SGS-THOMSON MICROELECTRONICS

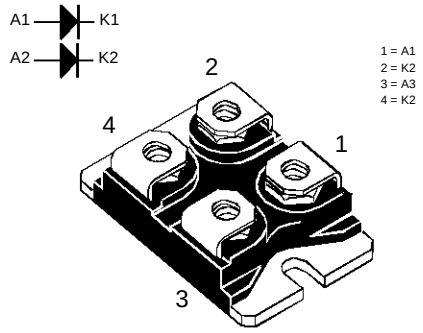
BYT200PIV-400

ULTRAFAST POWER RECTIFIER DIODE

PRELIMINARY DATASHEET

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2*100 A
V_{RRM}	400 V
V_F (max)	1.4 V



ISOTOPTM

FEATURES AND BENEFITS

- LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH AVALANCHE CAPABILITY
- ISOLATED PACKAGE :
  2500 V_{DC}
  CAPACITANCE 42pF

DESCRIPTION

High current power rectifier diode suited for Switched Mode Power Supply and high frequency DC to DC converters.

Packaged in ISOTOP, this device is intended for use in a medium voltage high current applications such as **welding equipment and Telecom supplies.**

ABSOLUTE MAXIMUM RATING

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		400	V
$I_{F(RMS)}$	RMS Forward Current		150	A
$I_{F(AV)}$	Average Forward Current	Tc = 80°C δ = 0.5	100 30	A
I_{FSM}	Surge Non Repetitive Forward Current	tp = 10 ms Sinusoidal	600	A
I_{RRM}	Repetitive Peak Reverse Current	tp = 10 µs	800	A
T_{stg}	Storage Temperature Range		- 40 to + 150	°C
Tj	Max. Junction Temperature		150	°C

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to Case Thermal Resistance	Per leg	0.55	°C/W
		Total	0.33	
$R_{th\ (c)}$	Coupling Thermal Resistance	Coupling	0.1	

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage Current	Tj = 25°C	$V_R = V_{RRM}$			120	µA
		Tj = 100°C				12	mA
V_F **	Forward Voltage drop	Tj = 25°C	I_F = 100 A			1.6	V
		Tj = 100°C	I_F = 100 A			1.4	

Pulse test : * tp = 5 ms, duty cycle < 2 %
** tp = 380 µs, duty cycle < 2%

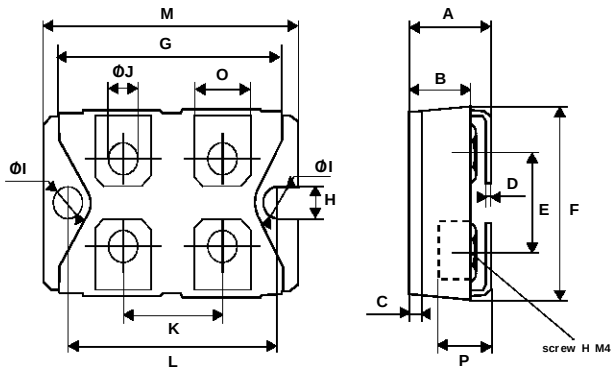
RECOVERY CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	I_F=0.5A I_R=1A Irr=0.25A I_F=1A dI/dt= -50A/µs Vr=30V		55	100	ns
I_{RM}	Reverse Recovery Current	dI_F/dt=-200A/µs Tj=125°C V_R=400V I_F=100A			40	A
S factor	Softness factor	dI_F/dt=-200A/µs Tj=125°C V_R=400V I_F=100A		0.25		
t_{fr}	Forward Recovery Time	I_F=100A dI_F/dt=500A/µs Measure at 1.1 x V_F max. Tj=25°C			500	ns
V_{FP}	Peak Forward Voltage				12	V

To evaluate the conduction losses use the following equation :

$P = 0.8 \times I_{F(AV)} + 2.28 \times I_F{}^2{}_{(RMS)}$

PACKAGE MECHANICAL DATA
ISOTOP



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	11.80	12.20	0.465	0.480
B	8.90	9.10	0.350	0.358
C	1.95	2.05	0.077	0.081
D	0.75	0.85	0.029	0.034
E	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
H	4.00		0.157	
I	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
L	30.10	30.30	1.185	1.193
M	37.80	38.20	1.488	1.504
O	7.80	8.20	0.307	0.323
P	5.50		0.216	