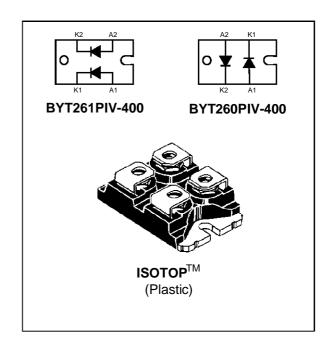
## BYT260PIV-400 BYT261PIV-400

### 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<sub>RMS</sub> Capacitance = 45 pF



#### **DESCRIPTION**

Dual high voltage rectifiers ranging from 400V to 200V suited for Switch Mode Power Supplies and other power converters.

The devices are packaged in ISOTOP.

#### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit		
IFRM	Repetitive peak forward current	tp ≤ 10μs		800	Α
I <sub>F(RMS)</sub>	RMS forward current		Per diode	140	Α
I <sub>F(AV)</sub>	Average forward current	Tc=80°C δ = 0.5	Per diode	60	А
I <sub>FSM</sub>	Surge non repetitive forward current	tp=10ms sinusoidal	Per diode	600	Α
Tstg Tj	Storage and junction temperature range			- 40 to + 150 - 40 to + 150	ပို့

Symbol	Parameter	BYT261PIV-/BYT260PIV-		Unit	
Cymbol	T didilictor	200	300	400	
V <sub>RRM</sub>	Repetitive peak reverse voltage	200	300	400	V

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#### **BYT261PIV-400**

#### THERMAL RESISTANCE

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

When the diodes 1 and 2 are used simultaneously :  $\Delta$  Tj(diode 1) = P(diode) x Rth(Per diode) + P(diode 2) x Rth(c)

# ELECTRICAL CHARACTERISTICS (Per diode) STATIC CHARACTERISTICS

Symbol	7	Test Conditions		Тур.	Max.	Unit
V <sub>F</sub> *	Tj = 25°C	I <sub>F</sub> = 60 A			1.5	V
	T <sub>j</sub> = 100°C				1.4	
I <sub>R</sub> **	T <sub>j</sub> = 25°C	$V_R = V_{RRM}$			60	μΑ
	T <sub>j</sub> = 100°C				6	mA

Pulse test : \* tp =  $380 \,\mu s$ , duty cycle <  $2 \,\%$ \*\* tp =  $5 \,ms$ , duty cycle <  $2 \,\%$ 

#### **RECOVERY CHARACTERISTICS**

Symbol	Test Conditions			Min.	Тур.	Max.	Unit
trr	T <sub>j</sub> = 25°C	I <sub>F</sub> = 0.5A I <sub>R</sub> = 1A	Irr = 0.25A			50	ns
		I <sub>F</sub> = 1A V <sub>R</sub> = 30V	dI <sub>F</sub> /dt = -15A/μs			100	

#### TURN-OFF SWITCHING CHARACTERISTICS (Without serie inductance)

Symbol	Test Conditions			Min.	Тур.	Max.	Unit
t <sub>IRM</sub>	dl <sub>F</sub> /dt = -240A/μs	Vcc = 200V	I <sub>F</sub> = 60A			75	ns
	dl <sub>F</sub> /dt = -480A/μs	Lp ≤ 0.05μH see fig. 11	$T_j = 100^{\circ}C$		50		
I <sub>RM</sub>	dl <sub>F</sub> /dt = -240A/μs					18	Α
	dI <sub>F</sub> /dt = -480A/μs				24		

#### TURN-OFF OVERVOLTAGE COEFFICIENT (With serie inductance)

Symbol	Test Conditions	Min.	Тур.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		3.3	4	_

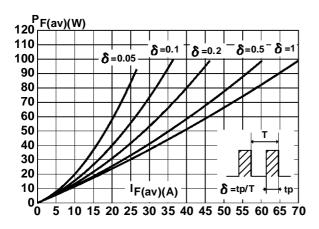
Note: Applicable to BYT261PIV-400 only

To evaluate the conduction losses use the following equation :

 $P = 1.1 \times I_{F(AV)} + 0.0045 \times I_{F}^{2}(RMS)$ 



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



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

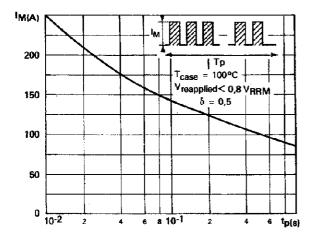


Fig.5: Voltage drop versus forward current.

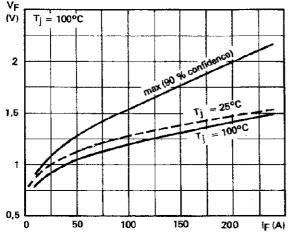
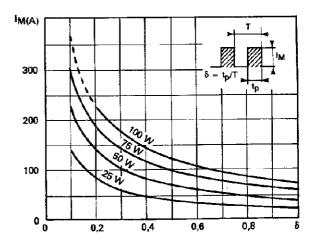


Fig.2: Peak current versus form factor.



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

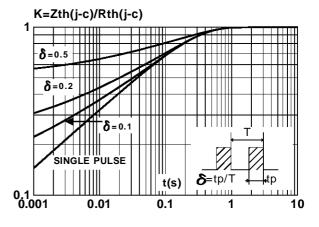
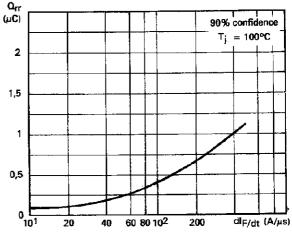
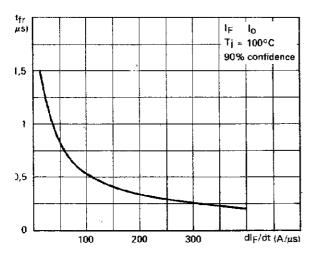


Fig.6: Recovery charge versus dif/dt.

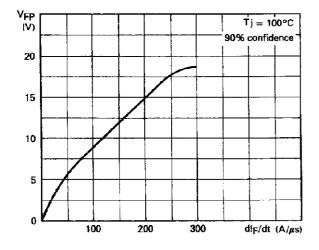


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Fig.7: Recovery time versus dI<sub>F</sub>/dt.



 $\textbf{Fig.9:} \ \ \text{Peak forward voltage versus dI}_{\text{F}}/\text{dt}.$ 



**Fig.11:** TURN-OFF SWITCHING CHARACTE-RISTICS (Without serie inductance)

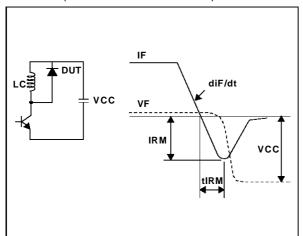
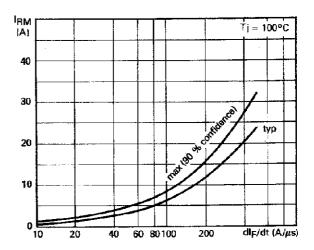
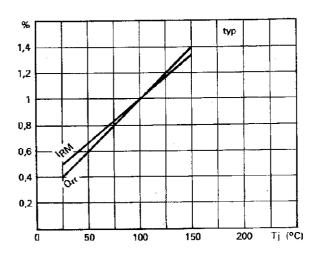


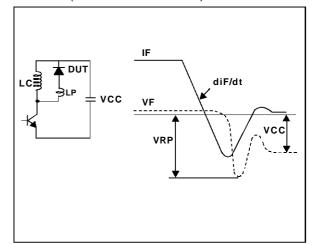
Fig.8: Peak reverse current versus dIF/dt.



**Fig.10**: Dynamic parameters versus junction temperature.



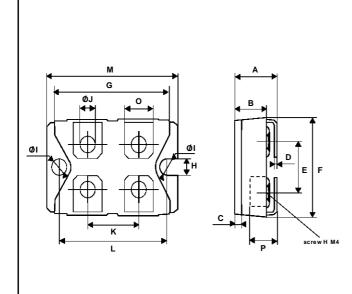
**Fig.12**: TURN-OFF SWITCHING CHARACTE-RISTICS (With serie inductance)



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#### **PACKAGE MECHANICAL DATA**

**ISOTOP** 



	DIMENSIONS				
REF.	Millimeters		Inc	hes	
	Min.	Max.	Min.	Max.	
Α	11.80	12.20	0.465	0.480	
В	8.90	9.10	0.350	0.358	
С	1.95	2.05	0.077	0.081	
D	0.75	0.85	0.029	0.034	
Ш	12.60	12.80	0.496	0.504	
F	25.10	25.50	0.988	1.004	
G	31.50	31.70	1.240	1.248	
Ι	4.00		0.157		
	4.10	4.30	0.161	0.169	
J	4.10	4.30	0.161	0.169	
K	14.90	15.10	0.586	0.595	
Ĺ	30.10	30.30	1.185	1.193	
М	37.80	38.20	1.488	1.504	
0	7.80	8.20	0.307	0.323	
Р	5.50		0.216		

Cooling method : C Marking : Type number Weight : 28 g (without screws)

Electric isolation: 2500V<sub>(RMS)</sub> 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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