

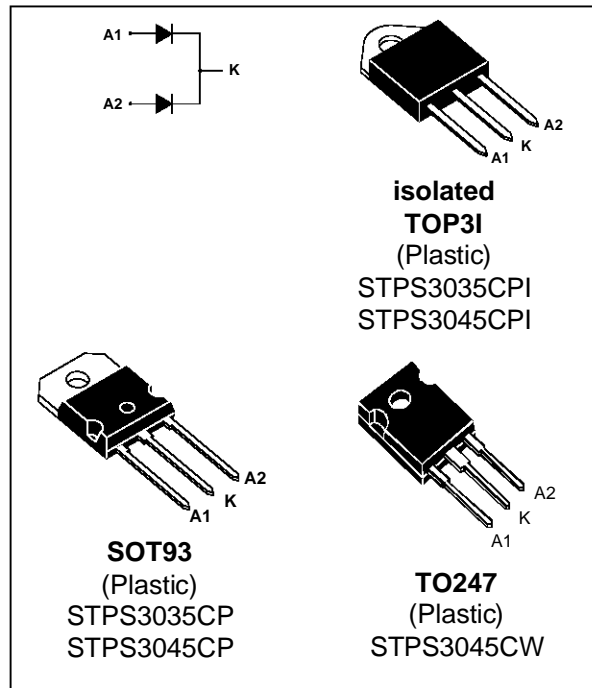
## POWER SCHOTTKY RECTIFIERS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE :  
Insulating voltage = 2500V<sub>RMS</sub>  
Capacitance = 12pF

### DESCRIPTION

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

Packaged in SOT93, TOP 3I or TO247 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 <sub>F(RMS)</sub>	RMS Forward Current			30	A
I <sub>F(AV)</sub>	Average Forward Current δ = 0.5	SOT93/ TO247	T <sub>c</sub> = 135°C	15	A
		TOP3I	T <sub>c</sub> = 125°C	30	A
I <sub>FSM</sub>	Surge Non Repetitive Forward Current		T <sub>p</sub> = 10 ms Sinusoidal	220	A
I <sub>RRM</sub>	Peak Repetitive Reverse Current		T <sub>p</sub> = 2 μs F = 1KHz	1	A
T <sub>stg</sub> T <sub>j</sub>	Storage and Junction Temperature Range			- 65 to + 175 - 65 to + 150	°C
dV/dt	Critical Rate of Rise of Reverse Voltage			1000	V/μs

Symbol	Parameter	STPS		Unit
		3035CP 3035CPI	3045CP 3045CPI 3045CW	
V <sub>RRM</sub>	Repetitive Peak Reverse Voltage	35	45	V

**STPS3035CP/CPI / STPS3045CP/CPI / STPS3045CW**

**THERMAL RESISTANCE**

Symbol	Parameter		Value	Unit	
R <sub>TH(j-c)</sub>	Junction-case	SOT93 / TO2247	Per diode total	1.5 0.8	°C/W
		TOP3I	Per diode total	2.2 1.6	
R <sub>TH(c)</sub>	Coupling	SOT93 / TO247		0.1	°C/W
		TOP3I		1.0	

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_J(\text{diode } 1) = P(\text{diode } 1) \times R_{TH}(\text{Per diode}) + P(\text{diode } 2) \times R_{TH(c)}$$

**ELECTRICAL CHARACTERISTICS**

**STATIC CHARACTERISTICS PER DIODE**

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			200	μA
	T <sub>j</sub> = 125°C				40	mA
V <sub>F</sub> **	T <sub>j</sub> = 125°C	I <sub>F</sub> = 30 A			0.72	V
	T <sub>j</sub> = 125°C	I <sub>F</sub> = 15 A			0.57	
	T <sub>j</sub> = 25°C	I <sub>F</sub> = 30 A			0.84	

Pulse test : \* t<sub>p</sub> = 5 ms, duty cycle < 2 %

\*\* t<sub>p</sub> = 380 μs, duty cycle < 2%

To evaluate the conduction losses use the following equation :

$$P = 0.42 \times I_{F(AV)} + 0.01 I_{F(RMS)}^2$$

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

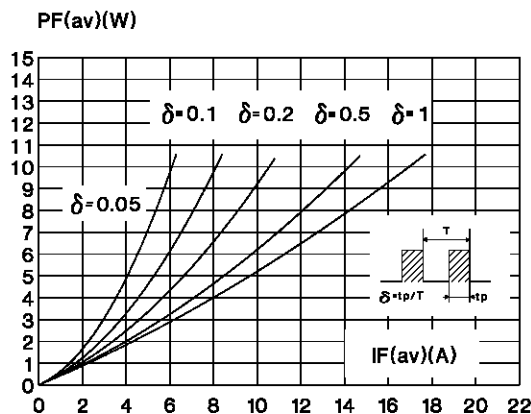


Fig. 2 : Average current versus ambient temperature.

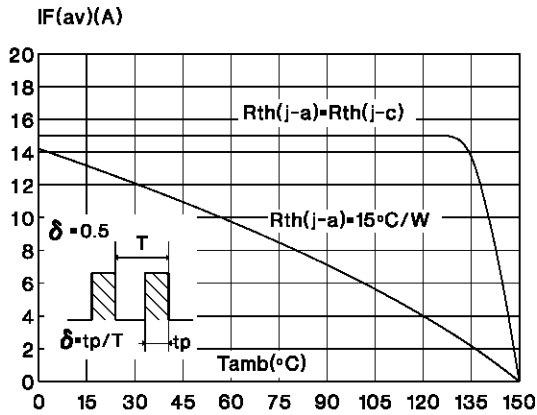


Fig. 2 : Average current versus ambient temperature.

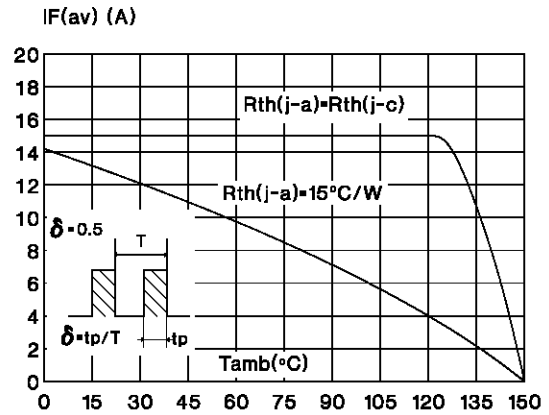


Fig. 4 : Non repetitive surge peak forward current versus overload duration.

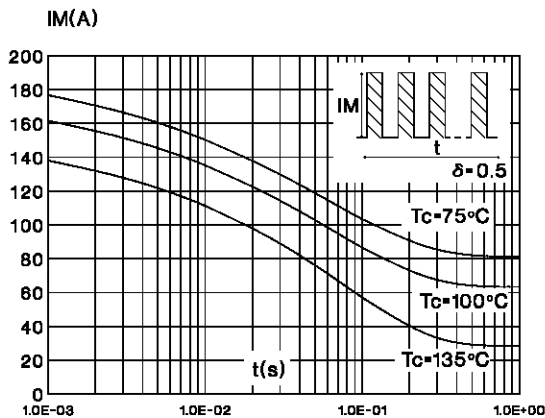


Fig. 5 : Non repetitive surge peak forward current versus overload duration.

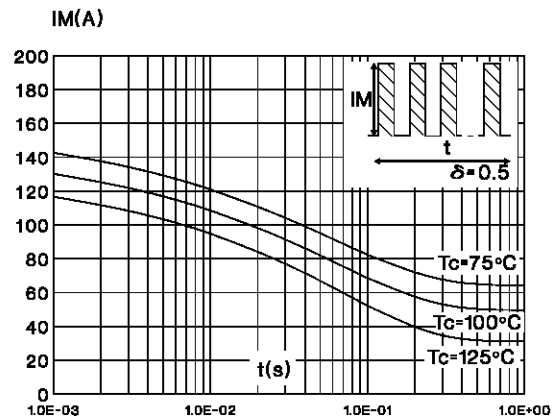


Fig. 6 : Relative variation of thermal transient impedance junction to case versus pulse duration.

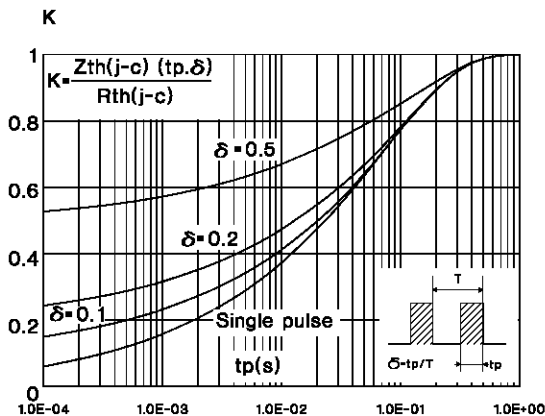
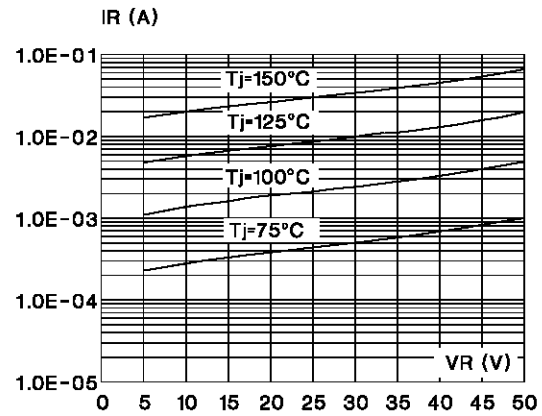
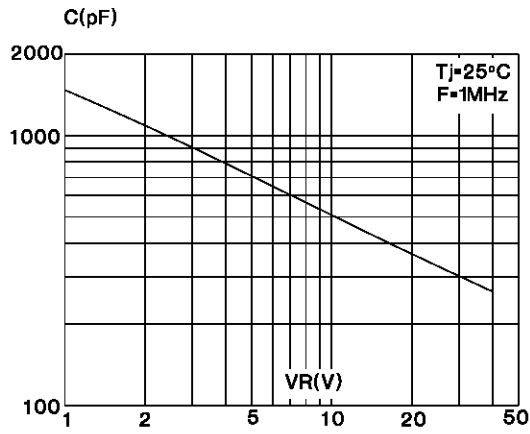


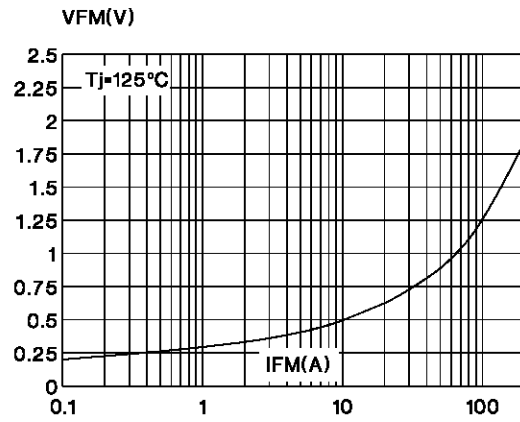
Fig. 7 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)



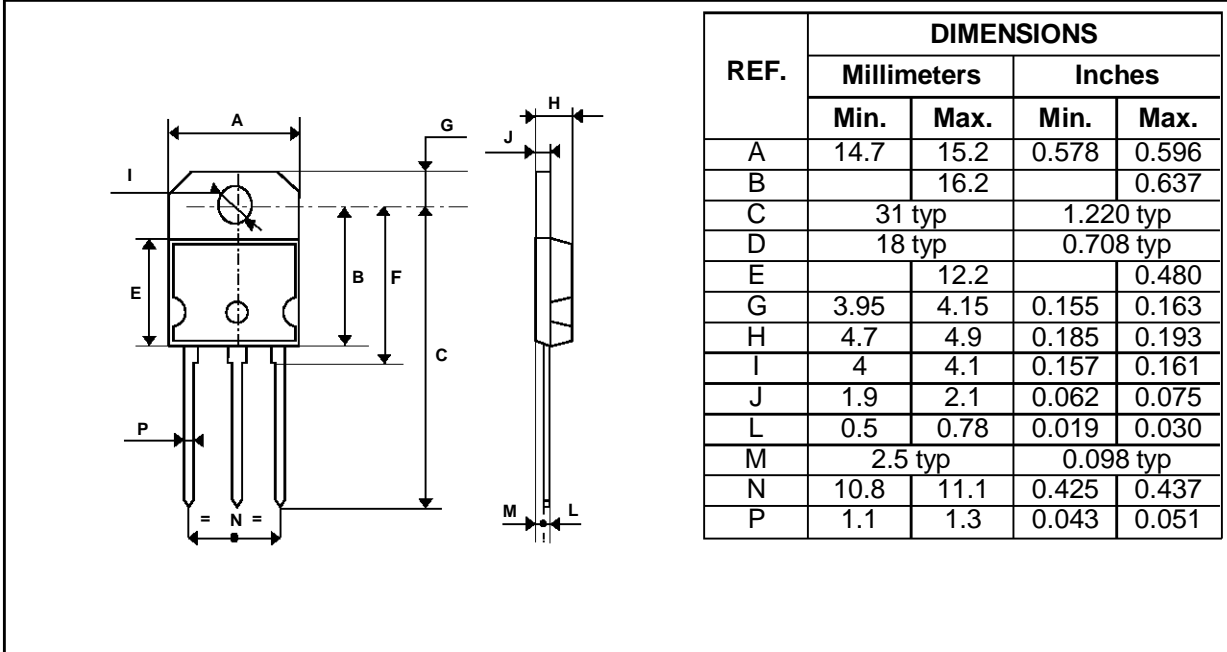
**Fig. 8 :** Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)



**Fig. 9 :** Forward voltage drop versus forward current. (Maximum values) (Per diode)

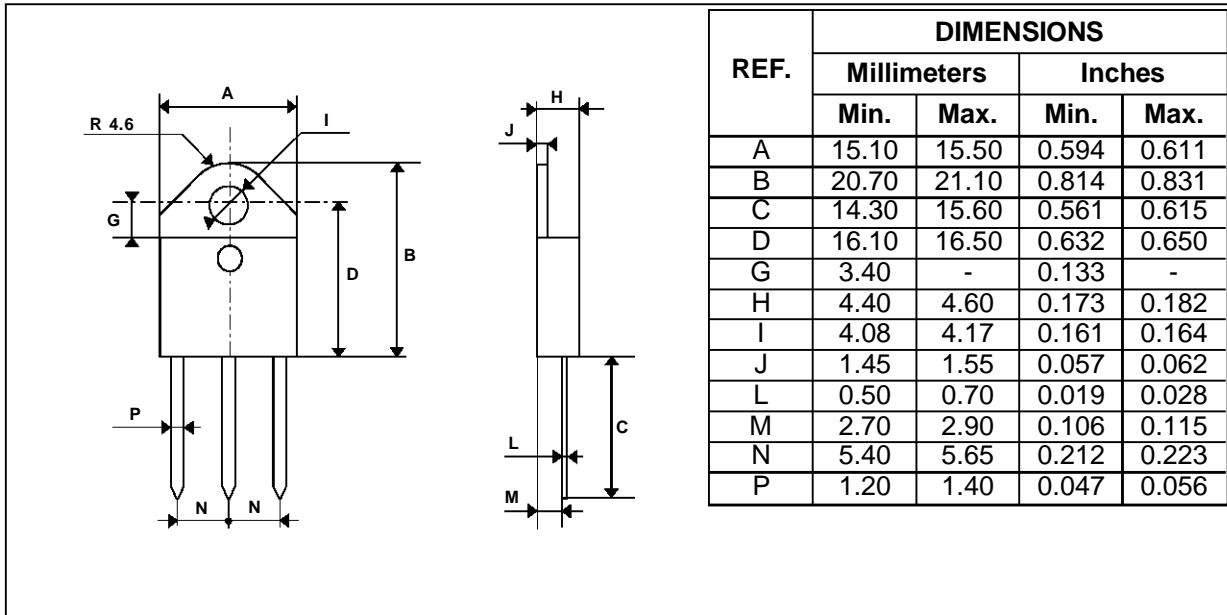


**PACKAGE MECHANICAL DATA**  
SOT93



Cooling method : C  
 Marking : Type number  
 Weight : 5.3 g  
 Recommended torque value : 0.8m.N

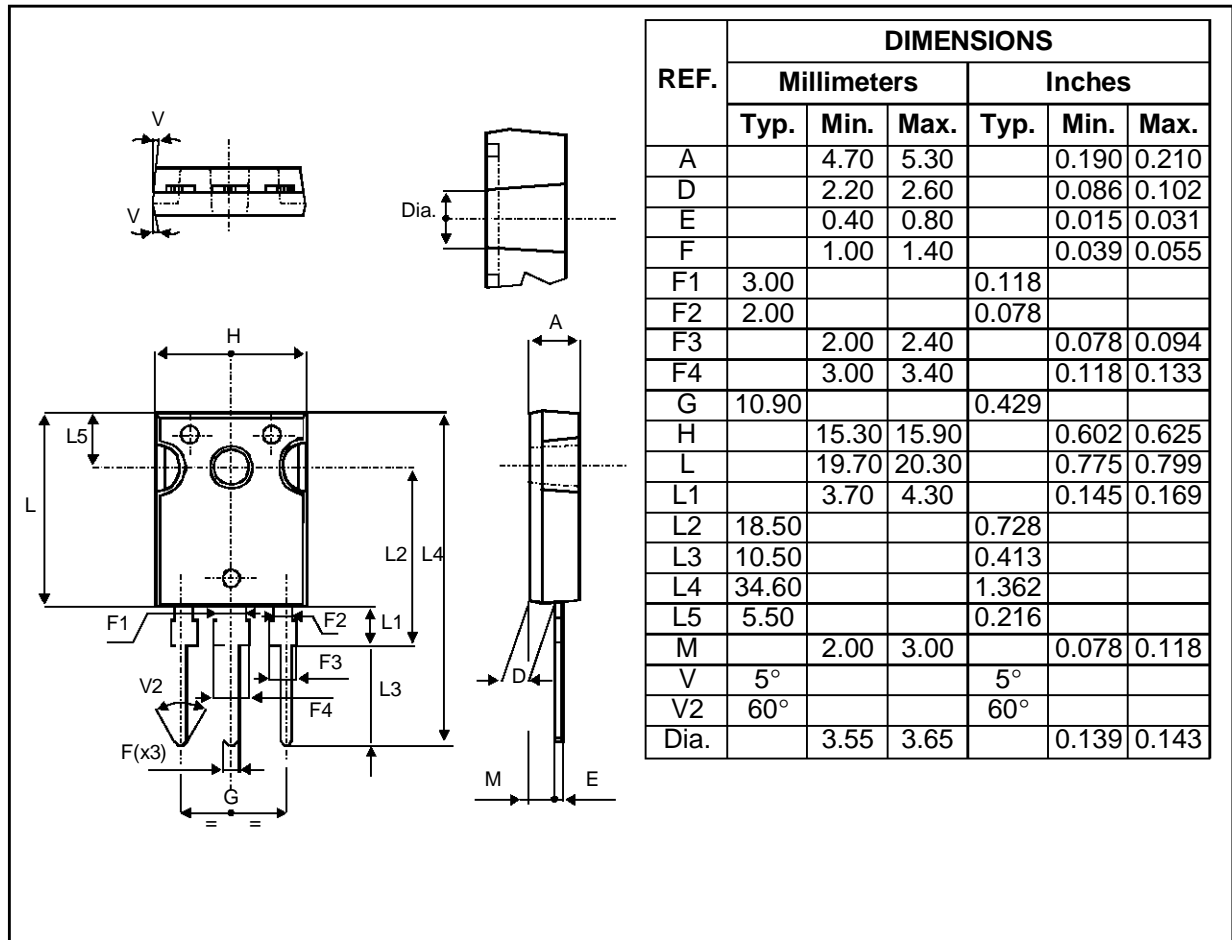
**PACKAGE MECHANICAL DATA**  
TOP3I (isolated)



Cooling method : C  
 Marking : Type number  
 Weight : 4.7 g  
 Recommended torque value : 0.8m.N  
 Maximum torque value : 1.0m.N

**STPS3035CP/CPI / STPS3045CP/CPI / STPS3045CW**

**PACKAGE MECHANICAL DATA**  
TO247



Cooling method : C  
 Marking : Type number  
 Weight : 4.4 g  
 Recommended torque value : 0.8m.N  
 Maximum torque value : 1.0m.N

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