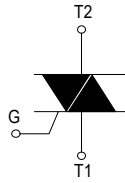
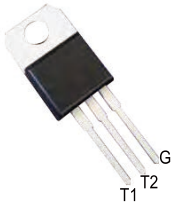
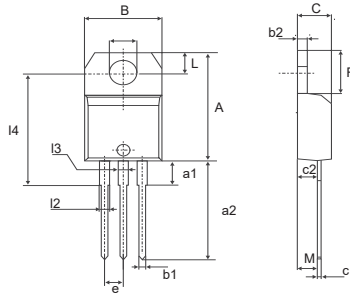


# BTA16

## Discrete Triacs(Isolated)



Dimensions TO-220AB



REF.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20	15.90	0.598			0.625
a1		3.75				0.147
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
ØI	3.75		3.85	0.147		0.151
H	15.80	16.40	16.80	0.622	0.648	0.661
L	2.65		2.95	0.104		0.116
Ø2	1.14		1.70	0.044		0.066
Ø3	1.14		1.70	0.044		0.066
M		2.60			0.102	



	$V_{DRM/R_{RM}}$	$V_{DSM/R_{SM}}$
	V	V
BTA16-200	200	300
BTA16-400	400	500
BTA16-600	600	700
BTA16-800	800	900
BTA16-1000	1000	1100
BTA16-1200	1200	1300

### ABSOLUTE MAXIMUM RATINGS

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

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

#### ■ SNUBBERLESS and LOGIC LEVEL(3 Quadrants)

Symbol	Test Conditions	Quadrant		BTA			Unit
				SW	CW	BW	
$I_{GT}$	$V_D = 12\text{V}$ $R_L = 33\Omega$	I - II - III	MAX.	10	35	50	mA
$V_{GT}$		I - II - III	MAX.	1.3			V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$ $T_j = 125^\circ\text{C}$	I - II - III	MIN.	0.2			V
$I_H$	$I_T = 500\text{mA}$		MAX.	15	35	50	mA
$I_L$	$I_G = 1.2 I_{GT}$	I - III	MAX.	25	50	70	mA
		II		30	60	80	
dV/dt	$V_D = 67\% V_{DRM}$ gate open $T_j = 125^\circ\text{C}$		MIN.	400	500	1000	V/ $\mu\text{s}$
(di/dt) <sub>c</sub>	Without snubber $T_j = 125^\circ\text{C}$		MIN.		8.5	14	A/ms

VISO>2500VAC 1min



# BTA16

## Discrete Triacs(Isolated)

### ■ STANDARD (4 Quadrants)

Symbol	Test Conditions	Quadrant		Value	Unit
$I_{GT}$	$V_D=12V$ $R_L=33\Omega$	I - II - III IV	MAX.	50 100	mA
$V_{GT}$		ALL	MAX.	1.3	V
$V_{GD}$	$V_D = V_{DRM}$ $R_L=3.3\Omega$ $T_J=125^\circ C$	ALL	MIN.	0.2	V
$I_H$	$I_T=500$ mA		MAX.	50	mA
$I_L$	$I_G=1.2 I_{GT}$	I - III - IV	MAX.	60	mA
		II		120	
dV/dt	$V_D=67\% V_{DRM}$ gate open $T_J=125^\circ C$		MIN.	400	V/ $\mu s$
(dV/dt) <sub>c</sub>	(dI/dt) <sub>c</sub> = 7A/ms $T_J=125^\circ C$		MIN.	10	V/ $\mu s$

### STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
$V_{TM}$	$I_{TM}=16A$ $tp=380\mu s$	$T_J = 25^\circ C$	MAX.	1.55	V
$V_{to}$	Threshold voltage	$T_J = 125^\circ C$	MAX.	0.85	V
$R_d$	Dynamic resistance	$T_J = 125^\circ C$	MAX.	60	m $\Omega$
$I_{DRM}$	$V_{DRM} = V_{RRM}$	$T_J = 25^\circ C$	MAX.	5	$\mu A$
$I_{RRM}$		$T_J = 125^\circ C$		1	mA

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	1.2	$^\circ C/W$
$R_{th(j-a)}$	Junction to ambient	60	$^\circ C/W$

### PRODUCT SELECTOR

Part Number	Voltage (xxx)		Sensitivity	Type	Package
	200 V	~ 1200 V			
BTA16	X	X	10~50 mA	Standard	TO-220AB

### OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTA16	BTA16	2 g	250	Bulk



# BTA16

## Discrete Triacs(Isolated)

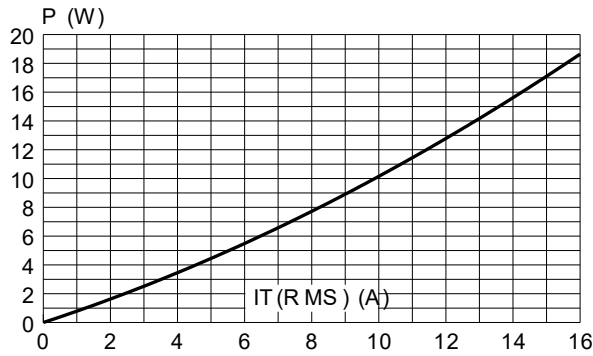


Fig.1: Maximum power dissipation versus RMS on-state current (full cycle).

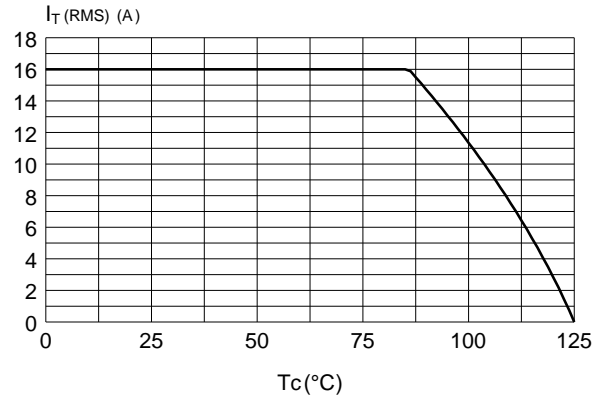


Fig.2-1: RMS on-state current versus case temperature (full cycle).

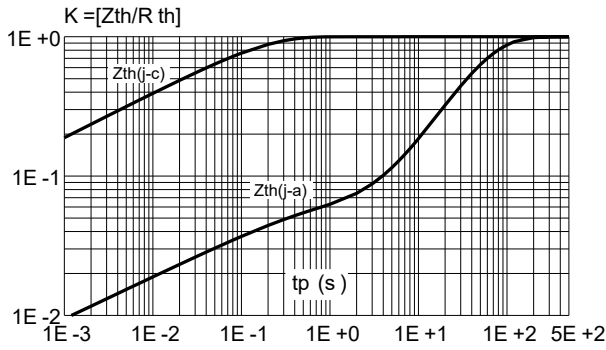


Fig.3: Relative variation of thermal impedance versus pulse duration.

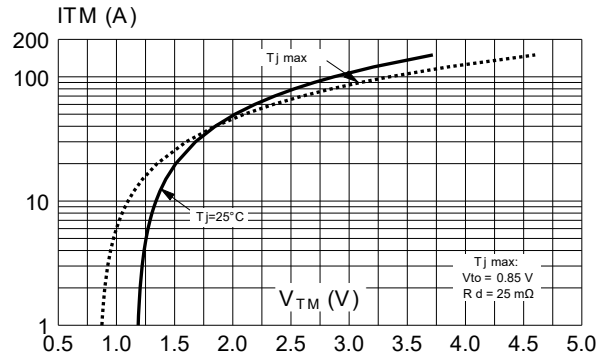


Fig.4: On-state characteristics (maximum values)

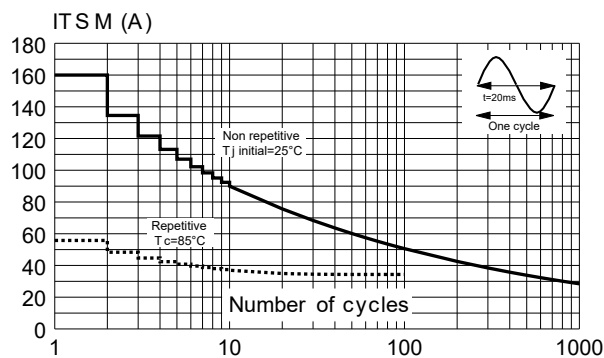


Fig.5: Surge peak on-state current versus number of cycles.

# BTA16

## Discrete Triacs(Isolated)

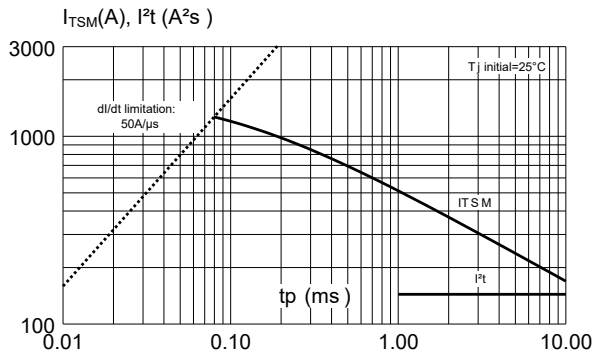


Fig.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $tp < 10$ ms, and corresponding value of  $I^2t$ .

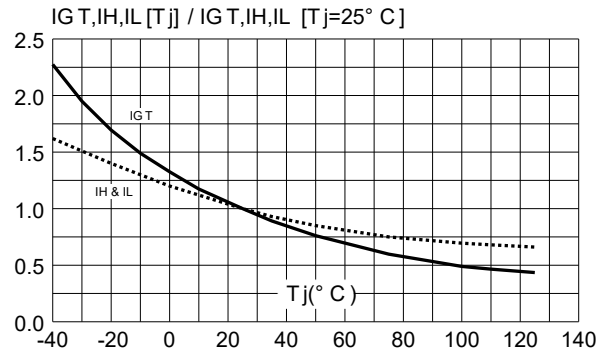


Fig.7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

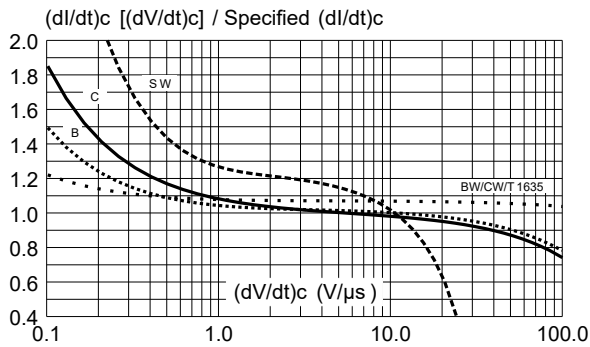


Fig.8: Relative variation of critical rate of decrease of main current versus  $(dV/dt)_c$  (typical values).

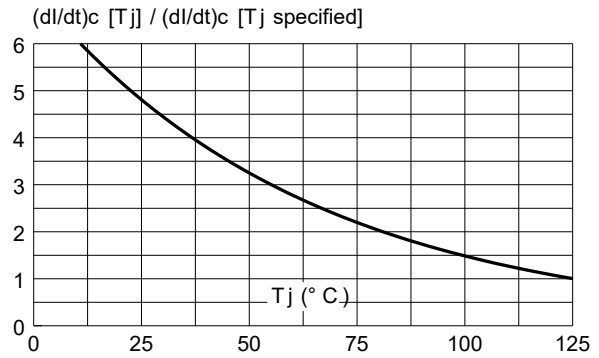


Fig.9: Relative variation of critical rate of decrease of main current versus junction temperature.