

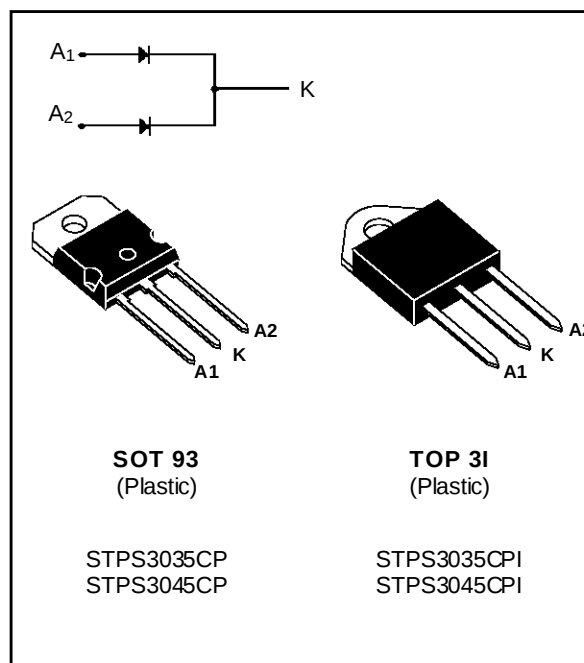
POWER SCHOTTKY RECTIFIER

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE :
Insulating voltage = 2500V_{RMS}
Capacitance = 12pF

DESCRIPTION

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

Packaged in SOT 93 and TOP 3I, 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		Per diode	30	A
$I_{F(AV)}$	Average Forward Current $\delta = 0.5$	SOT 93	$T_c = 135^\circ\text{C}$	15	A
		TOP 3I	$T_c = 125^\circ\text{C}$	30	A
I_{FSM}	Surge Non Repetitive Forward Current		$T_p = 10 \text{ ms}$ Sinusoidal	220	A
I_{RRM}	Peak Repetitive Reverse Current		$T_p = 2 \mu\text{s}$ $F = 1\text{KHz}$	1	A
T_{stg} T_j	Storage and Junction Temperature Range			- 65 to + 150 - 65 to + 150	$^\circ\text{C}$
dV/dt	Critical Rate of Rise of Reverse Voltage			1000	V/ μs

Symbol	Parameter	STPS		Unit
		3035CP 3035CPI	3045CP 3045CPI	
V_{RRM}	Repetitive Peak Reverse Voltage	35	45	V

STPS3035CP/CPI / STPS3045CP/CPI

THERMAL RESISTANCE

Symbol	Parameter			Value	Unit
$R_{TH(j-c)}$	Junction-case	SOT 93	Per diode total	1.5 0.8	$^{\circ}\text{C/W}$
		TOP 3I	Per diode total	2.2 1.6	
$R_{TH(c)}$	Coupling	SOT 93		0.1	$^{\circ}\text{C/W}$
		TOP 3I		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_R^*	$T_J = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			200	μA
	$T_J = 125^{\circ}\text{C}$				40	mA
V_F^{**}	$T_J = 125^{\circ}\text{C}$	$I_F = 30 \text{ A}$			0.72	V
	$T_J = 125^{\circ}\text{C}$	$I_F = 15 \text{ A}$			0.57	
	$T_J = 25^{\circ}\text{C}$	$I_F = 30 \text{ A}$			0.84	

Pulse test : * $t_p = 5 \text{ ms}$, duty cycle $< 2 \%$

** $t_p = 380 \mu\text{s}$, duty cycle $< 2\%$

To evaluate the conduction losses use the following equation :

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

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

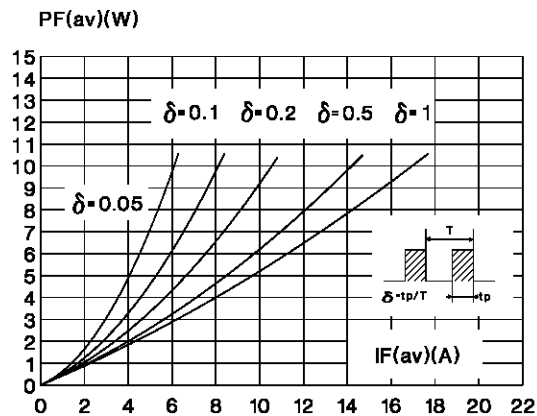


Fig. 2 : Average current versus ambient temperature.
(duty cycle : 0.5) (Per diode) (SOT 93)

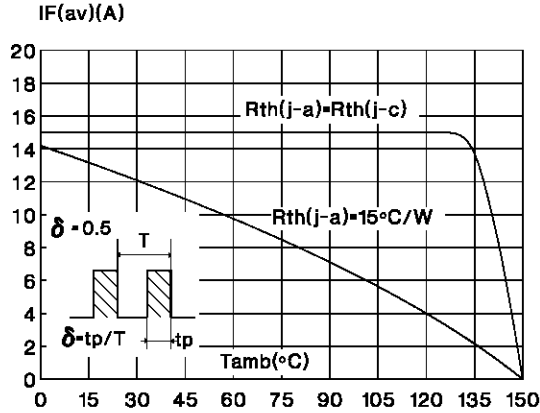


Fig. 4 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode) (SOT 93)

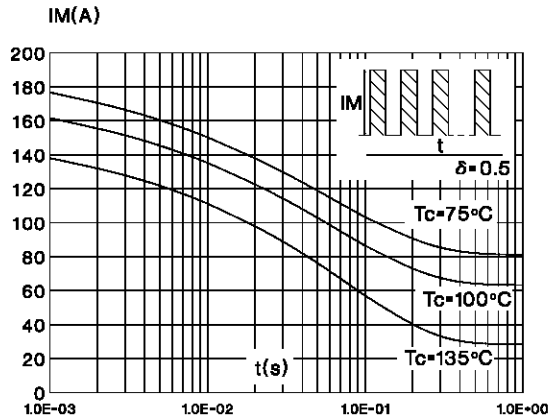


Fig. 6 : Relative variation of thermal transient impedance junction to case versus pulse duration.

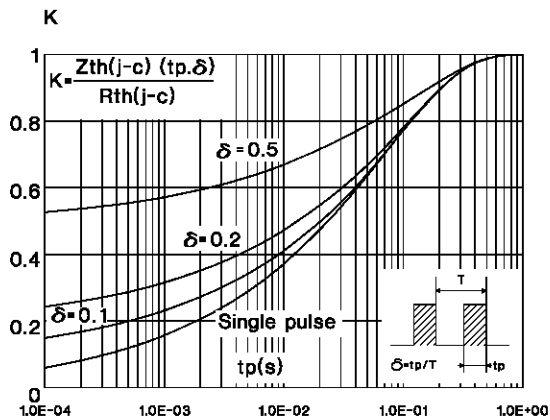


Fig. 2 : Average current versus ambient temperature.
(duty cycle : 0.5) (Per diode) (TOP 3I)

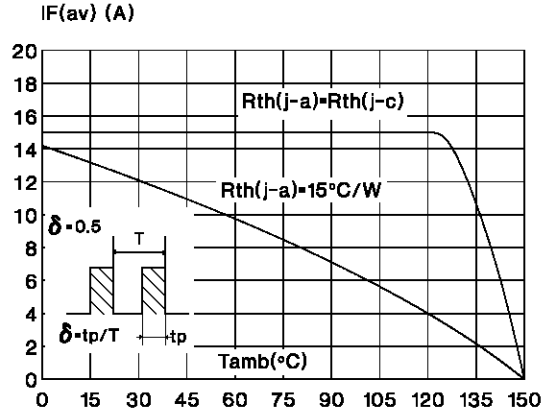


Fig. 5 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode) (TOP 3I)

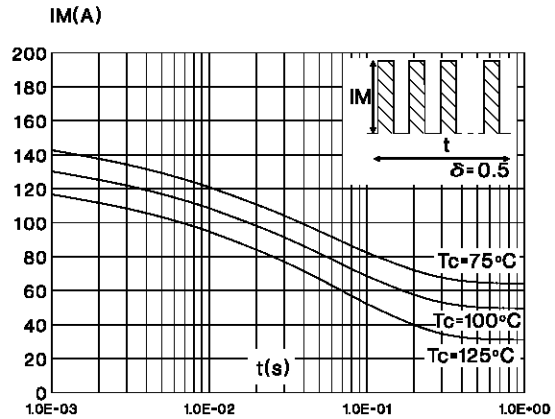
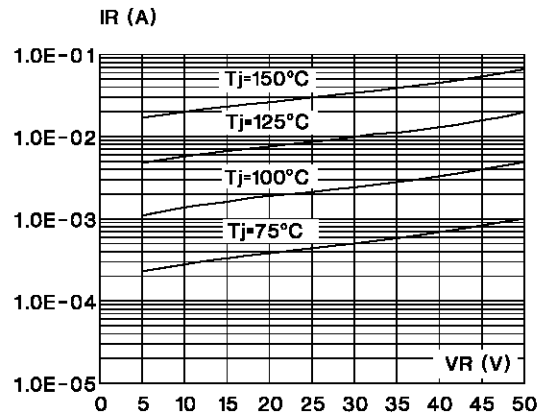


Fig. 7 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)



STPS3035CP/CPI / STPS3045CP/CPI

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

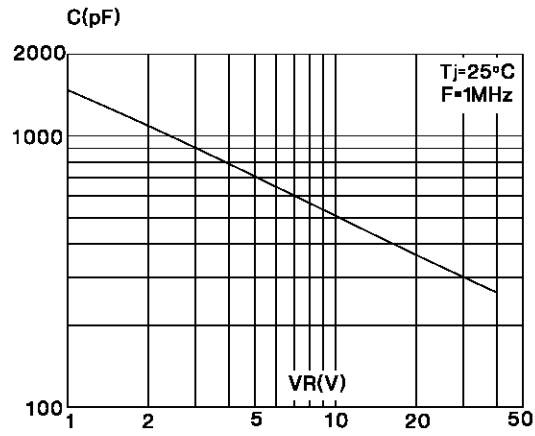
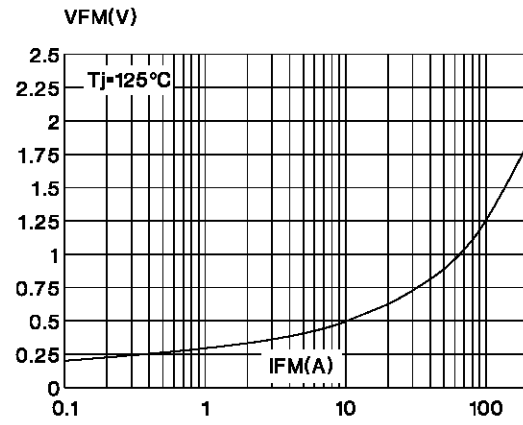
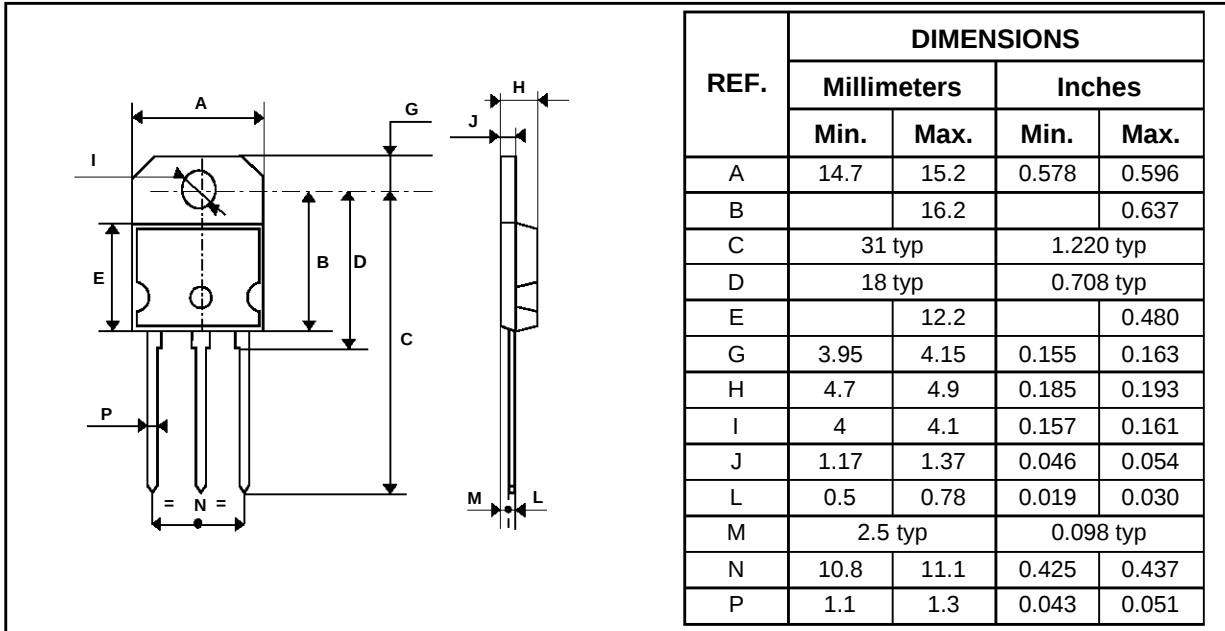


Fig. 9 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



PACKAGE MECHANICAL DATA

SOT-93



Cooling method : C

Marking : Type number

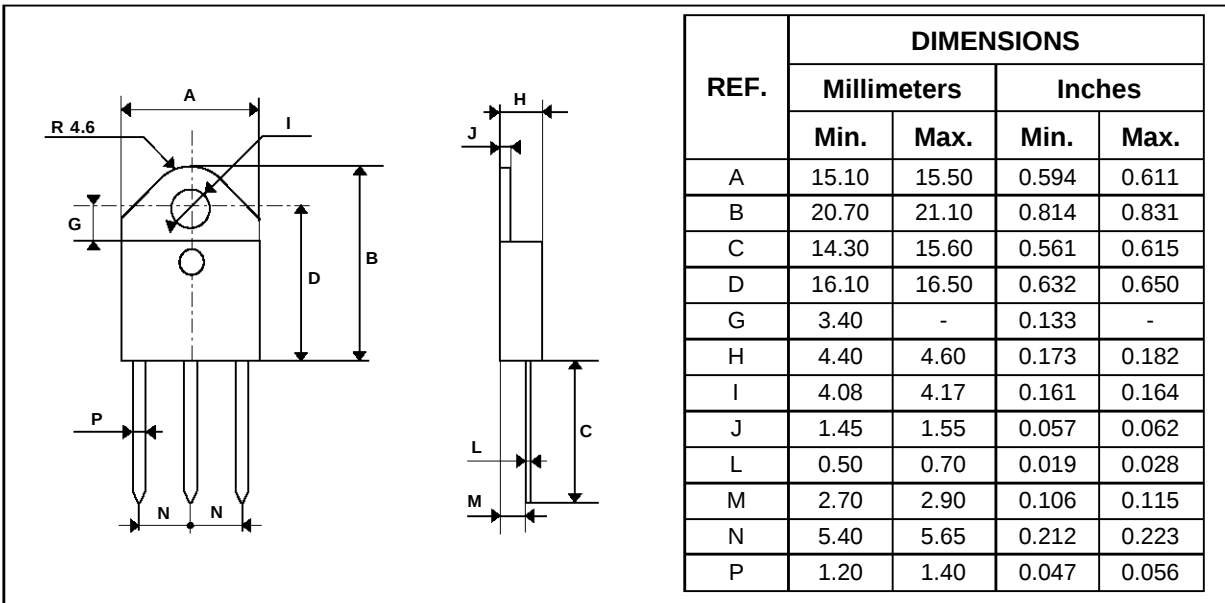
Weight : 4.1 g

Recommended torque value : 0.8m.N

Maximum torque value : 1m.N

PACKAGE MECHANICAL DATA

TOP3



Cooling method : C

Marking : Type number

Weight : 4.7 g

Recommended torque value : 0.8m.N

Maximum torque value : 1m.N

Electrical isolation: 2500V DC for Rectifier 2500V RMS for SCR and Triac

Capacitance; 12pF

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