

BTA/BTB24, BTA25, BTA26 and T25 Series

ELECTRICAL CHARACTERISTICS (T_j = 25°C, unless otherwise specified)

■ SNUBBERLESS™ (3 Quadrants) T25-G, BTA/BTB24...W, BTA25...W, BTA26...W

Symbol	Test Conditions	Quadrant		T25	BTA/BTB		Unit
				T2535	CW	BW	
I _{GT} (1)	V _D = 12 V R _L = 33 Ω	I - II - III	MAX.	35	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.	50	50	75	mA
I _L	I _G = 1.2 I _{GT}	I - III	MAX.	70	70	80	mA
		II		80	80	100	
dV/dt (2)	V _D = 67 % V _{DRM} gate open T _j = 125°C		MIN.	500	500	1000	V/μs
(dI/dt) _c (2)	Without snubber T _j = 125°C		MIN.	13	13	22	A/ms

■ STANDARD (4 Quadrants): BTA25...B, BTA26...B

Symbol	Test Conditions	Quadrant		Value	Unit
I _{GT} (1)	V _D = 12 V R _L = 33 Ω	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 kΩ T _j = 125°C	ALL	MIN.	0.2	V
I _H (2)	I _T = 500 mA		MAX.	80	mA
I _L	I _G = 1.2 I _{GT}	I - III - IV	MAX.	70	mA
		II		160	
dV/dt (2)	V _D = 67 % V _{DRM} gate open T _j = 125°C		MIN.	500	V/μs
(dV/dt) _c (2)	(dI/dt) _c = 13.3 A/ms T _j = 125°C		MIN.	10	V/μs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V _{TM} (2)	I _{TM} = 35 A tp = 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.	16	mΩ
I _{DRM}	V _{DRM} = V _{RRM}	T _j = 25°C	MAX.	5	μA
I _{RRM}		T _j = 125°C		3	mA

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

Note 2: for both polarities of A2 referenced to A1

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case (AC)		D PAK TO-220AB	°C/W
			RD91 (Insulated) TOP3 Insulated	
			TO-220AB Insulated	
$R_{th(j-a)}$	Junction to ambient	S = 1 cm	D PAK	°C/W
			TOP3 Insulated	
			TO-220AB	
			TO-220AB Insulated	

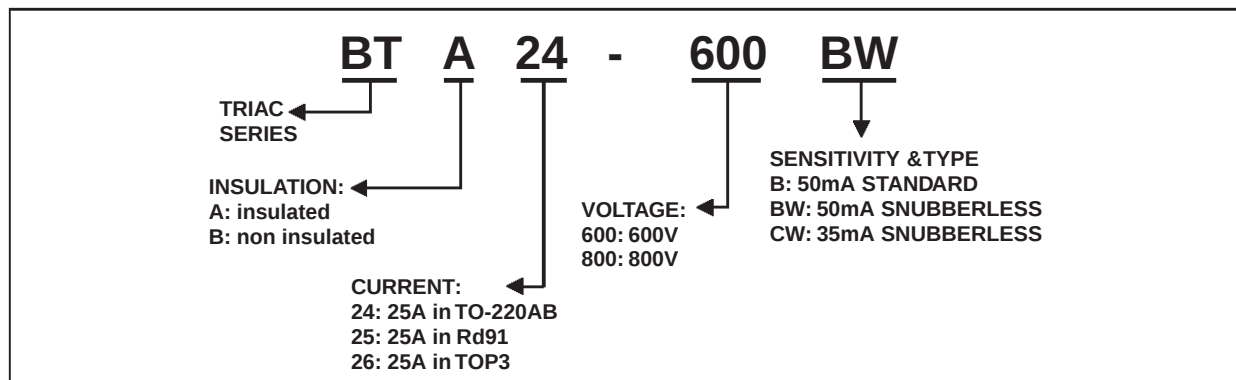
S: Copper surface under tab

PRODUCT SELECTOR

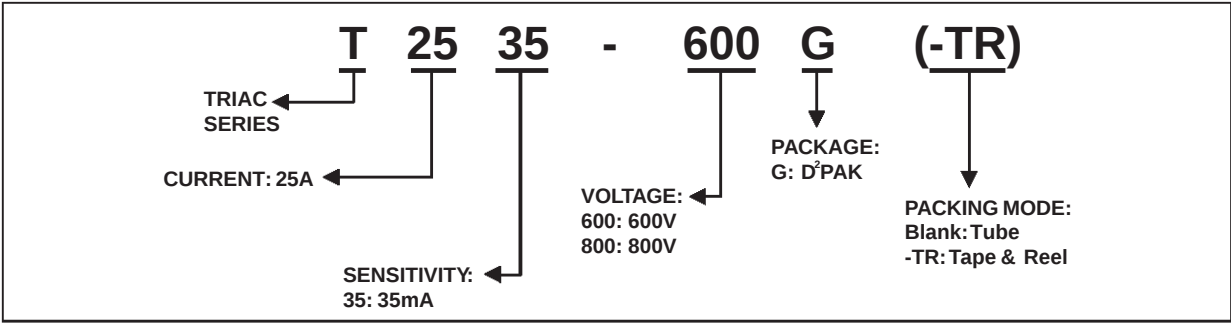
Part Number	Voltage (xxx)		Sensitivity	Type	Package
	600 V	800 V			
BTA/BTB24-xxxBW	X	X	50 mA	Snubberless	TO-220AB
BTA/BTB24-xxxCW	X	X	35 mA	Snubberless	TO-220AB
BTA25-xxxB	X	X	50 mA	Standard	RD-91
BTA25-xxxBW	X	X	50 mA	Snubberless	RD-91
BTA25-xxxCW	X	X	35 mA	Snubberless	RD-91
BTA26-xxxB	X	X	50 mA	Standard	TOP3 Ins.
BTA26-xxxBW	X	X	50 mA	Snubberless	TOP3 Ins.
BTA26-xxxCW	X	X	35 mA	Snubberless	TOP3 Ins.
T2535-xxxG	X	X	35 mA	Snubberless	D PAK

BTB: Non insulated TO-220AB package

ORDERING INFORMATION



BTA/BTB24, BTA25, BTA26 and T25 Series



OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTA/BTB24-xxxyz	BTA/BTB24xxxyz	2.3 g	250	Bulk
BTA25-xxxyz	BTA25xxxyz	20 g	25	Bulk
BTA26-xxxyz	BTA26xxxyz	4.5 g	120	Bulk
T2535-xxxG	T2535xxxG	1.5 g	50	Tube
T2535-xxxG-TR	T2535xxxG	1.5 g	1000	Tape & reel

Note: xxx= voltage, y = sensitivity, z = type



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

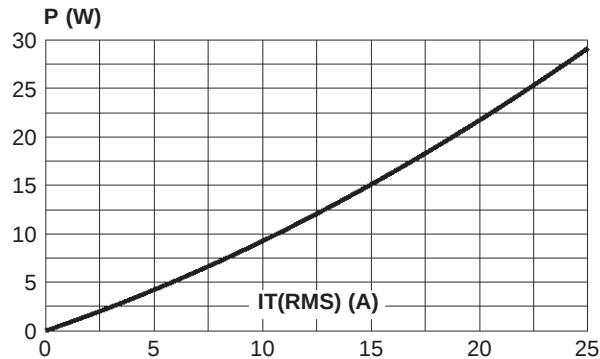


Fig. 2-1: RMS on-state current versus case temperature (full cycle).

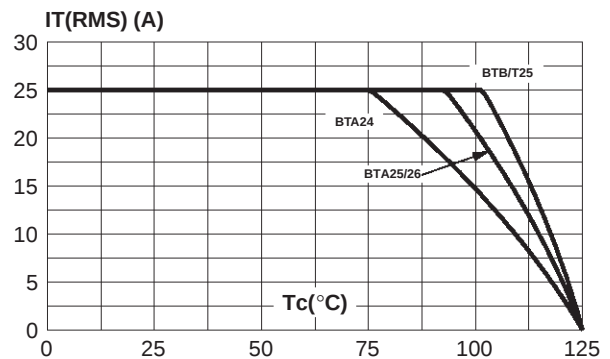


Fig. 2-2: D PAK RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μ m), full cycle.

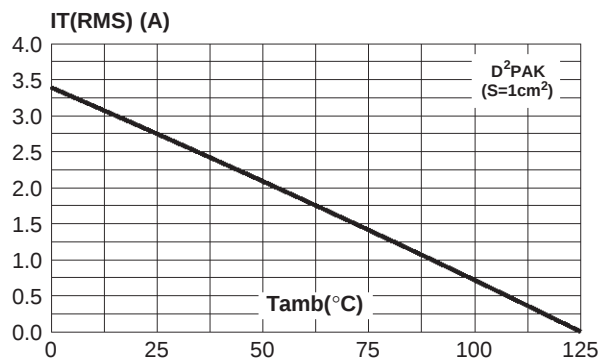


Fig. 3: Relative variation of thermal impedance versus pulse duration.

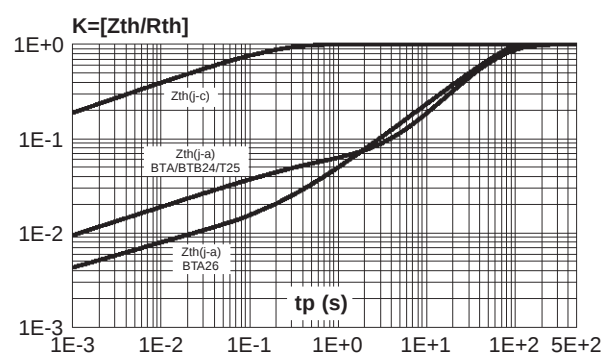


Fig. 4: On-state characteristics (maximum values).

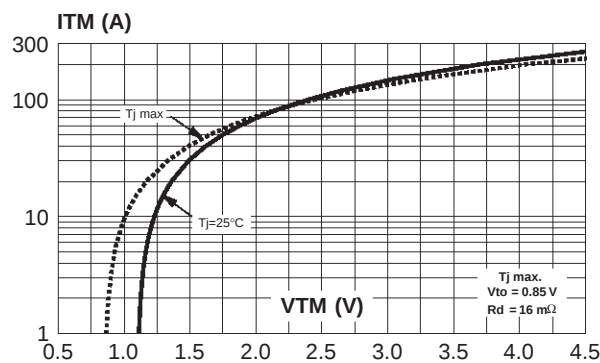


Fig. 5: Surge peak on-state current versus number of cycles.

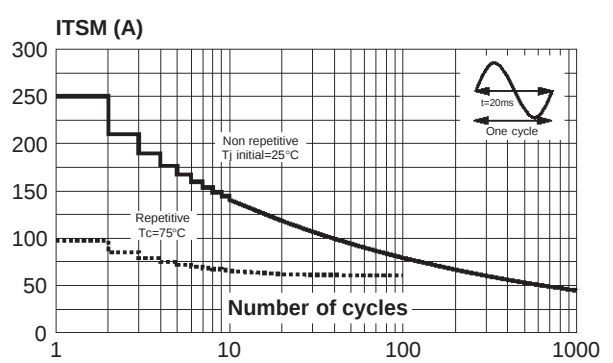


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I_t .

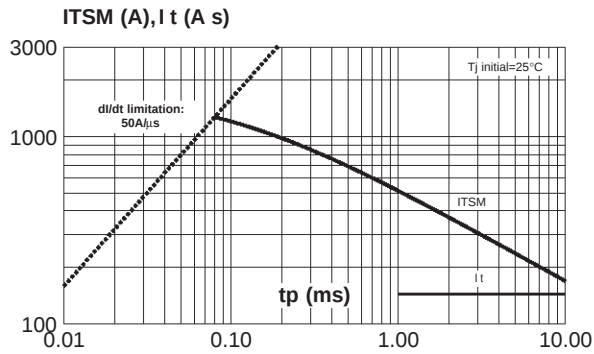


Fig. 8: Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values).

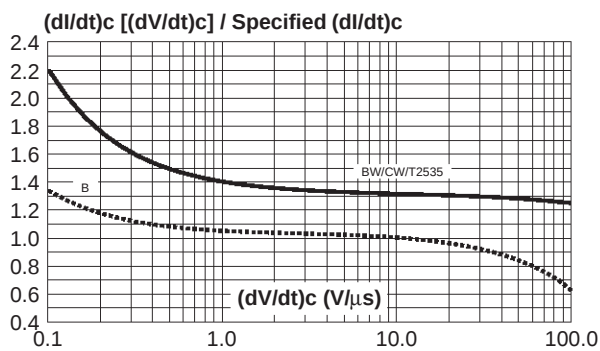


Fig. 10: D PAK Thermal resistance junction to ambient versus copper surface under tab (printed circuit board FR4, copper thickness: $35\text{ }\mu\text{m}$).

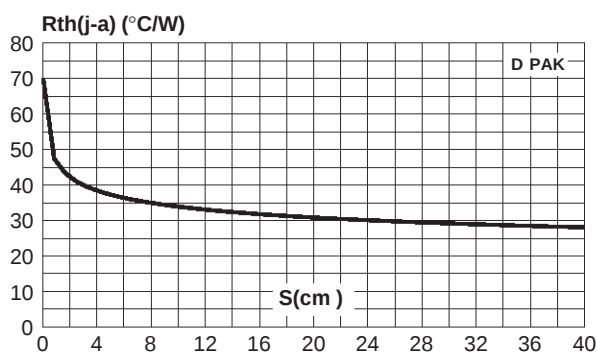


Fig. 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

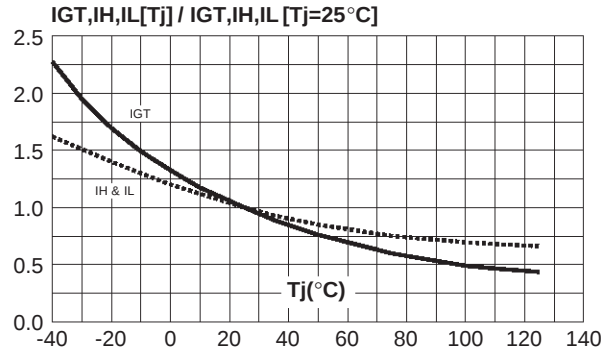
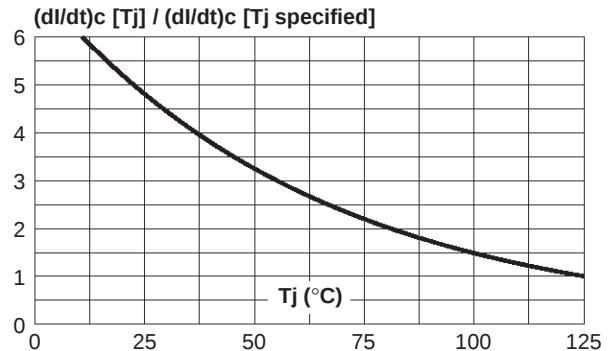
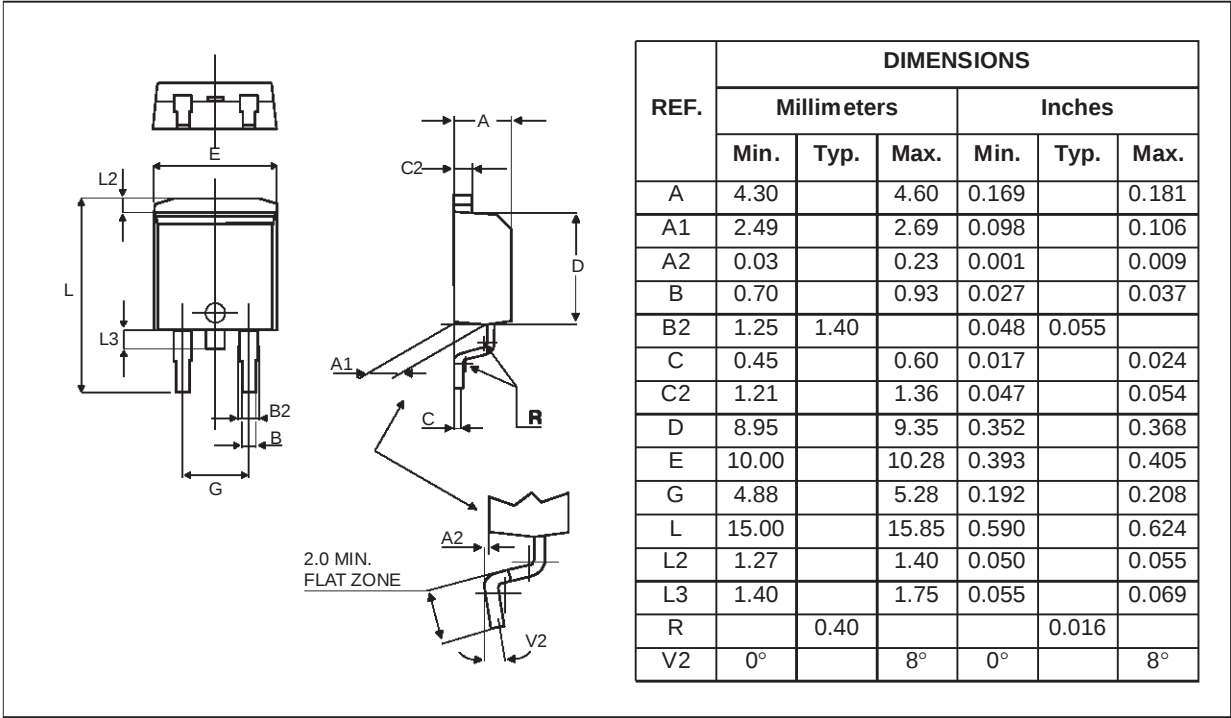


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.



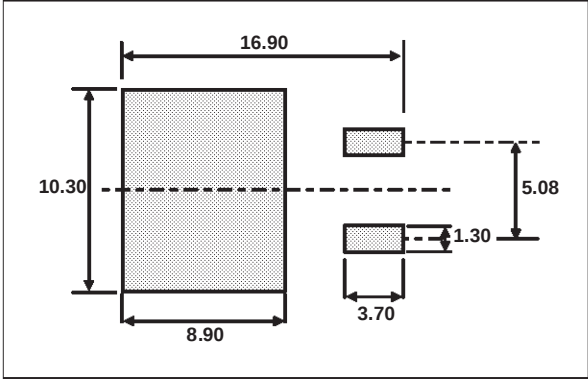
PACKAGE MECHANICAL DATA

D PAK (Plastic)



FOOTPRINT DIMENSIONS (in millimeters)

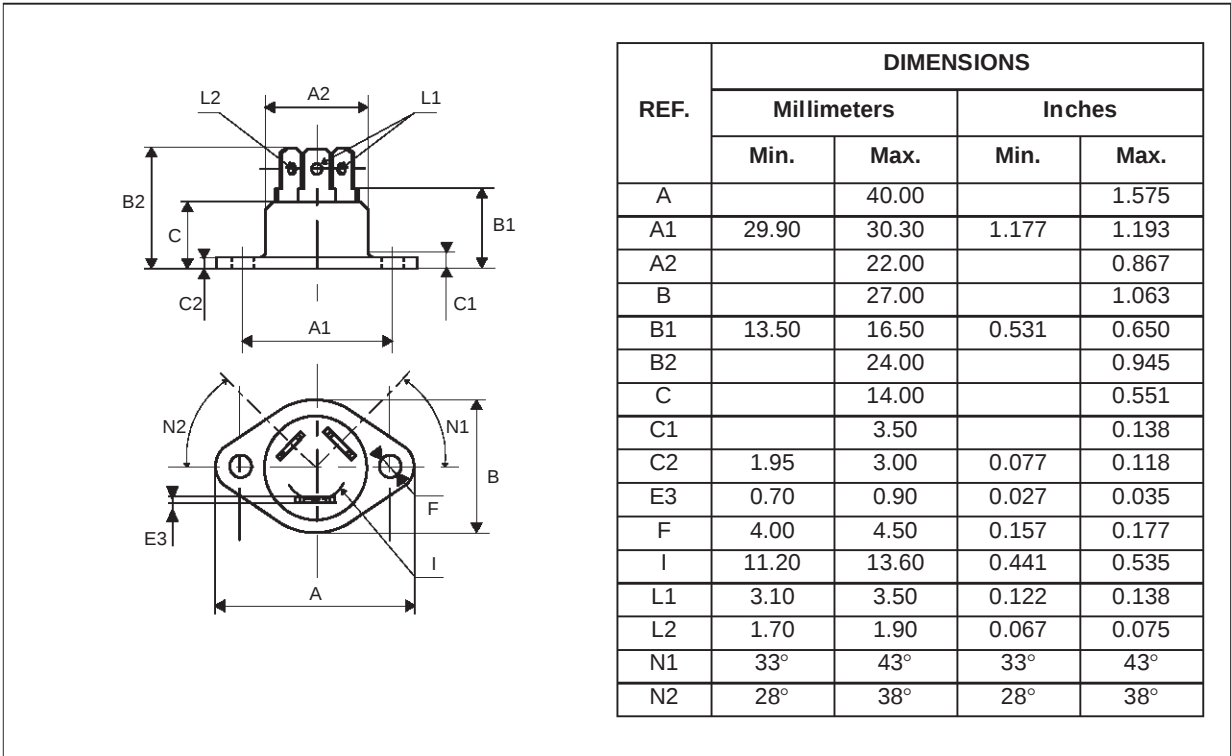
D PAK (Plastic)



BTA/BTB24, BTA25, BTA26 and T25 Series

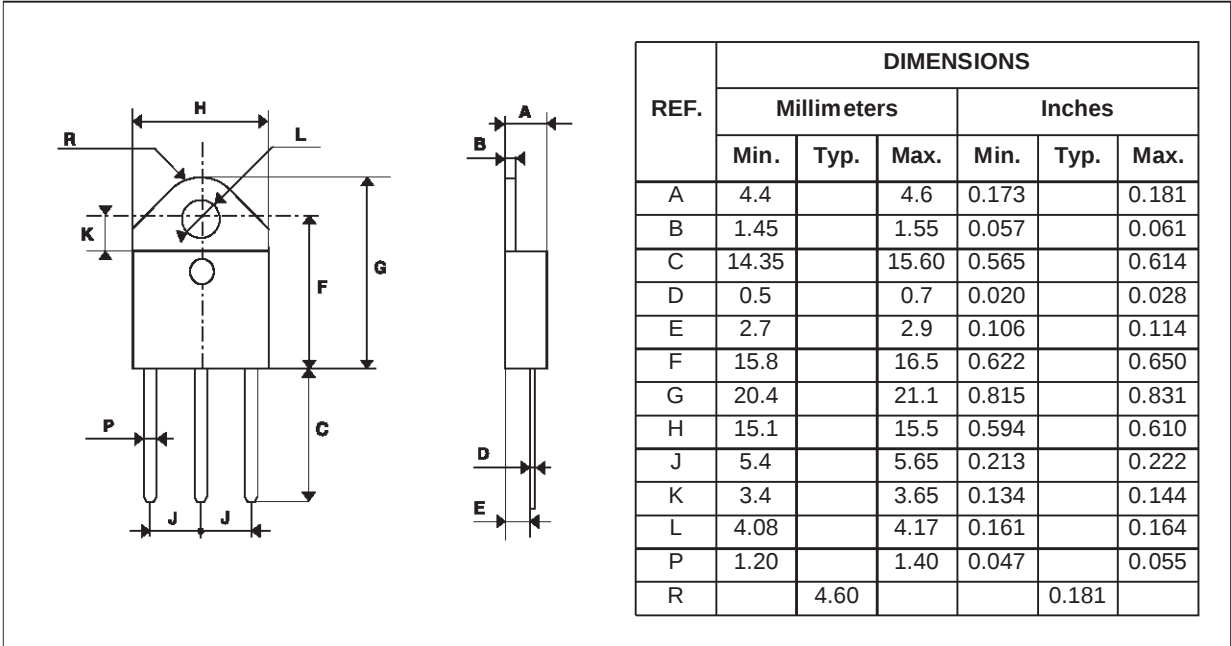
PACKAGE MECHANICAL DATA

RD91 (Plastic)



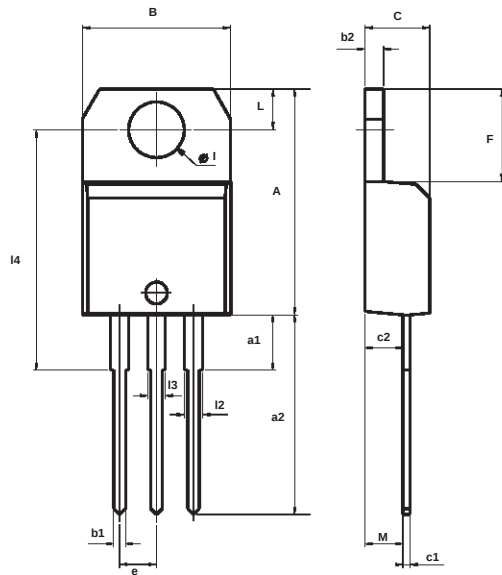
PACKAGE MECHANICAL DATA

TOP3 (Plastic)



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



REF.	DIMENSIONS					
	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
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

© The ST logo is a registered trademark of STMicroelectronics

© 2001 STMicroelectronics - Printed in Italy - All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A

<http://www.st.com>

