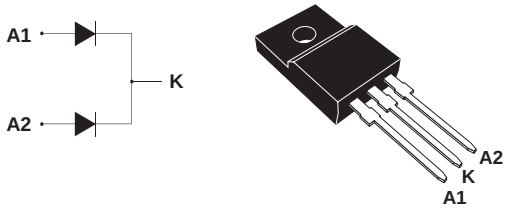
STPS30150CT/CW/CFP

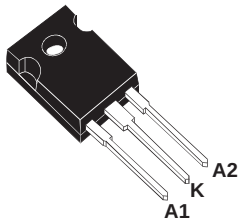
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

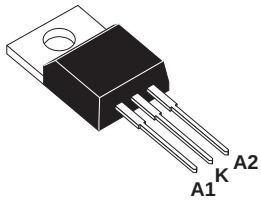
$I_{F(AV)}$	2 x 15 A
V_{RRM}	150 V
Tj	175°C
V_F (max)	0.75 V



TO-220FPAB
STPS30150CFP



TO-247
STPS30150CW



TO-220AB
STPS30150CT

FEATURES AND BENEFITS

- High junction temperature capability
- Good trade off between leakage current and forward voltage drop
- Low leakage current
- Insulated Package: TO-220FPAB
  Insulating voltage: 2000V DC
  Capacitance: 45pF

DESCRIPTION

Dual center tap schottky rectifier designed for high frequency Switched Mode Power Supplies.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter				Value	Unit
V_{RRM}	Repetitive peak reverse voltage				150	V
$I_{F(RMS)}$	RMS forward current				30	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220FPAB	Tc = 110°C	per diode	15	A
		TO-220AB	Tc = 155°C	per device		
		TO-247			30	
I_{FSM}	Surge non repetitive forward current		tp = 10 ms sinusoidal		220	A
T_{stg}	Storage temperature range				- 65 to + 175	°C
Tj	Maximum operating junction temperature *				175	°C
dV/dt	Critical rate of rise of reverse voltage				10000	V/µs

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

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th\ (j-c)}$	Junction to case	TO-220FPAB	Per diode Total	4 3.3	°C/W
		TO-220AB	Per diode Total	1.6 0.85	
		TO-247	Per diode Total	1.5 0.8	
$R_{th\ (c)}$		TO-220FPAB	Coupling	2.6	
		TO-220AB	Coupling	0.1	
		TO-247	Coupling	0.1	

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	$V_R = V_{RRM}$			6.5	µA
		Tj = 125°C				8	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 15 A			0.92	V
		Tj = 125°C	I_F = 15 A		0.69	0.75	
		Tj = 25°C	I_F = 30 A			1	
		Tj = 125°C	I_F = 30 A		0.8	0.86	

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

To evaluate the conduction losses use the following equation:
$P = 0.64 \times I_{F(AV)} + 0.0073\ I_{F}{}^{2}{}_{(RMS)}$

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

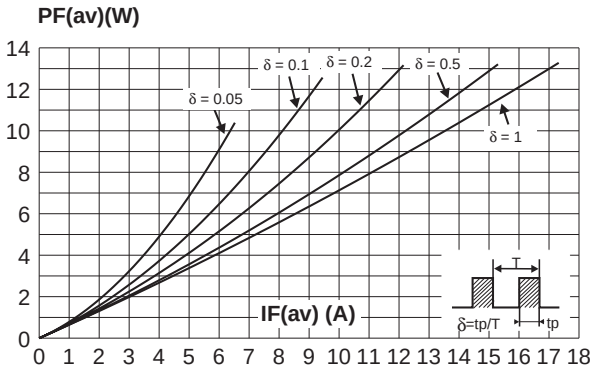


Fig. 2: Average forward current versus ambient temperature (δ = 0.5, per diode).

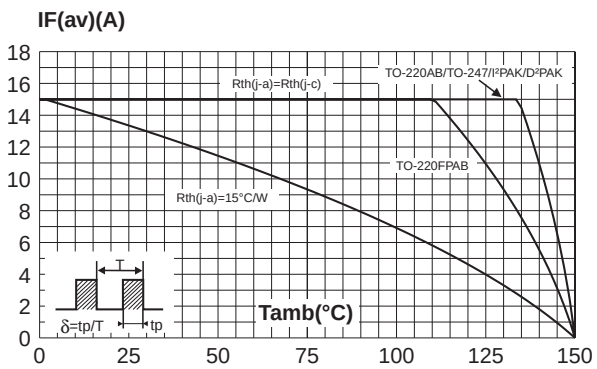


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

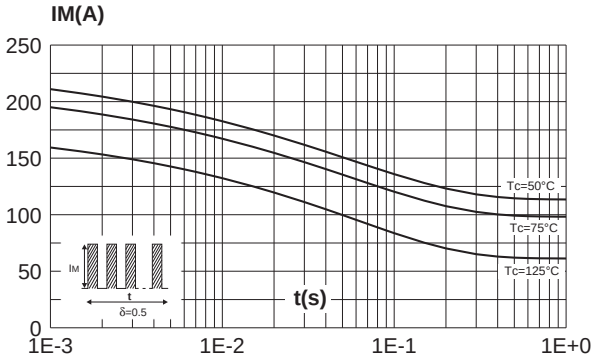


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (TO-220FPAB only).

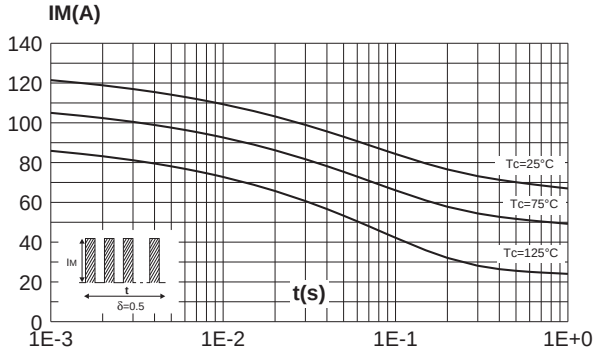


Fig. 4-1: Relative variation of thermal impedance junction to case versus pulse duration (per diode)

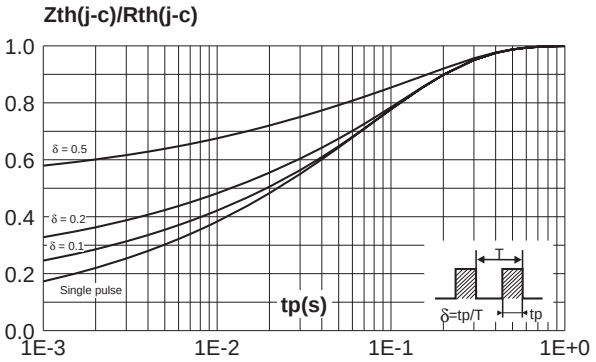


Fig. 4-2: Relative variation of thermal impedance junction to case versus pulse duration. (TO-220FPAB)

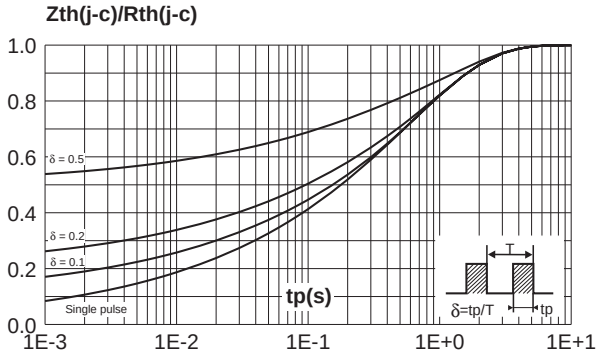


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

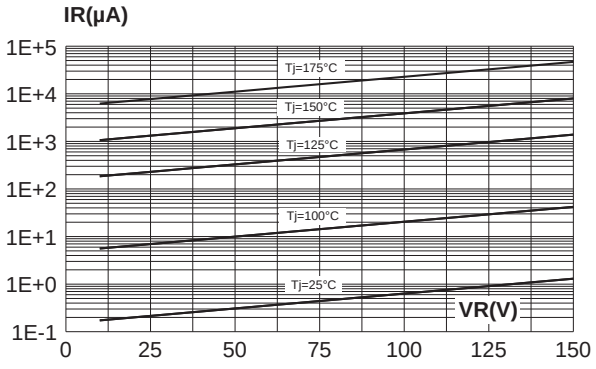


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

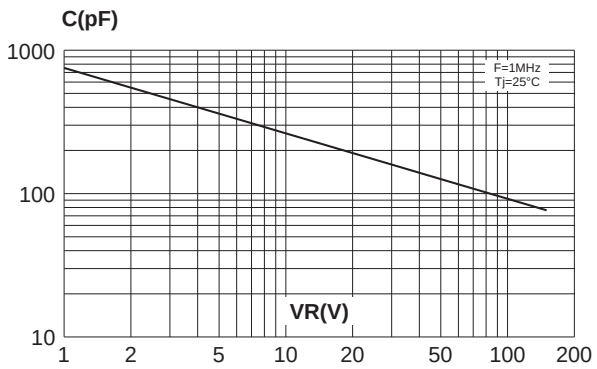
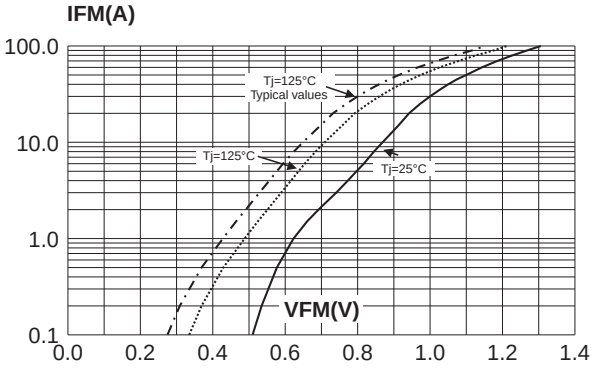
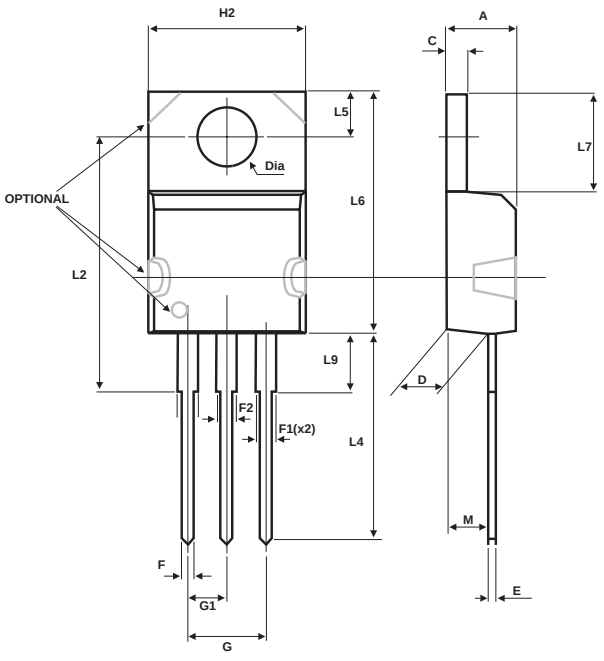


Fig. 7: Forward voltage drop versus forward current (maximum values, per diode).



PACKAGE MECHANICAL DATA

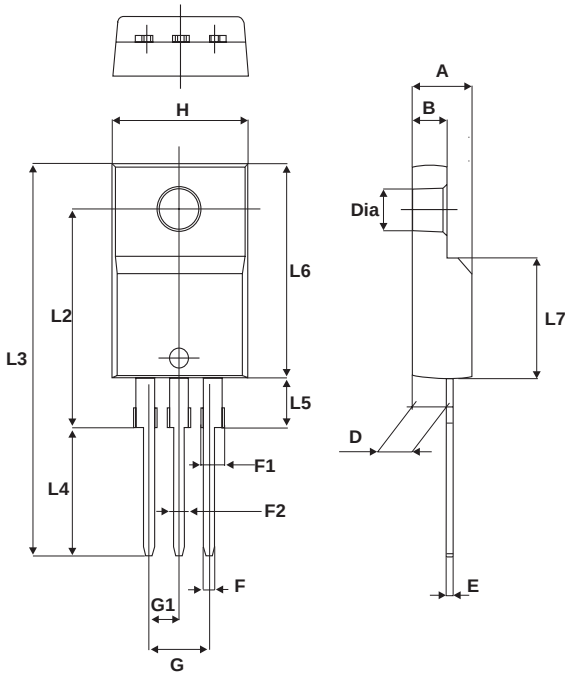
TO-220AB



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.60	0.169	0.181
C	1.22	1.32	0.048	0.052
D	2.40	2.72	0.094	0.107
E	0.33	0.70	0.013	0.028
F	0.61	0.93	0.024	0.037
F1	1.14	1.70	0.045	0.067
F2	1.14	1.70	0.045	0.067
G	4.95	5.15	0.195	0.202
G1	2.40	2.70	0.094	0.106
H2	10.00	10.40	0.394	0.409
L2	16.00 Typ.		0.630 Typ.	
L4	13.00	14.00	0.512	0.551
L5	2.65	2.95	0.104	0.116
L6	14.80	15.75	0.583	0.620
L7	6.20	6.60	0.244	0.260
L9	3.40	3.94	0.134	0.155
M	2.60 Typ.		0.102 Typ.	
Dia.	3.75	3.89	0.148	0.153

PACKAGE MECHANICAL DATA

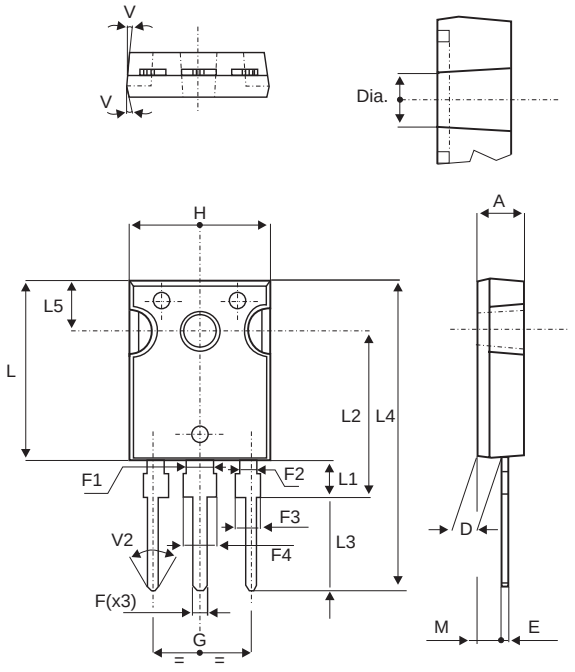
TO-220FPAB



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

PACKAGE MECHANICAL DATA

TO-247



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.85		5.15	0.191		0.203
D	2.20		2.60	0.086		0.102
E	0.40		0.80	0.015		0.031
F	1.00		1.40	0.039		0.055
F1		3.00			0.118	
F2		2.00			0.078	
F3	2.00		2.40	0.078		0.094
F4	3.00		3.40	0.118		0.133
G		10.90			0.429	
H	15.45		15.75	0.608		0.620
L	19.85		20.15	0.781		0.793
L1	3.70		4.30	0.145		0.169
L2		18.50			0.728	
L3	14.20		14.80	0.559		0.582
L4		34.60			1.362	
L5		5.50			0.216	
M	2.00		3.00	0.078		0.118
V		5°			5°	
V2		60°			60°	
Dia.	3.55		3.65	0.139		0.143

- Cooling method : C
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N

Ordering Type	Marking	Package	Weight	Base qty	Delivery mode
STPS30150CT	STPS30150CT	TO-220AB	2 g	50	Tube
STPS30150CFP	STPS30150CFP	TO-220FPAB	1.9 g	50	Tube
STPS30150CW	STPS30150CW	TO-247	4.4 g	30	Tube

- Epoxy meets UL94, V0

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