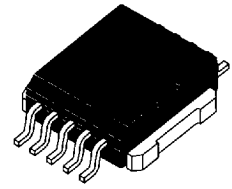
SGS-THOMSON MICROELECTRONICS

STPS3045M

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	30 A
V_{RRM}	45 V
V_F	0.63 V



Power SO-10™
Plastic, non isolated SMD
with copper tab

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH AVALANCHE CAPABILITY
- HIGH DISSIPATION MINIATURE PACKAGE
- SURFACE MOUNT TECHNOLOGY COMPATIBLE

DESCRIPTION

Dual schottky rectifier suited for switchmode power supply and high frequency DC to DC converters.

Packaged in a high performance surface mount package PSO-10, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		45	V
$I_{F(RMS)}$	RMS Forward Current (All pins connected)		44	A
$I_{F(AV)}$	Average Forward Current	Tc = 125°C δ = 0.5	30	A
I_{FSM}	Surge Non Repetitive Forward Current (All pins connected)	tp = 10 ms Sinusoidal	200	A
I_{RRM}	Repetitive Peak Reverse Current	tp = 2 µs F = 1KHz	1	A
Tstg Tj	Storage and Junction Temperature Range		- 65 to + 150	°C
dV/dt	Critical Rate of Rise of Reverse Voltage		1000	V/µs

TM : PowerSO-10 is a trademark of SGS-THOMSON Microelectronics.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{TH(j-c)}$	Junction to Case Thermal Resistance	1.0	°C/W

STATIC ELECTRICAL CHARACTERISTICS (Per diode)

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage Current	Tj = 25°C	$V_R = V_{RRM}$			500	µA
		Tj = 125°C				80	mA
V_F **	Forward Voltage drop	Tj = 125°C	I_F = 60 A			0.78	V
		Tj = 125°C	I_F = 30 A			0.63	
		Tj = 25°C	I_F = 60 A			0.84	

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

To evaluate the conduction losses use the following equation :
$P = 0.48 \times I_{F(AV)} + 0.005\ I_{F^2(RMS)}$

PIN OUT configuration in PowerSO-10 :

Anode = pin 1 to 5
Cathode = connected to base tab

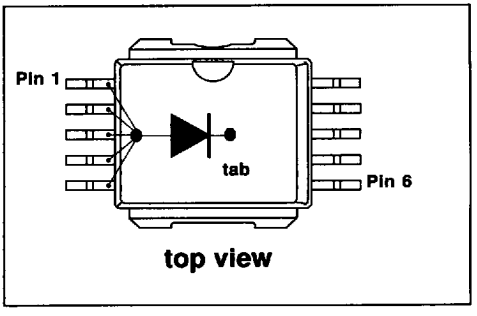


Fig. 1 : Average forward power dissipation versus average forward current.

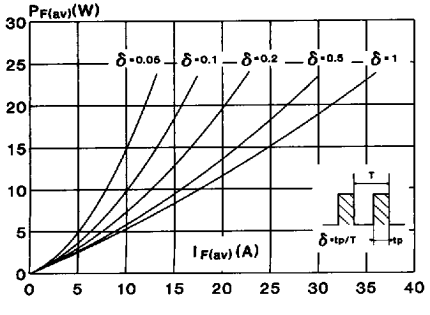


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5)

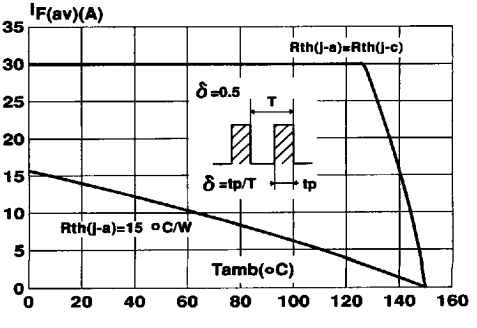


Fig. 3 : Non repetitive surge peak forward current versus overload duration. (Maximum values)

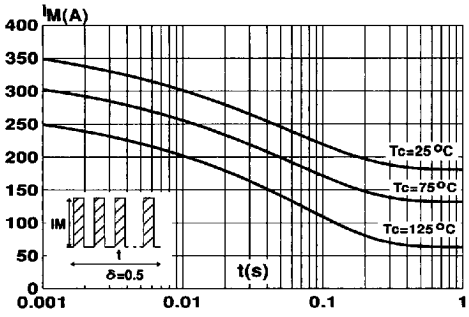


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

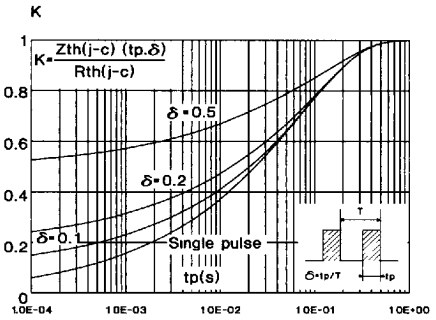


Fig. 5 : Reverse leakage current versus reverse voltage applied. (Typical values

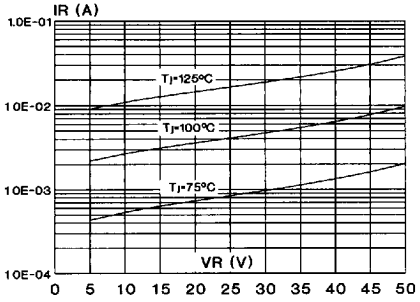


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values)

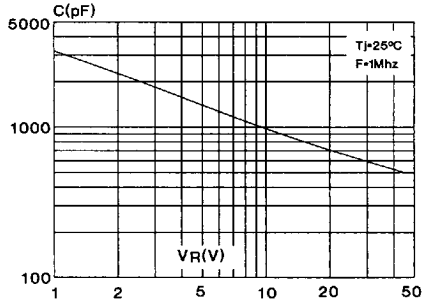


Fig. 7 : Forward voltage drop versus forward current. (Maximum values)