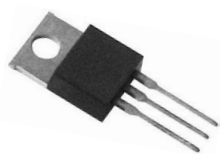


Features

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

VOLTAGE 600/800 V

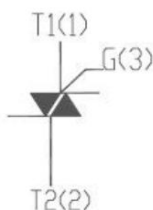
CURRENT 12.0 A



TO-220AB



ITO-220AB



LOGO GK XXX CODE

GK XXX
BT138 x00E

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (T_j = 25°C, unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BT138-600	600	V
		BT138-800	800	V
IT(RMS)	R.M.S On-State Current	T _c =110°C	12	A
ITSM	Surge On-State Current	t _p =16.7ms/t _p =10ms	115/120	A
I ² t	I ² t for fusing	T _p =10ms	70	A ² s
PG(AV)	Average Gate Power Dissipation	T _j =125°C	1	W
IGM	Peak Gate Current	t _p =20us T _j =125°C	4	A
T _j	Operating Junction Temperature		~40~125	°C
TSTG	Storage Temperature		~40~150	°C

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

Symbol	Parameter	Test Conditions	Value				Unit
			D	E	F	G	
IDRM	Repetitive Peak Off-State Current	Tj=25°C	≤5				uA
		Tj=125°C	≤1				mA
IRRM	Repetitive Peak Reverse Current	Tj=25°C	≤5				uA
		Tj=125°C	≤1				mA
VTM	Forward "on" voltage	IT=35A tp=380us	≤1.55				V
VGT	Gate trigger voltage	VD=12V ,RL=30Ω	≤1.5				V
di/dt	Critical-rate of rise of commutation current.	Tj=125°C ,IG=2XIGT,tr ≤100ns,F=100Hz	≥50				A /us
			≥10				A /us
IGT	Gate trigger current	VD=12V RL=30Ω	≤5	≤10	≤25	≤50	mA
			≤10	≤25	≤70	≤100	mA
IH	Holding current	IT=0.2A	≤10	≤25	≤30	≤60	mA
VGD	Gate non-trigger voltage	ALL VD=VDRM TJ=125°C,RL=3.3KΩ	≥0.2				V
dv/dt	Critical-rate of rise of commutation voltage	TJ=125°C VD=2/3VDRM Gate	≥5	≥10	≥50	≥200	V/us
BT138W(3 quadrants)							
di/dt	Critical-rate of rise of commutation current.	I,II,III Tj=125°C ,IG=2XIGT,tr ≤100ns,F=100Hz	≥50				A /us
IGT	Gate trigger current	I,II,III VD=12V RL=30Ω	D	E	F	G	mA
			≤5	≤10	≤25	≤50	

RATING AND CHARACTERISTIC CURVES

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

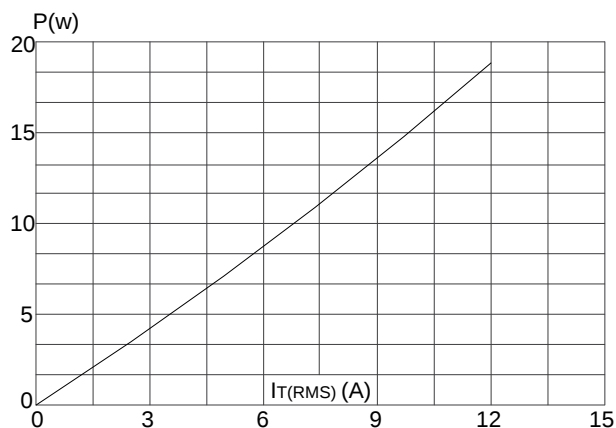


FIG.6:RMS on-state current versus case temperature

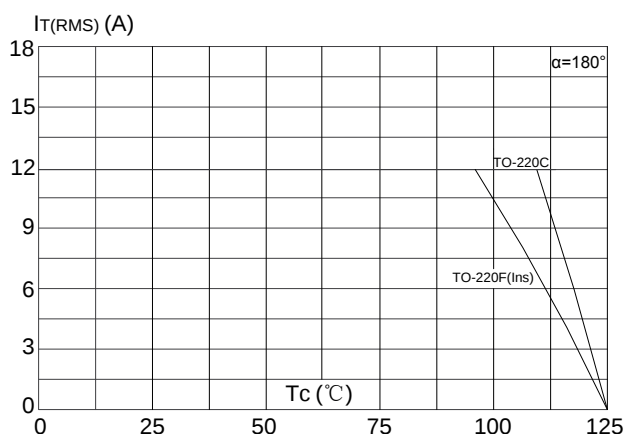


FIG.6:Surge peak on-state current versus number of cycles

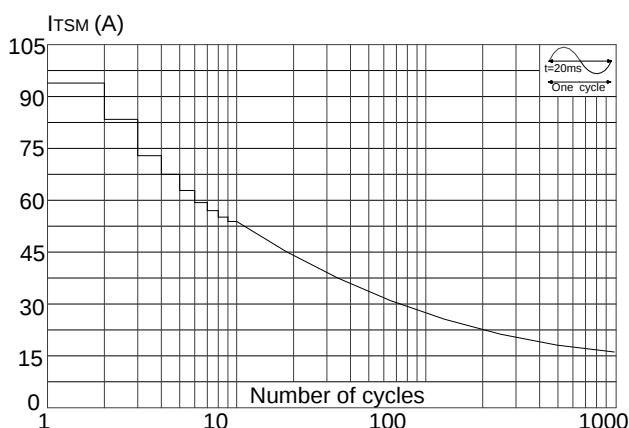


FIG.6:On-state characteristics (maximum values)

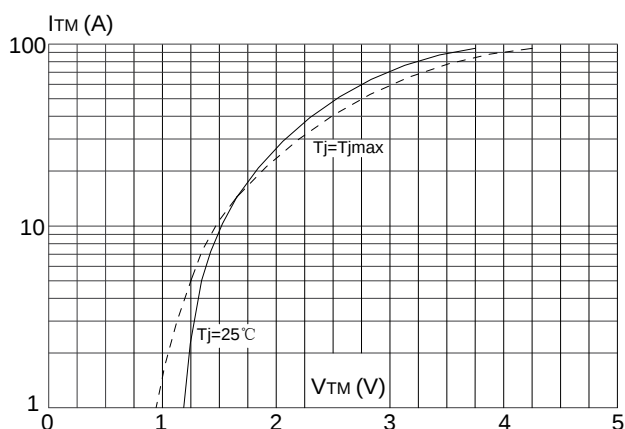


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of $I^2 t$ ($di/dt < 100\text{A}/\mu\text{s}$)

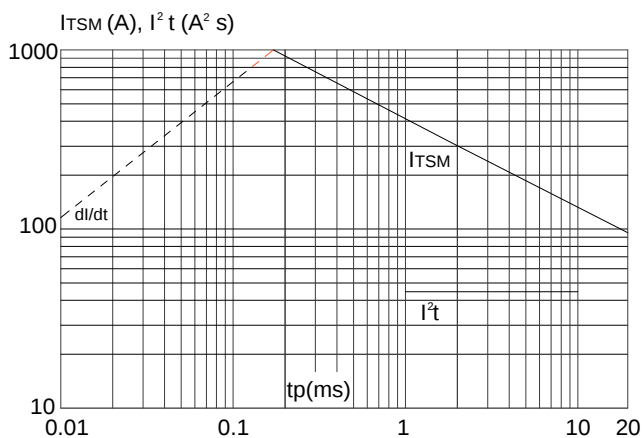
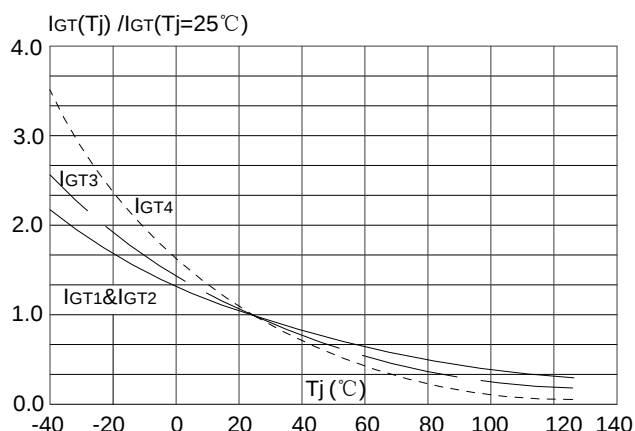


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



RATING AND CHARACTERISTIC CURVES

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

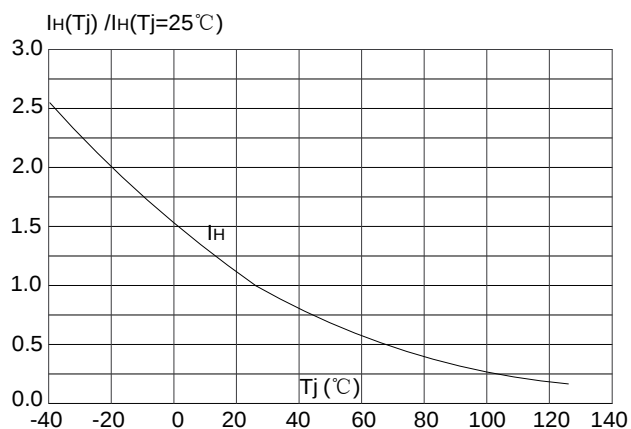
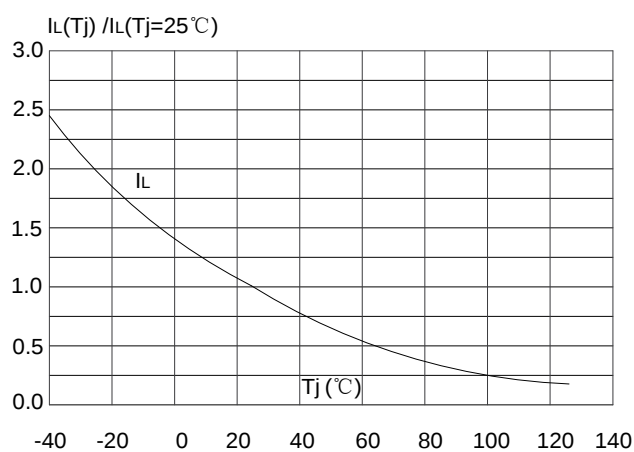
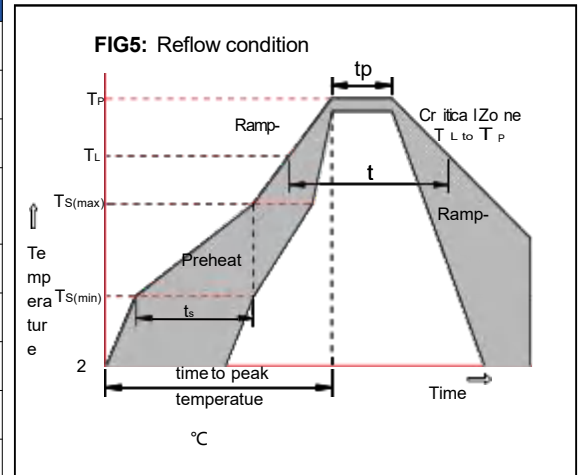


FIG.8: Relative variations of latching current versus junction temperature



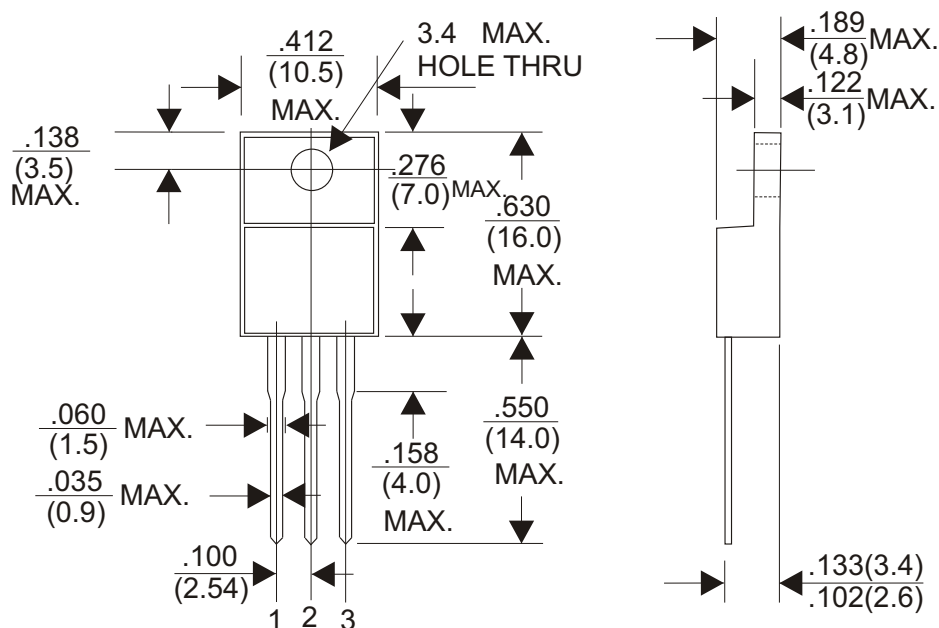
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

ITO-220AB



Package Dimensions & Suggested Pad Layout

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