

**HIGH EFFICIENCY
 FAST RECOVERY DIODES**
MAIN PRODUCT CHARACTERISTICS

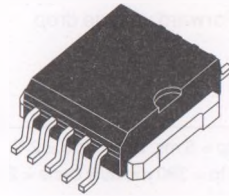
I_{F(AV)}	25 A
V_{RRM}	200 V
t_{rr}	50 ns
V_F	0.85 V

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- HIGH SURGE CURRENT
- HIGH DISSIPATION MINIATURE PACKAGE
- SURFACE MOUNT TECHNOLOGY COMPATIBLE

DESCRIPTION

Single 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 high frequency inverters, free wheeling and polarity protection applications.



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

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		200	V
I _{F(RMS)}	RMS forward current (All pins connected)		44	A
I _{F(AV)}	Average forward current	T _C =125°C δ = 0.5	25	A
I _{FSM}	Surge non repetitive forward current (All pins connected)	t _p =10ms sinusoidal	200	A
I _{FRM}	Repetitive peak forward current	t _p = 5μs f = 5 kHz	310	A
T _{stg} T _j	Storage and junction temperature range		- 40 to + 150	°C

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

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case thermal resistance	1.0	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	V _R = V _{RRM}	T _j = 25°C			25	μA
			T _j = 100°C			2.5	mA
V _F **	Forward voltage drop	I _F = 20 A	T _j = 125°C			0.85	V
		I _F = 40 A	T _j = 125°C			1.05	
		I _F = 40 A	T _j = 25°C			1.15	

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

To evaluate the conduction losses use the following equation :
 $P = 0.65 \times I_{F(AV)} + 0.0075 I_{F(RMS)}^2$

RECOVERY CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t _{rr}	Reverse recovery time	T _j = 25°C	I _F = 0.5A			35	ns
		I _{rr} = 0.25 A	I _R = 1A				
t _{fr}	Forward recovery time	T _j = 25°C	I _F = 1A		10		ns
		dI _F /dt = 100A/μs	V _R = 30V				
V _{FP}	Peak forward voltage	T _j = 25°C	I _F = 1A		1.5		V
		dI _F /dt = 100A/μs					

PIN OUT configuration in PowerSO-10 :

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

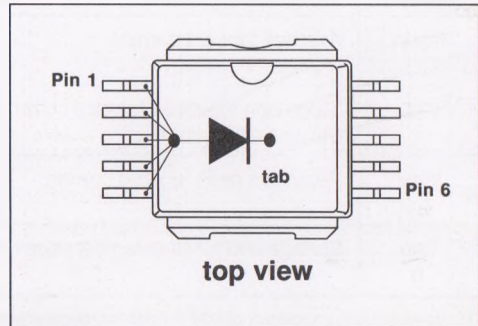


Fig.1 : Average forward power dissipation versus average forward current.

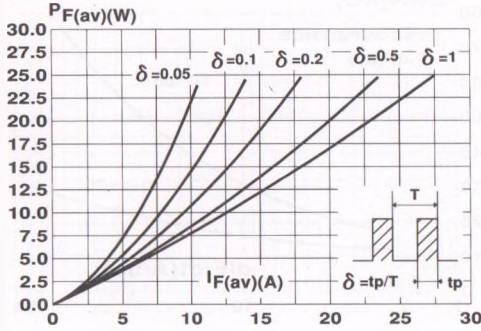


Fig.2 : Peak current versus form factor.

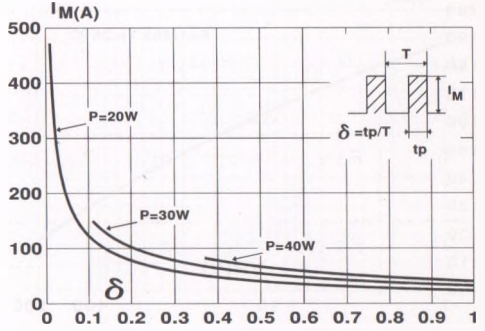


Fig.3 : Forward voltage drop versus forward current (maximum values).

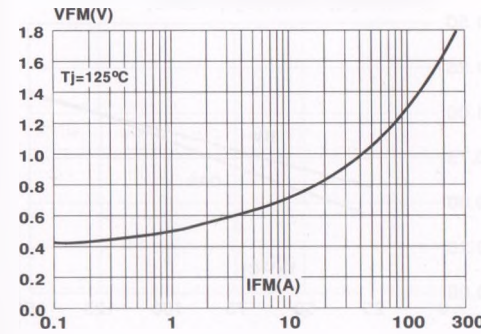


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

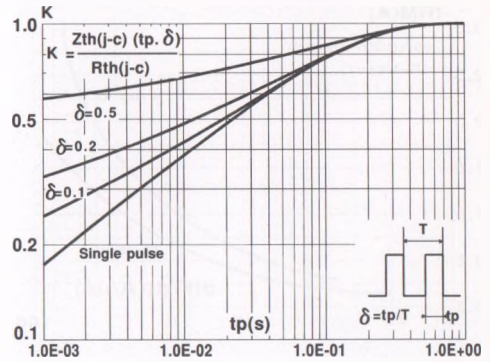


Fig.5 : Non repetitive surge peak forward current versus overload duration.

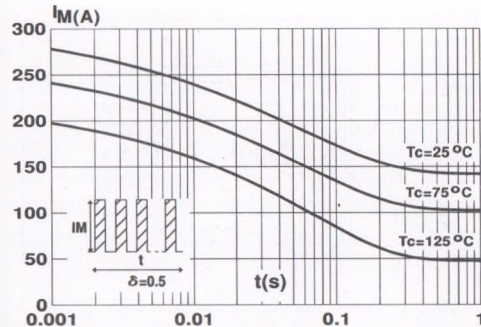


Fig.6 : Average current versus ambient temperature. (duty cycle : 0.5)

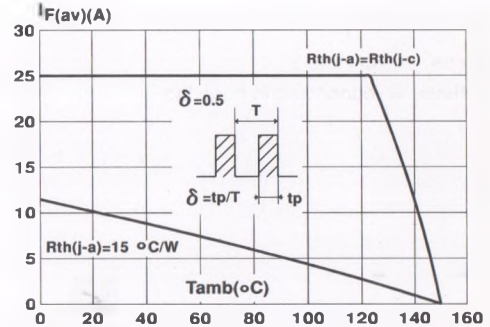


Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

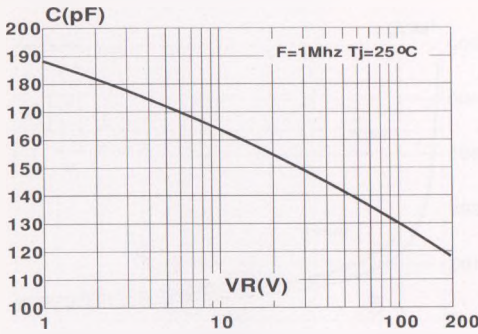


Fig.9 : Peak reverse current versus dIF/dt.

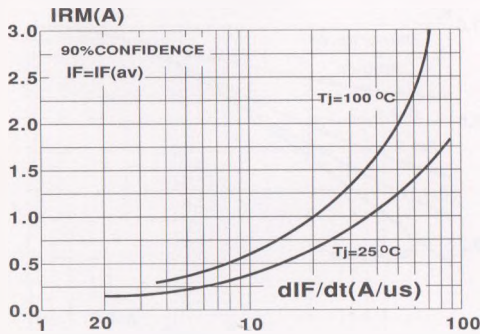


Fig.8 : Recovery charges versus dIF/dt.

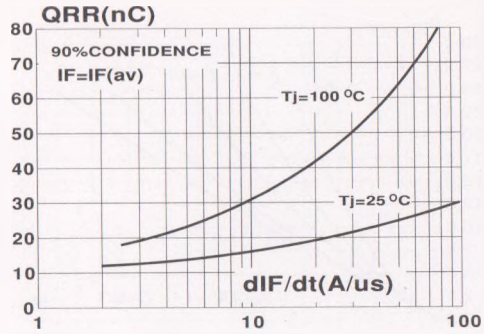


Fig.10 : Dynamic parameters versus junction temperature.

