SGS-THOMSON MICROELECTRONICS

STPS30L40CW

POWER SCHOTTKY RECTIFIER

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(av)}$	30 A
V_{RRM}	40 V
V_F (max)	0.50 V

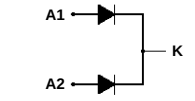
FEATURES AND BENEFITS

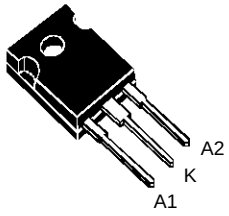
- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE

DESCRIPTION

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

Packaged in TO247 this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.





TO247
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage			40	V
V_{RRSM}	Repetitive Peak Surge Reverse Voltage tp = 0.5ms δ = 0.025			45	V
$I_{F(RMS)}$	RMS Forward Current		Per diode	30	A
$I_{F(AV)}$	Average Forward Current	tc = 110°C δ = 0.5	Per diode Per device	15 0	A
I_{FSM}	Surge Non Repetitive Forward Current	tp = 10 ms Sinusoidal	Per diode	220	A
I_{RRM}	Peak Repetitive Reverse Current	tp = 2 µs F = 1KHz	Per diode	1	A
T_{stg} Tj	Storage and Junction Temperature Range			- 55 to + 150	°C
dV/dt	Critical rate of rise Reverse Voltage			1000	V/µs

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{TH\ (j-c)}$	Junction-case	Per diode total	1.60 0.85	°C/W
$R_{TH\ (c)}$	Coupling		0.10	°C/W

When the diodes 1 and 2 are used simultaneously :
ΔT_J(diode 1) = P(diode1) x R_{TH}(Per diode) + P(diode 2) x $R_{TH(c)}$

ELECTRICAL CHARACTERISTICS

STATIC 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 = 100°C			20	75	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 15 A			0.55	V
		Tj = 125°C	I_F = 15 A		0.42	0.5	

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

To evaluate the conduction losses use the following equation :
$P = 0.330 \times I_{F(AV)} + 0.011\ I_F{}^2{}_{(RMS)}$

junction capacitance (typical value): C = 2500 pF Tj = 25°C, F= 1MHz, V_R = 0V

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

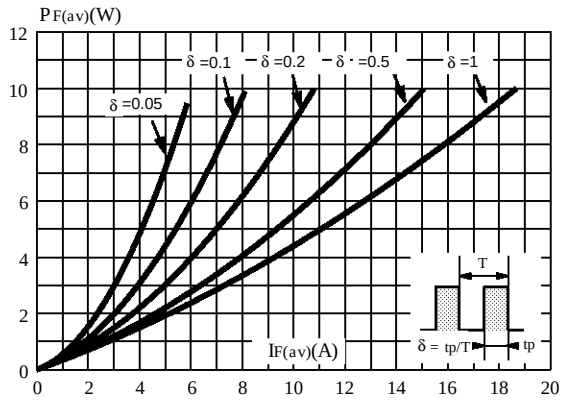


Fig. 2: Average current versus ambient temperature.(duty cycle : 0.5) (Per diode)

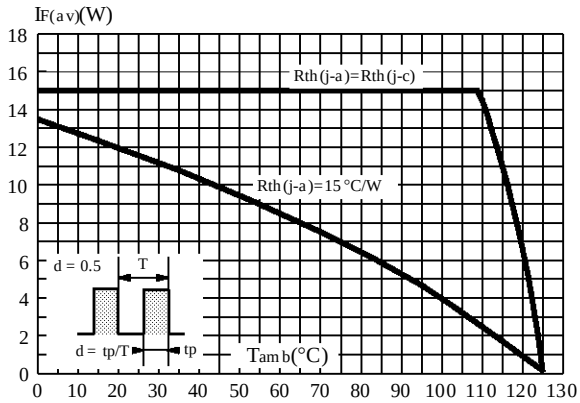


Fig. 3: Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode)

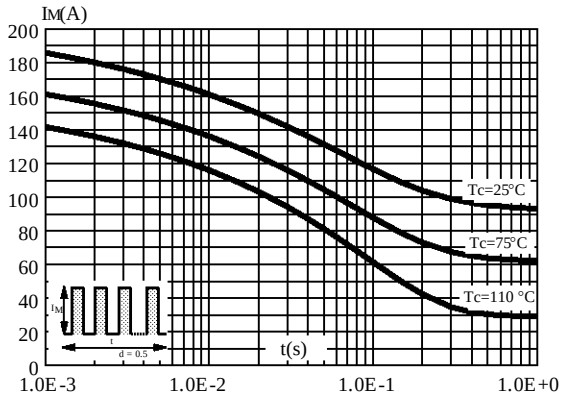


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

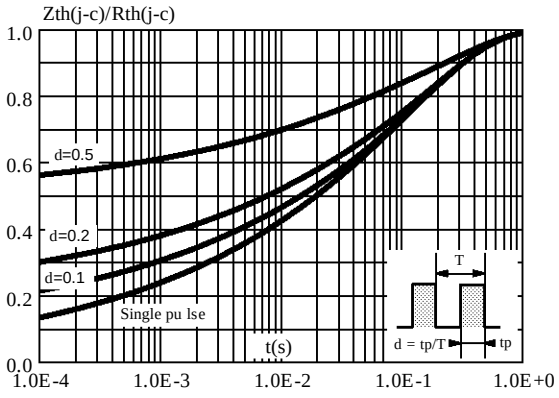


Fig. 5: Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

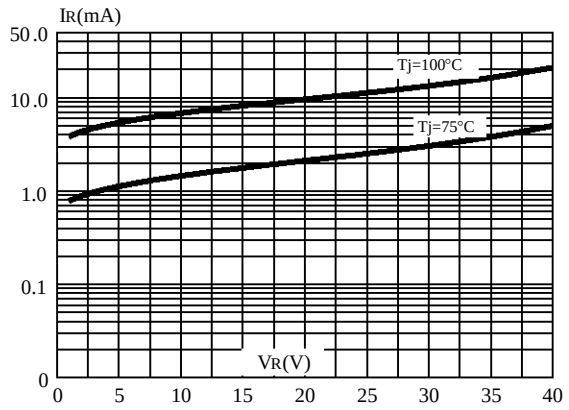


Fig. 6: Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

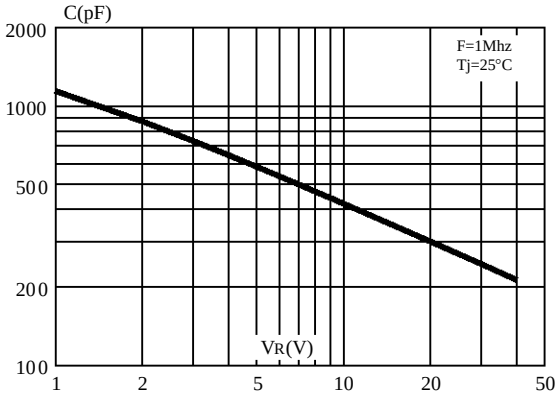
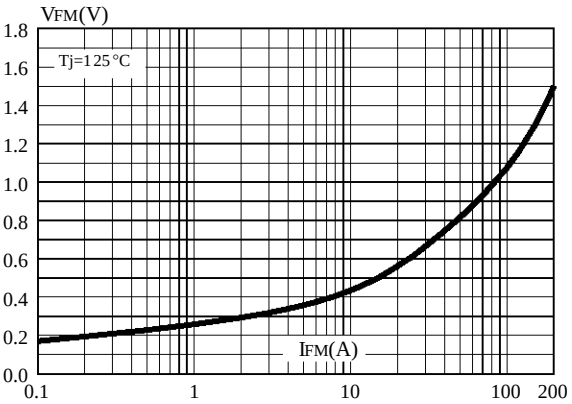
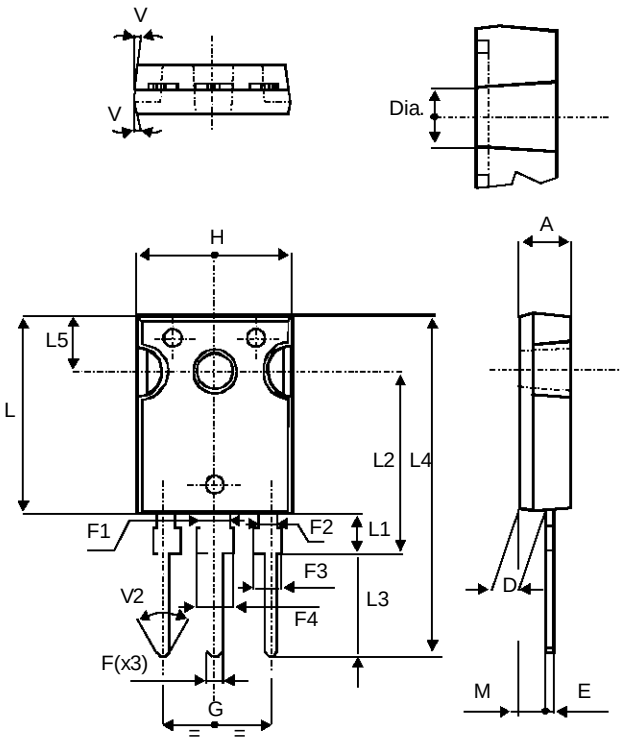


Fig. 7: Forward voltage drop versus forward current. (Maximum values) (Per diode)



PACKAGE MECHANICAL DATA

TO247



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A		4.70	5.30		0.190	0.210
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		15.30	15.90		0.602	0.625
L		19.70	20.30		0.775	0.799
L1		3.70	4.30		0.145	0.169
L2	18.50			0.728		
L3	10.50			0.413		
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
Marking : Type number
Weight : 4.4 g
Recommended torque value : 0.8m.N
Maximum torque value : 1.0m.N