

BTA01-600T

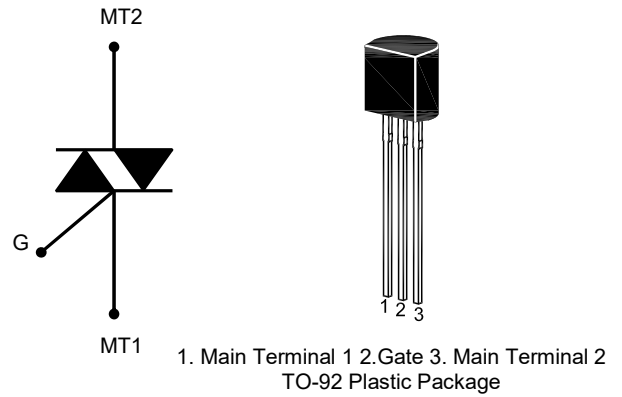
Silicon Bidirectional Thyristors

Features

- Repetitive peak off-state voltage
- Triggering gate current

Applications

- AC switching
- Home appliances



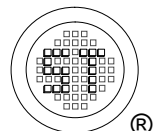
Absolute Maximum Ratings ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive Peak off-State Voltage	V_{DRM}	600	V
Repetitive Peak Reverse Voltage	V_{RRM}	600	V
RMS on-State Current Full Sine Wave	$I_{\text{T(RMS)}}$	1	A
		$T_a = 90^\circ\text{C}$	
Peak Non-repetitive Surge Current (Full Cycle, $T_J = 25^\circ\text{C}$)	I_{TSM}	8 10	A
		$f = 50\text{ Hz, } t = 20\text{ ms}$ $f = 60\text{ Hz, } t = 16.7\text{ ms}$	
Circuit Fusing Considerations	I^2t	0.32	A^2s
		$t_p = 10\text{ ms}$	
Critical Rate-of-Rise of on-Sate Current at $I_G = 2 \times I_{\text{GT}}, t_r \leq 100\text{ ns}$	di/dt	20	$\text{A}/\mu\text{s}$
		$f = 120\text{ Hz, } T_J = 125^\circ\text{C}$	
Peak Gate Current	I_{GM}	1	A
		$t_p = 20\ \mu\text{s, } T_J = 125^\circ\text{C}$	
Peak gate power	P_{GM}	1	W
Average Gate Power Dissipation	$P_{\text{G(AV)}}$	0.5	W
		$T_J = 125^\circ\text{C}$	
Operating Junction Temperature Range	T_J	- 40 to + 125	$^\circ\text{C}$
Storage Temperature Range	T_{Stg}	- 40 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta\text{JA}}$	150	$^\circ\text{C}/\text{W}$

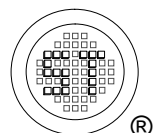
¹⁾PCB Mounted; Lead Length = 4 mm



BTA01-600T

Characteristics at $T_j = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Quadrant	Min.	Max.	Unit
Peak Forward or Reverse Blocking Current at $V_{\text{DRM}} / V_{\text{RRM}}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$I_{\text{DRM}}, I_{\text{RRM}}$	- -	- -	5 0.5	μA mA
Peak Forward on-State Voltage at $I_{\text{TM}} = 1.4 \text{ A}$, $t_p = 380 \mu\text{s}$	V_{T}	-	-	1.6	V
Threshold On-State Voltage at $T_j = 125^\circ\text{C}$	V_{TO}	-	-	0.95	V
Gate Trigger Current at $V_{\text{D}} = 12 \text{ V}$, $R_{\text{L}} = 30 \Omega$	I_{GT}	I-II-III IV	-	3 5	mA
Holding Current at $I_{\text{T}} = 50 \text{ mA}$	I_{H}	-	-	7	mA
Latching Current at $I_{\text{G}} = 1.2 I_{\text{GT}}$	I_{L}	I-III-IV II	- -	7 15	mA
Gate Trigger Voltage at $V_{\text{D}} = 12 \text{ V}$, $R_{\text{L}} = 30 \Omega$	V_{GT}	All	-	1.3	V
Gate Non-Trigger Voltage at $V_{\text{D}} = V_{\text{DRM}}$, $R_{\text{L}} = 3.3 \text{ k}\Omega$, $T_j = 125^\circ\text{C}$	V_{GD}	All	0.2	-	V



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Electrical Characteristics Curves

Fig.1 Maximum Power Dissipation vs. RMS on-State Current (full cycle)

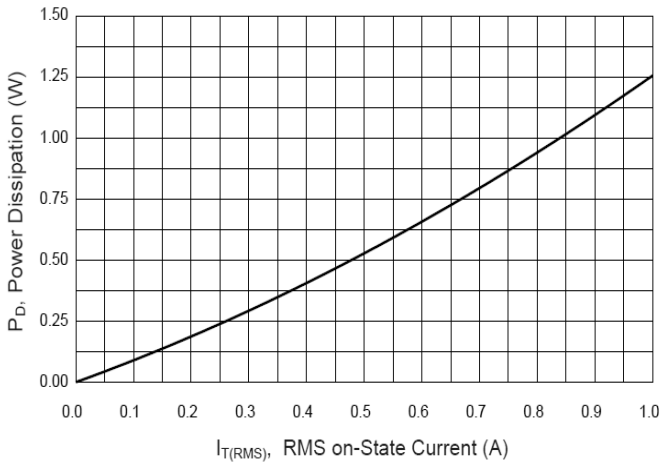


Fig.2 RMS on-State Current vs. T_a

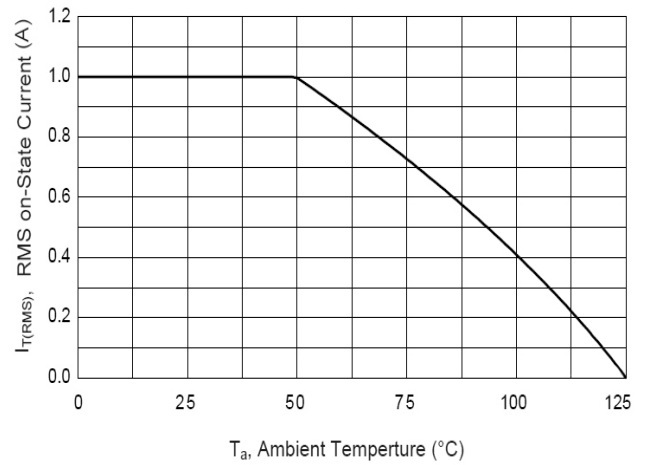


Fig.3 Thermal Resistance Junction to Ambient vs. Copper Surface under

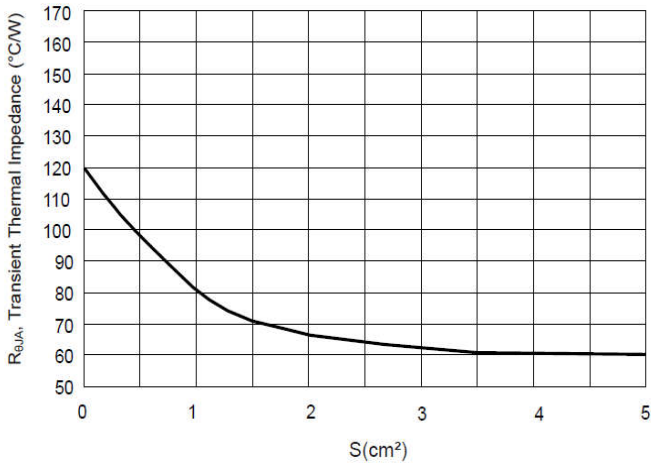


Fig.4 Relative Variation of Thermal Impedance vs. Pulse Duration

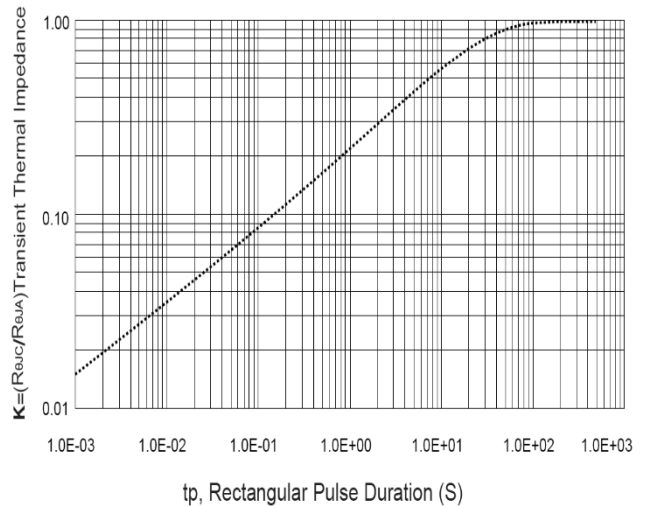


Fig.5 maximum on-State Characteristics

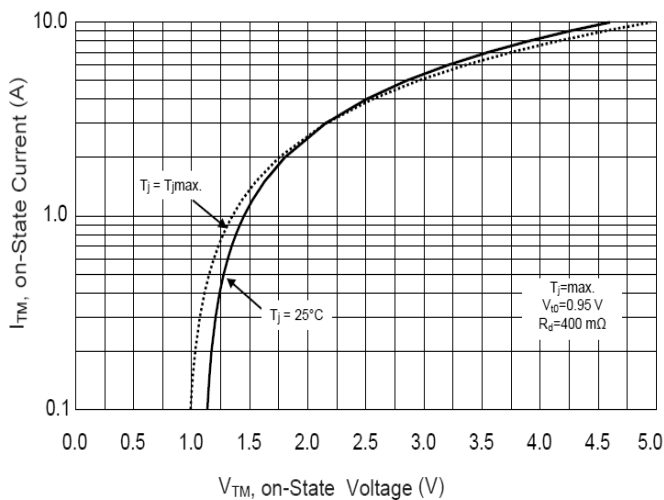
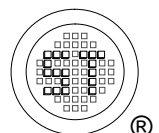
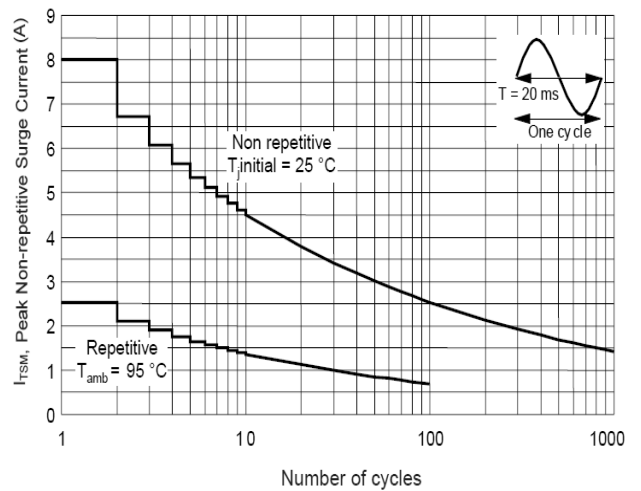
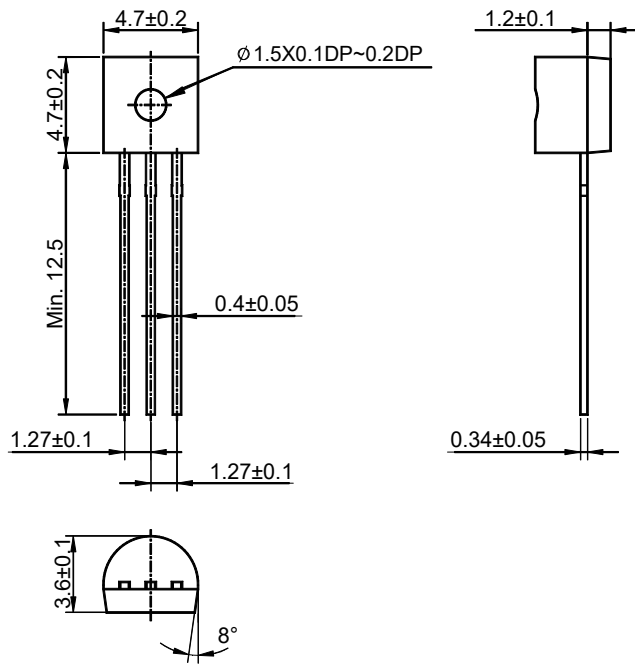


Fig.6 Surge Peak on-State Current vs. number of Cycles

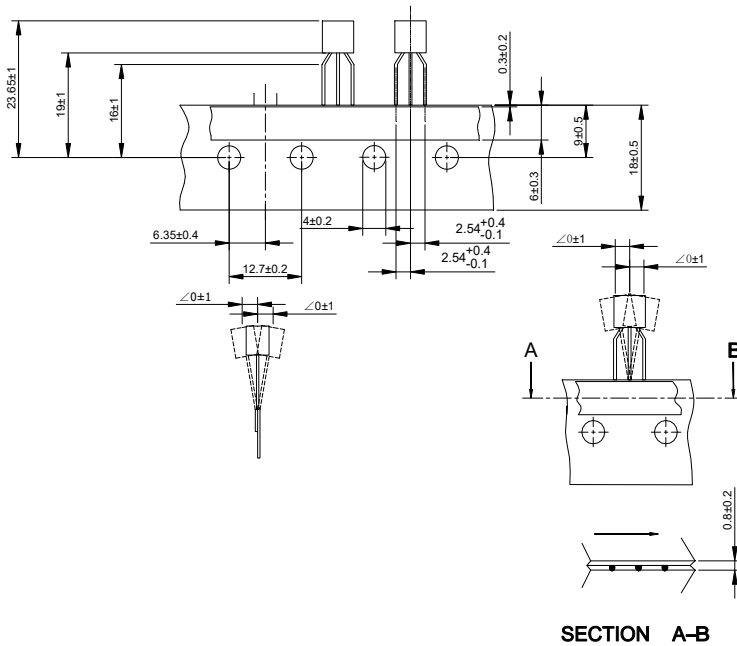


BTA01-600T

TO-92 Package Outline (Dimensions in millimeters)



TO-92 Ammo-Pack Outline (Dimensions in millimeters)



Packing information

Package	Bulk Packing			Ammo-Packing	
	Per Bag Qty	Per Box Qty	Per Carton Qty	Per Box Qty	Per Carton Qty
TO-92	1,000	5,000	50,000	4,000	20,000

