



**BYV255V**

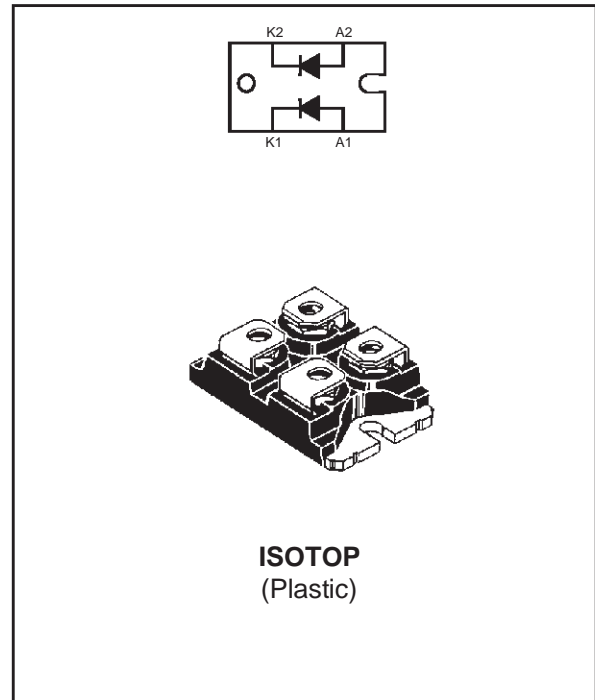
## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

### 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
$T_{stg}$ $T_j$	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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### 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 %

To evaluate the conduction losses use the following equation :  
 $P = 0.7 \times I_{F(AV)} + 0.0015 \times I_{F(RMS)}^2$

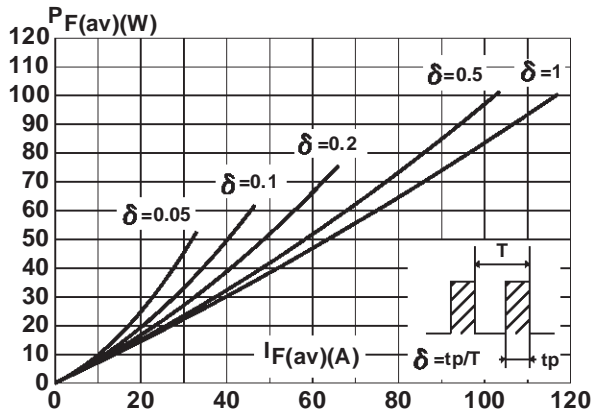
### RECOVERY CHARACTERISTICS

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

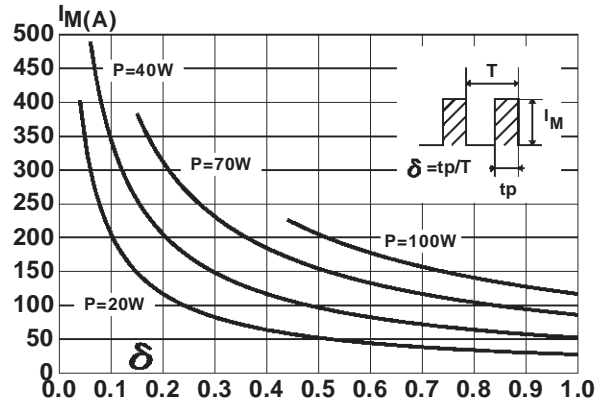
### TURN-OFF SWITCHING CHARACTERISTICS

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	

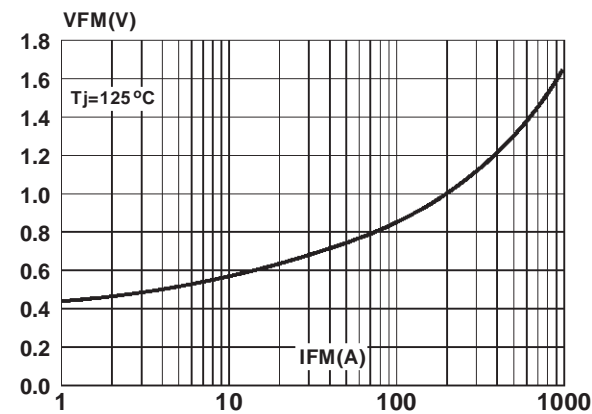
**Fig.1 :** Average forward power dissipation versus average forward current.



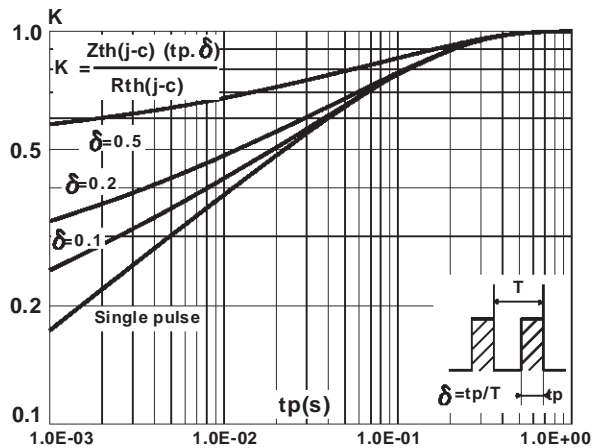
**Fig.2 :** Peak current versus form factor.



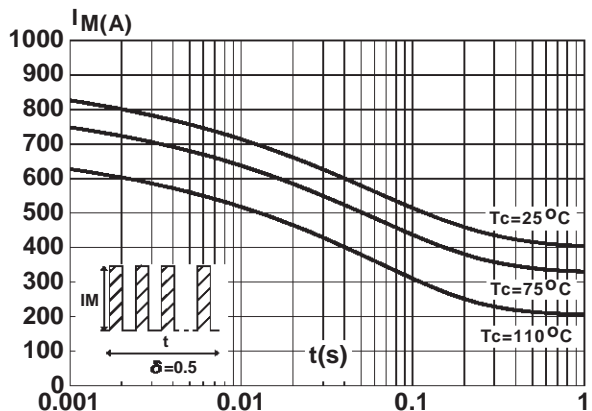
**Fig.3 :** Forward voltage drop versus forward current (maximum values).



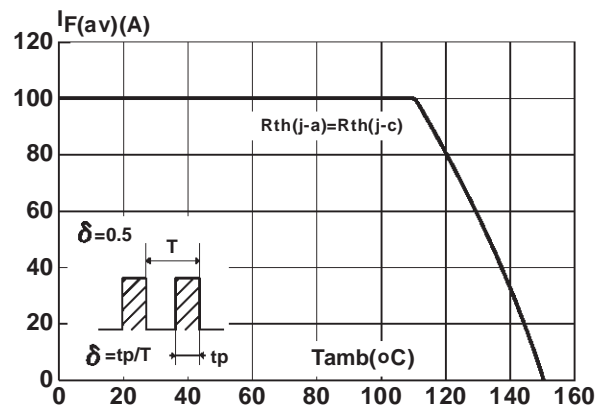
**Fig.4 :** Relative variation of thermal impedance junction to case versus pulse duration.



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

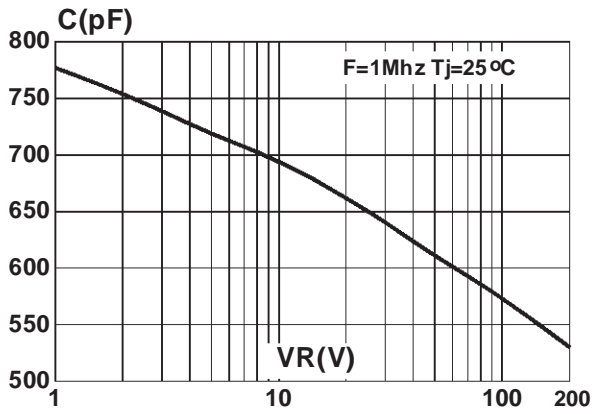


**Fig.6 :** Average current versus ambient temperature. (duty cycle : 0.5)

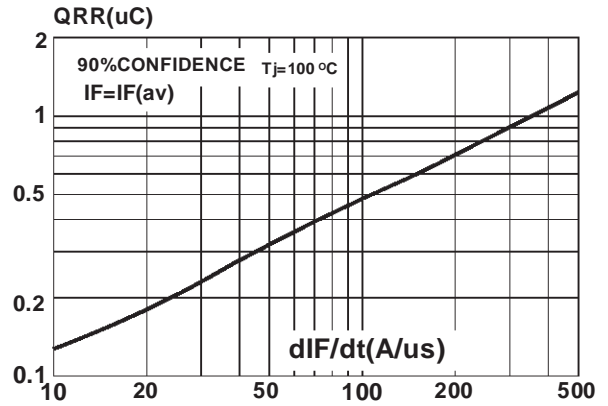


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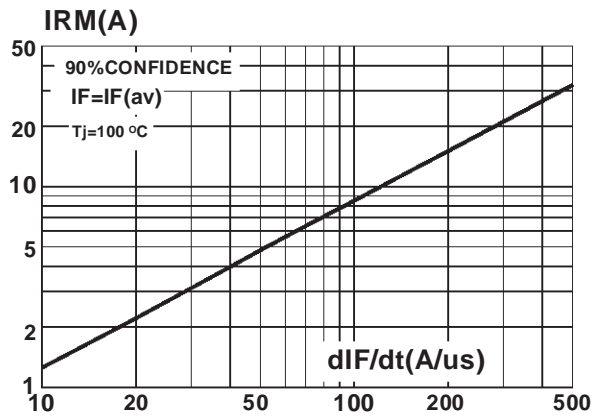
**Fig.7 :** Junction capacitance versus reverse voltage applied (Typical values).



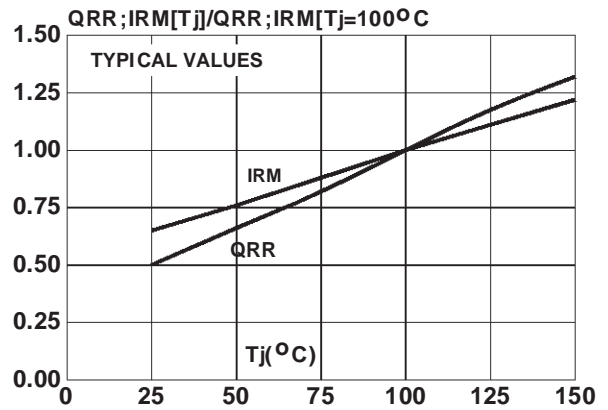
**Fig.8 :** Recovery charges versus  $dI_F/dt$ .

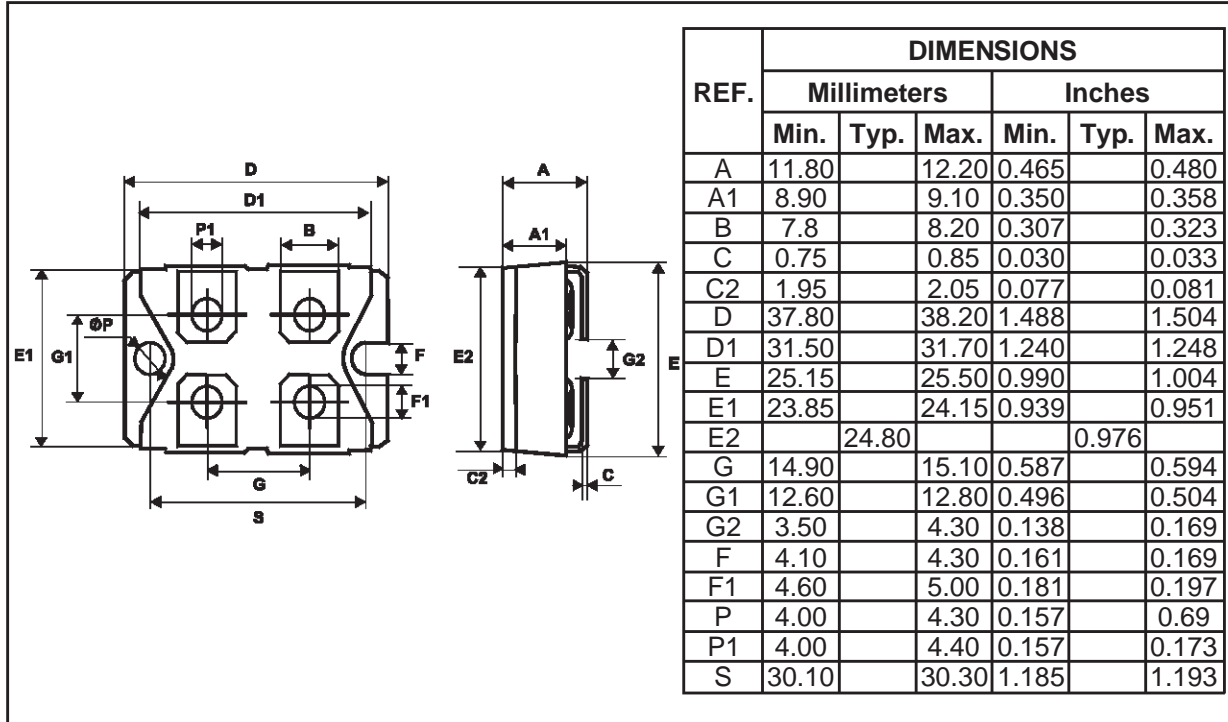


**Fig.9 :** Peak reverse current versus  $dI_F/dt$ .



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



**PACKAGE MECHANICAL DATA**  
 ISOTOP


- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 27 g

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