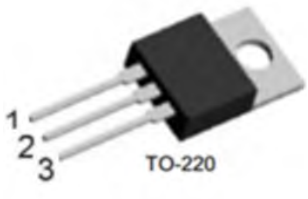
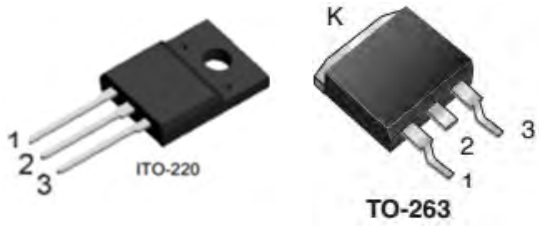
DESCRIPTION:

BTB16 Triacs is fabricated using separation diffusion processes ,the junction termination areas are passivated with glass. Thanks to highly dv/dt and reliability,the Triacs series is suitable for domestic lighting ,heating and motor speed controllers.

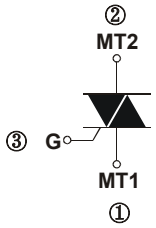




MAIN FEATURES

Symbol	Value	Unit
V_{DRM}/V_{RRM}	600 / 800	V
$I_{T(RMS)}$	16	A

Symbol



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40 - 150	℃
Operating junction temperature range		T_j	-40 - 125	℃
Repetitive peak off-state voltage (T_j=25℃)		V_{DRM}	600 / 800	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	600 / 800	V
Non repetitive surge peak Off-state voltage		V_{DSM}	V_{DRM} +100	V
Non repetitive peak reverse voltage		V_{RSM}	V_{RRM} +100	V
RMS on-state current	T_C=105℃	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	160	A
I^2t value for fusing (tp=10ms)		I^2t	144	A^2s

Electrical characteristics (T_j = 25 °C, unless otherwise specified)
Snubberless and logic level (3 quadrants)

Symbol	Test conditions	Quadrant		Value			Unit
				SW	CW	BW	
I_{GT} (1)	V_D = 12 V R_L = 33 Ω	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 kΩ T_j = 125 °C	I - II - III	Min.	0.2			V
I_H	I_T = 500 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 (2)	V_D = 67 %V_{DRM} gate open	T_j = 125 °C	Min.	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	14	

1. Minimum IGT is guaranted at 5% of I_{GT} max

Electrical characteristics (T_j = 25 °C, unless otherwise specified)
standard (4 quadrants)

Symbol	Test conditions	Quadrant		Value		Unit
				C	B	
I_{GT} (1)	V_D = 12 V R_L = 33 Ω	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 kΩ T_j = 125 °C	ALL	Min.	0.2		V
I_H	I_T = 500 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 °C	Min.	200	400	V/µs
(dV/dt)c (2)	(dI/dt)c = 7 A/ms	T_j = 125 °C	Min.	5	10	V/µs

1. Minimum IGT is guaranted at 5% of I_{GT} max

Static characteristics

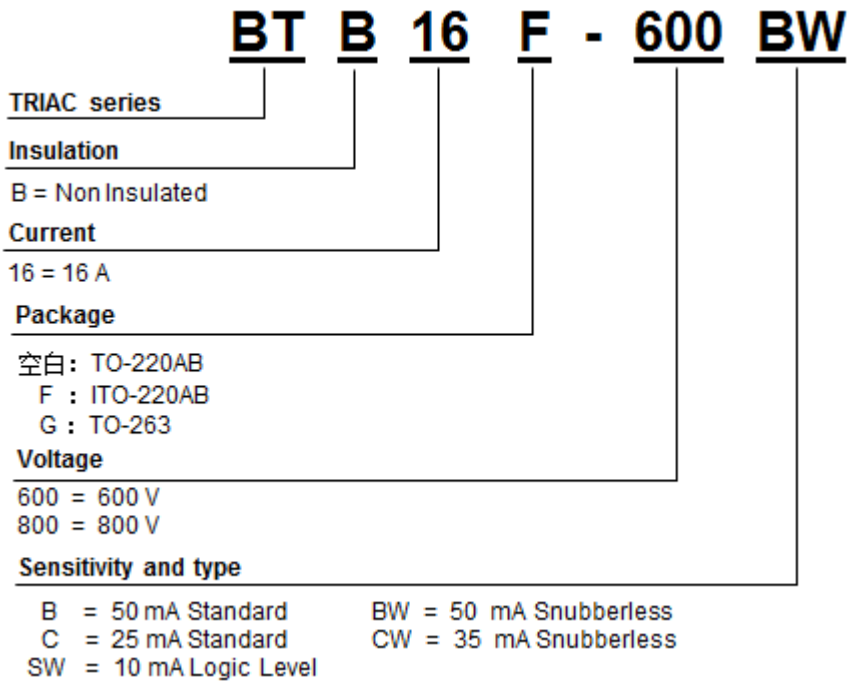
Symbol	Test conditions			Value	Unit
V_T (2)	I_{TM} = 22.5 A t_p = 380 µs	T_j = 25 °C	Max.	1.55	V
V_{to} (2)	Threshold voltage	T_j = 125 °C	Max.	0.85	V
R_d (2)	Dynamic resistance	T_j = 125 °C	Max.	25	mΩ
I_{DRM} I_{RRM}	V_{DRM} = V_{RRM}	T_j = 25 °C	Max.	5	µA
		T_j = 125 °C		2	mA

Thermal resistance

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case (AC)		D^2PAK / TO-220AB	1.2	°C/W
			ITO-220AB insulated	3.9	
$R_{th(j-a)}$	Junction to ambient	$S^{(1)}$ = 1 cm^2	D^2PAK	45	°C/W
			TO-220AB	60	

1. S = Copper surface under tab

ORDERING INFORMATION



CHARACTERISTICS

Figure 1. Maximum power dissipation versus on-state rms current (full cycle)

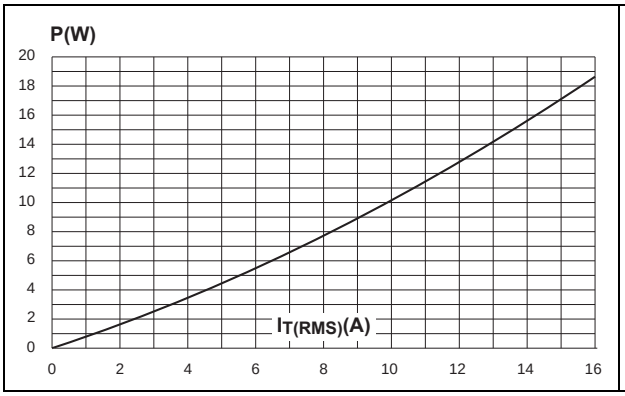


Figure 2. On-state rms current versus case temperature (full cycle)

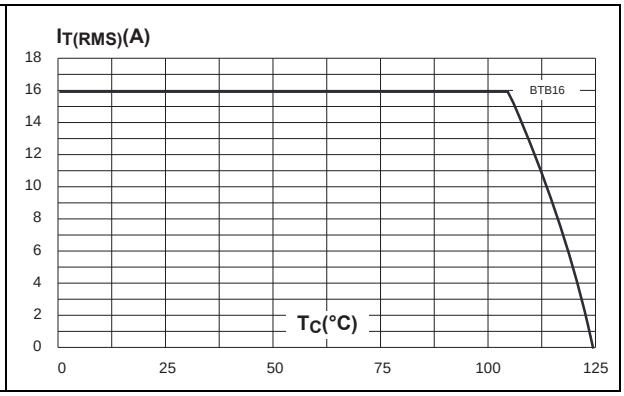


Figure 3. On-state rms current versus ambient temperature (full cycle)

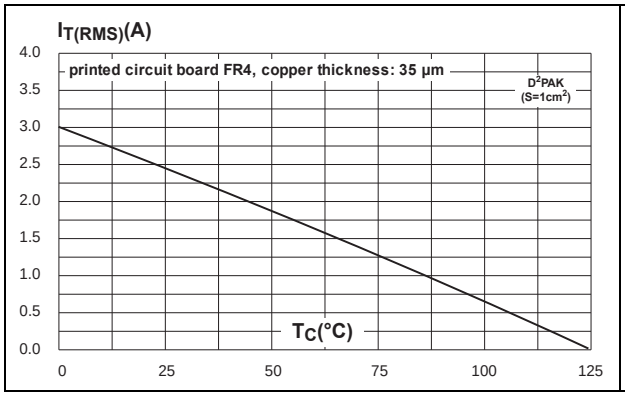


Figure 4. Relative variation of thermal impedance versus pulse duration

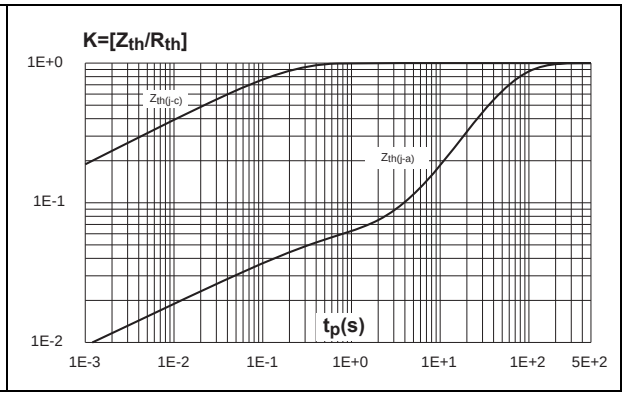


Figure 5. On-state characteristics (maximum values)

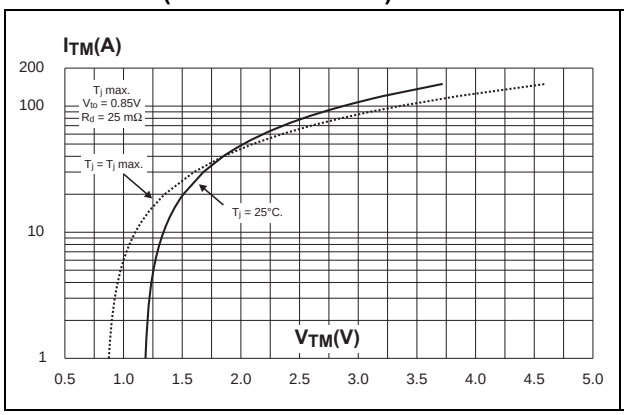
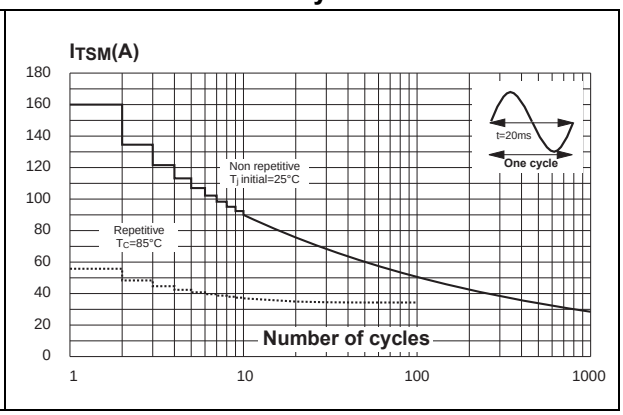


Figure 6. Surge peak on-state current versus number of cycles



CHARACTERISTICS

Figure 7. Non-repetitive surge peak on-state current for a sinusoidal

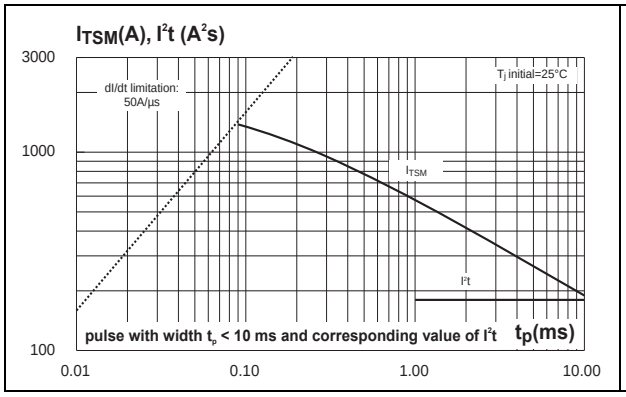


Figure 8. Relative variation of gate trigger current

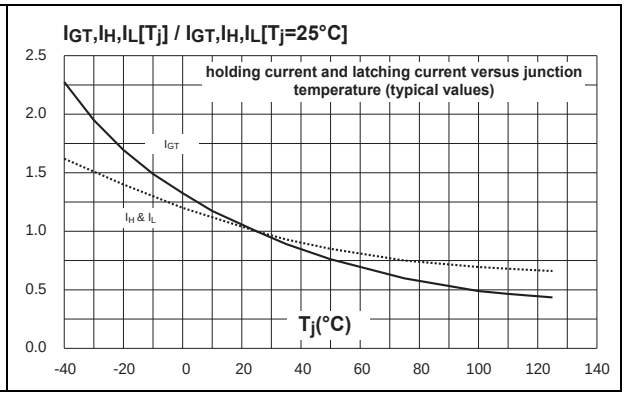


Figure 9. Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values)

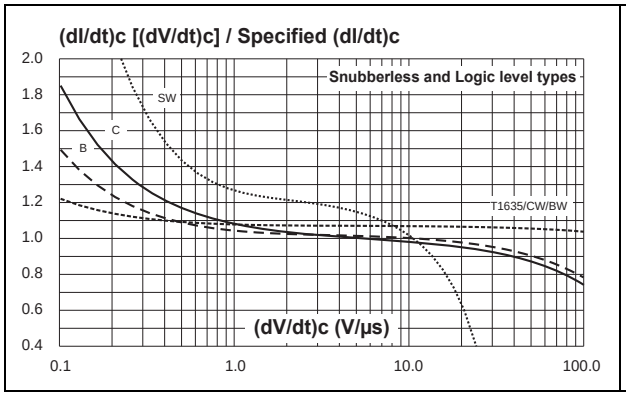


Figure 10. Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values)

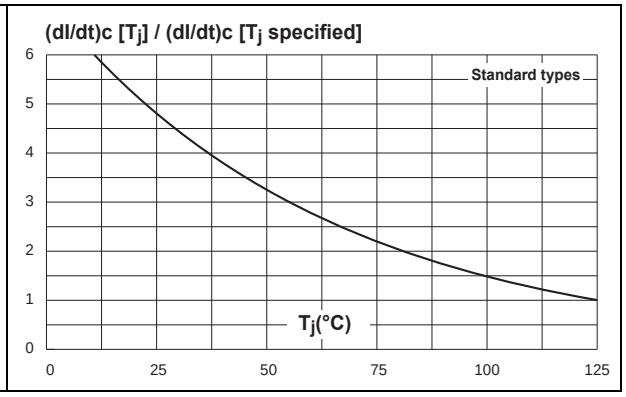
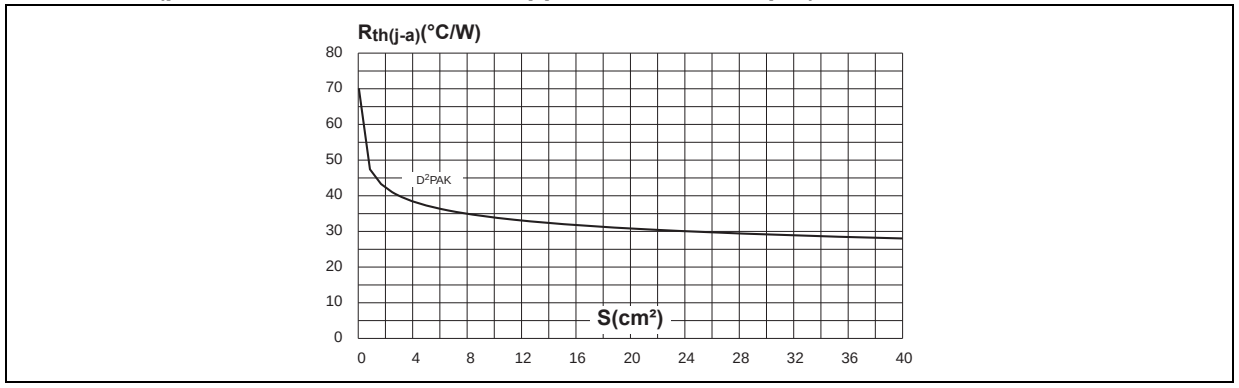
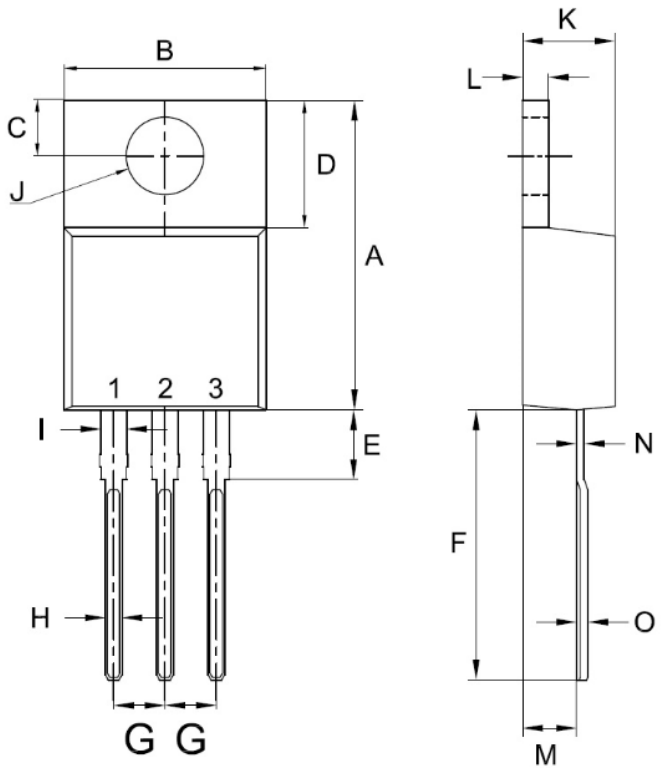


Figure 11. TO-263 thermal resistance junction to ambient versus copper surface under tab (printed circuit board FR4, copper thickness: 35 µm)

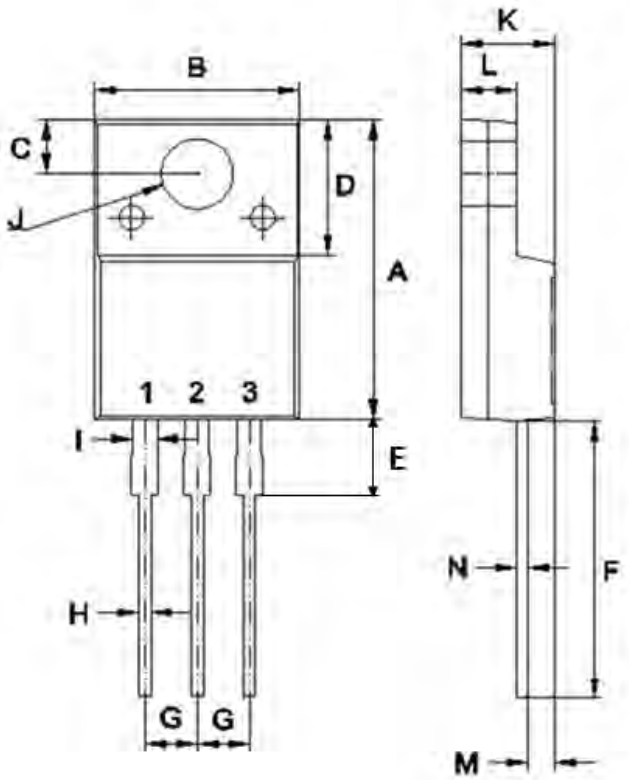


TO-220AB Mechanical Drawing



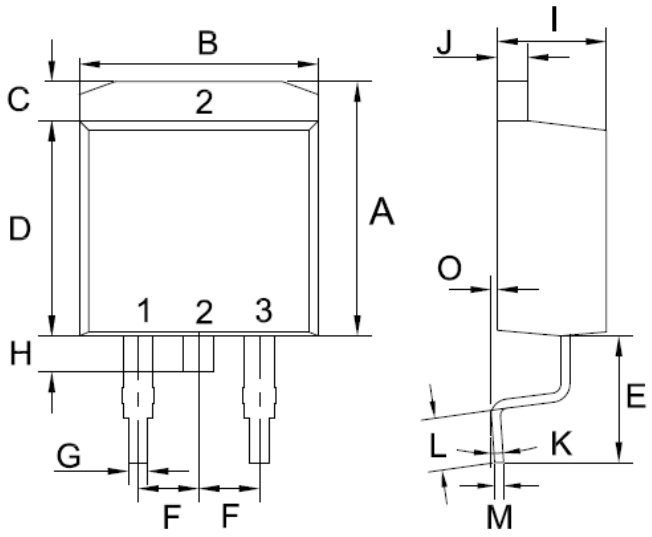
TO-220AB Unit:mm		
DIM	MIN	MAX
A	14.80	15.80
B	9.57	10.57
C	2.54	2.94
D	5.80	6.80
E	2.95	3.95
F	12.70	13.40
G	2.34	2.74
H	0.51	1.11
I	0.97	1.57
J	3.54ϕ	4.14ϕ
K	4.27	4.87
L	1.07	1.47
M	2.65	3.05
N	0.30	0.46
O	0.48	0.64

ITO-220AB Mechanical Drawing



ITO-220AB Unit:mm		
DIM	MIN	MAX
A	14.50	15.50
B	9.50	10.50
C	2.50	2.90
D	6.30	7.30
E	3.30	4.30
F	13.00	14.00
G	2.35	2.75
H	0.30	0.90
I	0.90	1.50
J	3.20	3.80
K	4.24	4.84
L	2.52	2.92
M	1.09	1.49
N	0.47	0.64

TO-263 Mechanical Drawing



TO-263 (D^2 PAK) Unit:mm		
DIM	MIN	MAX
A	10.44	10.84
B	9.81	10.21
C	1.44	1.84
D	8.80	9.20
E	4.46	4.66
F	2.44	2.64
G	0.61	1.01
H	0.70	1.30
I	4.27	4.87
J	1.07	1.47
K	0°	8°
L	2.10	2.50
M	0.30	0.46
O	0	0.25