

BYV52/PI**THERMAL RESISTANCE**

Symbol	Parameter			Value	Unit
Rth (j-c)	Junction to case	SOT93	Per diode	1.2	°C/W
			Total	0.75	
		TOP3I	Per diode	1.8	
			Total	1.2	
Rth (c)	Coupling	SOT93		0.3	°C/W
		TOP3I		0.6	

When the diodes 1 and 2 are used simultaneously :

$$T_j - T_c (\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

ELECTRICAL CHARACTERISTICS (Per diode)**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	T _j = 25°C	V _R = V _{RRM}			25	μA
	T _j = 100°C				2.5	mA
V _F **	T _j = 125°C	I _F = 20 A			0.85	V
	T _j = 125°C	I _F = 40 A			1.00	
	T _j = 25°C	I _F = 40 A			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 :

$$P = 0.7 \times I_{F(AV)} + 0.0075 \times I_F^2 (RMS)$$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr	T _j = 25°C	I _F = 0.5A I _R = 1A			35	ns
		I _F = 1A V _R = 30V			50	
tfr	T _j = 25°C	I _F = 1A V _{FR} = 1.1 x V _F		10		ns
V _{FP}	T _j = 25°C	I _F = 1A		1.5		V

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

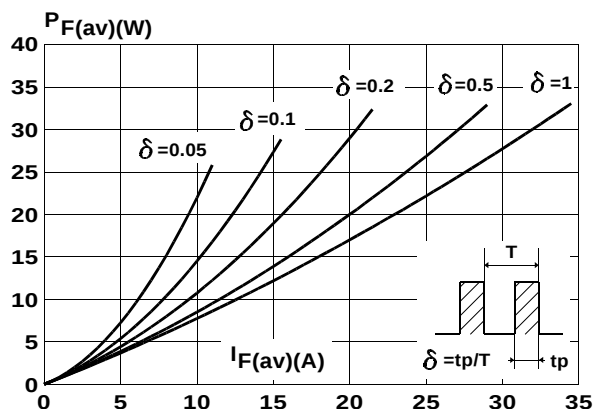


Fig.2 : Peak current versus form factor.

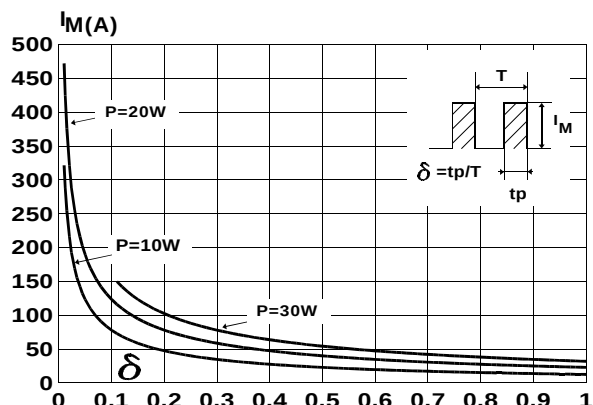


Fig.3 : Forward voltage drop versus forward current (maximum values).

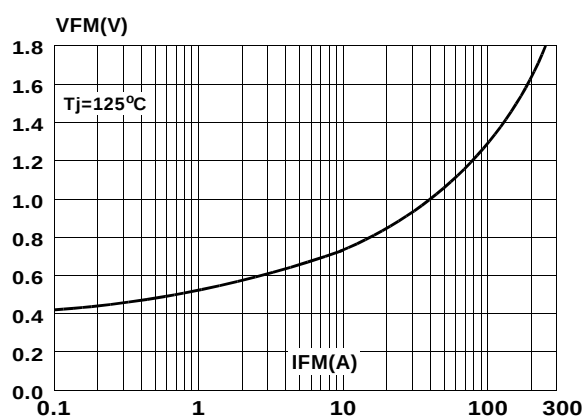


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

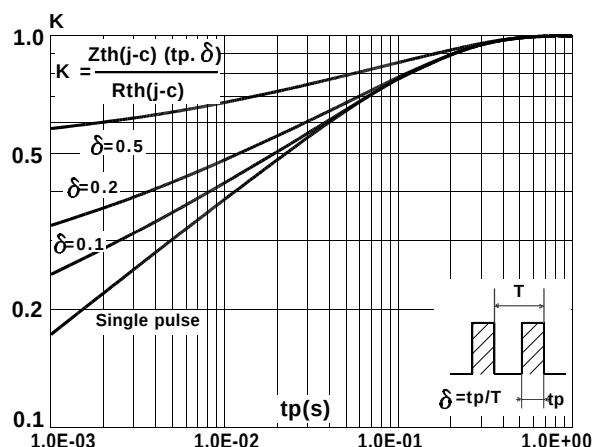


Fig.5 : Non repetitive surge peak forward current versus overload duration. (SOD93)

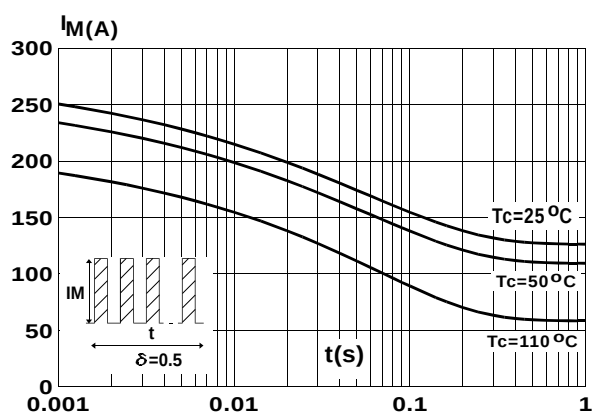


Fig.6 : Non repetitive surge peak forward current versus overload duration. (TOP3I)

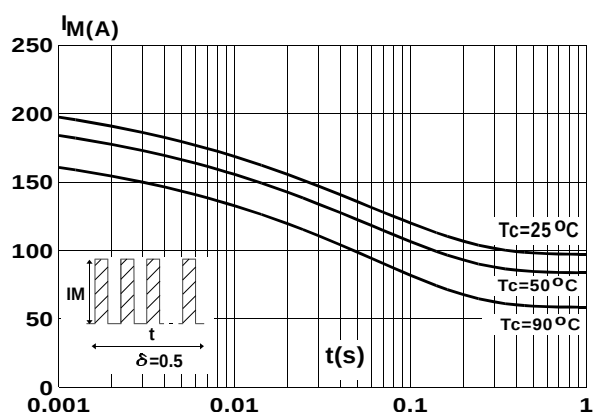


Fig.7 : Average current versus ambient temperature.
(duty cycle : 0.5) (SOD93)

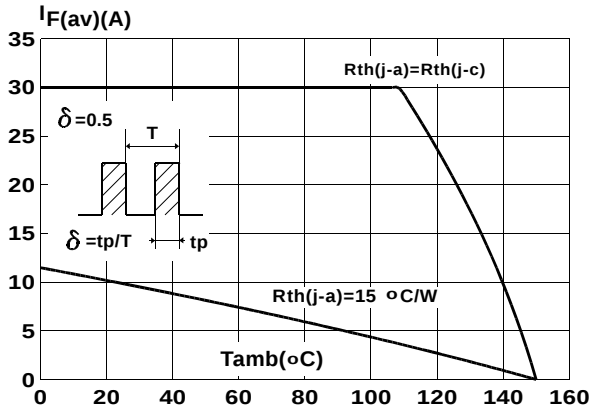


Fig.8 : Average current versus ambient temperature.
(duty cycle : 0.5) (TOP3I)

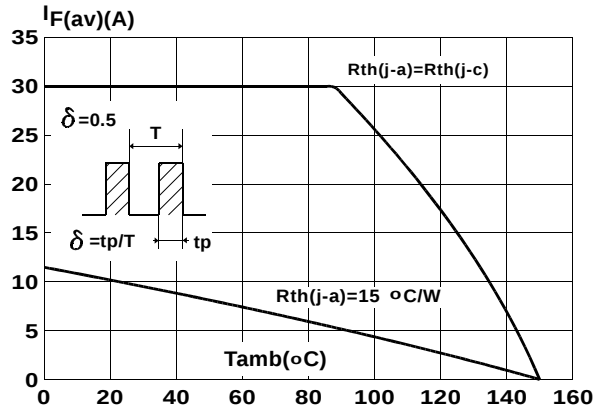


Fig.9 : Junction capacitance versus reverse voltage applied (Typical values).

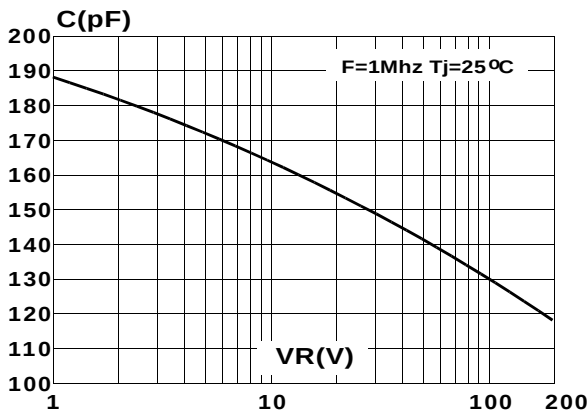


Fig.10 : Recovery charges versus dI_F/dt .

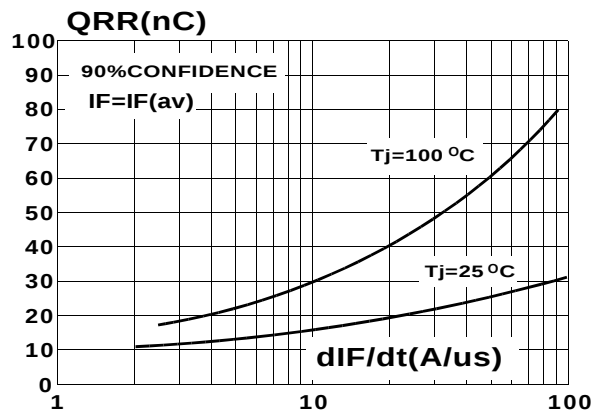


Fig.11 : Peak reverse current versus dI_F/dt .

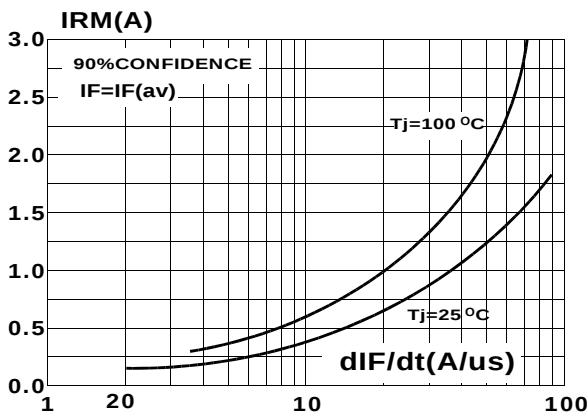
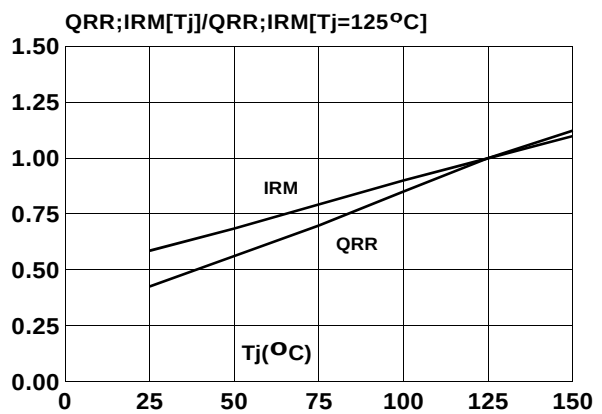
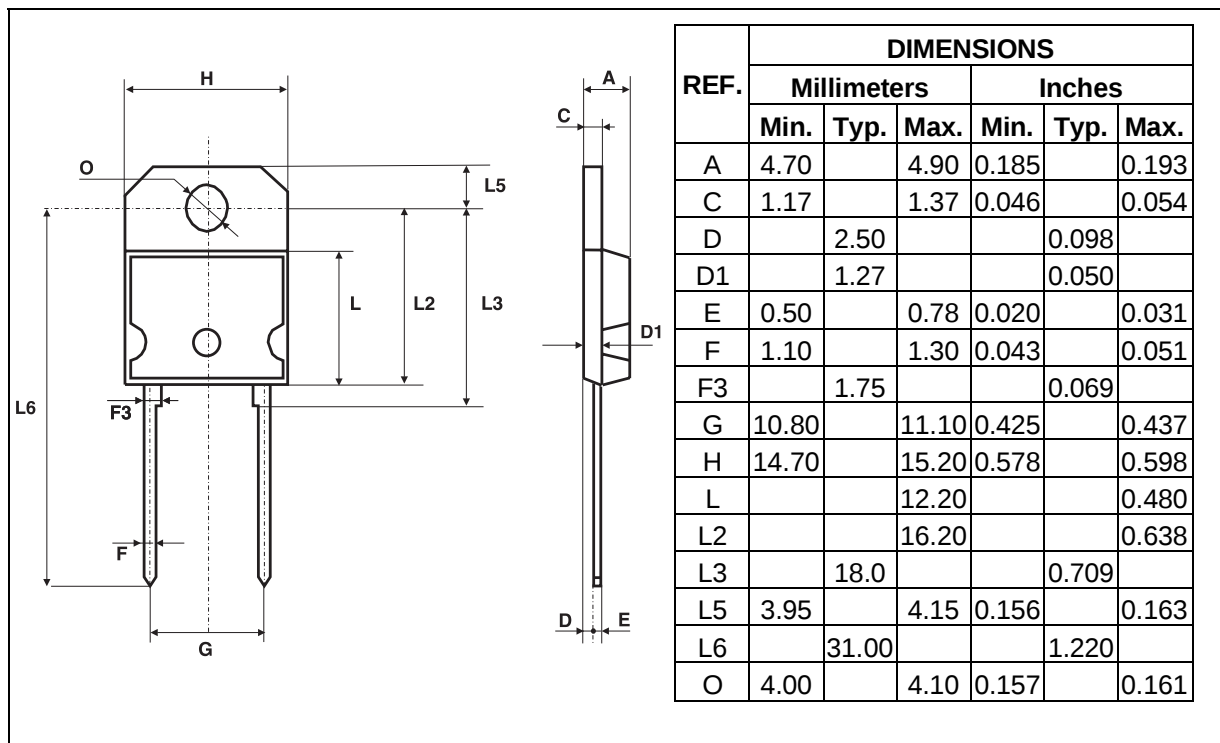


Fig.12 : Dynamic parameters versus junction temperature.

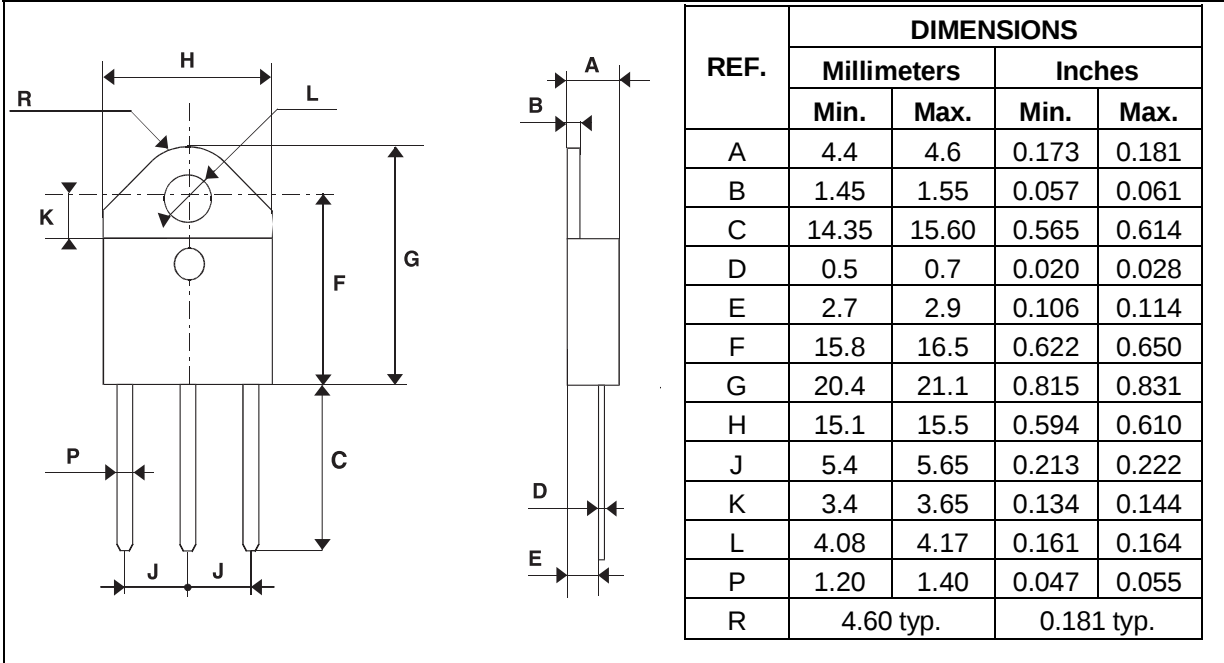


PACKAGE MECHANICAL DATA
SOD93


- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 3.79 g
- **Recommended torque value** : 0.8m.N
- **Maximum torque value** : 1.0m.N

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PACKAGE MECHANICAL DATA
TOP3I (isolated)



- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 4.46 g
- **Recommended torque value** : 0.8m.N
- **Maximum torque value** : 1.0m.N

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