

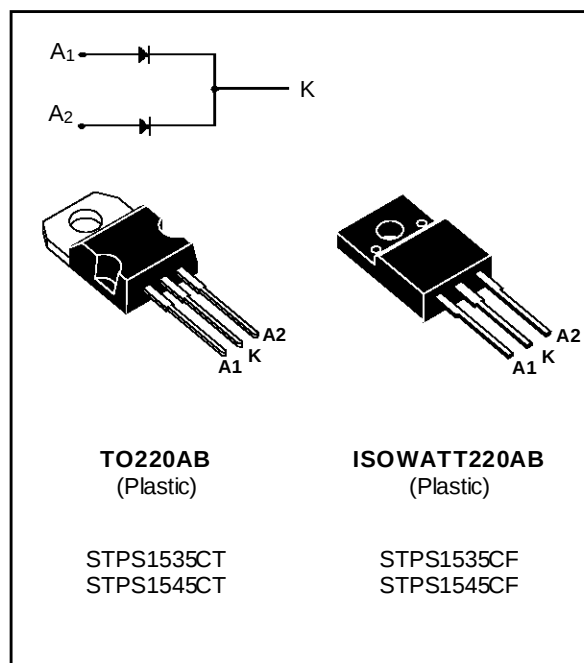
POWER SCHOTTKY RECTIFIER

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE :
Insulating voltage = 2000V DC
Capacitance = 12pF

DESCRIPTION

Dual center tap schottky rectifier suited for switch-mode power supply and high frequency DC to DC converters.

Packaged in TO220AB and ISOWATT220AB, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{F(RMS)}$	RMS Forward Current		Per diode	20	A
$I_{F(AV)}$	Average Forward Current $\delta = 0.5$	TO220AB	$T_c = 135^\circ\text{C}$ Per diode	7.5	A
		ISOWATT220AB	$T_c = 120^\circ\text{C}$ Per device	15	
I_{FSM}	Surge Non Repetitive Forward Current		$T_p = 10 \text{ ms}$ Sinusoidal Per diode	150	A
I_{RRM}	Peak Repetitive Reverse Current		$T_p = 2 \mu\text{s}$ $F = 1\text{KHz}$ Per diode	1	A
T_{stg} T_j	Storage and Junction Temperature Range			- 65 to + 150 - 65 to + 150	$^\circ\text{C}$
dV/dt	Critical Rate of Rise of Reverse Voltage			1000	V/ μs

Symbol	Parameter	STPS		Unit
		1535CT 1535CF	1545CT 1545CF	
V_{RRM}	Repetitive Peak Reverse Voltage	35	45	V

STPS1535CT/CF / STPS1545CT/CF

THERMAL RESISTANCE

Symbol	Parameter			Value	Unit
$R_{TH(j-c)}$	Junction-case	TO220AB	Per diode total	3.0 1.7	°C/W
		ISOWATT220AB	Per diode total	5.5 4.2	
$R_{TH(c)}$	Coupling	TO220AB		0.35	°C/W
		ISOWATT220AB		2.9	

When the diodes 1 and 2 are used simultaneously :
 $\Delta T_J(\text{diode } 1) = P(\text{diode } 1) \times R_{TH}(\text{Per diode}) + P(\text{diode } 2) \times R_{TH(c)}$

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS PER DIODE

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	$T_J = 25^\circ\text{C}$	$V_R = V_{RRM}$			100	μA
	$T_J = 125^\circ\text{C}$				15	mA
V_F^{**}	$T_J = 125^\circ\text{C}$	$I_F = 15\text{ A}$			0.72	V
	$T_J = 125^\circ\text{C}$	$I_F = 7.5\text{ A}$			0.57	
	$T_J = 25^\circ\text{C}$	$I_F = 15\text{ A}$			0.84	

Pulse test : * $t_p = 5\text{ ms}$, duty cycle $< 2\%$
 ** $t_p = 380\text{ }\mu\text{s}$, duty cycle $< 2\%$

To evaluate the conduction losses use the following equation :
 $P = 0.42 \times I_{F(AV)} + 0.020 I_F^2(\text{RMS})$

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

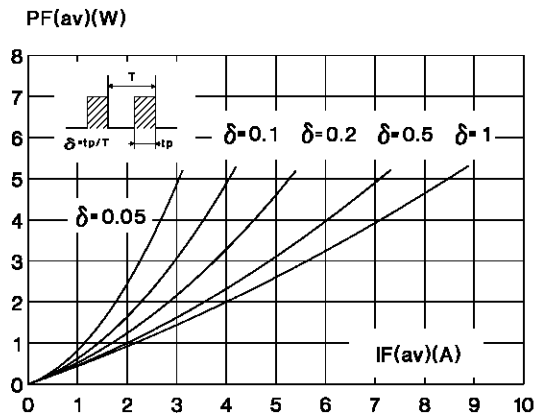


Fig. 2 : Average current versus ambient temperature.
(duty cycle : 0.5) (Per diode) (TO220AB)

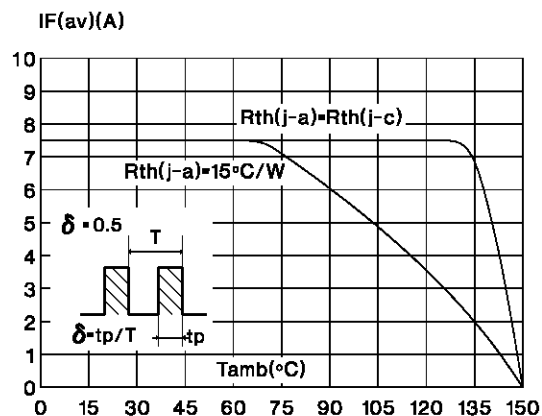


Fig. 3 : Average current versus ambient temperature.
(duty cycle : 0.5) (Per diode) (ISOWATT220AB)

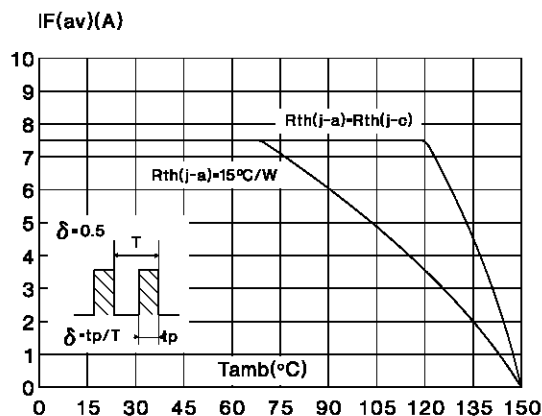


Fig. 4 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode) (TO220AB)

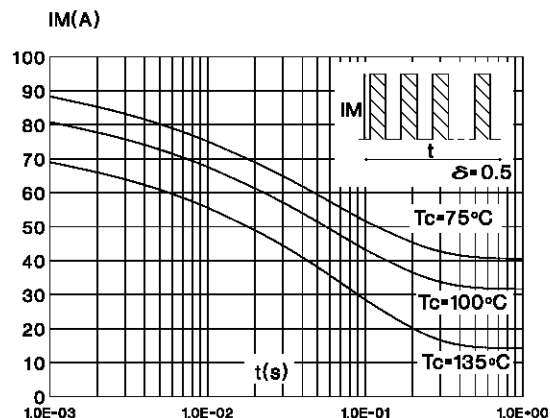


Fig. 5 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode) (ISOWATT220AB)

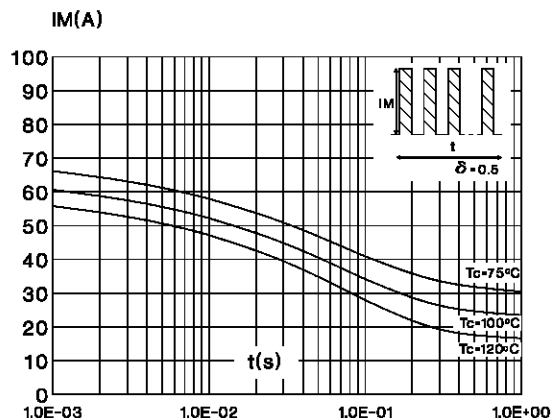


Fig. 6 : Relative variation of thermal transient impedance junction to case versus pulse duration.
(TO220AB)

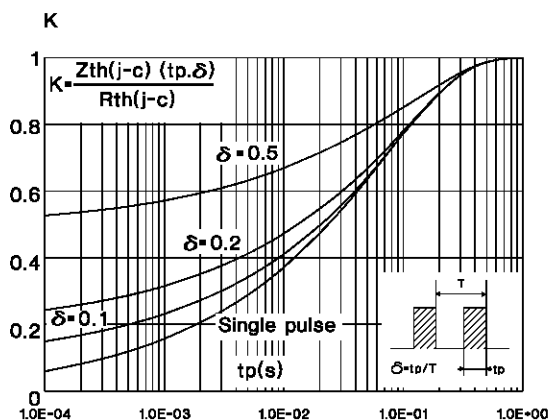


Fig. 7 : Relative variation of thermal transient impedance junction to case versus pulse duration.
(ISOWATT220AB)

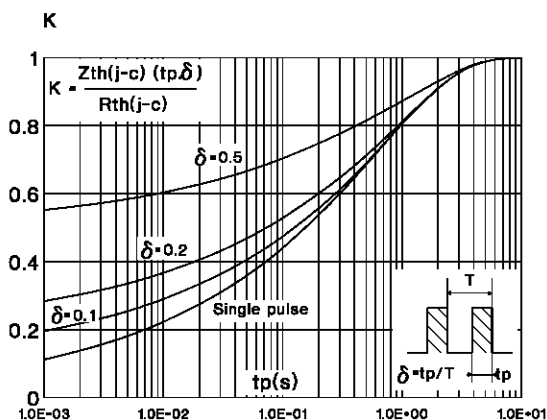


Fig. 8 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

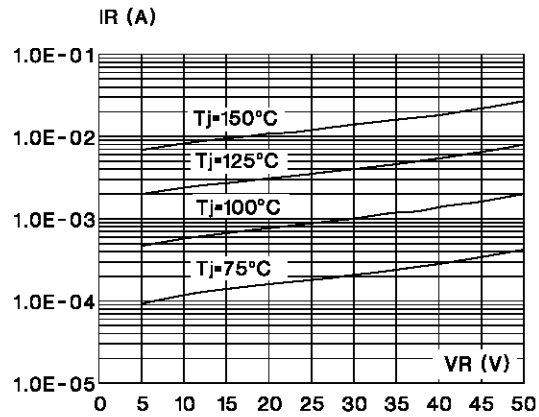


Fig. 9 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

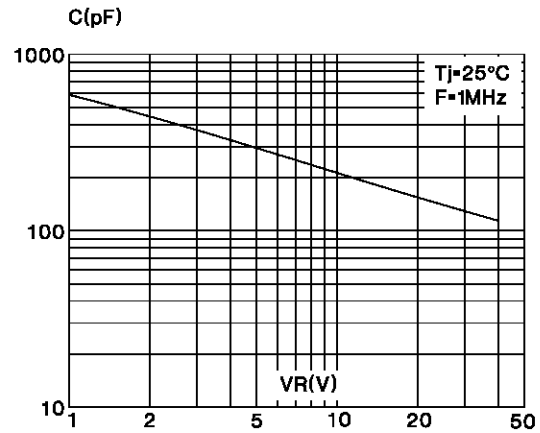
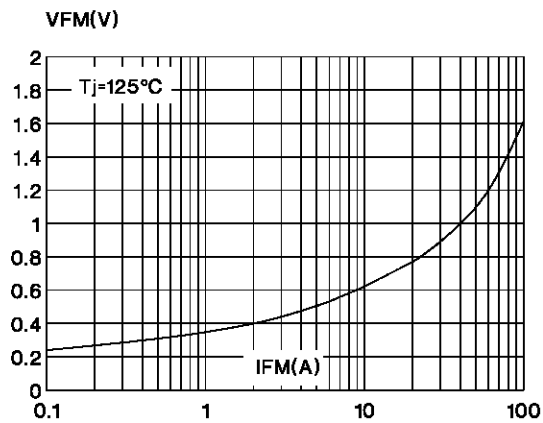


Fig. 10 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



PACKAGE MECHANICAL DATA

TO220AB (JEDEC outline)

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10.0	10.4	0.393	0.409
B	15.2	15.9	0.598	0.626
C	13	14	0.511	0.551
D	6.2	6.6	0.244	0.260
E	16.4 typ.		0.645 typ.	
F	3.5	4.2	0.137	0.165
G	2.65	2.95	0.104	0.116
H	4.4	4.6	0.173	0.181
I	3.75	3.85	0.147	0.151
J	1.23	1.32	0.048	0.051
K	1.27 typ.		0.050 typ.	
L	0.49	0.70	0.019	0.027
M	2.4	2.72	0.094	0.107
N	4.95	5.15	0.194	0.203
N1	2.40	2.70	0.094	0.106
O	1.14	1.70	0.044	0.067
P	0.61	0.88	0.024	0.034

Cooling method : C

Marking : Type number

Weight : 2 g

Recommended torque value : 0.55m.N

Maximum torque value : 0.7m.N

PACKAGE MECHANICAL DATA

ISOWATT220AB (JEDEC outline)

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10	10.4	0.393	0.409
B	15.9	16.4	0.626	0.645
B1	9.8	10.6	0.385	0.417
C	28.6	30.6	1.126	1.204
D	16 typ		0.630 typ	
E	9	9.3	0.354	0.366
H	4.4	4.6	0.173	0.181
I	3	3.2	0.118	0.126
J	2.5	2.7	0.098	0.106
L	0.4	0.7	0.015	0.027
M	2.5	2.75	0.098	0.108
N	4.95	5.2	0.195	0.204
N1	2.4	2.7	0.094	0.106
O	1.15	1.7	0.045	0.067
P	0.75	1	0.030	0.039

Cooling method : C

Marking : Type number

Weight : 2.1 g

Recommended torque value : 0.55m.N

Maximum torque value : 0.70m.N

Electrical isolation : 2000V DC

Capacitance : 12pF

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