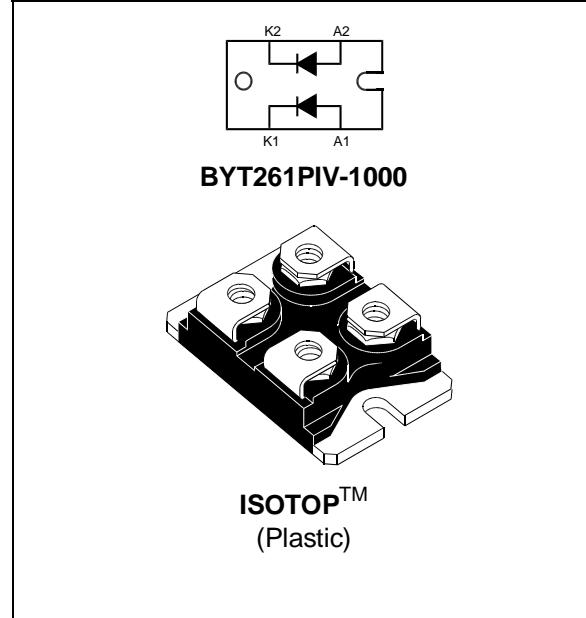


FAST RECOVERY RECTIFIER DIODES

FEATURES

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED PACKAGE :
Insulating voltage = 2500 V_{RMS}
Capacitance = 45 pF



DESCRIPTION

Dual high voltage rectifiers suited for Switch Mode Power Supplies and other power converters.
The devices are packaged in ISOTOP.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			1000	V
I_{FRM}	Repetitive peak forward current	$t_p \leq 10\mu s$		750	A
$I_F(RMS)$	RMS forward current		Per diode	140	A
$I_{F(AV)}$	Average forward current	$T_c=60^\circ C$ $\delta = 0.5$	Per diode	60	A
I_{FSM}	Surge non repetitive forward current	$t_p=10ms$ sinusoidal	Per diode	400	A
T_{stg} T_j	Storage and junction temperature range			- 40 to + 150 - 40 to + 150	°C °C

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BYT261PIV-1000

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case	Per diode	0.7
		Total	0.4
Rth (c)	Coupling	0.1	°C/W

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_j(\text{diode } 1) = P(\text{diode}) \times Rth(\text{Per diode}) + P(\text{diode } 2) \times Rth(c)$$

ELECTRICAL CHARACTERISTICS (Per diode)

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
V _F *	T _j = 25°C	I _F = 60 A			1.9	V
	T _j = 100°C				1.8	
I _R **	T _j = 25°C	V _R = V _{RRM}			100	μA
	T _j = 100°C				6	

Pulse test : * tp = 380 μs, duty cycle < 2 %

** tp = 5 ms, duty cycle < 2 %

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr	T _j = 25°C	I _F = 0.5A	I _{rr} = 0.25A		70	ns
		I _R = 1A			170	
		I _F = 1A	dI _F /dt = -15A/μs			
		V _R = 30V				

TURN-OFF SWITCHING CHARACTERISTICS (Without serie inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t _{IRM}	dl _F /dt = -240A/μs	V _{CC} = 200V L _p ≤ 0.05μH see fig. 11	I _F = 60A		200	ns
	dl _F /dt = -480A/μs		T _j = 100°C		120	
I _{RM}	dl _F /dt = -240A/μs				40	A
	dl _F /dt = -480A/μs				44	

TURN-OFF OVERVOLTAGE COEFFICIENT (With serie inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
C = $\frac{V_{RP}}{V_{CC}}$	T _j = 100°C V _{CC} = 200V I _F =I _{F(AV)} dl _F /dt = -60A/μs L _p = 2.5μH see fig.12			3.3	4.5	/

To evaluate the conduction losses use the following equation :

$$P = 1.47 \times I_{F(AV)} + 0.005 \times I_{F}^2(\text{RMS})$$

Fig.1 : Low frequency power losses versus average current.

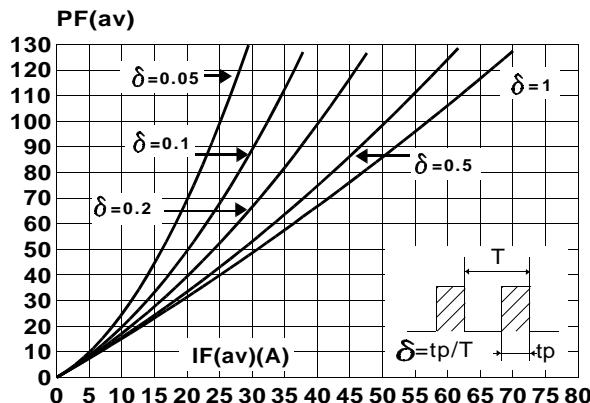


Fig.3 : Non repetitive peak surge current versus overload duration.

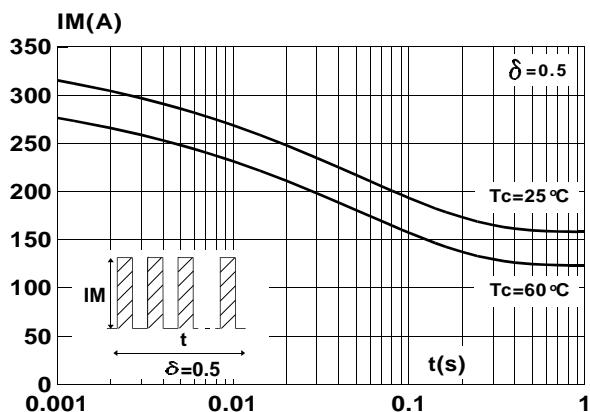


Fig.5 : Voltage drop versus forward current.

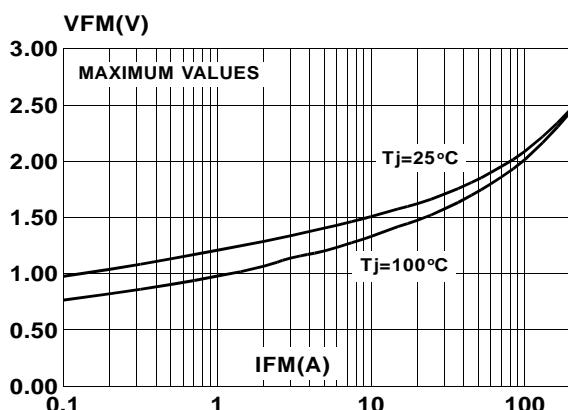


Fig.2 : Peak current versus form factor.

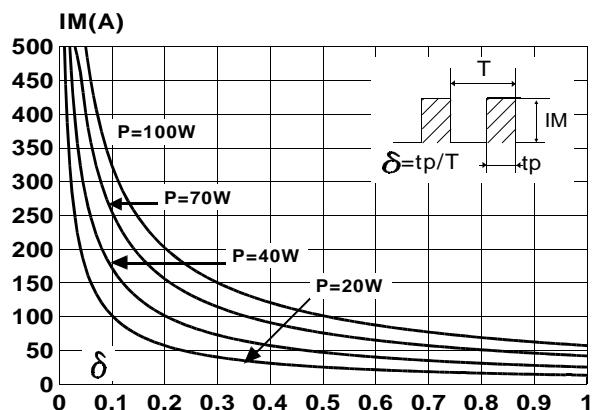


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

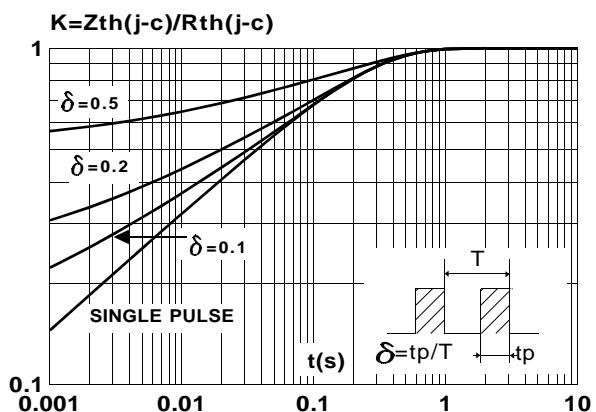
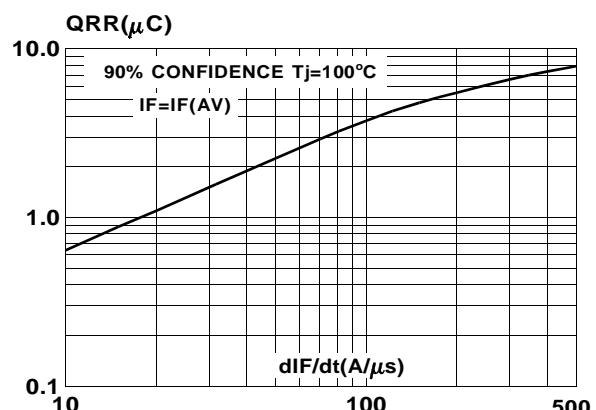


Fig.6 : Recovery charge versus dI_F/dt .



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Fig.7 : Recovery time versus dI_F/dt .

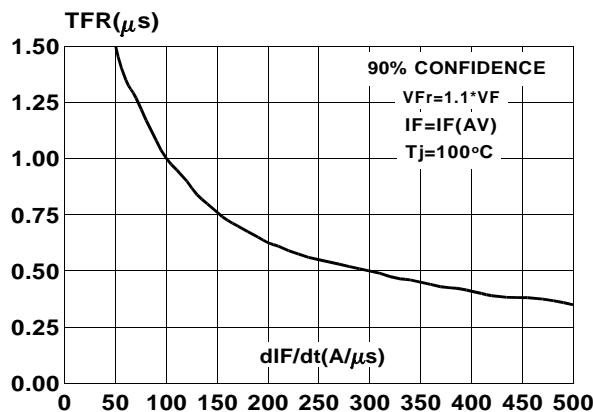


Fig.9 : Peak forward voltage versus dI_F/dt .

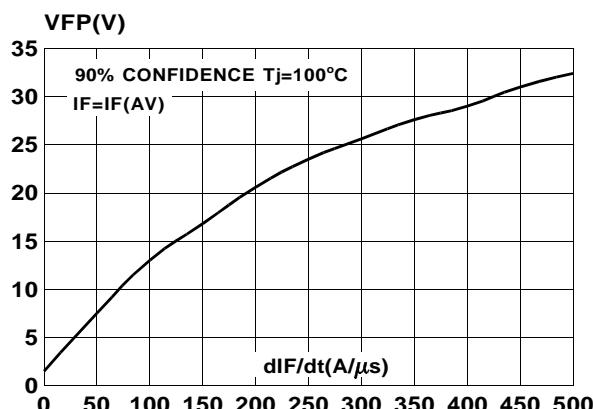
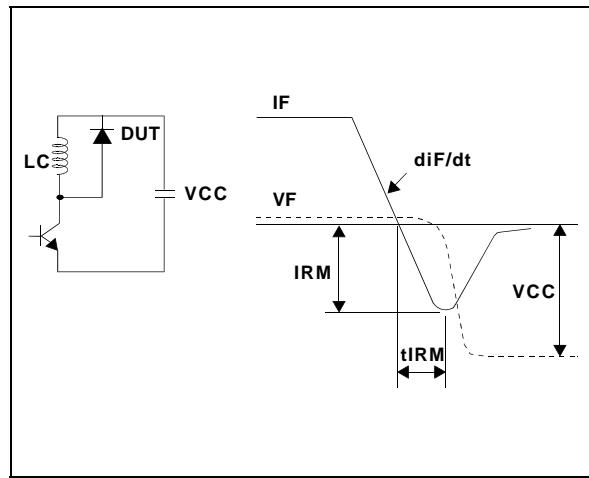


Fig.11 : TURN-OFF SWITCHING CHARACTERISTICS (Without serie inductance)



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Fig.8 : Peak reverse current versus dI_F/dt .

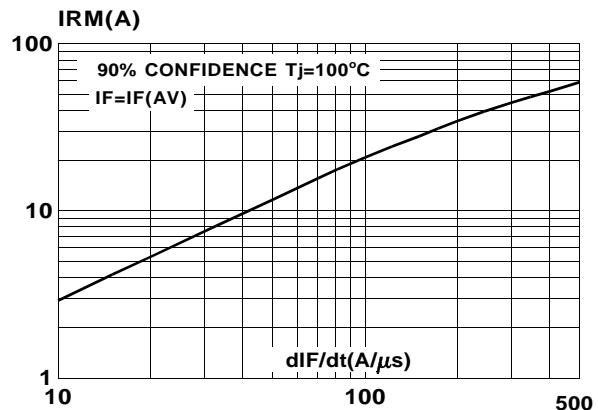


Fig.10 : Dynamic parameters versus junction temperature.

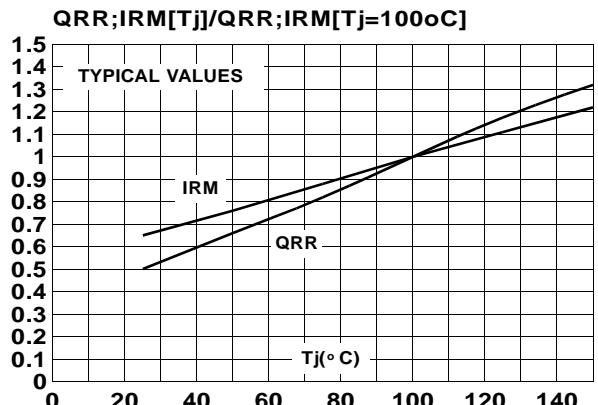
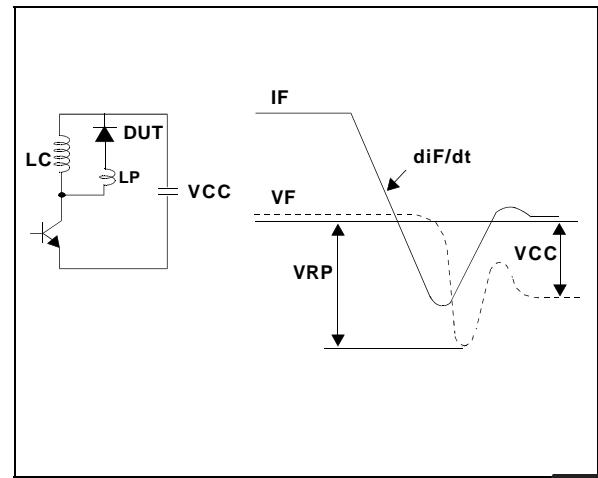


Fig.12 : TURN-OFF SWITCHING CHARACTERISTICS (With serie inductance)



PACKAGE MECHANICAL DATA

ISOTOP Screw version

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	11.80		12.20	0.465		0.480
A1	8.90		9.10	0.350		0.358
B	7.8		8.20	0.307		0.323
C	0.75		0.85	0.030		0.033
C2	1.95		2.05	0.077		0.081
D	37.80		38.20	1.488		1.504
D1	31.50		31.70	1.240		1.248
E	25.15		25.50	0.990		1.004
E1	23.85		24.15	0.939		0.951
E2		24.80			0.976	
G	14.90		15.10	0.587		0.594
G1	12.60		12.80	0.496		0.504
G2	3.50		4.30	0.138		0.169
F	4.10		4.30	0.161		0.169
F1	4.60		5.00	0.181		0.197
P	4.00		4.30	0.157		0.69
P1	4.00		4.40	0.157		0.173
S	30.10		30.30	1.185		1.193

- **Marking :** Type number
- **Cooling method :** C
- **Weight :** 28 g (without screws)
- **Electrical isolation :** 2500V_(RMS)
- **Capacitance :** < 45 pF
- **Inductance :** < 5 nH

- Recommended torque value : 1.3 N.m (MAX 1.5 N.m) for the 6 x M4 screws. (2 x M4 screws recommended for mounting the package on the heatsink and the 4 screws given with the screw version).
- The screws supplied with the package are adapted for mounting on a board (or other types of terminals) with a thickness of 0.6 mm min and 2.2 mm max.

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