

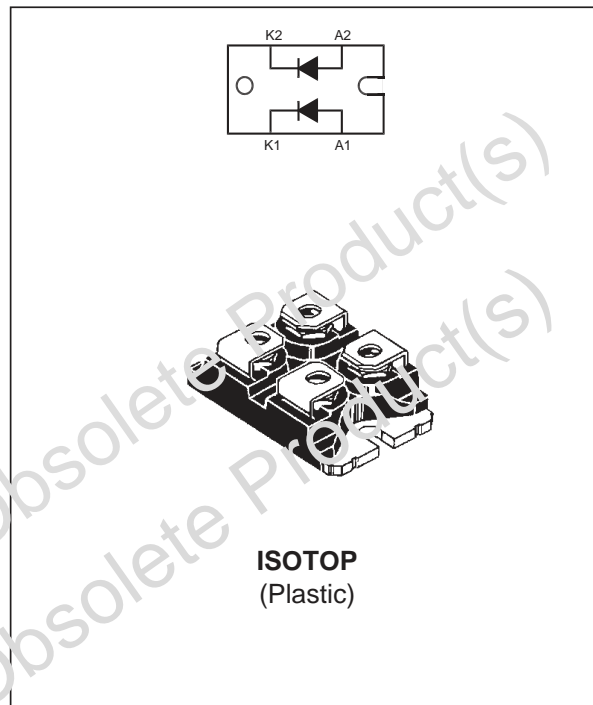
## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

### FEATURES

- SUITED FOR SMPS
- VERY LOW FORWARD LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- HIGH AVALANCHE ENERGY CAPABILITY
- INSULATED :  
 Insulating voltage = 2500 V<sub>RMS</sub>  
 Capacitance = 55 pF

### DESCRIPTION

Dual rectifier suited for switchmode power supply and high frequency DC to DC converters. Packaged in ISOTOP™ this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{F(RMS)}$	RMS forward current		150	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	$T_C = 110^\circ\text{C}$	100	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ms}$ sinusoidal	1600	A
$T_{stg}$ (J)	Storage and junction temperature range		- 40 to + 150 - 40 to + 150	$^\circ\text{C}$ $^\circ\text{C}$

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	200	V

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## BYV255V

### THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case	Per diode	0.4	°C/W
		Total	0.25	
Rth (c)	Coupling		0.1	°C/W

When the diodes 1 and 2 are used simultaneously :

$$T_j - T_c (\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

### ELECTRICAL CHARACTERISTICS (Per diode) STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			100	μA
	T <sub>j</sub> = 100°C				10	mA
V <sub>F</sub> **	T <sub>j</sub> = 125°C	I <sub>F</sub> = 100 A			0.85	V
	T <sub>j</sub> = 125°C	I <sub>F</sub> = 200 A			1.00	
	T <sub>j</sub> = 25°C	I <sub>F</sub> = 200 A			1.15	

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

\*\* tp = 380 μs, duty cycle < 2 %

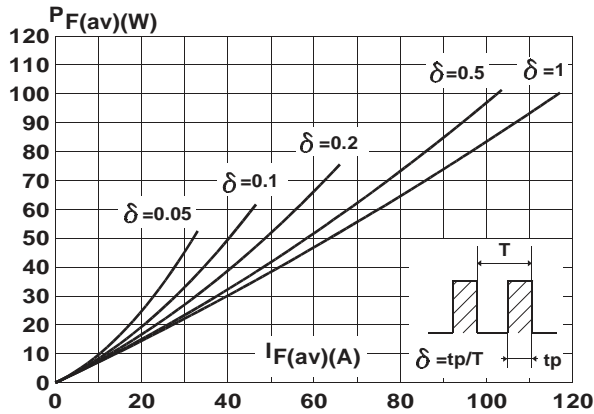
### RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
trr	T <sub>j</sub> = 25 °C	I <sub>F</sub> = 0.5A I <sub>R</sub> = 1A	I <sub>rr</sub> = 0.25A			55	ns
		I <sub>F</sub> = 1A V <sub>R</sub> = 30V	dI <sub>F</sub> /dt = -50A/μs			80	
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A V <sub>FR</sub> = 1.1 x V <sub>F</sub>	tr = 5 ns		10		ns
V <sub>FP</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	tr = 5 ns		1.5		V

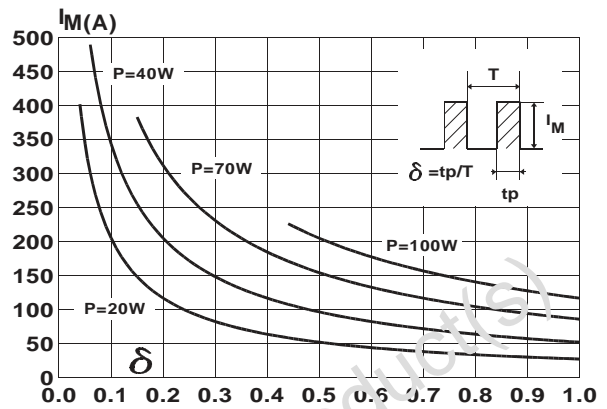
### TURN-OFF SWITCHING CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit	
I <sub>RM</sub>	T <sub>j</sub> = 100°C	I <sub>F</sub> = 100A L <sub>p</sub> @ 0.05μH V <sub>CC</sub> @ 0.6 V <sub>RRM</sub>	dI <sub>F</sub> /dt = -200A/μs			16	A
			dI <sub>F</sub> /dt = -400A/μs		24		

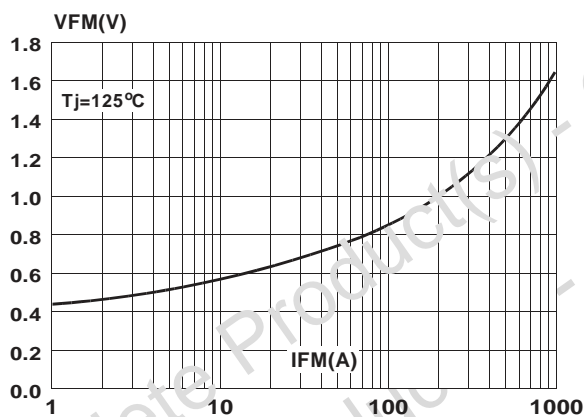
**Fig.1 :** Average forward power dissipation versus average forward current.



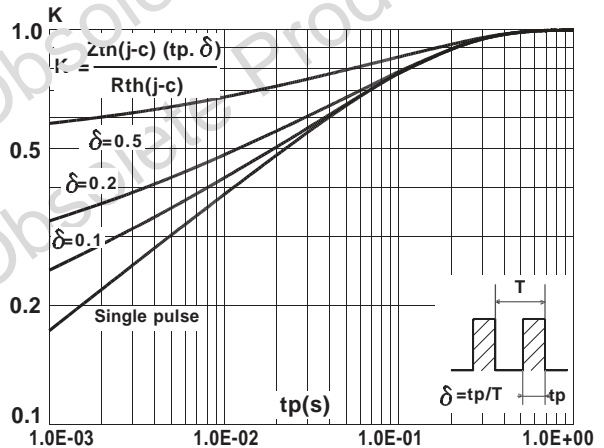
**Fig.2 :** Peak current versus form factor.



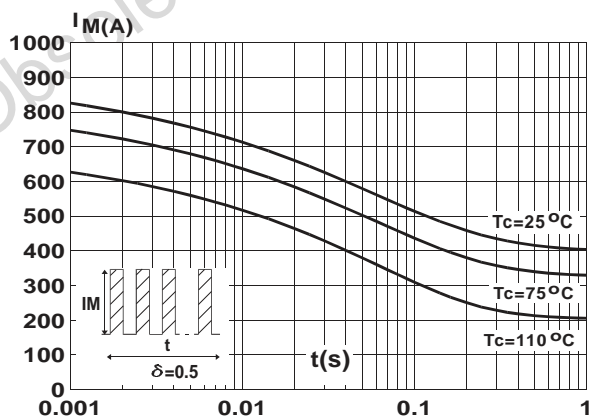
**Fig.3 :** Forward voltage drop versus forward current (maximum values).



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



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



**Fig.6 :** Average current versus ambient temperature. (duty cycle : 0.5)

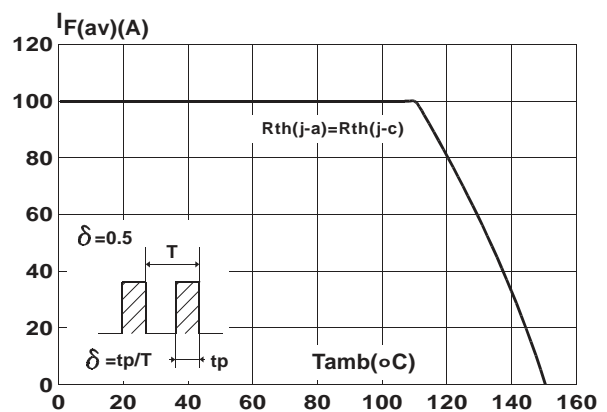


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

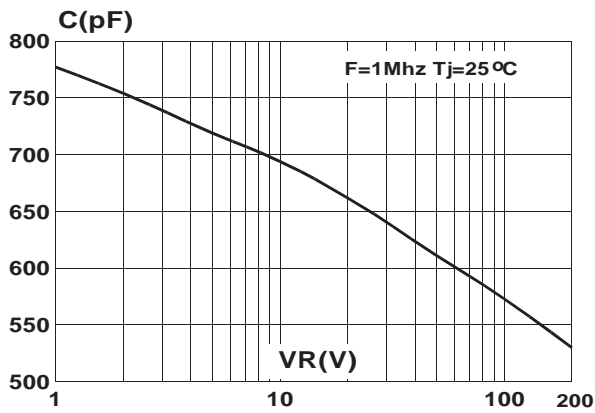


Fig.8 : Recovery charges versus  $dI_F/dt$ .

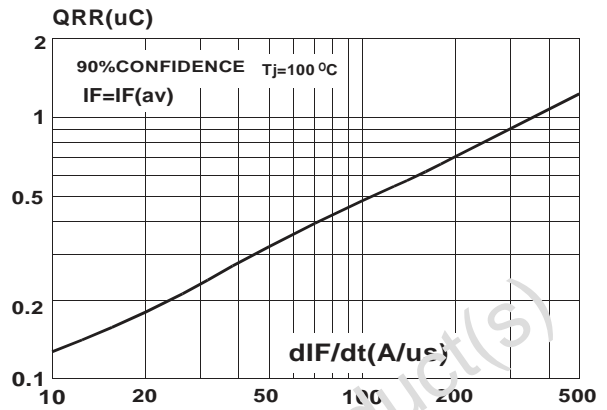


Fig.9 : Peak reverse current versus  $dI_F/dt$ .

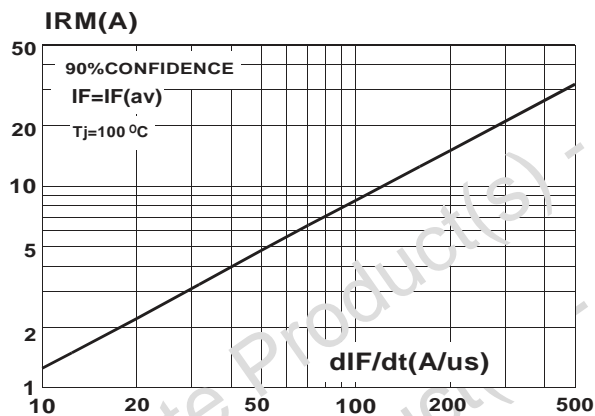
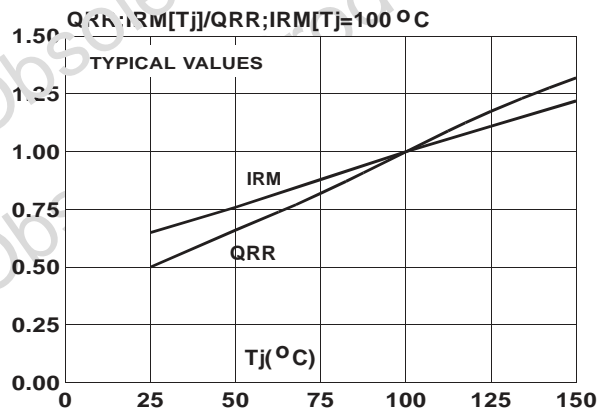


Fig.10 : Dynamic parameters versus junction temperature.



**PACKAGE MECHANICAL DATA**  
 ISOTOP

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	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 typ.		0.976 typ.	
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
F2	4.00	4.30	0.157	0.169
F3	4.00	4.40	0.157	0.173
S	30.10	30.30	1.185	1.193

- **Marking** : Type number
- Cooling method : C
- Weight : 27 g
- Epoxy meets UL94, V0

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