

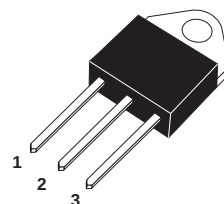
Bi-Directional Triode Thyristor

Designed for high performance full-wave ac control applications where high noise immunity and high commutating di/dt are required.

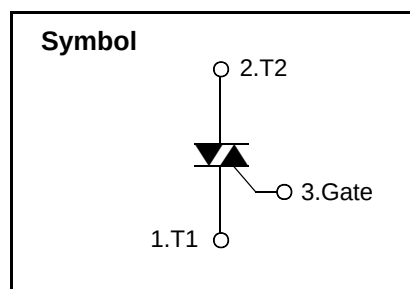
Features

- Blocking Voltage to 800 V
- Package: TO-3P
- High current density due to double mesa technology, BTA41 series triacs is suitable for general purpose as an ON/OFF function in applications such as induction motor starting circuits or phase control speed controllers.
- BTA41 series are 3 Quadrants triacs, They are inductive loads.

TO-3P



(Insulated)



Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40 to +150	°C
Operating junction temperature range		T _j	-40 to +125	°C
Repetitive Peak OFF-state Voltage	T _j =25°C	V _{DRM}	800	V
Repetitive Peak Reverse Voltage	T _j =25°C	V _{RRM}	800	V
Non repetitive surge peak off-state voltage	T _p =10ms, T _j =25°C	V _{DSM}	900	V
Non repetitive peak reverse voltage		V _{RSM}	900	V
RMS on-state current(full sine wave)	TC=90°C	I _{T(RMS)}	41	A
	TC=70°C			
Non repetitive surge peak on-state current(full cycle, T _j =25°C)	f=60Hz, t=16.7ms	I _{TSM}	430	A
	f=50Hz, t=20ms		410	
I ² t Value for fusing	T _p =10ms	I ² t	410	A ² s
Critical rate of rise of on-state current I _G =2*I _{GT} , t _r ≤100ns, f=120Hz, T _j =125°C		di/dt	100	A/us
Peak gate current(t _p =20us, T _j =125°C)		I _{GM}	4	A
Peak gate power dissipation(t _p =20us, T _j =125°C)		P _{GM}	10	W
Average gate power dissipation(T _j =125°C)		P _{G(AV)}	1	W



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

Symbol	Test Condition	Quadrant		Limit		Unit
				CW(C)	BW(B)	
I _{GT}	V _D =12V, R _L =33Ω	I - II -III- IV	MAX	35	100	mA
V _{GT}		I - II -III- IV	MAX	1.5		V
V _{GD}	V _D =V _{DRM} R _L =3.3KΩ Tj=125°C	I - II -III- IV	MIN	0.2		V
IL	I _G =1.2I _{GT}	I -III- IV	MAX	30	50	mA
		II	MAX	40	60	mA
I _H	I _T =100mA		MAX	40	60	mA
Dv/dt	V _D =67%V _{DRM} gate open Tj=125°C		MIN	250	500	V/us
(Dv/dt) _c	(dl/dt) _c =8.8A/ms Tj=125°C		MIN	7	12.5	V/us

Static Characteristics

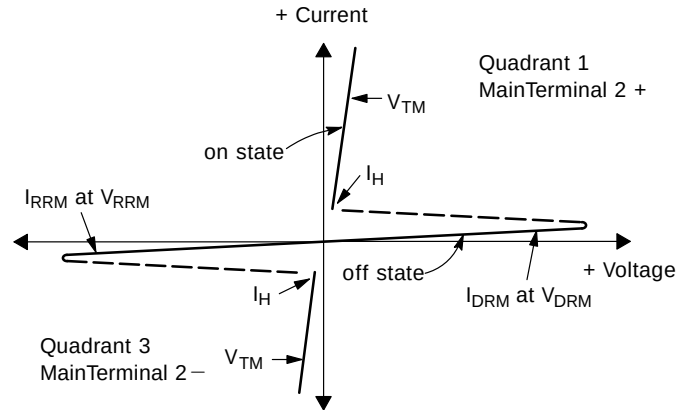
Symbol	Parameter		Value(MAX)	Unit
V _{TM}	ITM=28A, tp=380us	Tj=25°C	1.55	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM}	Tj=25°C	5	uA
I _{RRM}		Tj=125°C	2.5	mA

Thermal Resistances

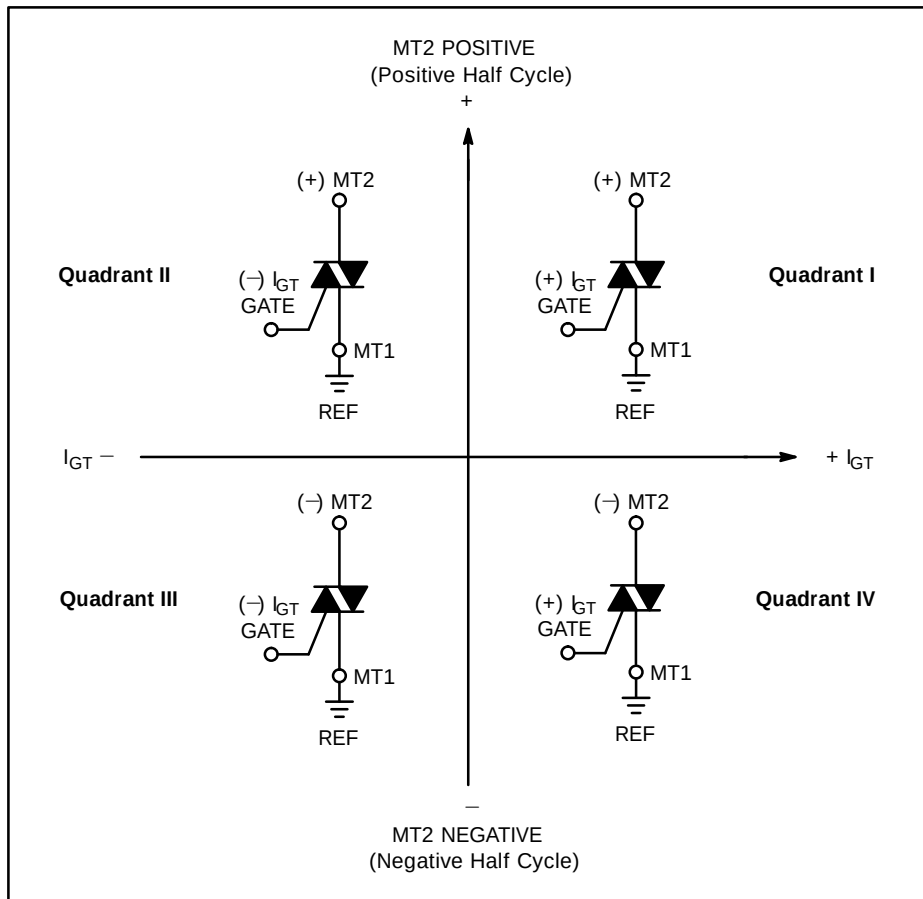
Symbol	Parameter	Value	Unit
R _{th} (J-C)	Junction to case(AC)	2.1	°C/W

Voltage Current Characteristic of Triacs (Bidirectional Device)

Symbol	Parameter
V_{DRM}	Peak Repetitive Forward Off State Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Reverse Off State Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Maximum On State Voltage
I_H	Holding Current



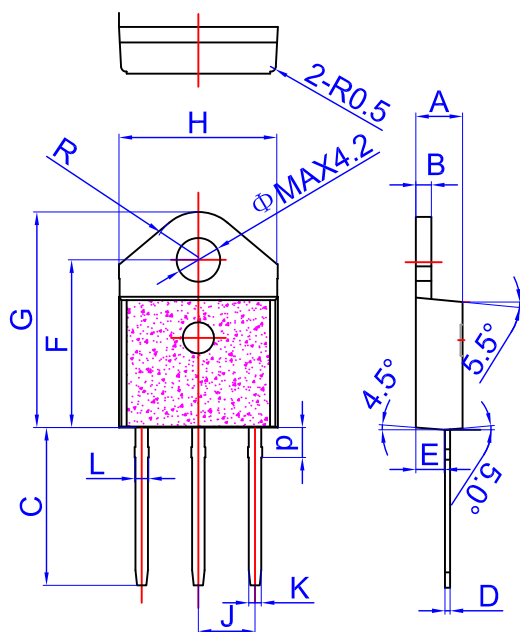
Quadrant Definitions for a Triac



All polarities are referenced to MT1.
With in-phase signals (using standard AC lines) quadrants I and III are used.

PACKAGE MECHANICAL DATA

TO-3P insulated Package



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.6	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.4		21.1	0.815		0.831
H	15.1		15.5	0.594		0.610
J	5.4		5.65	0.213		0.222
K	1.2		1.4	0.047		0.055
L	1.35		1.50	0.053		0.059
P	2.8		3.0	0.110		0.118
R		4.6			0.181	

FIG.1:Maximum power dissipation versus RMS on-state current(full cycle)

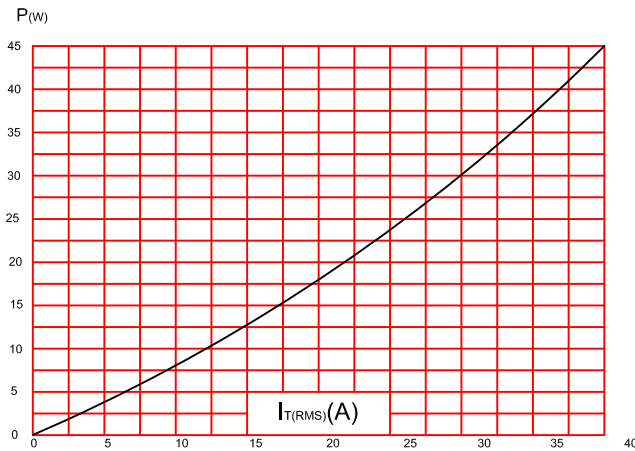


FIG.2:RMS on-state current versus case temperature(full cycle)

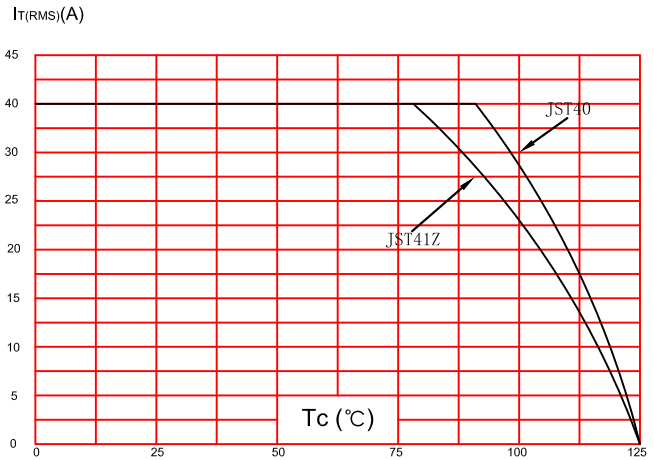


FIG.3:On-state characteristics (maximum values).

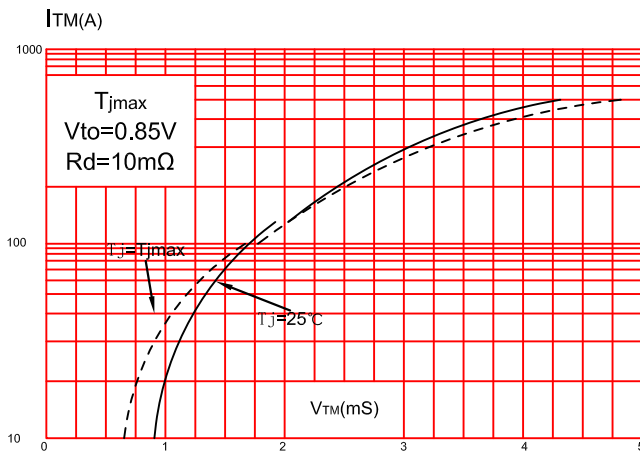


FIG.4:Surge peak on-state current versus number of cycles.

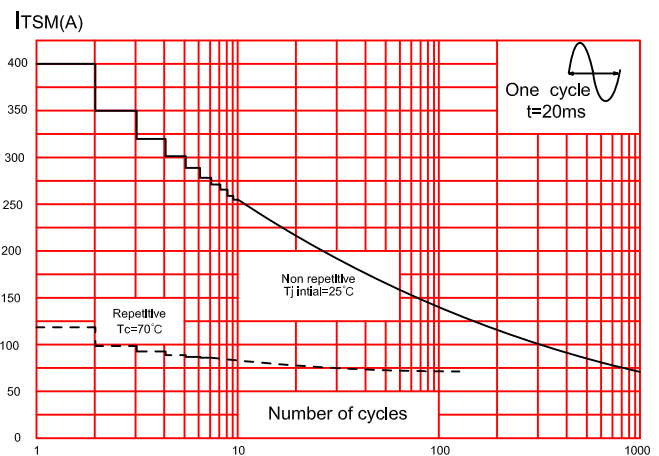


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

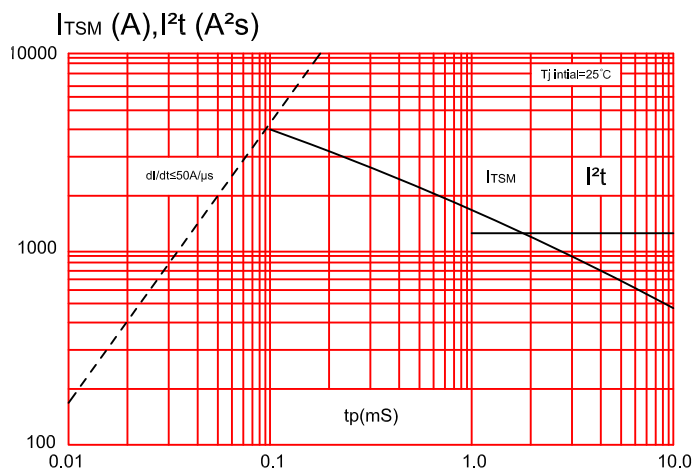


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)

