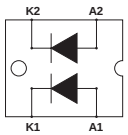
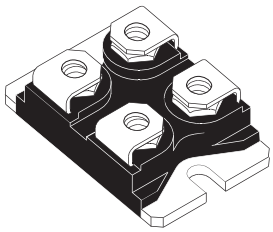
STPS12045TV

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 60 A
V_{RRM}	45 V
Tj (max)	150 °C
V_F (max)	0.67 V





ISOTOPTM

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE:
  Insulating voltage = 2500 $V_{(RMS)}$
  Capacitance = 45 pF

DESCRIPTION

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

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

ABSOLUTE RATINGS (limiting values) per diode

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			45	V
$I_{F(RMS)}$	RMS forward current			125	A
$I_{F(AV)}$	Average forward current	Tc = 95°C δ = 0.5	Per diode Per device	60 120	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal		900	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F = 1kHz		2	A
I_{RSM}	Non repetitive peak reverse current	tp = 100µs square		5	A
T_{stg}	Storage temperature range			- 55 to + 150	°C
Tj	Maximum operating junction temperature *			150	°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	1	°C/W
		Total	0.55	
$R_{th\ (c)}$		Coupling	0.1	

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode) 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	$V_R = V_{RRM}$			1	mA
		Tj = 125°C			43	150	
V_F *	Forward voltage drop	Tj = 25°C	I_F = 120 A			0.91	V
		Tj = 125°C	I_F = 120 A		0.72	0.87	
		Tj = 125°C	I_F = 60 A		0.52	0.67	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.47 \times I_{F(AV)} + 0.00333 \times I_F{}^2{}_{(RMS)}$

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

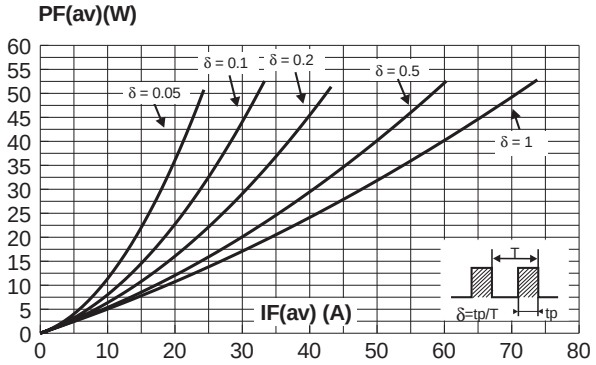


Fig. 2: Average current versus case temperature (δ= 0.5) (per diode).

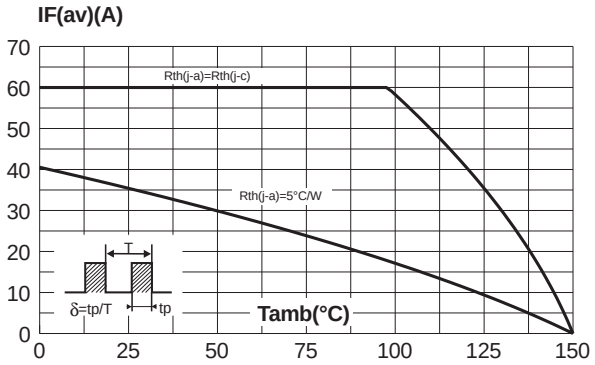


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

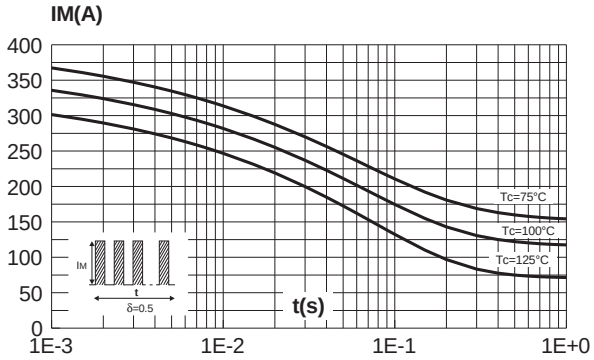


Fig.4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

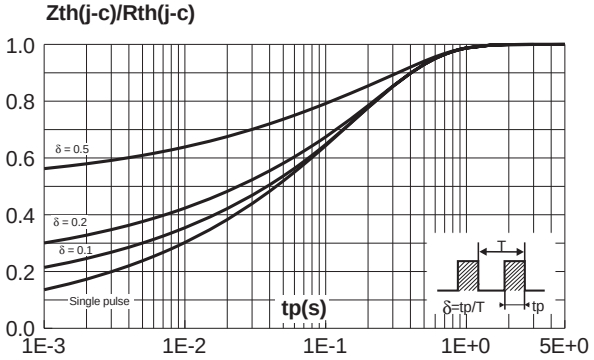


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

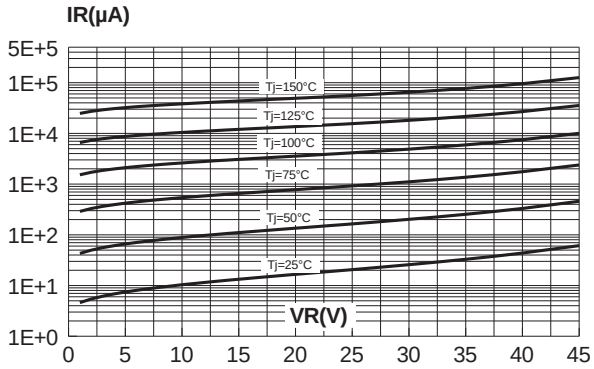


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

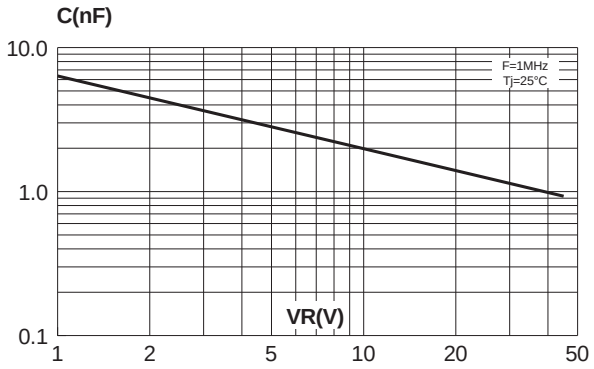
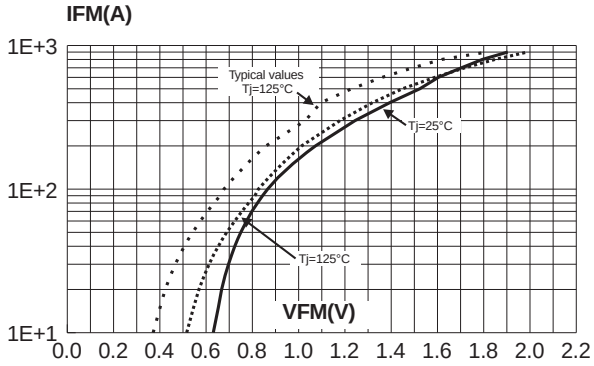
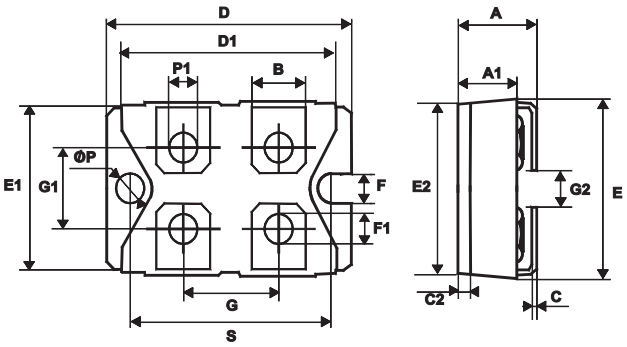


Fig. 7: Forward voltage drop versus forward current (maximum values, per diode).



PACKAGE MECHANICAL DATA

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

Type	Marking	Package	Weight	Base qty	Delivery mode
STPS12045TV	STPS12045TV	ISOTOP	28.9 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

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