imall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832 Email & Skype: info@chipsmall.com Web: www.chipsmall.com Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





BYT30G-400

HIGH EFFICIENCY FAST RECOVERY DIODES

MAIN PRODUCT CHARACTERISTICS

IF(AV)	30 A
V _{RRM}	400 V
trr	50 ns
VF	1.4 V

FEATURES AND BENEFITS

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- SMD PACKAGE

DESCRIPTION

Single rectifier suited for freewheeling in converters and motor control circuits. Packaged in D^2PAK , this surface mount device is

intended for use in high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	
VRRM	Repetitive peak reverse voltage	400	V	
I _{F(RMS)}	RMS forward current	MS forward current		
IF(AV)	Average forward current	30	A	
I _{FSM}	Surge non repetitive forward current	tp=10ms sinusoidal	350	A
IFRM	Repetitive peak forward current	tp = 5μs f = 5 kHz	280	A
Tstg Tj	Storage and junction temperature range		- 40 to + 150	°C

October 1999 - Ed: 3A



BYT30G-400

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case	1	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
I _R *	Reverse leakage current	$V_R = V_{RRM}$ $T_j = 25^{\circ}C$				35	μA
			T _j = 100°C			6	mA
VF **	Forward voltage drop	I _F = 30 A	$T_j = 100^{\circ}C$			1.4	V
		I _F = 30 A	$T_j = 25^{\circ}C$			1.5	

Pulse test : $tp = 5 \text{ ms}, \delta < 2 \%$

** tp = 380 μs, δ < 2 %

To evaluate the conduction losses use the following equation : P = 1.1 x $I_{F(AV)}$ + 0.0095 ${I_F}^2({\sf RMS})$

RECOVERY CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
t _{rr}	Reverse recovery time	Tj = 25°C Irr = 0.25 A	I _F = 0.5A I _R = 1A			50	ns
		$T_j = 25^{\circ}C$ dI _F /dt = -15A/µs	$I_F = 1A$ $V_R = 30V$			100	

TURN-OFF SWITCHING CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
tirm	Maximum reverse	$T_j = 100^\circ C$	dI _F /dt = -120A/µs			75	ns
	recovery time	I _F = 30 A	dI _F /dt = -240A/µs		50		
I _{RM}	Maximum reverse	V _{CC} = 200 V	dI _F /dt = -120A/µs			9	ns
	recovery current	Lp < 0.05 μH	dI _F /dt = -240A/µs		12		
C factor	Turn-off overvoltage coefficient	$T_j = 100^{\circ}C$ $V_{CC} = 60 V$ $dI_F/dt = -30A/\mu$	$I_{F} = I_{F(AV)}$ $L_{D} = 1 \ \mu H$		3.3		/

PIN OUT configuration in D²PAK:

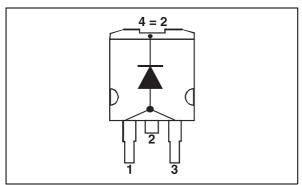


Fig.1 : Average forward power dissipation versus average forward current.

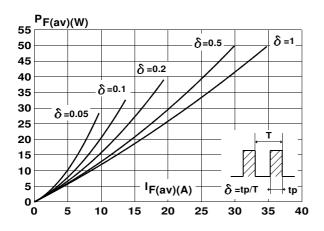


Fig.3 : Forward voltage drop versus forward current (maximum values).

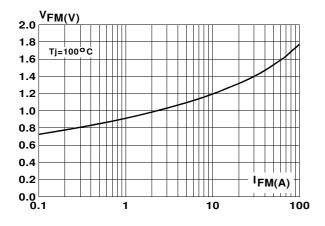
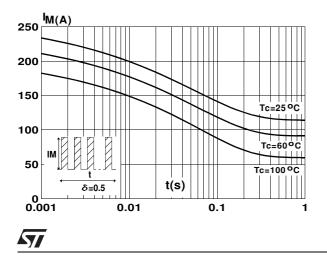
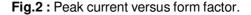


Fig.5: Non repetitive surge peak forward current versus overload duration.





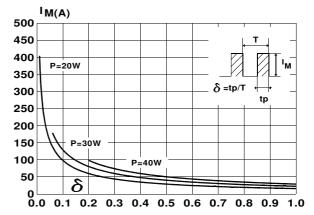


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

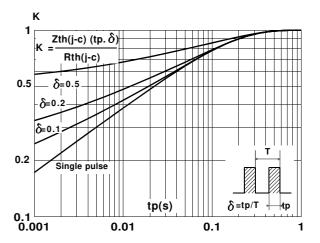
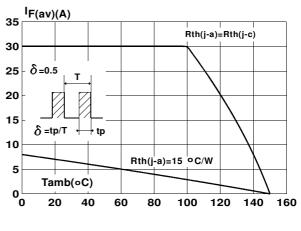


Fig.6 : Average current versus ambient temperature. (δ : 0.5)



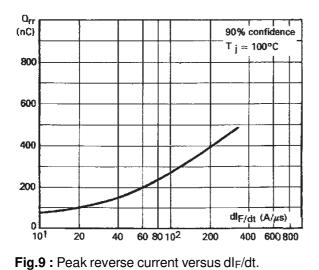


Fig.7 : Reverse recovery charge versus dl_F/dt.

Fig.8 : Forward recovery times versus dl_F/dt.

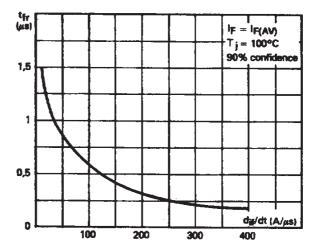


Fig.10 : Peak forward voltage versus dl_F/dt.

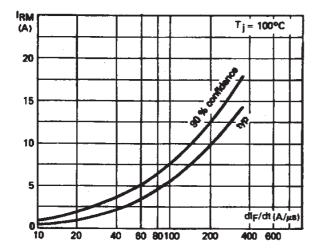
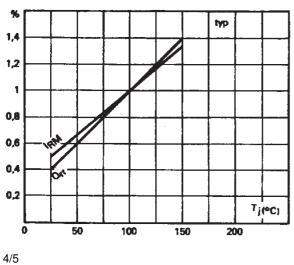
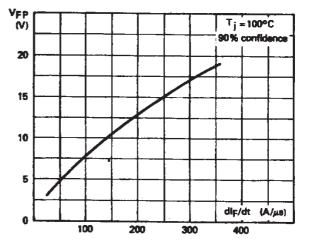
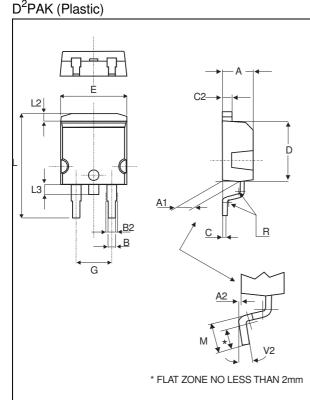


Fig.11: Dynamic parameters versus junction temperature.



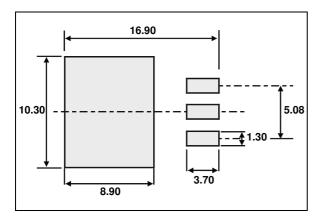


PACKAGE MECHANICAL DATA



	DIMENSIONS				
REF.	Millimeters		Inches		
	Min.	Min. Max.		Max.	
А	4.40	4.60	0.173	0.181	
A1	2.49	2.69	0.098	0.106	
A2	0.03	0.23	0.001	0.009	
В	0.70	0.93	0.027	0.037	
B2	1.14	1.70	0.045	0.067	
С	0.45	0.60	0.017	0.024	
C2	1.23	1.36	0.048	0.054	
D	8.95	9.35	0.352	0.368	
Е	10.00	10.40	0.393	0.409	
G	4.88	5.28	0.192	0.208	
L	15.00	15.85	0.590	0.624	
L2	1.27	1.40	0.050	0.055	
L3	1.40	1.75	0.055	0.069	
М	2.40	3.20	0.094	0.126	
R	0.40 typ.		0.016	6 typ.	
V2	0°	8°	0°	8°	

FOOT PRINT (in millimeters)



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

© 1999 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

