



BYV255V

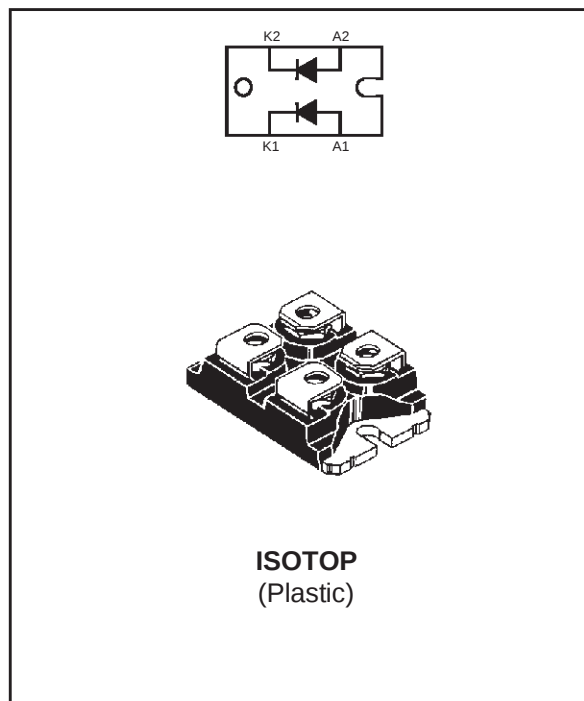
HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

FEATURES

- SUITED FOR SMPS
- VERY LOW FORWARD LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- HIGH AVALANCHE ENERGY CAPABILITY
- INSULATED :
Insulating voltage = 2500 V_{RMS}
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		Per diode	150	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	$T_c = 110^\circ\text{C}$	Per diode	100	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ms}$ sinusoidal	Per diode	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 _R *	T _j = 25°C	V _R = V _{RRM}			100	μA
	T _j = 100°C				10	mA
V _F **	T _j = 125°C	I _F = 100 A			0.85	V
	T _j = 125°C	I _F = 200 A			1.00	
	T _j = 25°C	I _F = 200 A			1.15	

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

** t_p = 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 _j = 25°C	I _F = 0.5A I _{rr} = 0.25A I _R = 1A			55	ns
		I _F = 1A dI _F /dt = -50A/μs V _R = 30V			80	
tfr	T _j = 25°C	I _F = 1A tr = 5 ns V _{FR} = 1.1 x V _F		10		ns
V _{FP}	T _j = 25°C	I _F = 1A tr = 5 ns		1.5		V

TURN-OFF SWITCHING CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I _{RM}	T _j = 100°C	I _F = 100A L _p ≤ 0.05μH V _{CC} ≤ 0.6 V _{RRM}	dI _F /dt = -200A/μs		16	A
			dI _F /dt = -400A/μs	24		

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

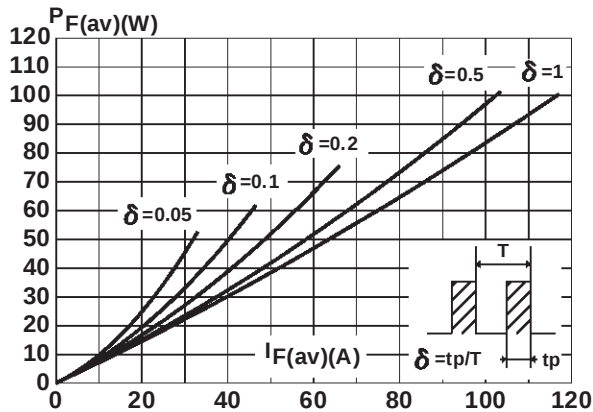


Fig.2 : Peak current versus form factor.

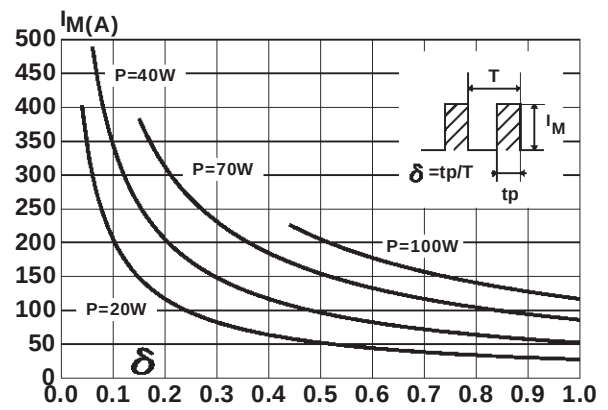


Fig.3 : Forward voltage drop versus forward current (maximum values).

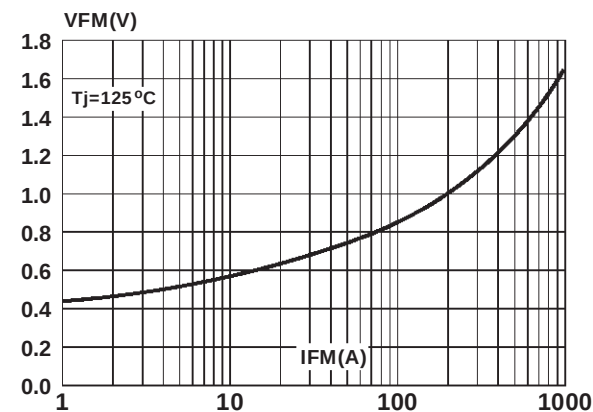


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

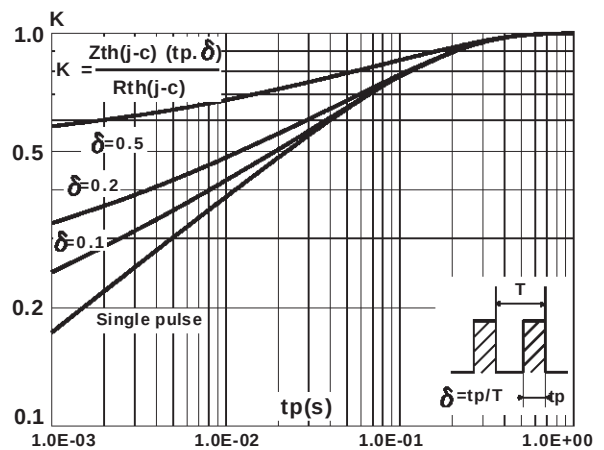


Fig.5 : Non repetitive surge peak forward current versus overload duration.

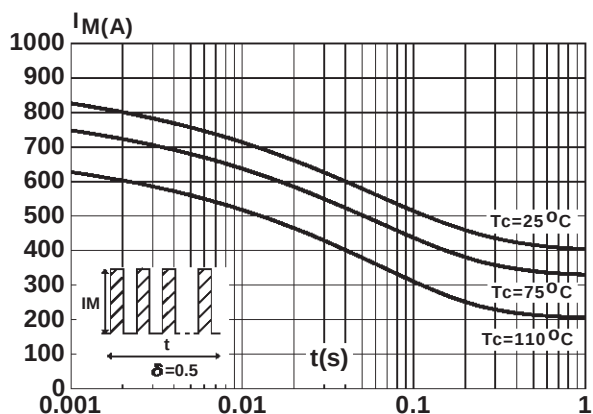
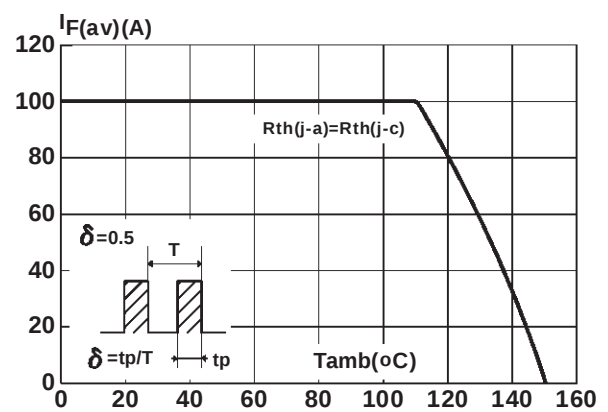


Fig.6 : Average current versus ambient temperature. (duty cycle : 0.5)



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

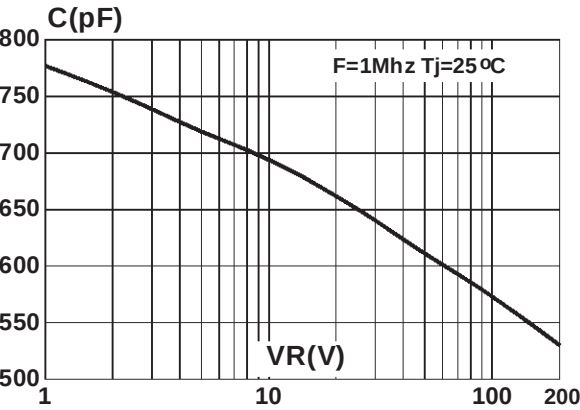


Fig.8 : Recovery charges versus dI_F/dt .

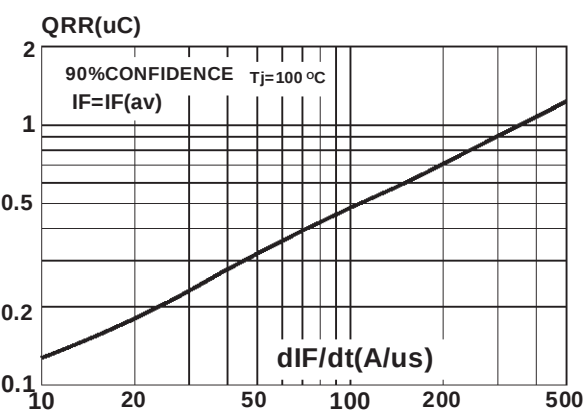


Fig.9 : Peak reverse current versus dI_F/dt .

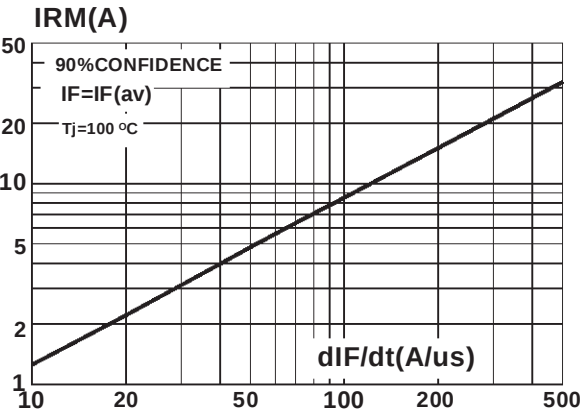
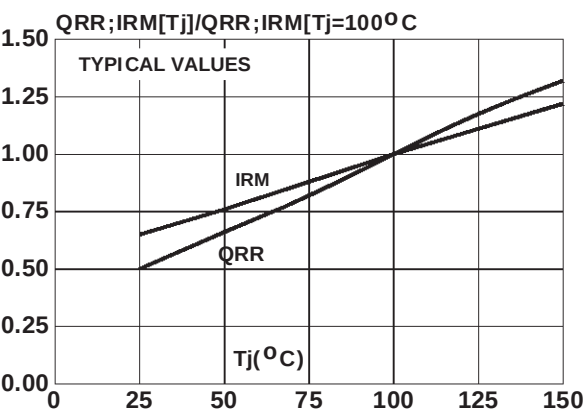
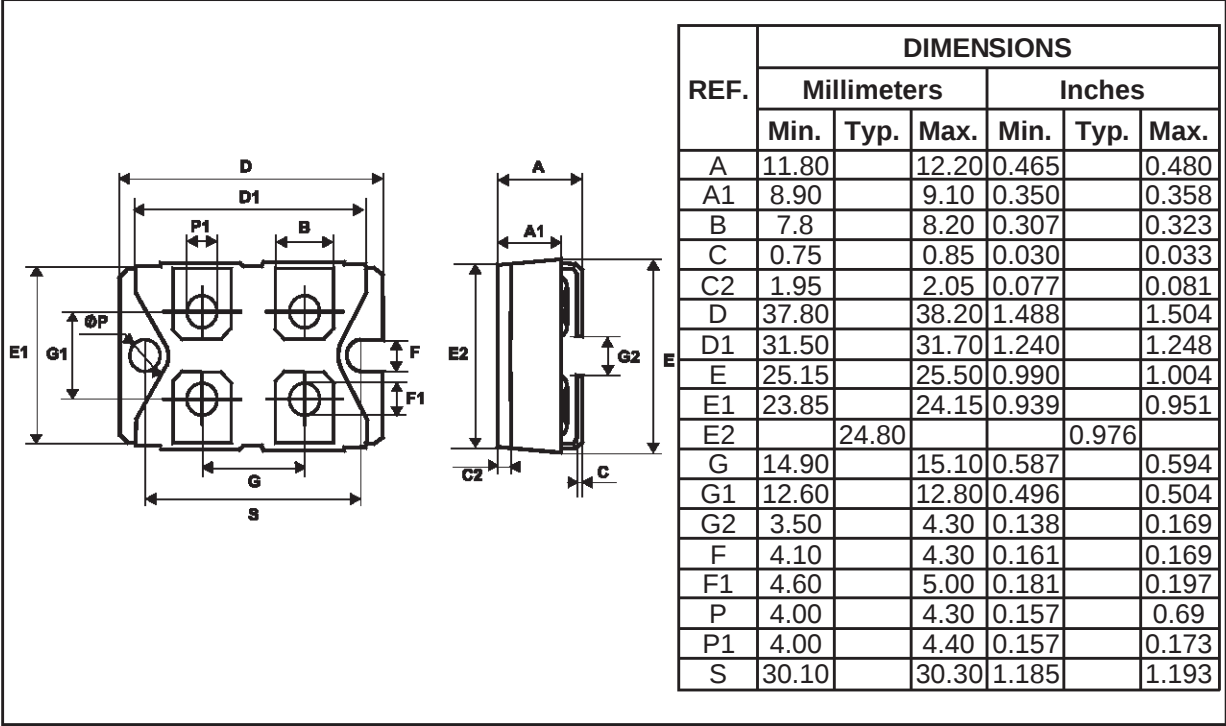


Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
ISOTOP



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

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