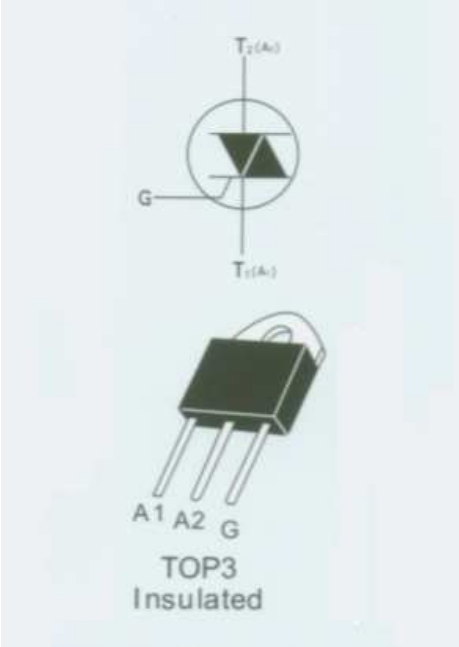
STANDARD

41A TRIACs

■ MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	41	A
$V_{(DRM)}/V_{RRM}$	600 to 800	V
$I_{GT(Q1)}$	20 to 50	mA



■ GENERAL DESCRIPTION

Available either in high power packages, the BTA41 series is suitable for general purpose AC power switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, water heaters, induction motor starting circuits, welding equipment…or for phase control operation in high power motor speed controllers, soft start circuits…

Thanks to their clip assembly technique, they provide a superior performance in surge current handling capabilities.

By using an internal ceramic pad, the BTA41 series provides voltage insulated tab (rated at 2500V RMS).

■ ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TOP3 Ins.	Tc=70℃	40	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial=25℃)	F=50Hz	t=20ms	400	A
		F=60Hz	t=16.7ms	420	
I^2T	I^2T Value for fusing	tp=10ms		880	A^2s
dI/dt	Critical rate of rise of on-state current I_G=2 × I_{GT}, tr≤100ns	F=120Hz	Tj=125℃	50	A/μs
V_{DSM}/ V_{RSM}	Non repetitive surge peak off-state Voltage	tp=10ms	Tj=25℃	V_{DSM}/ V_{RSM} +100	V
I_{GM}	Peak gate current	tp=20μs	Tj=125℃	8	A
$P_{G(AV)}$	Average gate power dissipation		Tj=125℃	1	W
T_{stg}	Storage junction temperature range			-40 to+150	℃
T_j	Operating junction temperature range			-40 to+125	

■ STATIC CHARACTERISTICS

Tj=25℃ unless otherwise stated

Symbol	Test Conditions	Quadrant		Value	Unit
				B	
I_{GT}(1)	V_D=12V R_L=30Ω	I-II-III	MAX.	50	mA
		IV		100	
V_{GT}		ALL	MAX.	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj=125℃	ALL	MIN.	0.2	V
I_H(2)	I_T=500mA		MAX.	80	mA
I_L	I_G=1.2I_{GT}	I-III-IV	MAX.	70	mA
		II		160	
V_{TM}(2)	I_{TM}=60A tp=380μs	Tj=25℃	MAX.	1.6	V
V_{t0}(2)	Threshold voltage	Tj=125℃	MAX.	0.85	V
R_d(2)	Dynamic resistance	Tj=125℃	MAX.	10	mΩ
I_{DRM}	V_{DRM}=V_{RRM}	Tj=25℃	MAX.	500	μA
I_{RRM}		Tj=125℃		5	mA

■ DYNAMIC CHARACTERISTICS

Symbol	Test Condition		Value	Unit
dV/dt(2)	V_D=67% V_{DRM} gate open Tj=125℃	MIN.	500	V/μs
(dV/dt)c(2)	(dI/dt)c=20A/ms Tj=125℃	MIN.	10	V/μs

Note1: minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note2: for both polarities of A2 referenced to A1.

■ THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to case (AC)	TOP3 Insulated	1.2	℃/W
$R_{th(j-a)}$	Junction to ambient	TOP3 Insulated	50	℃/W

PERFORMANCE CURVES

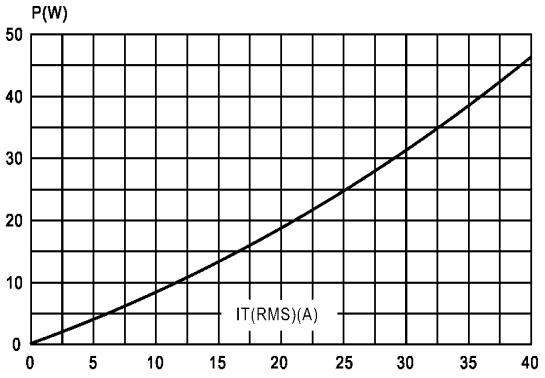


Fig.1. Maximum power dissipation versus RMS on-state current (full cycle)

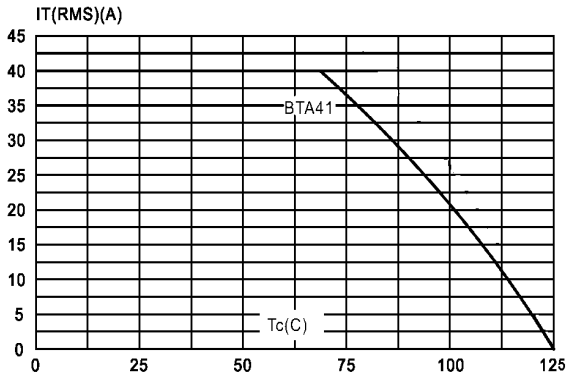


Fig.4. RMS on-state current versus case temperature (full cycle)

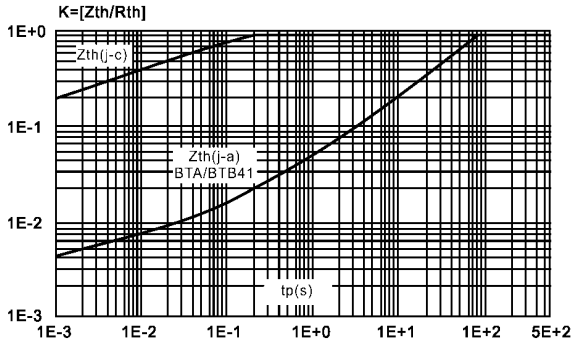


Fig.2. Relative variation of thermal impedance versus pulse duration

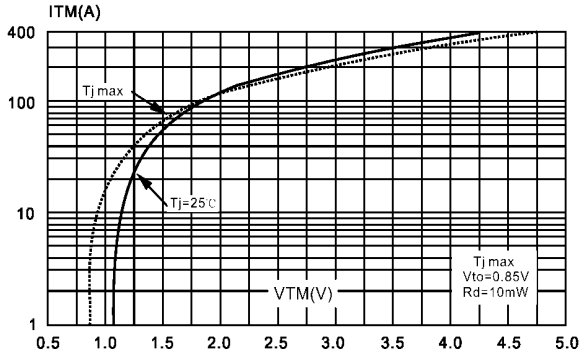


Fig.5. On-state characteristics (maximum values)

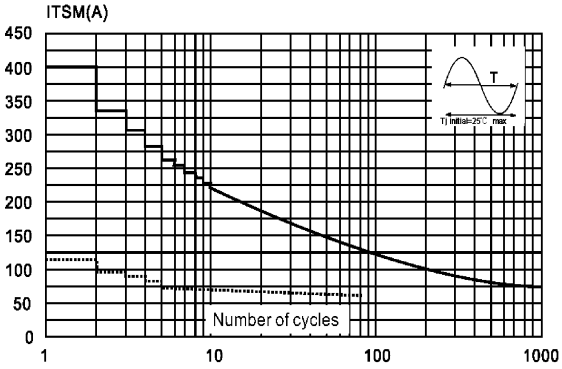


Fig.3. Surge peak on-state current versus number of cycles

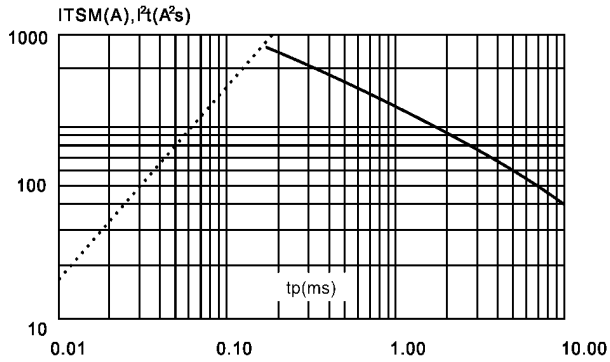


Fig.6. Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I^2t

PERFORMANCE CURVES

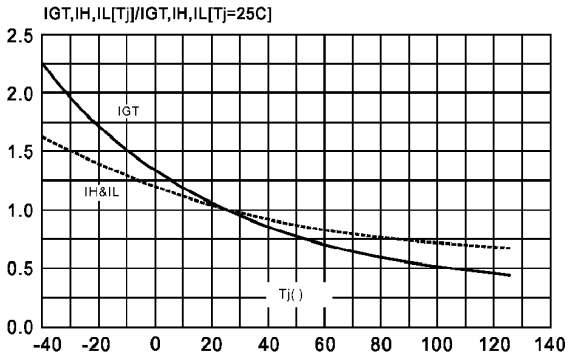


Fig.7. Relative variation of gate trigger current, holding current and latching current versus junction temperature T_j (typical values)

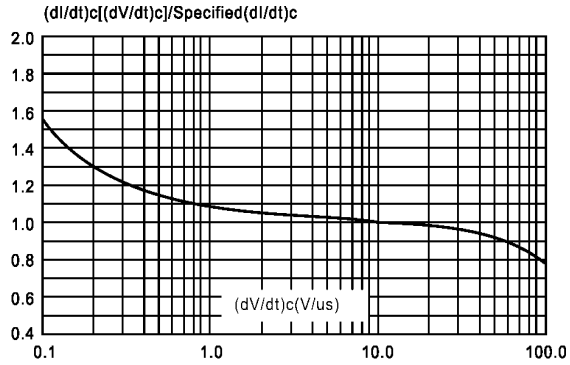


Fig.8. Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values),

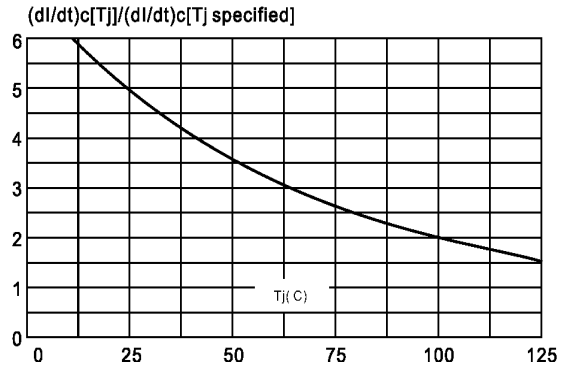
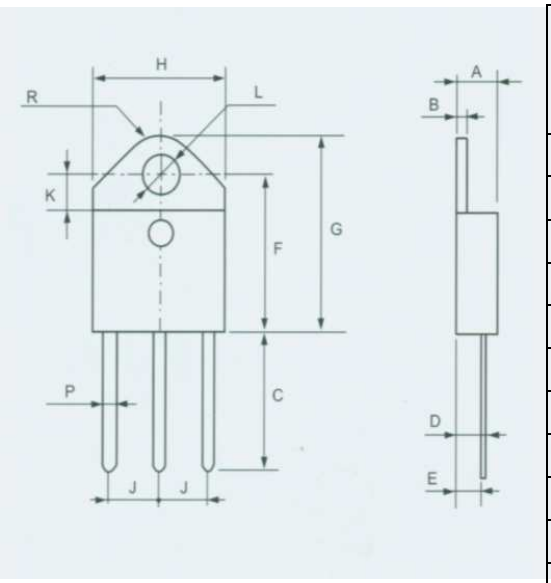


Fig.9. Relative variation of critical rate of decrease of main current versus junction temperature T_j

PACKAGE MECHANICAL DATA

TOP3 Ins. (Plastic)



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		15.60	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	3.4		3.65	0.134		0.144
L	4.08		4.17	0.161		0.164
P	1.20		1.40	0.047		0.055
R		4.60			0.181	