

BTA100PT-1200BW



THREE-QUADRANTS TRIAC

VOLTAGE: 1200 Volts

CURRENT: 100 Amperes

Package: TO-247Plus

FEATURES

- Highly di/dt For High Reliability
- Low Thermal Resistance Insulation Ceramic For Insulated Package
- Very High Commutation Capability
- Packages Are RoHS (2011/65/EU) Compliant

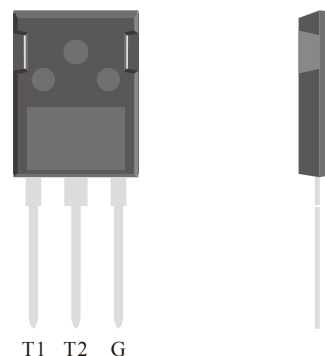
TYPICAL APPLICATIONS

- Phase Control Operation Of Light Dimmers And Motor Speed Controllers
- ON/OFF Control Operation Of Heating Regulation And Induction Motor

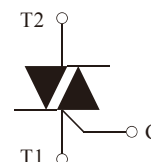
PRODUCT SUMMARY

Gear	BW	Unit
$I_{GT(I-II-III)} \text{ Max.}$	50	mA
$V_{DRM}/V_{RRM} \text{ Min.}$	1200	V
$I_{T(RMS)}$	100	A

Diagram:



Polarity:



Absolute Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Repetitive Peak Off-State Voltage		V_{DRM}	1200	V
Repetitive Peak Reverse Voltage		V_{RRM}	1200	V
RMS On-State Current	$T_c \leq 75^\circ\text{C}$	$I_{T(RMS)}$	100	A
Non Repetitive Surge Peak On-State Current	F= 50 Hz, $T_p = 20 \text{ ms}$ F= 60 Hz, $T_p = 16.6 \text{ ms}$	I_{TSM}	1000 1098	A
I^2t Value For Fusing	$T_p = 10 \text{ ms}$	I^2t	5000	A
Critical Rate Of Rise Of On-State Current	$I_G = 2 \cdot I_{GT}$, $t_r \leq 100 \text{ ns}$ F= 100 Hz, $T_j = 125^\circ\text{C}$	di/dt	100	A/ μs
Peak Gate Current	$T_p = 20 \mu\text{s}$, $T_j = 125^\circ\text{C}$	I_{GM}	4	A
Average Gate Power Dissipation	$T_j = 125^\circ\text{C}$	$P_{G(AV)}$	2.0	W
Peak Gate Power Dissipation		P_{GM}	10	W

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Typ.	Unit
Operating Junction Temperature Range		T_j	-40 to 125	°C
Storage Temperature Range		T_{STD}	-40 to 150	
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With $T_a = 25^\circ\text{C}$	$R_{\theta JA}$	45	°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 75mm x 45mm x 2.5mm Alu. Heat.	$R_{\theta JC}$	0.4	

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Electrical Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Quadrant	Value		Unit
Gate Trigger Current	$V_D=12V, R_L=33\Omega$	I_{GT}	I - II - III	Max.	50	mA
Max. Gate Trigger Voltage	$V_D=12V, R_L=33\Omega$	V_{GT}	I - II - III	Max.	1.5	V
Min. Gate Trigger Voltage	$V_D=V_{DRM}, T_j=125^\circ C, R_L=3.3K\Omega$	V_{GD}	I - II - III	Min.	0.2	V
Holding Current	$I_T=500\text{ mA}$	I_H		Max.	150	mA
Latching Current	$I_G=1.2 \cdot I_{GT}$	I_L	I - III	Max.	200	mA
			II	Max.	200	mA
Rise Of Off- State Voltage	$V_D=V_{DRM}, T_j=125^\circ C, \text{Gate Open}$	dv/dt		Min.	1500	V/us

Static Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	T_j	Value		Unit
Peak On-State Voltage	$I_T=150\text{ A}$	V_{TM}	25°C	Max.	1.55	V
Dynamic resistance		R_D	125°C	Max.	8.9	mΩ
Peak Repetitive Forward Blocking Current	$V_D=V_{DRM}$	I_{DRM}	25°C	Max.	50	uA
	$V_D=V_{DRM}$		125°C		10	mA
Peak Repetitive Reverse Blocking Current	$V_R=V_{RRM}$	I_{RRM}	25°C	Max.	50	uA
	$V_R=V_{RRM}$		125°C		10	mA

Model and identification instructions

BT	A	100	PT	-	1200	BW
Product Type BT=TRIAC						
Insulation Spec.: A=Ins.=Insulation Empty=No Ins.=No Insulation						
$I_{T(RMS)}$ Spec.: 100=100A						
Package Spec.: PT=TO-247Plus						
"-."=Connection Symbol Constant And Unchanging						
V_{DRM}/V_{RRM} Spec.: 1200 $\geq$ 1200V						
I_{GT} Spec.: BW:IGT I - II - III $\leq$ 50mA						
Temperature Spec.: Empty=Standard Temperature H=high temperature						

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Typical Characteristics Curves

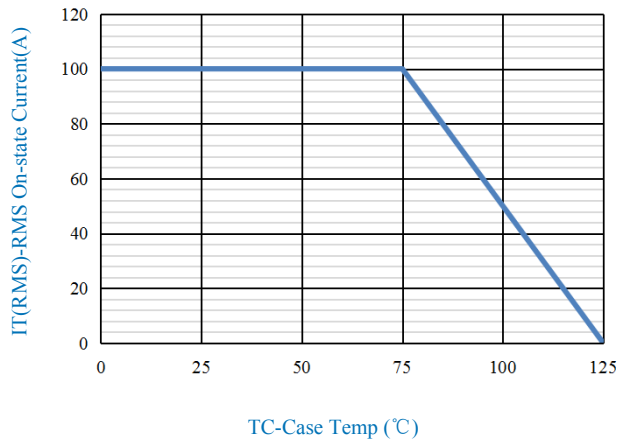


Fig.1-RMS on-state current vs. case temperature

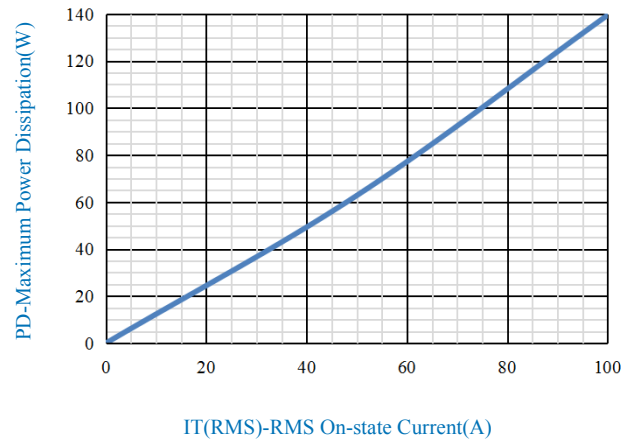


Fig.2- Maximum Power Dissipation Vs. on-state current

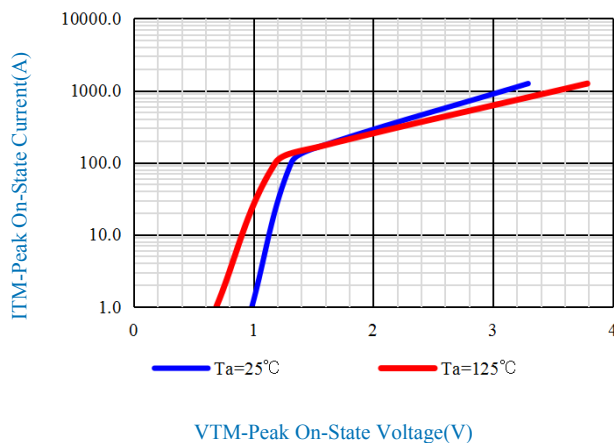


Fig.3-On-State Characteristics

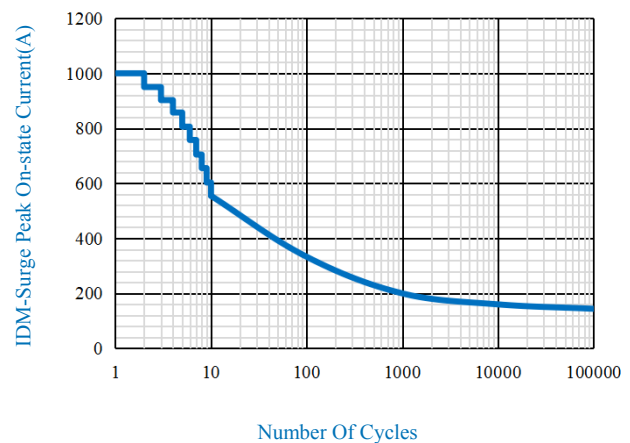


Fig.4- Surge Peak On-state Current Vs. Number Cycles

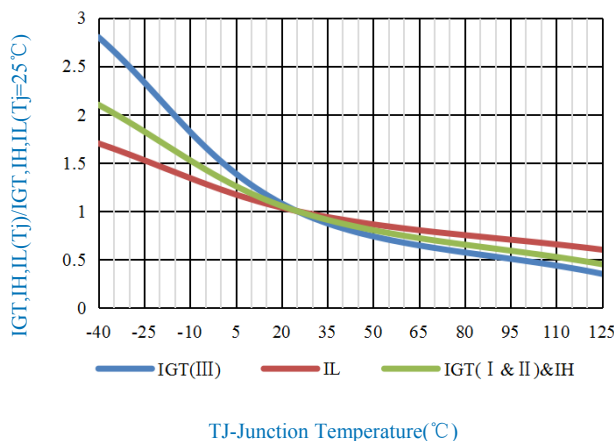


Fig.5- Relative Variation Of Gate Trigger Current , Holding Current And Latching Current Versus Junction Temperature (Typical Value)

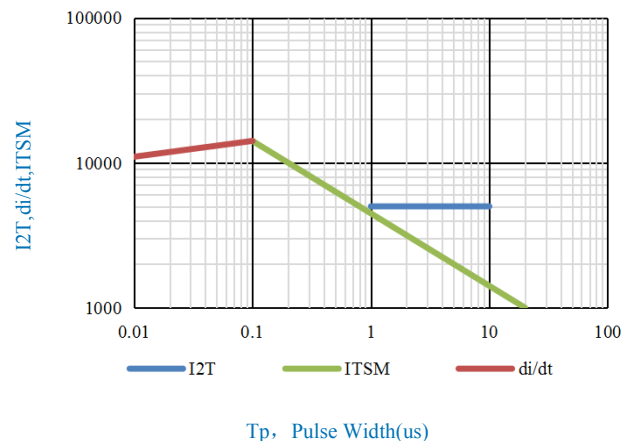


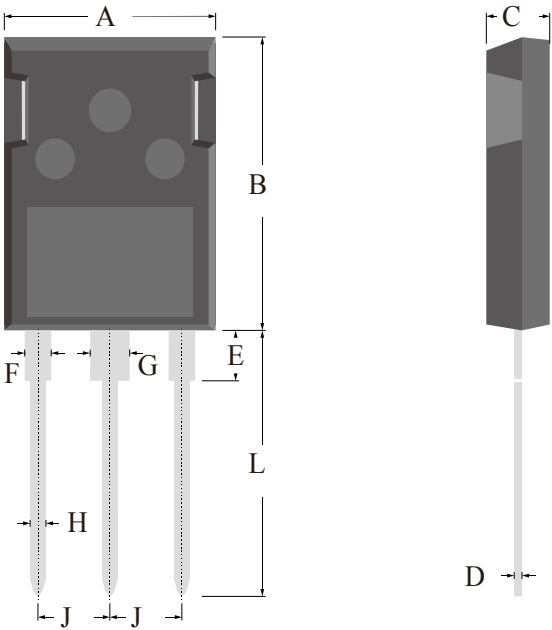
Fig.6- Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I_{2t} ($dI/dt < 50\text{A}/\mu\text{s}$)

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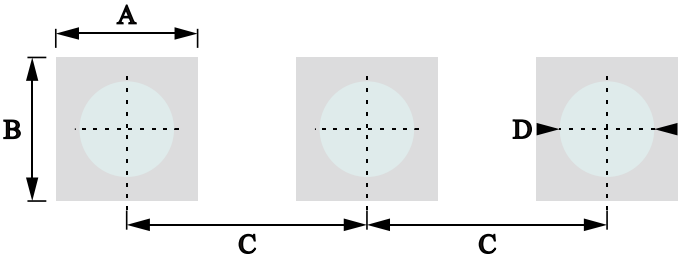
OUTLINE DRAWINGS



TO-247Plus

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.25	-	16.75	0.6004	-	0.6594
B	20.50	-	22.50	0.8071	-	0.8858
C	4.50	-	5.10	0.1772	-	0.2008
D	0.40	-	0.80	0.0157	-	0.0315
E	3.40	-	5.00	0.1339	-	0.1969
F	1.80	-	2.50	0.0709	-	0.0984
G	2.70	-	3.30	0.1063	-	0.1299
H	1.00	-	1.40	0.0394	-	0.0551
J	5.15	-	5.75	0.2028	-	0.2264
L	18.50	-	20.50	0.7283	-	0.8071

RECOMMEDND LAYOUT DRAWINGS



TO-247Plus

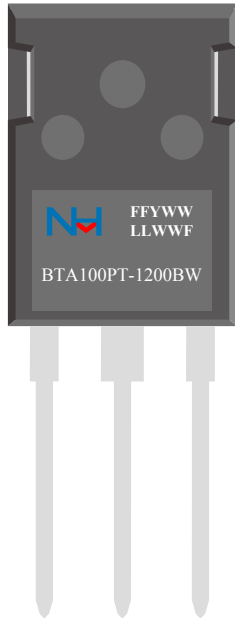
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.00	-	-	0.0787	-
B	-	2.00	-	-	0.0787	-
C	-	5.50	-	-	0.2165	-
D	-	1.40	-	-	0.0551	-

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MARKING INFORMATION



MARKING INSTRUCTIONS

NH=Niuhan Trademark
FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
LLWWF=Inernal Code,According To Actual Changes
BTA100PT-1200BW=Model

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
TO-247Plus	P1	5.778	Tube	30	600	2400

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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow

	Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
	Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
	Preheat-Temperature Min (T _S min) -Temperature Max (T _S max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
	Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
	Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
	Time within 5°C of actual peak temperature (t _p)	10-30 seconds	20-40 seconds
	Ramp down rate	6°C/second max.	6°C/second max.
	Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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Specification Revision History

Rev.	Date	Changed Items	Pre-Changed Content	Changed Content
A/1	2014-10-20	First Issue		
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