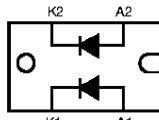


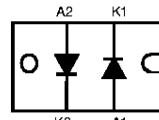
HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODES

FEATURES

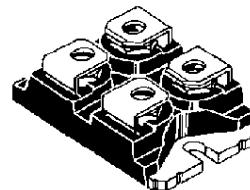
- SUITED FOR SMPS
- VERY LOW FORWARD LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH SURGE CURRENT CAPABILITY
- HIGH AVALANCHE ENERGY CAPABILITY
- INSULATED :
 - Insulating voltage = 2500 V_{RMS}
 - Capacitance = 45 pF



BYV541V-200



BYV54V-200


 ISOTOP
 (Plastic)

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	100	A
I _{F(AV)}	Average forward current $\delta = 0.5$	T _c =90°C	Per diode	50	A
I _{FSM}	Surge non repetitive forward current	tp=10ms sinusoidal	Per diode	1000	A
T _{stg} T _j	Storage and junction temperature range			- 40 to + 150 - 40 to + 150	°C °C

Symbol	Parameter	BYV54V / BYV541V				Unit
		50	100	150	200	
V _{RRM}	Repetitive peak reverse voltage	50	100	150	200	V

TM : ISOTOP is a trademark of SGS-THOMSON Microelectronics.

BYV54V / BYV541V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case	Per diode	1.2
		Total	0.85
R _{th} (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}			50	μA
	T _j = 100°C				5	mA
V _F **	T _j = 125°C	I _F = 50 A			0.85	V
	T _j = 125°C	I _F = 100 A			1.00	
	T _j = 25°C	I _F = 100 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 :

$$P = 0.7 \times I_{F(AV)} + 0.003 \times I_{F^2(RMS)}$$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr	T _j = 25°C	I _F = 0.5A I _R = 1A	I _{rr} = 0.25A		40	ns
		I _F = 1A V _R = 30V	dI _F /dt = -50A/μs		60	
tfr	T _j = 25°C	I _F = 1A V _{FR} = 1.1 x V _F	tr = 5 ns	10		ns
V _{FP}	T _j = 25°C	I _F = 1A	tr = 5 ns	1.5		V

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

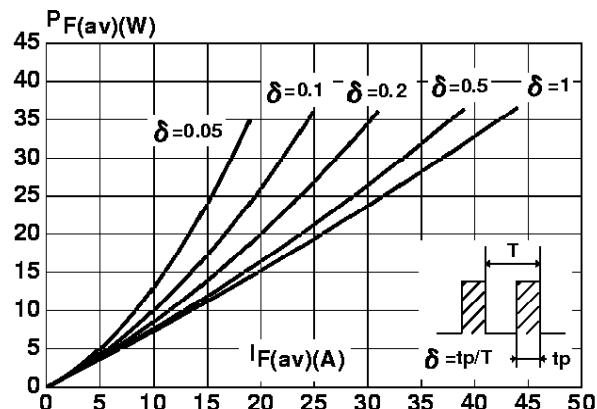


Fig.3 : Forward voltage drop versus forward current (maximum values).

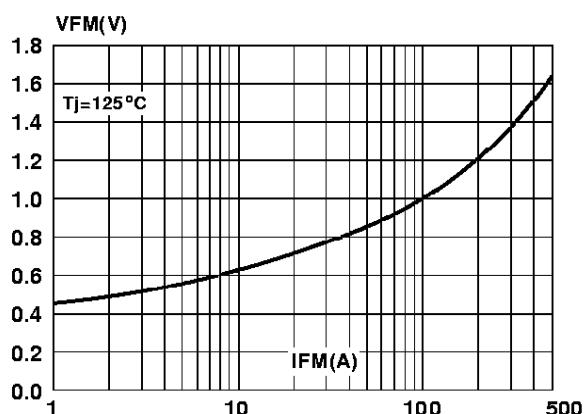


Fig.5 : Non repetitive surge peak forward current versus overload duration.

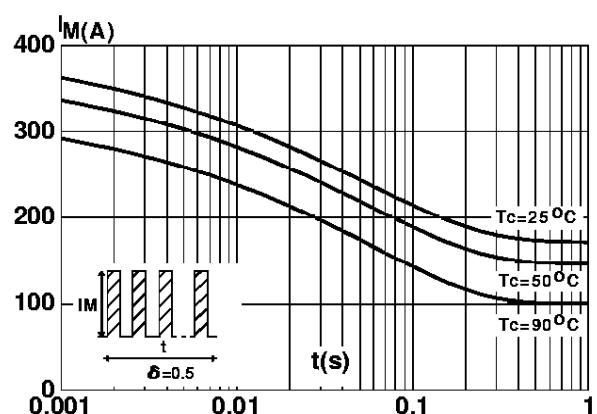


Fig.2 : Peak current versus form factor.

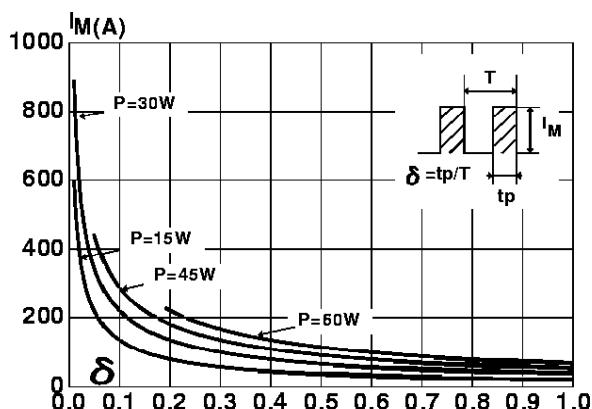


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

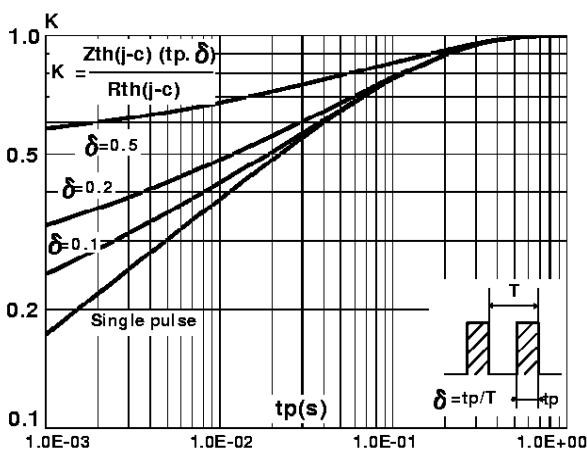
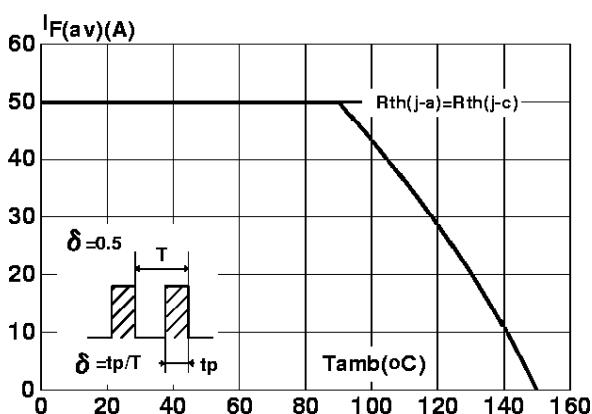


Fig.6 : Average current versus ambient temperature. (duty cycle : 0.5)



BYV54V / BYV541V

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

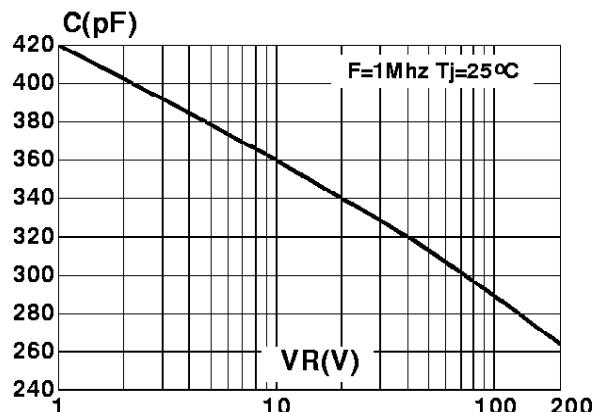


Fig.9 : Peak reverse current versus dIF/dt.

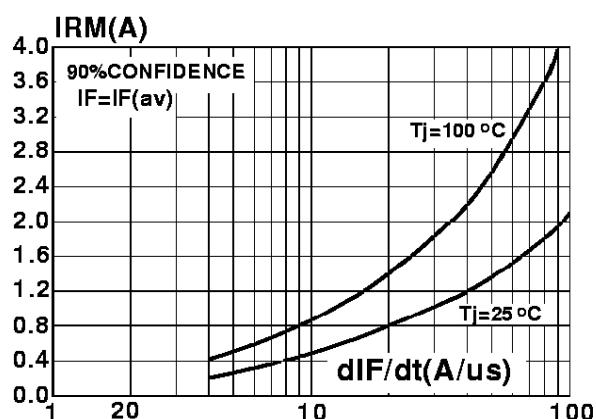


Fig.8 : Recovery charges versus dIF/dt.

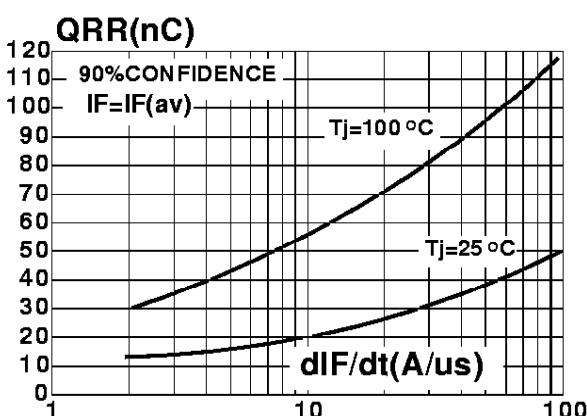
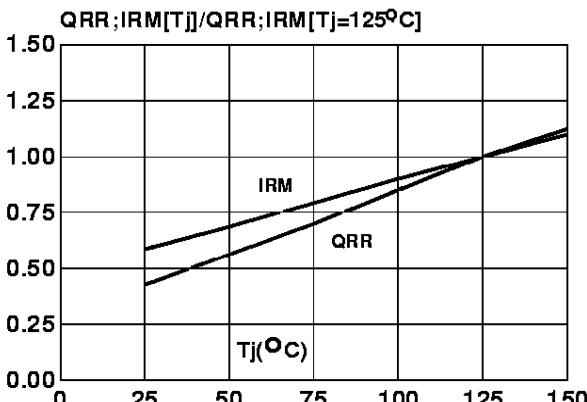


Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
ISOTOP

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	11.80	12.20	0.465	0.480
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	

Cooling method : C

Marking : Type number

Weight : 28 g

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