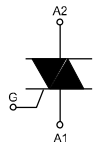
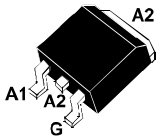
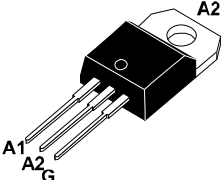
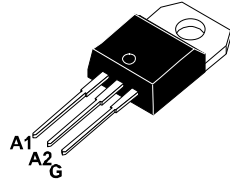


	DESCRIPTION	16A TRIACs												
    D²PAK (T16-G) TO-220AB (BTB16) TO-220AB Insulated (BTA16) MAIN FEATURES: <table border="1"> <thead> <tr> <th>Symbol</th><th>Value</th><th>Unit</th></tr> </thead> <tbody> <tr> <td>$I_{T(RMS)}$</td><td>16</td><td>A</td></tr> <tr> <td>V_{DRM}/V_{RRM}</td><td>600, 700 and 800</td><td>V</td></tr> <tr> <td>$I_{GT} (Q_1)$</td><td>10 to 50</td><td>mA</td></tr> </tbody> </table>	Symbol	Value	Unit	$I_{T(RMS)}$	16	A	V_{DRM}/V_{RRM}	600, 700 and 800	V	$I_{GT} (Q_1)$	10 to 50	mA	Available either in through-hole or surface-mount packages, the BTA/BTB16 and T16 triac series issuitable for general purpose AC switching. Theycan be used as an ON/OFF function in applicationssuch as static relays, heating regulation, inductionmotor starting circuits... or for phase control operation in light dimmers, motor speed controllers, ... The snubberless versions (BTA/BTB...W and T16 series) are specially recommended for use on inductive loads, thanks to their high commutation performances. By using an internal ceramic pad, the BTA series provides voltage insulated tab (rated at 2500V RMS) complying with UL standards	
Symbol	Value	Unit												
$I_{T(RMS)}$	16	A												
V_{DRM}/V_{RRM}	600, 700 and 800	V												
$I_{GT} (Q_1)$	10 to 50	mA												

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	D ² PAK	$T_c = 100^{\circ}C$	16	A
		TO-220AB			
		TO-220AB Ins.	$T_c = 85^{\circ}C$		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = $25^{\circ}C$)	F = 60 Hz	t = 16.7 ms	168	A
		F = 50 Hz	t = 20 ms	160	
$I^2 t$	$I^2 t$ Value for fusing	tp = 10 ms		144	A ² s
dI/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, tr ≤ 100 ns	F = 120 Hz	$T_j = 125^{\circ}C$	50	A/μs
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	tp = 10 ms	$T_j = 25^{\circ}C$	$V_{DRM}/V_{RRM} + 100$	V
I_{GM}	Peak gate current	tp = 20 μs	$T_j = 125^{\circ}C$	4	A
$P_{G(AV)}$	Average gate power dissipation	$T_j = 125^{\circ}C$		1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range				- 40 to + 150 - 40 to + 125 °C

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$, unless otherwise specified)

■ SNUBBERLESS™ and LOGIC LEVEL (3 Quadrants)

Symbol	Test Conditions	Quadrant		T16	BTA/BTB16			Unit
				T1635	SW	CW	BW	
I _{GT} (1)	V _D = 12 V R _L = 33 Ω	I - II - III	MAX.	35	10	35	50	mA
V _{GT}		I - II - III	MAX.	1,3				V
V _{GD}	V _D = V _{DRM} R _L = 3.3 kΩ T _j = 125°C	I - II - III	MIN.	0.2				V
I _H (2)	I _T = 500 mA		MAX.	35	15	35	50	mA
I _L	I _G = 1.2 I _{GT}	I - III	MAX.	50	25	50	70	mA
		II		60	30	60	80	
dV/dt (2)	V _D = 67 % V _{DRM} gate open T _j = 125°C		MIN.	500	40	500	1000	V/μs
(dI/dt) _c (2)	(dV/dt) _c = 0.1 V/μs T _j = 125°C		MIN.	-	8.5	-	-	A/ms
	(dV/dt) _c = 10 V/μs T _j = 125°C			-	3.0	-	-	
	Without snubber T _j = 125°C			8.5	-	8.5	14	

■ STANDARD (4 Quadrants)

Symbol	Test Conditions	Quadrant		BTA/BTB16		Unit
				C	B	
$I_{GT}(1)$	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$	I - II - III IV	MAX.	25 50	50 100	mA
V_{GT}		ALL	MAX.	1.3		V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 125^\circ\text{C}$	ALL	MIN.	0.2		V
$I_H(2)$	$I_T = 500\text{ mA}$		MAX.	25	50	mA
I_L	$I_G = 1.2\ I_{GT}$	I - III - IV	MAX.	40	60	mA
		II		80	120	
$dV/dt(2)$	$V_D = 67\% V_{DRM}$ gate open $T_j = 125^\circ\text{C}$		MIN.	200	400	V/ μs
$(dV/dt)_c(2)$	$(dI/dt)_c = 7\text{ A/ms}$ $T_j = 125^\circ\text{C}$		MIN.	5	10	V/ μs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
$V_{TM}(2)$	$I_{TM} = 22.5\text{ A}$ $t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.55	V
$V_{to}(2)$	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	0.85	V
$R_d(2)$	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	25	m Ω
I_{DRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	5	μA
I_{RRM}		$T_j = 125^\circ\text{C}$		2	mA

Note 1: minimum I_{GT} is guaranteed at 5% of $I_{GT}\text{ max.}$

Note 2: for both polarities of A2 referenced to A1

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

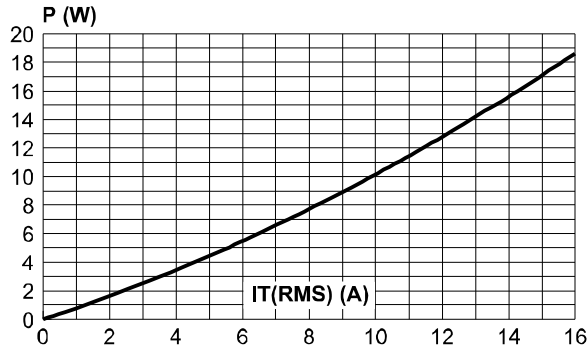


Fig. 2-1: RMS on-state current versus case temperature (full cycle).

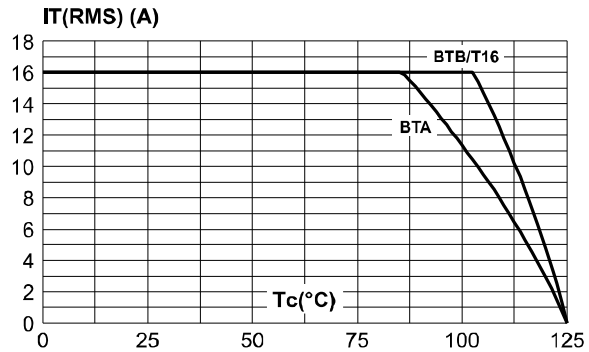


Fig. 2-2: D²PAK RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μm), full cycle.

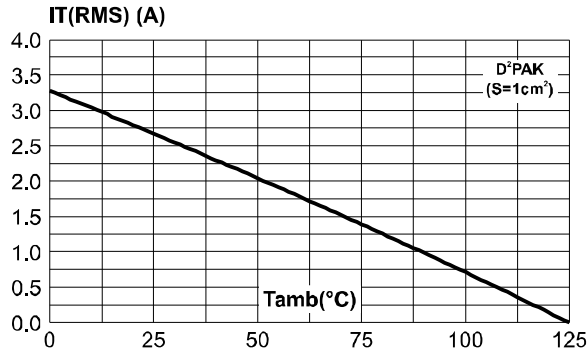
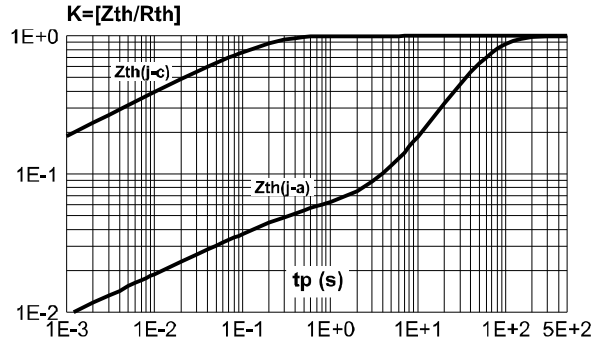


Fig. 3: Relative variation of thermal impedance versus pulse duration.



THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
R _{th(j-c)}	Junction to case (AC)		D ² PAK TO-220AB	1.2	°C/W
			TO-220AB Insulated	2.1	
R _{th(j-a)}	Junction to ambient	S = 1 cm ²	D ² PAK	45	°C/W
			TO-220AB	60	
			TO-220AB Insulated		

S: Copper surface under tab

PRODUCT SELECTOR

Part Number	Voltage(XXX)			Sensitivity	Type	Package
	600 V	700 V	800 V			
BTA/BTB16-xxxB	X	X	X	50 mA	Standard	TO-220AB
BTA/BTB16-xxxBW	X	X	X	50 mA	Snubberless	TO-220AB
BTA/BTB16-xxxC	X	X	X	25 mA	Standard	TO-220AB
BTA/BTB16-xxxCW	X	X	X	35 mA	Snubberless	TO-220AB
BTA/BTB16-xxxSW	X	X	X	10 mA	Logic level	TO-220AB
T1635-xxxG	X		X	35 mA	Snubberless	D ² PAK

Fig. 4: On-state characteristics (maximum values)

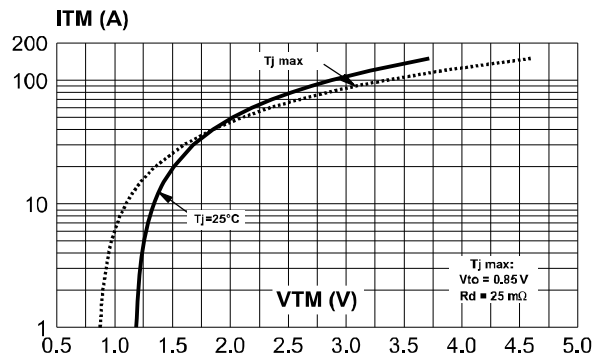


Fig. 5: Surge peak on-state current versus number of cycles.

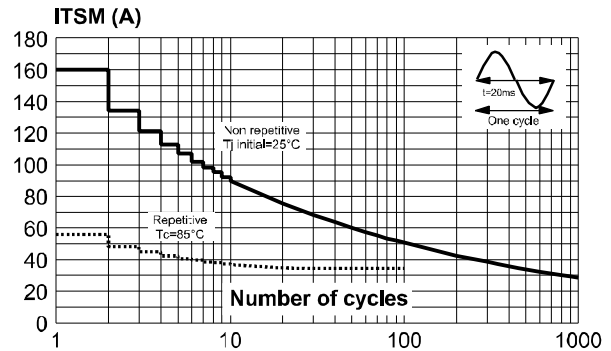


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

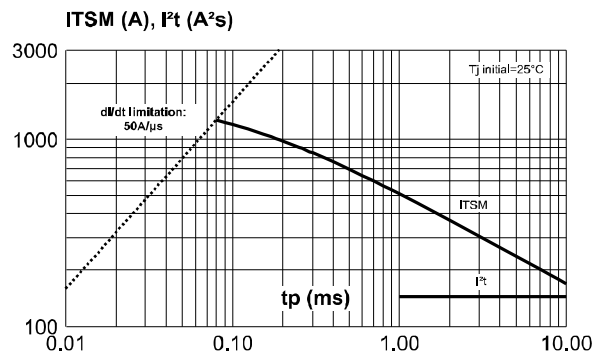


Fig. 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

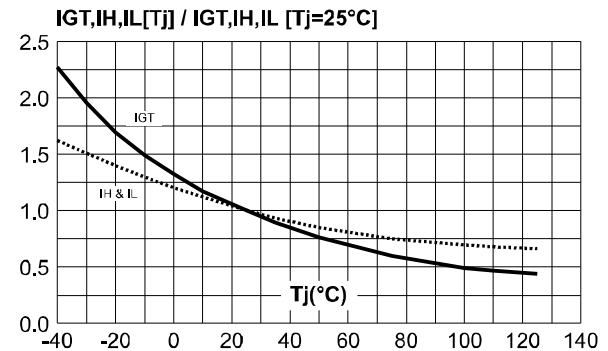


Fig. 8: Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values).

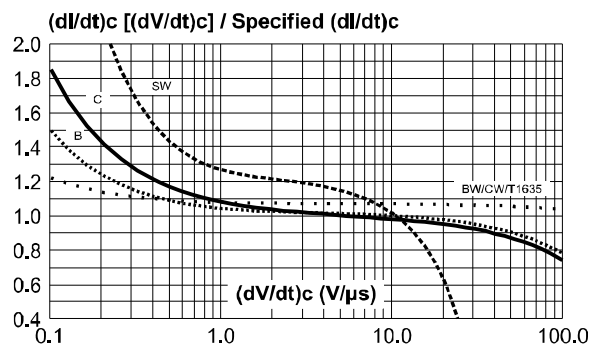


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.

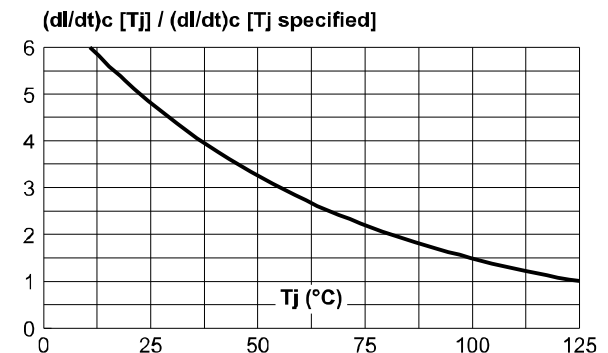
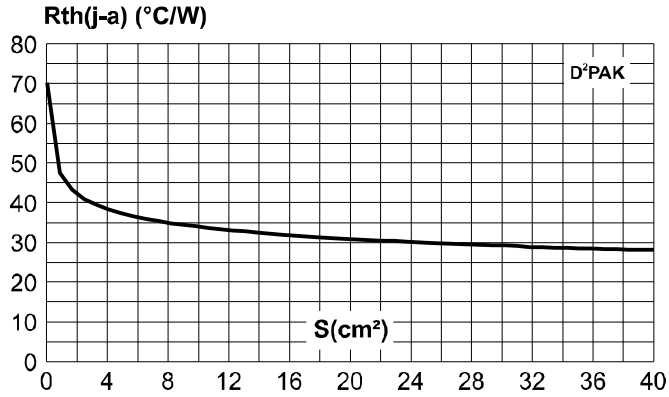
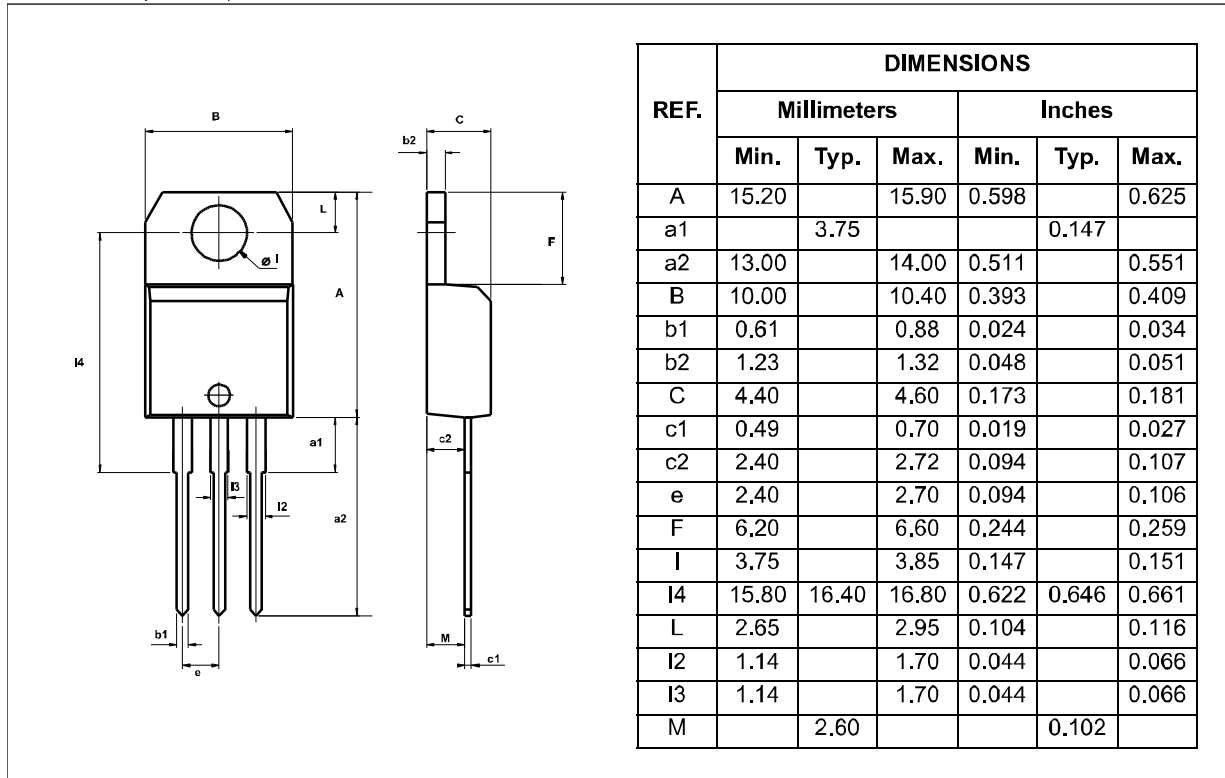


Fig. 10:D²PAK Thermal resistance junction to ambient versus copper surface under tab (printed circuit board FR4, copper thickness: 35 μm).

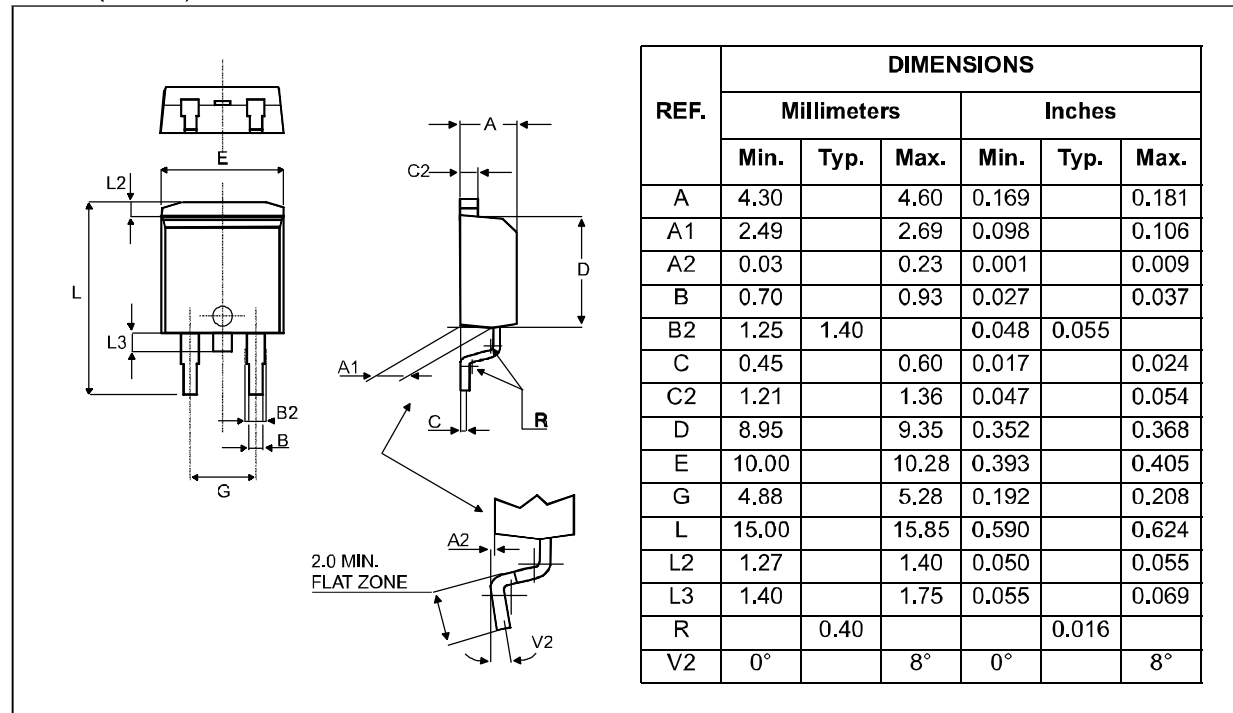


PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



PACKAGE MECHANICAL DATA

D²PAK (Plastic)


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