

ULTRA FAST RECOVERY RECTIFIER DIODES

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	2 x 3 A
V_{RRM}	200 V
T_{j(max)}	150°C
V_{F(max)}	0.99 V
t_{rr(max)}	30 ns

FEATURES

- Suited for SMPS
- Low losses
- Low forward and reverse recovery time
- High surge current capability
- Insulated packages:
ISOWATT220AB / TO-220FPAB
Insulation voltage = 2000V DC
Capacitance = 12pF

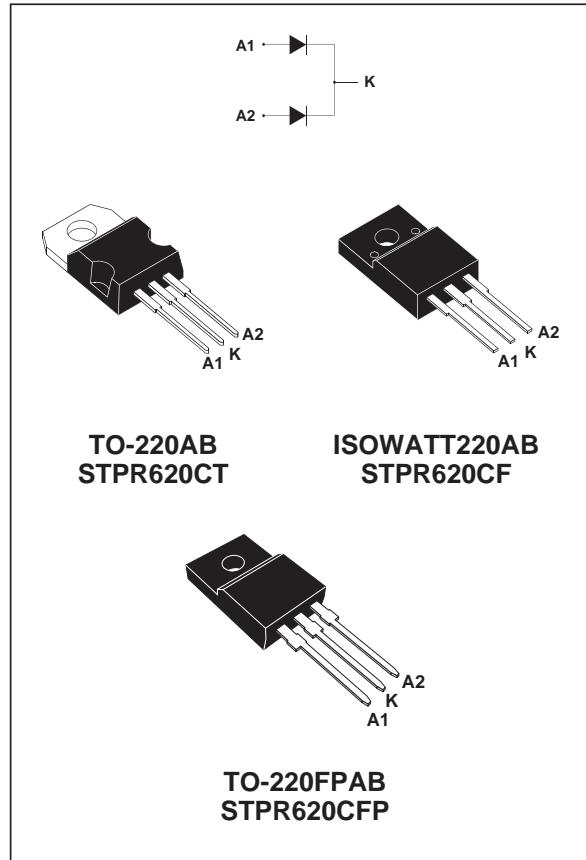
DESCRIPTION

Low cost dual center tap rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in TO-220AB, TO-220FPAB and ISOWATT220AB, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE MAXIMUM (limiting values)

Symbol	Parameter				Value	Unit
V _{RRM}	Repetitive peak reverse voltage				200	V
I _{F(RMS)}	RMS forward current			Per diode	10	A
I _{F(AV)}	Average forward current $\delta = 0.5$	TO-220AB	T _c =125°C	Per diode	3	A
		ISOWATT220AB TO-220FPAB	T _c =120°C	Per device	6	
I _{FSM}	Surge non repetitive forward current			tp=10ms sinusoidal	30	A
T _{stg}	Storage temperature range				- 65 to + 150	°C
T _j	Maximum junction temperature				150	°C



STPR620CT/CF/CFP

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220AB	Per diode	6.5	$^{\circ}\text{C/W}$
		ISOWATT220AB TO-220FPAB	Per diode	8.5	

When the diodes 1 and 2 are used simultaneously :

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

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_R *	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$				50	μA
	$T_j = 100^{\circ}\text{C}$					0.6	mA
V_F **	$T_j = 125^{\circ}\text{C}$	$I_F = 3 \text{ A}$				0.99	V
	$T_j = 125^{\circ}\text{C}$	$I_F = 6 \text{ A}$				1.20	
	$T_j = 25^{\circ}\text{C}$	$I_F = 6 \text{ A}$				1.25	

Pulse test :

* $tp = 5 \text{ ms}, \delta < 2 \%$

** $tp = 380 \mu\text{s}, \delta < 2 \%$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$T_j = 25^{\circ}\text{C}$	$I_F = 0.5 \text{ A}$	$I_{rr} = 0.25 \text{ A}$			30	ns
t_{fr}	$T_j = 25^{\circ}\text{C}$	$I_F = 1 \text{ A}$	$V_{FR} = 1.1 \times V_F$	$tr = 10 \text{ ns}$		20	ns
V_{FP}	$T_j = 25^{\circ}\text{C}$	$I_F = 1 \text{ A}$		$tr = 10 \text{ ns}$		3	V

To evaluate the conduction losses use the following equation :

$$P = 0.78 \times I_{F(AV)} + 0.070 \times I_{F}^2(\text{RMS})$$

Fig. 1: Average forward power dissipation versus average forward current (Per diode).

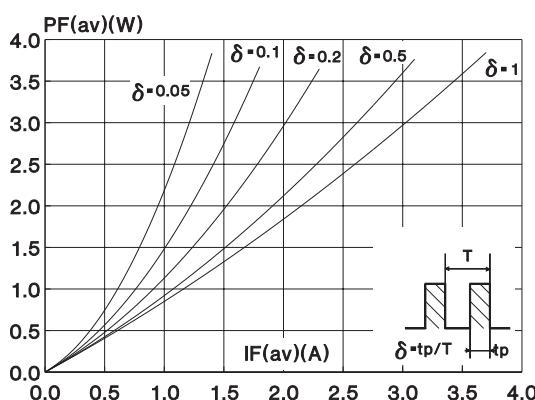
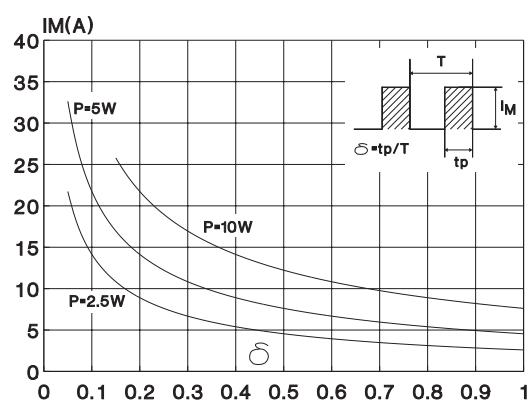


Fig. 2: Peak current versus form factor (Per diode).



PACKAGE MECHANICAL DATA
TO-220AB (JEDEC outline)

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam.	3.75	3.85	0.147	0.151

Type	Marking	Package	Weight	Base Qty	Delivery mode
STPR620CT	STPR620CT	TO-220AB	2.23 g	50	Tube
STPR620CF	STPR620CF	ISOWATT220AB	2.2 g	50	Tube
STPR620CFP	STPR620CFP	TO-220FPAB	2 g	50	Tube