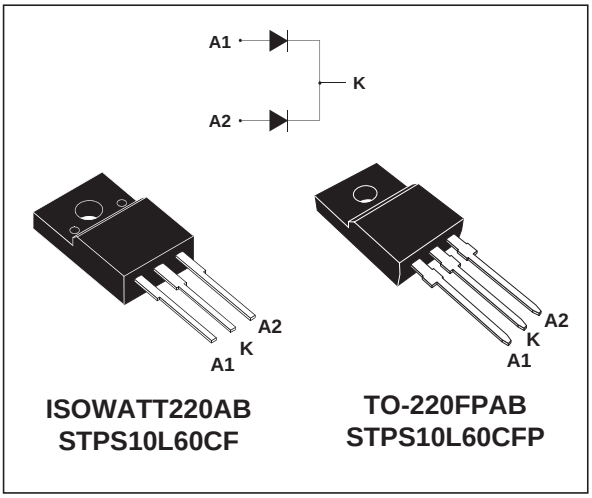
STPS10L60CF/CFP

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 5 A
V_{RRM}	60 V
Tj (max)	150 °C
V_F (max)	0.52 V



ISOWATT220AB
STPS10L60CF

TO-220FPAB
STPS10L60CFP

FEATURES AND BENEFITS

- LOW FORWARD VOLTAGE DROP
- NEGLIGIBLE SWITCHING LOSSES
- INSULATED PACKAGE:
  Insulating voltage = 2000V DC
  Capacitance = 12pF
- AVALANCHE CAPABILITY SPECIFIED

DESCRIPTION

Dual center tap Schottky rectifiers suited for Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in ISOWATT220AB, TO-220FPAB this device is intended for use in high frequency inverters.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter				Value	Unit
V_{RRM}	Repetitive peak reverse voltage				60	V
$I_{F(RMS)}$	RMS forward current				30	A
$I_{F(AV)}$	Average forward current	ISOWATT220AB TO220FPAB	Tc =130°C δ = 0.5	Per diode Per device	5 10	A
I_{FSM}	Surge non repetitive forward current		tp = 10 ms Sinusoidal		180	A
I_{RRM}	Repetitive peak reverse current		tp = 2 µs square F = 1kHz		1	A
P_{ARM}	Repetitive peak avalanche power		tp = 1µs Tj = 25°C		4000	W
T_{stg}	Storage temperature range				- 65 to + 175	°C
Tj	Maximum operating junction temperature *				150	°C
dV/dt	Critical rate of rise reverse voltage				10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case ISOWATT220AB TO-220FPAB	Per Diode Total	4.5 3.5	°C/W
$R_{th\ (c)}$		Coupling	2.5	°C/W

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(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	$V_R = V_{RRM}$			220	µA
		Tj = 125°C			45	60	mA
V_F *	Forward voltage drop	Tj = 25°C	I_F = 5 A			0.55	V
		Tj = 125°C	I_F = 5 A		0.43	0.52	
		Tj = 25°C	I_F = 10 A			0.67	
		Tj = 125°C	I_F = 10 A		0.55	0.64	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.4x\ I_{F(AV)} + 0.024\ I_F{}^2{}_{(RMS)}$

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

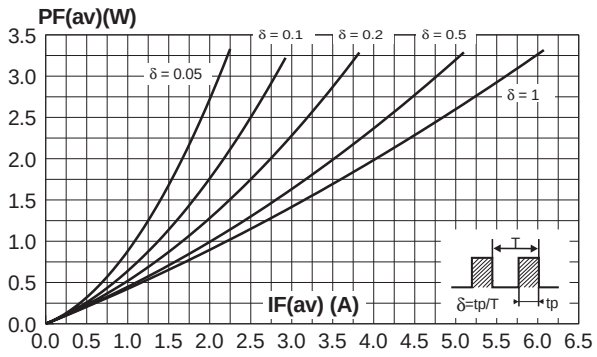


Fig. 2: Average current versus ambient temperature (δ=0.5) (per diode).

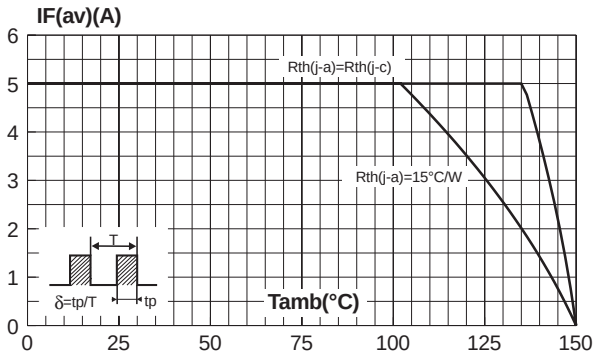


Fig. 3: Normalized avalanche power derating versus pulse duration.

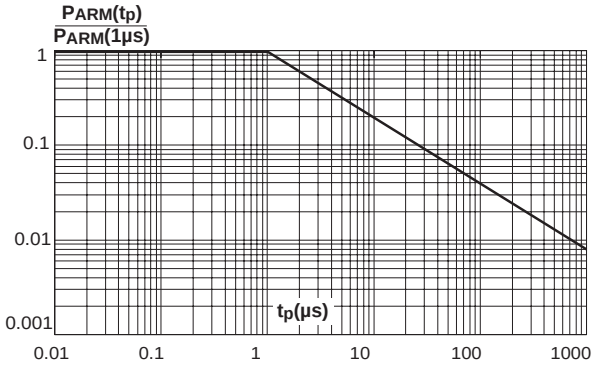


Fig. 4: Normalized avalanche power derating versus junction temperature.

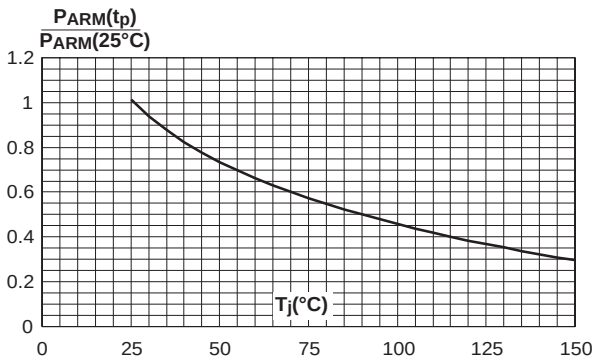


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (ISOWATT220AB, TO-220FPAB).

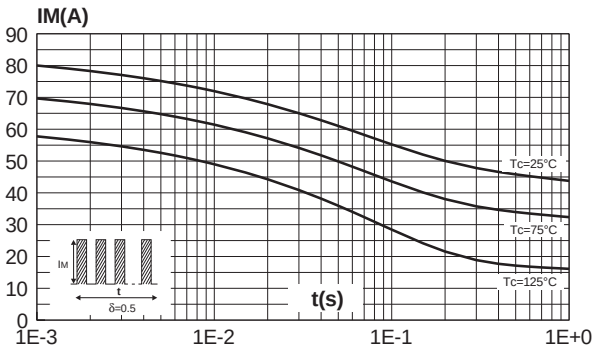


Fig. 6: Relative variation of thermal transient impedance junction to case versus pulse duration. (ISOWATT220AB, TO-220FPAB).

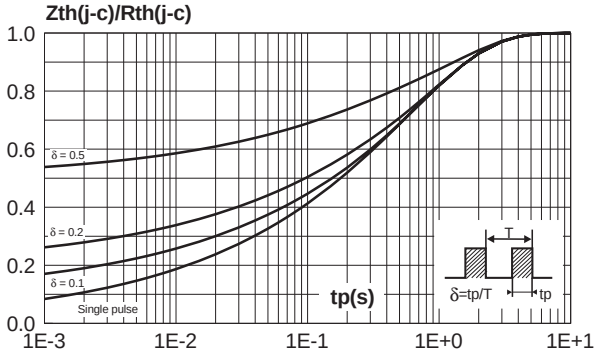


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

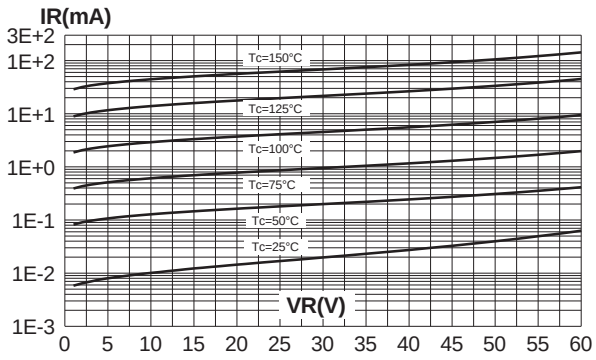


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

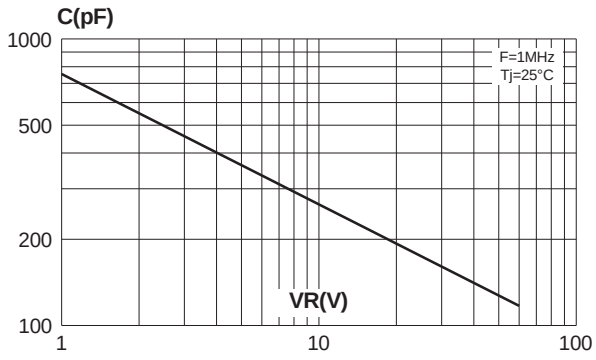
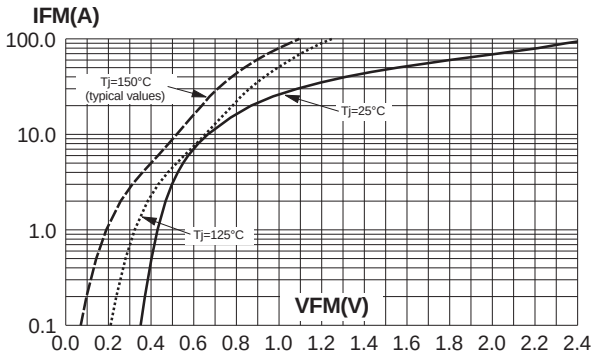
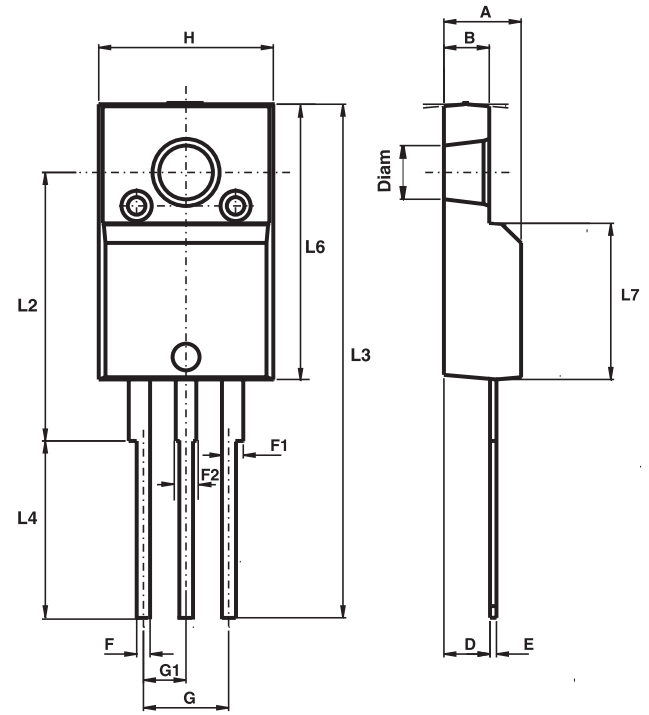


Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).



PACKAGE MECHANICAL DATA

ISOWATT220AB

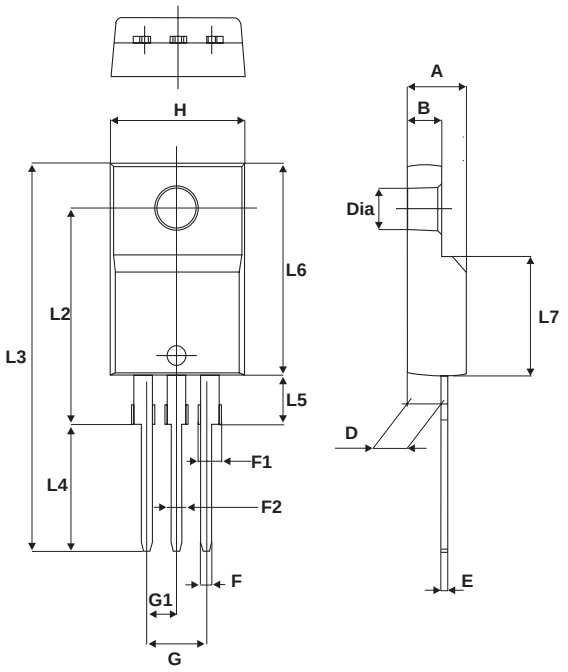


REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
B	2.50	2.70	0.098	0.106
D	2.50	2.75	0.098	0.108
E	0.40	0.70	0.016	0.028
F	0.75	1.00	0.030	0.039
F1	1.15	1.70	0.045	0.067
F2	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.40	2.70	0.094	0.106
H	10.00	10.40	0.394	0.409
L2	16.00 Typ.		0.630 Typ.	
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	0.126

- Cooling method: C
- Recommended torque value: 0.55 m.N
- Maximum torque value: 0.70 m.N

PACKAGE MECHANICAL DATA

TO-220FPAB



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
B	2.5	2.7	0.098	0.106
D	2.5	2.75	0.098	0.108
E	0.45	0.70	0.018	0.027
F	0.75	1	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	2.4	2.7	0.094	0.106
H	10	10.4	0.393	0.409
L2	16 Typ.		0.63 Typ.	
L3	28.6	30.6	1.126	1.205
L4	9.8	10.6	0.386	0.417
L5	2.9	3.6	0.114	0.142
L6	15.9	16.4	0.626	0.646
L7	9.00	9.30	0.354	0.366
Dia.	3.00	3.20	0.118	0.126

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS10L60CF	STPS10L60CF	ISOWATT220AB	2.08g	50	Tube
STPS10L60CF	STPS10L60CF	ISOWATT220AB	2.08g	1000	Bulk
STPS10L60CFP	STPS10L60CFP	TO-220FPAB	2 g	50	Tube

- Epoxy meets UL94,V0