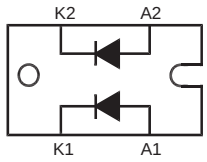
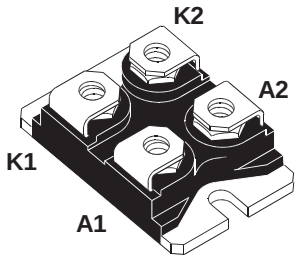
STPS120L15TV

LOW DROP OR-ing POWER SCHOTTKY DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 60 A
V_{RRM}	15 V
Tj (max)	125 °C
V_F (max)	0.31 V





ISOTOPTM

FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- INSULATED PACKAGE:
  Insulated voltage = 2500 $V_{(RMS)}$
  Capacitance = 45 pF
- AVALANCHE CAPABILITY SPECIFIED

DESCRIPTION

Dual Schottky rectifier suited for Switched Mode Power Supplies and DC to DC power converters.

Packaged in ISOTOP™, this device is especially intended for use as an OR-ing diode in fault tolerant power supply equipments.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		15	V
$I_{F(RMS)}$	RMS forward current		160	A
$I_{F(AV)}$	Average forward current	Tc = 115°C δ = 1	60	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	1200	A
I_{RRM}	Repetitive peak reverse current	tp = 2µs F = 1kHz	2	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C	72030	W
T_{stg}	Storage temperature range		- 65 to + 150	°C
Tj	Maximum operating junction temperature		125	°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

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case	Per diode	0.45	°C/W
		Total	0.28	
$R_{th\ (c)}$		Coupling	0.1	

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 100°C	V_R = 5V		450		mA
		Tj = 25°C	V_R = 12V			22	mA
		Tj = 100°C			0.7	2.2	A
V_F *	Forward voltage drop	Tj = 25°C	I_F = 60 A			0.43	V
		Tj = 125°C	I_F = 60 A		0.27	0.31	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.18 \times I_{F(AV)} + 2.2\ 10^{-3} \times I_{F}{}^{2}{}_{(RMS)}$

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

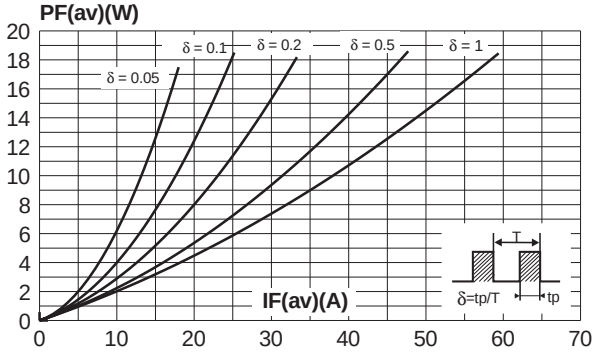


Fig. 2: Average forward current versus ambient temperature (δ =1) (per diode).

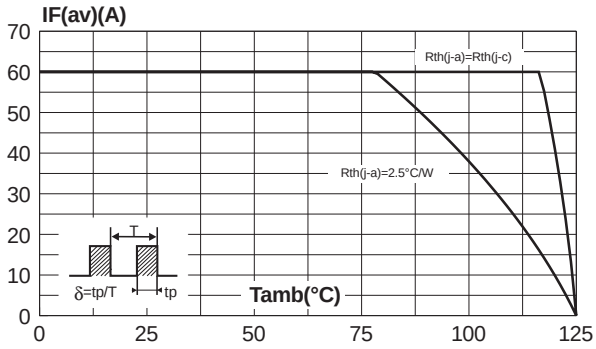


Fig. 3: Normalized avalanche power derating versus pulse duration.

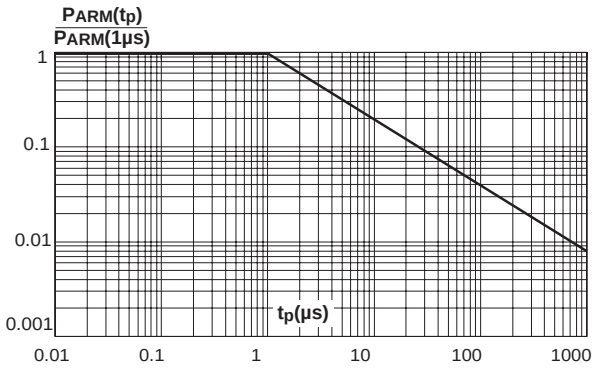


Fig. 4: Normalized avalanche power derating versus junction temperature.

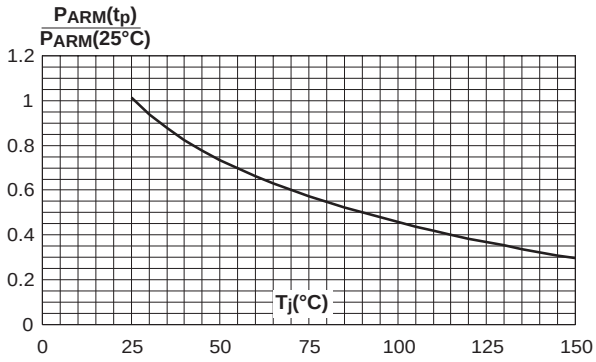


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values per diode).

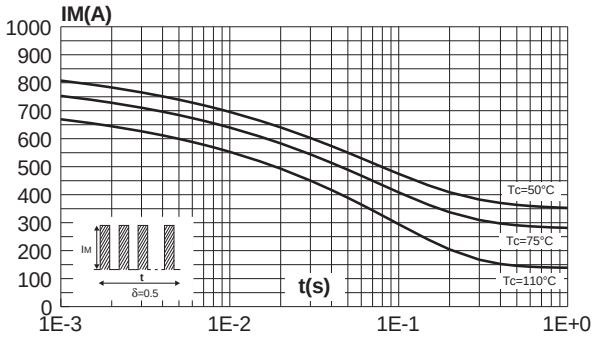


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

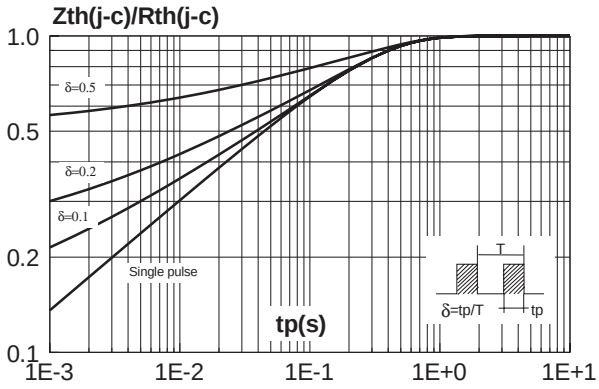


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values per diode).

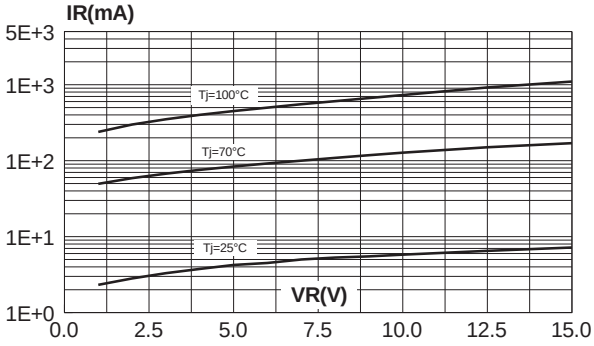


Fig. 8: Junction capacitance versus reverse voltage applied (typical values per diode).

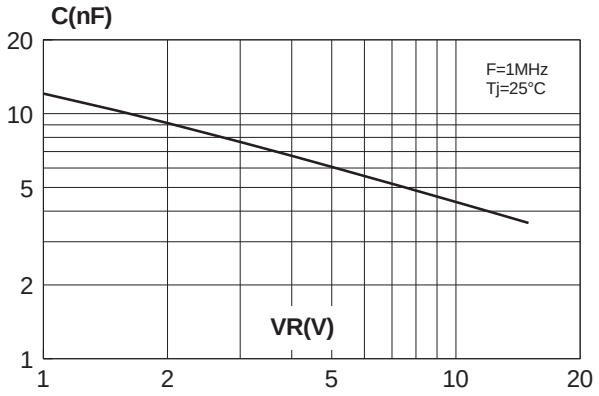
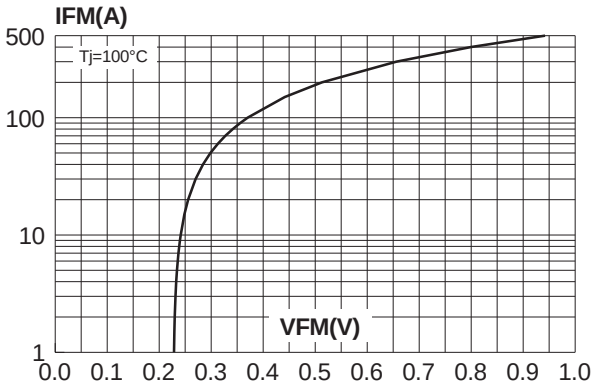
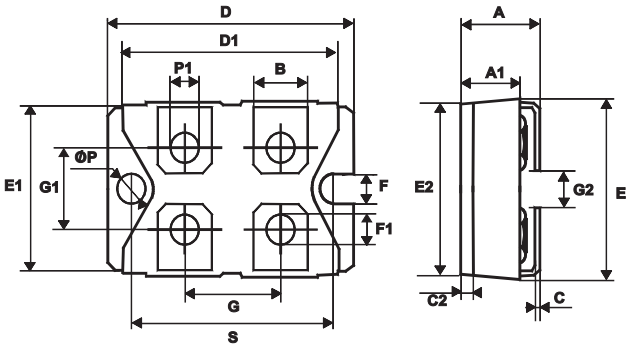


Fig. 9: Forward voltage drop versus forward current (maximum values per diode).



PACKAGE MECHANICAL DATA

ISOTOP



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	11.80	12.20	0.465	0.480
A1	8.90	9.10	0.350	0.358
B	7.8	8.20	0.307	0.323
C	0.75	0.85	0.030	0.033
C2	1.95	2.05	0.077	0.081
D	37.80	38.20	1.488	1.504
D1	31.50	31.70	1.240	1.248
E	25.15	25.50	0.990	1.004
E1	23.85	24.15	0.939	0.951
E2	24.80 typ.		0.976 typ.	
G	14.90	15.10	0.587	0.594
G1	12.60	12.80	0.496	0.504
G2	3.50	4.30	0.138	0.169
F	4.10	4.30	0.161	0.169
F1	4.60	5.00	0.181	0.197
P	4.00	4.30	0.157	0.69
P1	4.00	4.40	0.157	0.173
S	30.10	30.30	1.185	1.193

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS120L15TV	STPS120L15TV	ISOTOP	28g (without screws)	10	Tube

- Cooling method: by conduction (C)
- Recommended torque value : 1.3 N.m.
- Maximum torque value: 1.5 N.m.
- Epoxy meets UL94,V0