STPS1545CT/CF/CG

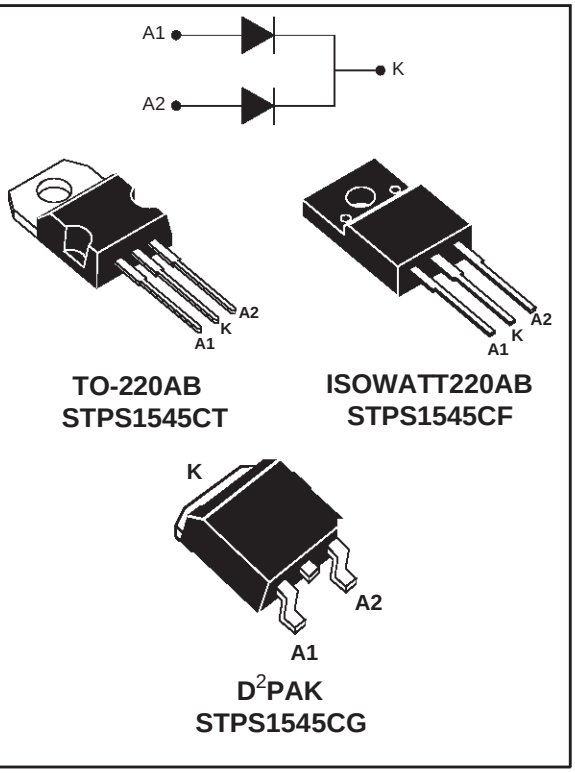
POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 7.5 A
V_{RRM}	45 V
V_F	0.57 V

FEATURES AND BENEFITS

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



TO-220AB
STPS1545CT

ISOWATT220AB
STPS1545CF

D^2PAK
STPS1545CG

DESCRIPTION

Dual center tap Schottky rectifier suited for Switch-Mode Power Supply and high frequency DC to DC converters.

This device is especially intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter				Value	Unit
V_{RRM}	Repetitive peak reverse voltage			Per diode	45	V
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220AB / D^2PAK	Tc = 135°C	Per diode	7.5	A
		ISOWATT220AB	Tc = 120°C	Per device	15	
$I_{F(RMS)}$	RMS forward current			Per diode	20	A
I_{FSM}	Surge non repetitive forward current		tp = 10 ms Sinusoidal	Per diode	150	A
I_{RRM}	Repetitive peak reverse current		tp = 2 µs F = 1kHz	Per diode	1	A
Tstg	Storage temperature range				-65 to +150	°C
Tj	Maximum junction temperature				150	°C
dV/dt	Critical rate of rise of reverse voltage				10000	V/µs

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th\ (j-c)}$	Junction to case	TO-220AB / D^2PAK	Per diode Total	3.0 1.7	°C/W
		ISOWATT220AB	Per diode Total	5.5 4.2	
$R_{th\ (c)}$	Coupling	TO-220AB / D^2PAK		0.35	°C/W
		ISOWATT220AB		2.9	

When the diodes 1 and 2 are used simultaneously:

Δ Tj (diode 1) = P (diode1) x R_{TH} (per diode) + P (diode 2) x $R_{TH(C)}$

STATIC ELECTRICAL CHARACTERISTICS (Per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			100	µA
		Tj = 125°C				15	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 15 A			0.84	V
		Tj = 125°C	I_F = 15 A			0.72	
		Tj = 125°C	I_F = 7.5 A			0.57	

Pulse test : * tp = 5 ms, δ< 2 %
** tp = 380 µs, δ < 2%

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

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

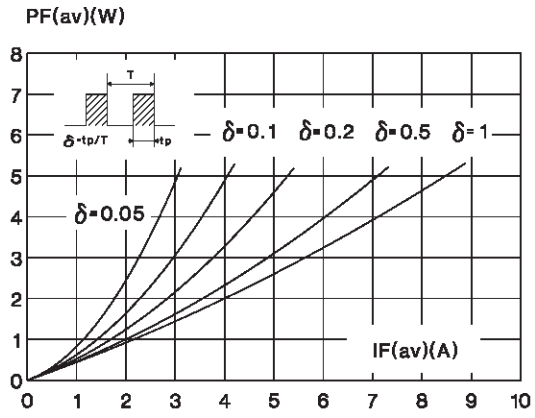


Fig. 2-1: Average current versus ambient temperature (δ=0.5) (per diode) (TO-220AB and D²PAK).

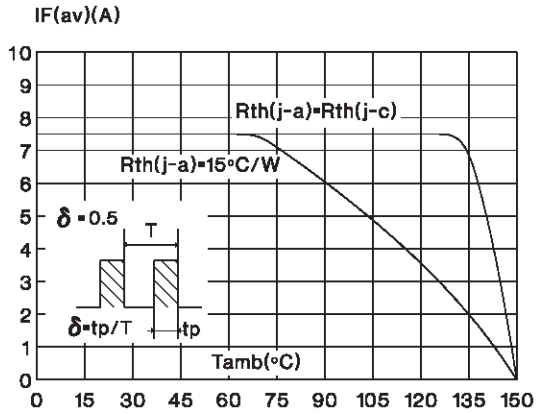


Fig. 2-2: Average current versus ambient temperature (δ= 0.5) (per diode) (ISOWATT220AB).

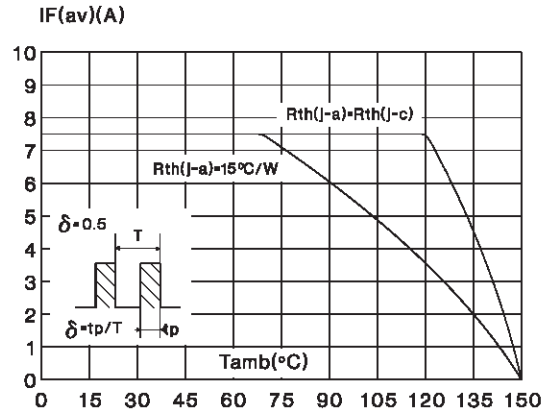


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode) (TO-220AB and D²PAK).

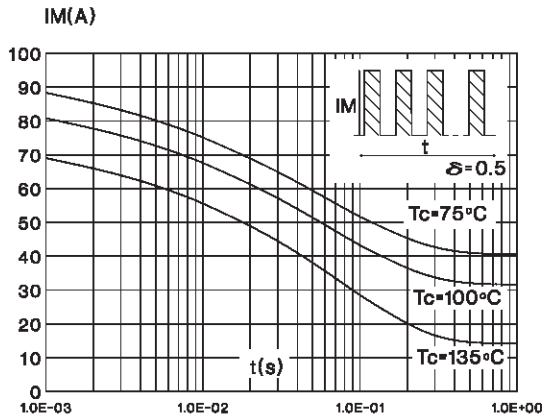


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode) (ISOWATT220AB).

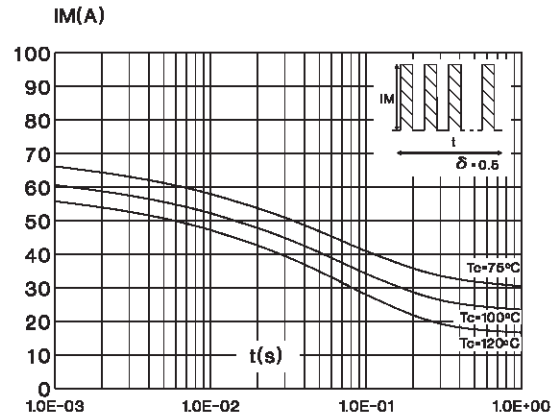


Fig. 4-1: Relative variation of thermal transient impedance junction to case versus pulse duration (TO-220AB and D²PAK).

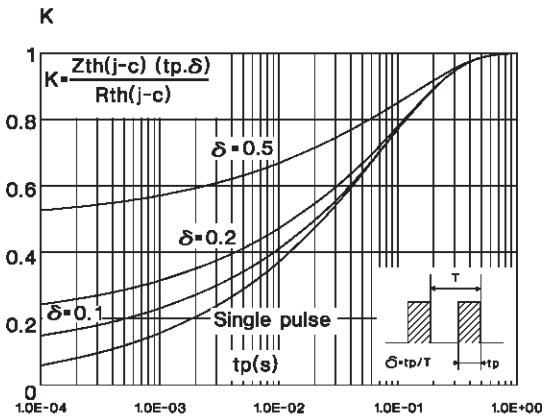


Fig. 4-2: Relative variation of thermal transient impedance junction to case versus pulse duration (ISOWATT220AB).

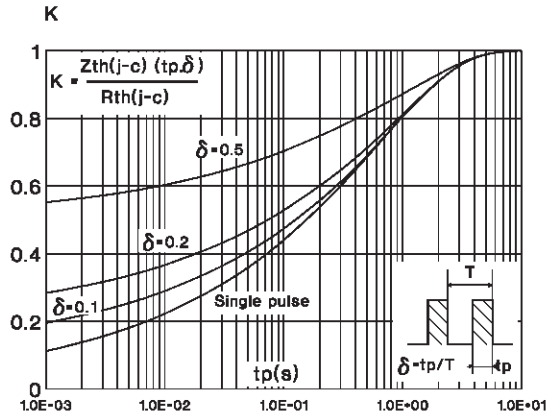


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

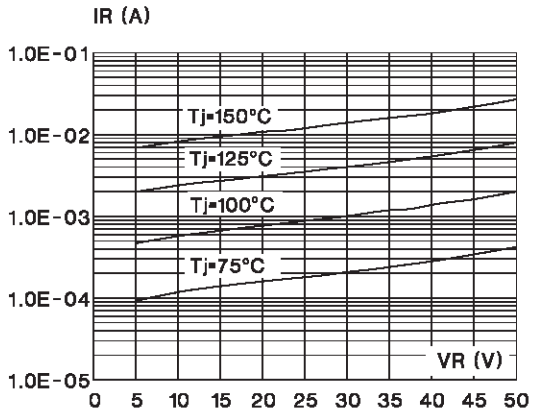


Fig. 6: Junction capacitance versus reverse voltage applied (typical values) (per diode).

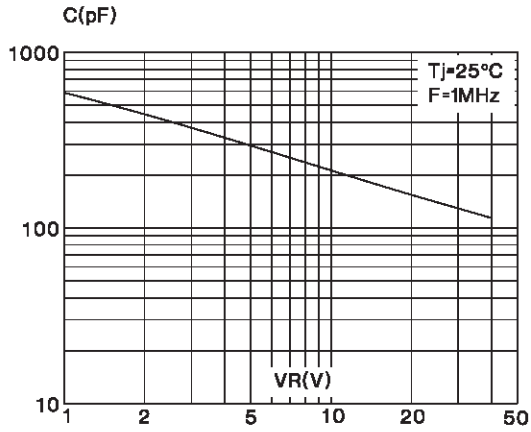
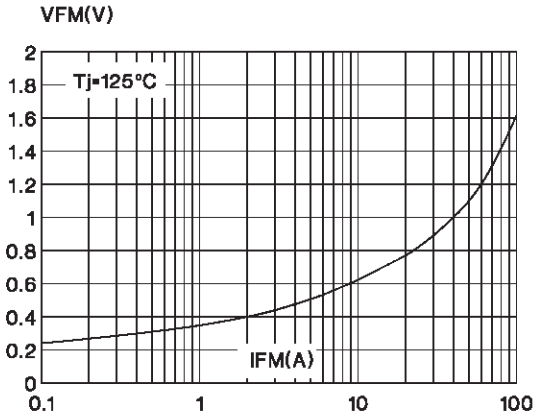
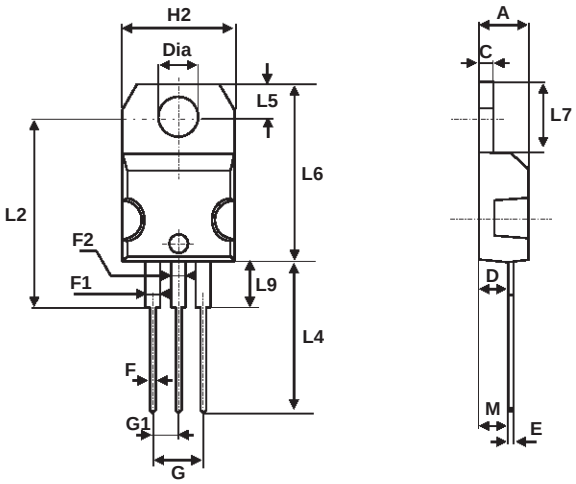


Fig. 7: Forward voltage drop versus forward current (maximum values) (per diode).

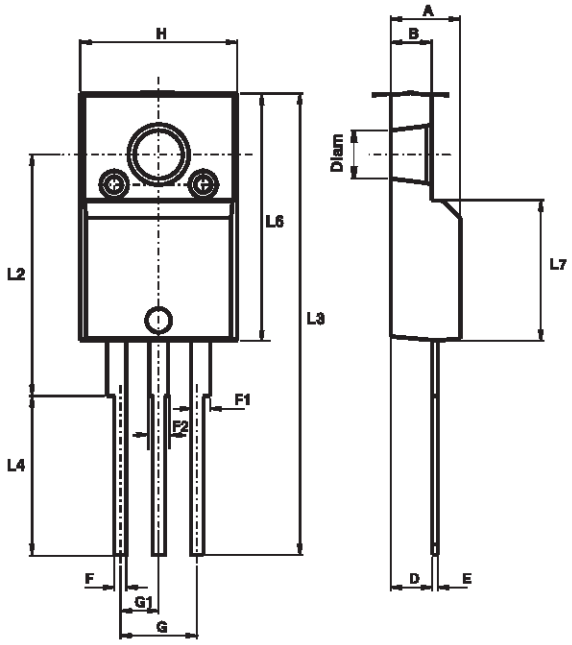


PACKAGE MECHANICAL DATA
TO-220AB



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

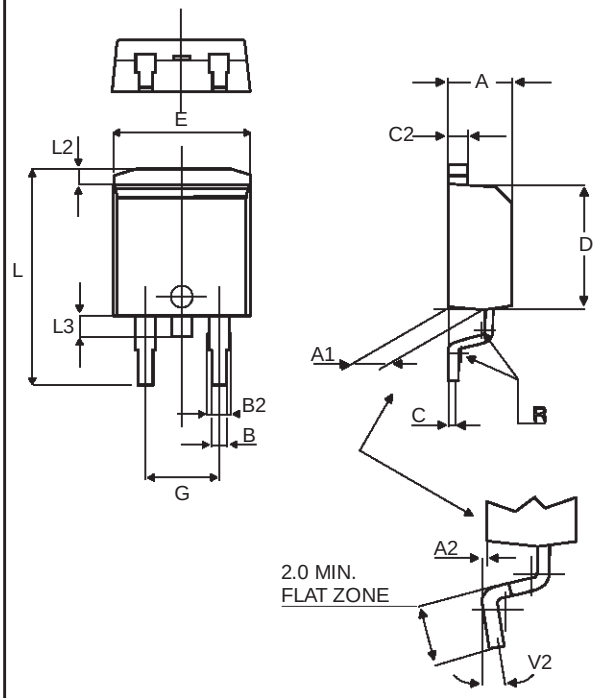
PACKAGE MECHANICAL DATA
ISOWATT220AB



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	2.50		2.70	0.098		0.106
D	2.50		2.75	0.098		0.108
E	0.40		0.70	0.016		0.028
F	0.75		1.00	0.030		0.039
F1	1.15		1.70	0.045		0.067
F2	1.15		1.70	0.045		0.067
G	4.95		5.20	0.195		0.205
G1	2.40		2.70	0.094		0.106
H	10.00		10.40	0.394		0.409
L2		16.00			0.630	
L3	28.60		30.60	1.125		1.205
L4	9.80		10.60	0.386		0.417
L6	15.90		16.40	0.626		0.646
L7	9.00		9.30	0.354		0.366
Diam	3.00		3.20	0.118		0.0126

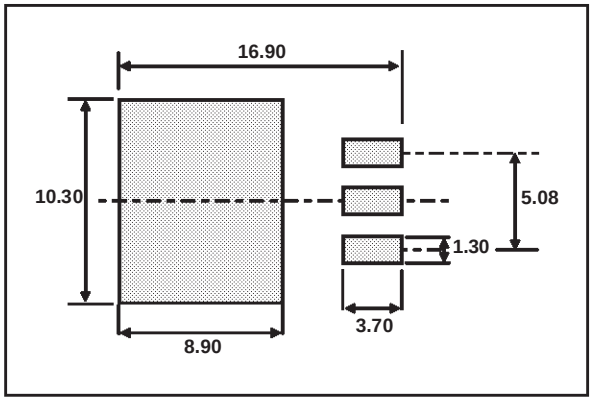
PACKAGE MECHANICAL DATA

D^2PAK



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.048	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.393		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

FOOTPRINT DIMENSIONS (in millimeters)



- Marking: Type number
- Cooling method: C
- Weight: 1.8 g.