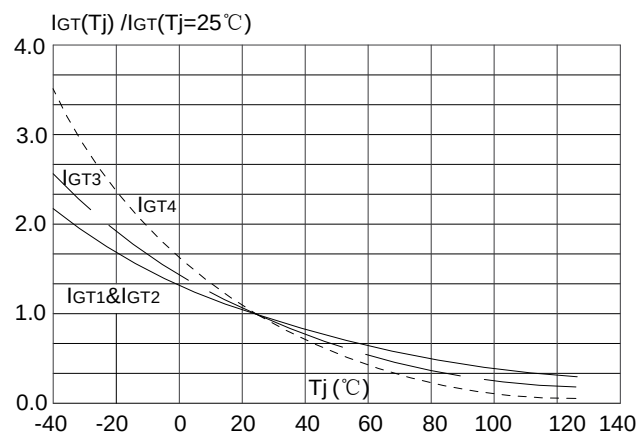


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



RATING AND CHARACTERISTIC CURVES (BT138S)

FIG.7: Relative variations of holding current versus junction temperature

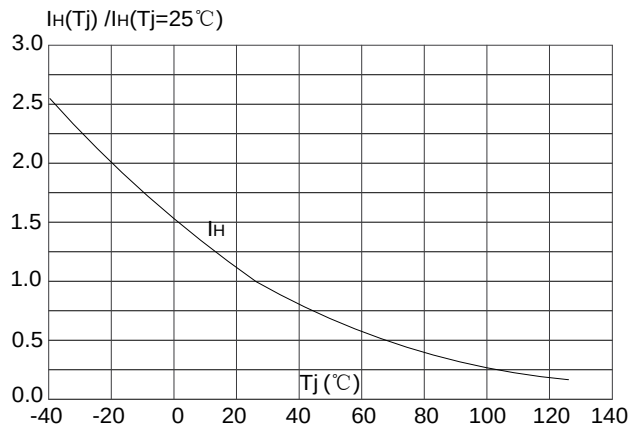
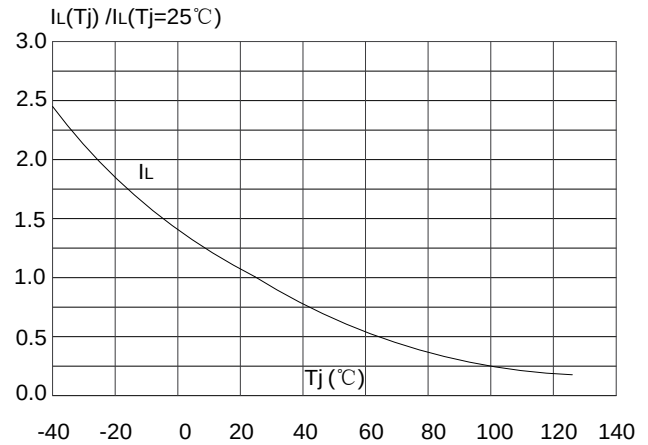
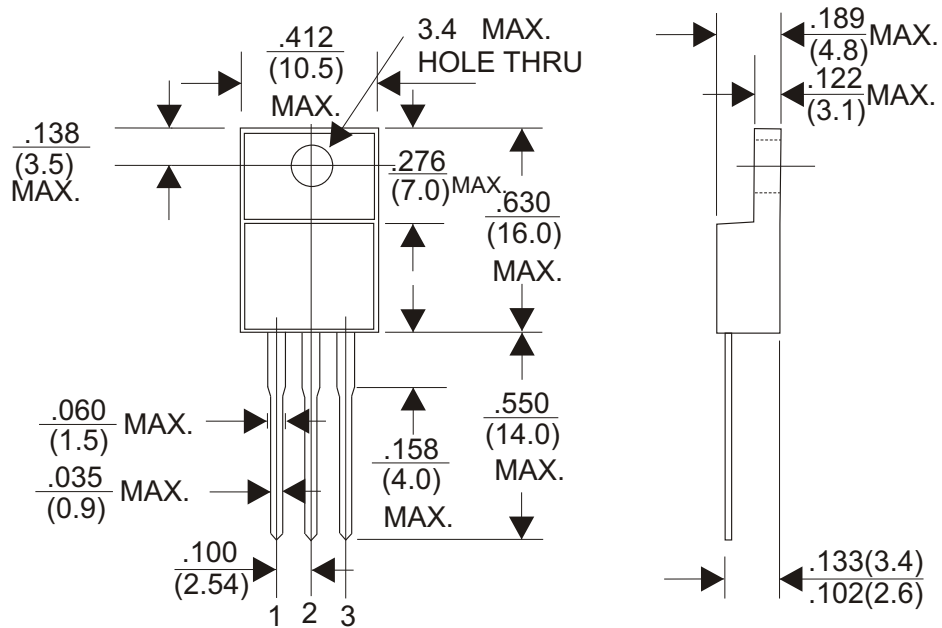


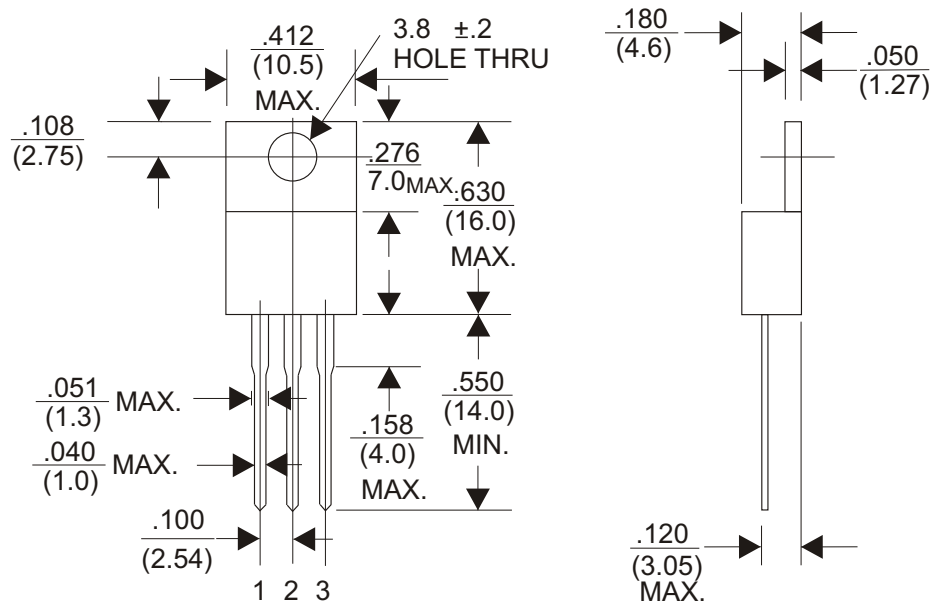
FIG.8: Relative variations of latching current versus junction temperature



ITO-220AB

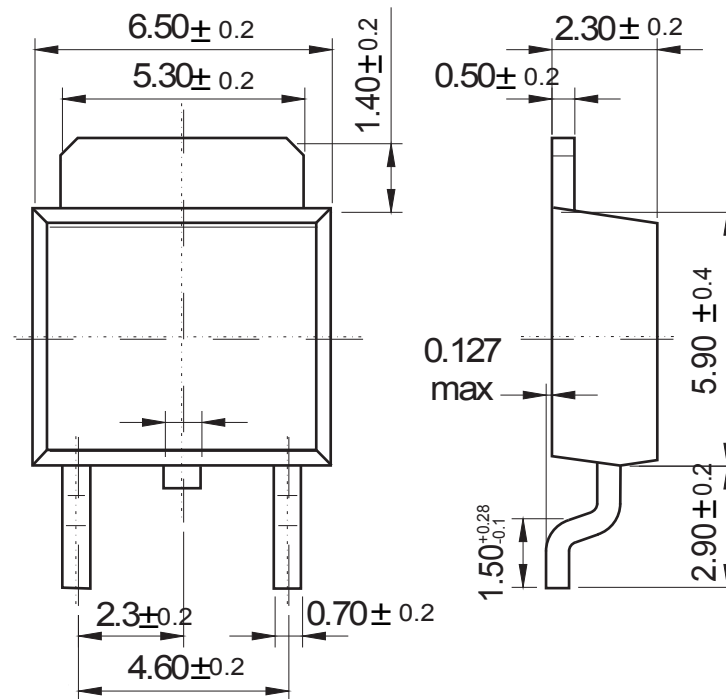


TO-220AB



TO-252

Unit: mm



Dimensions in inches and (millimeters)