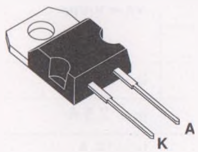
SGS-THOMSON
MICROELECTRONICS

STPS735D/F
STPS745D/F

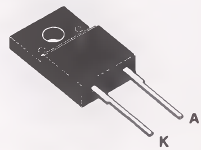
POWER SCHOTTKY RECTIFIER

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE :
  Insulating voltage = 2000V DC
  Capacitance = 12pF



TO220AC
(Plastic)

STPS735D
STPS745D



ISOWATT220AC
(Plastic)

STPS735F
STPS745F

DESCRIPTION

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

Packaged in TO220AC and ISOWATT220AC, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{F(RMS)}$	RMS Forward Current			20	A
$I_{F(AV)}$	Average Forward Current $\delta = 0.5$	TO220AC	Tc = 135°C	7.5	A
		ISOWATT220AC	Tc = 120°C		
I_{FSM}	Surge Non Repetitive Forward Current		Tp = 10 ms Sinusoidal	150	A
I_{RRM}	Peak Repetitive Reverse Current		Tp = 2 µs F = 1KHz	1	A
Tstg Tj	Storage and Junction Temperature Range			- 65 to + 150 - 65 to + 150	°C
dV/dt	Critical Rate of Rise of Reverse Voltage			1000	V/µs

Symbol	Parameter	STPS		Unit
		735D 735F	745D 745F	
V_{RRM}	Repetitive Peak Reverse Voltage	35	45	V

March 1992

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{TH\ (j-c)}$	Junction-case	TO220AC	3.0	°C/W
		ISOWATT220AC	5.5	

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Tj = 25°C	$V_R = V_{RRM}$			100	µA
	Tj = 125°C				15	mA
V_F **	Tj = 125°C	I_F = 15 A			0.72	V
	Tj = 125°C	I_F = 7.5 A			0.57	
	Tj = 25°C	I_F = 15 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 :
$P = 0.42 \times I_{F(AV)} + 0.020\ I_F{}^2{}_{(RMS)}$

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

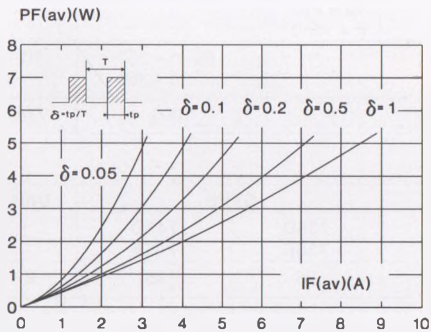


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5) (TO220AC)

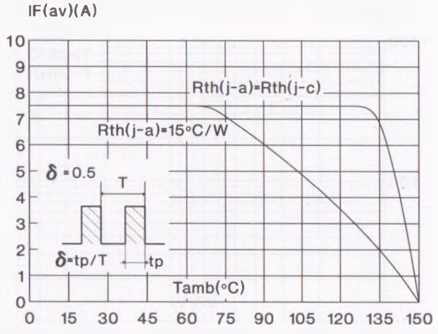


Fig. 3 : Average current versus ambient temperature. (duty cycle : 0.5) (TISOWAT220AC)

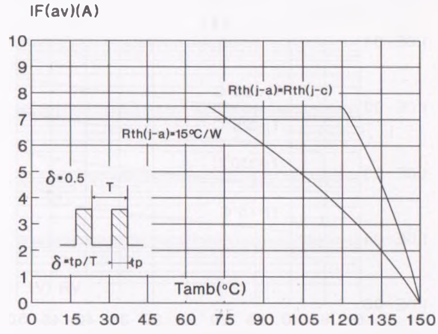


Fig. 4 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (TO220AC)

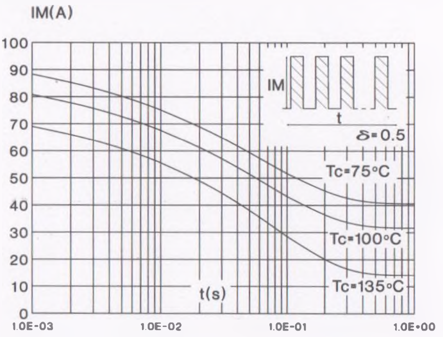


Fig. 5 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (ISOWATT220AC)

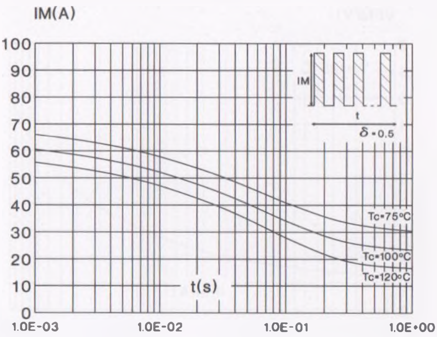


Fig. 6 : Relative variation of thermal transient impedance junction to case versus pulse duration.
(TO220AC)

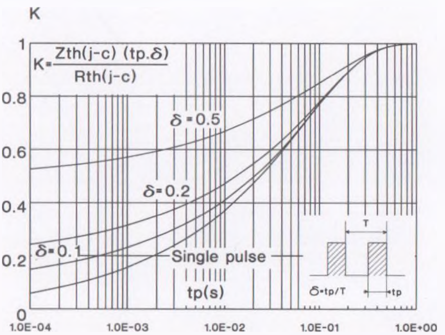


Fig. 7 : Relative variation of thermal transient impedance junction to case versus pulse duration.
(ISOWATT220AC)

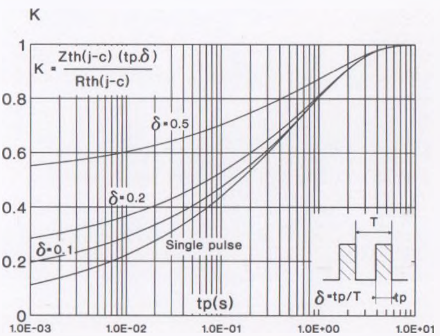


Fig. 8 : Reverse leakage current versus reverse voltage applied. (Typical values)

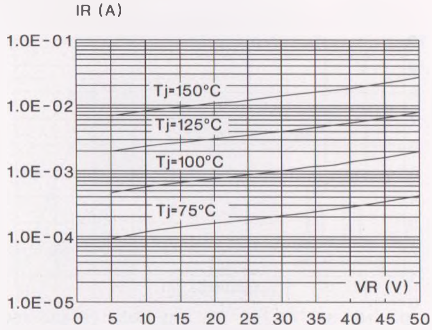


Fig. 9 : Junction capacitance versus reverse voltage applied. (Typical values)

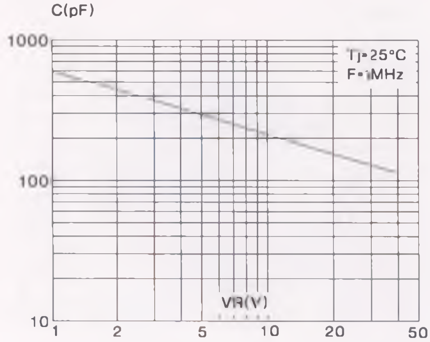


Fig. 10 : Forward voltage drop versus forward current. (Maximum values)