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 :
Tj-Tc (diode 1) = P(diode 1) x Rth(j-c)(Per diode) + P(diode 2) x Rth(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	Irr = 0.25A			35	ns
		I_F = 1A V_R = 30V	dI_F/dt = -50A/µs			50	
tfr	T_j = 25°C	I_F = 1A $V_{FR} = 1.1 \times V_F$	tr = 5 ns		10		ns
V_{FP}	T_j = 25°C	I_F = 1A	tr = 5 ns		1.5		V

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

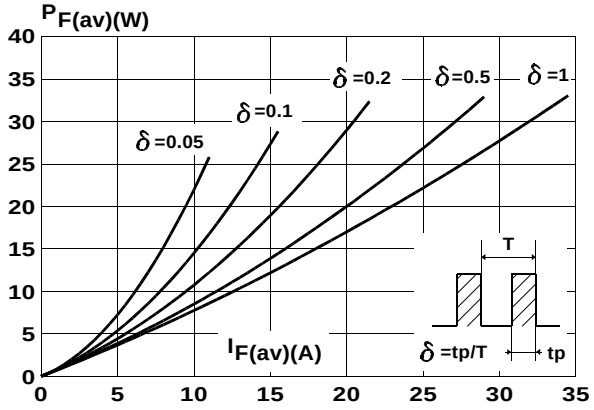


Fig.2 : Peak current versus form factor.

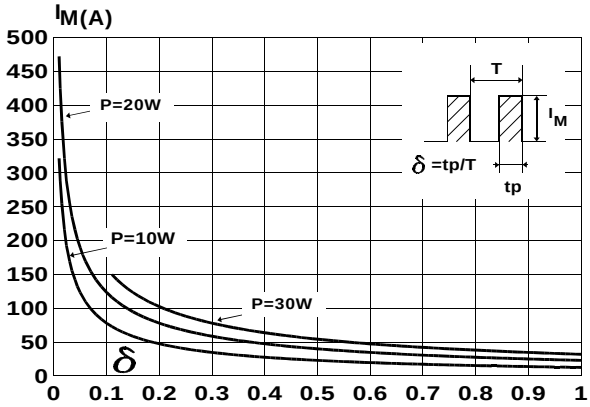


Fig.3 : Forward voltage drop versus forward current (maximum values).

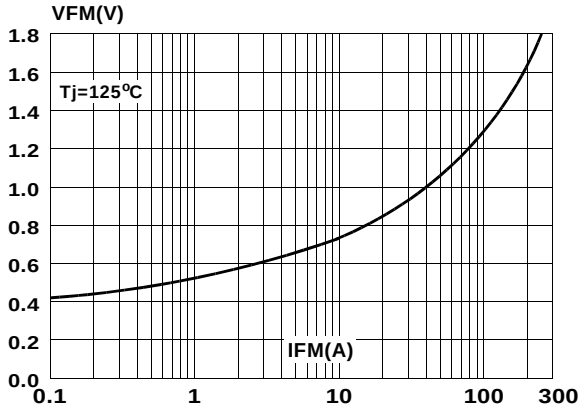


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

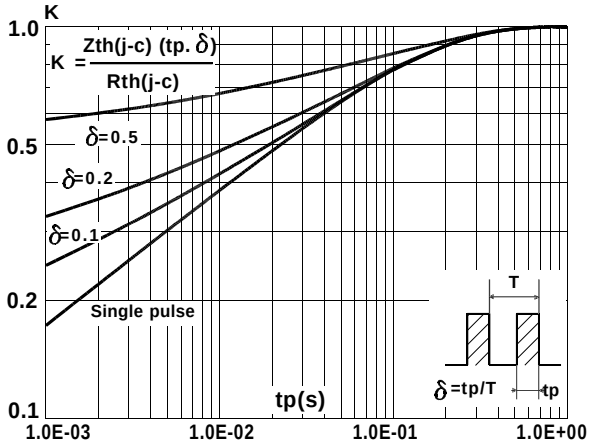


Fig.5 : Non repetitive surge peak forward current versus overload duration.
(SOD93)

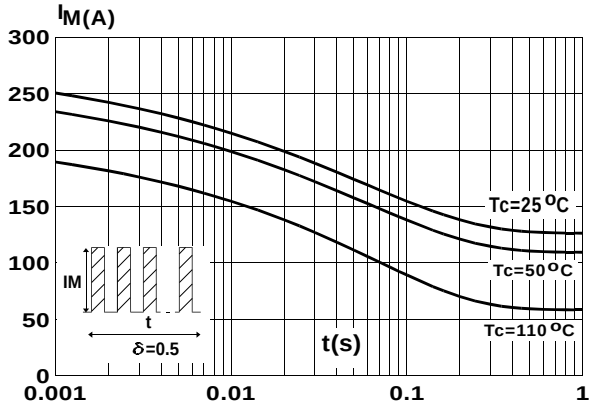


Fig.6 : Non repetitive surge peak forward current versus overload duration.
(TOP3I)

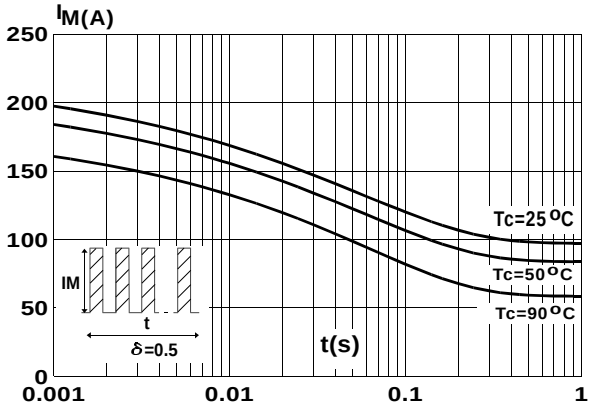


Fig.7 : Average current versus ambient temperature.
(duty cycle : 0.5) (SOD93)

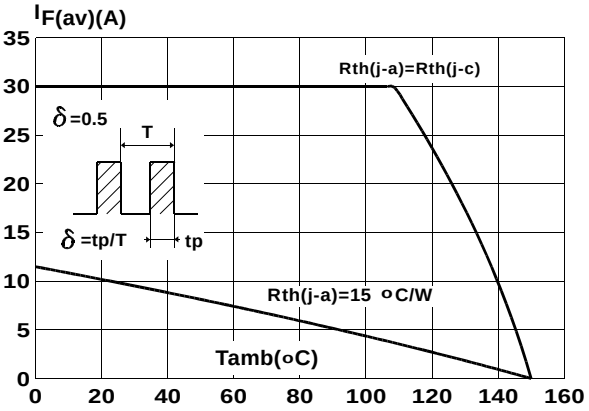


Fig.8 : Average current versus ambient temperature.
(duty cycle : 0.5) (TOP3I)

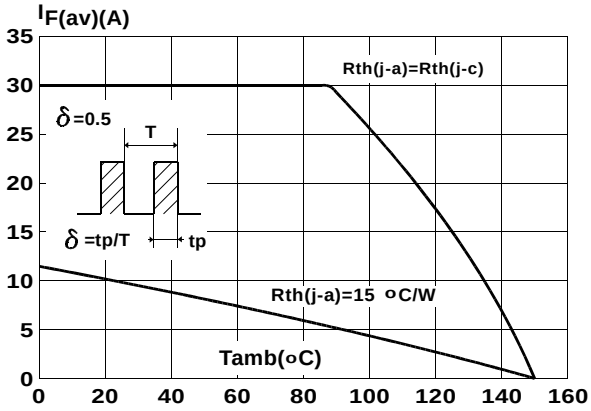


Fig.9 : Junction capacitance versus reverse voltage applied (Typical values).

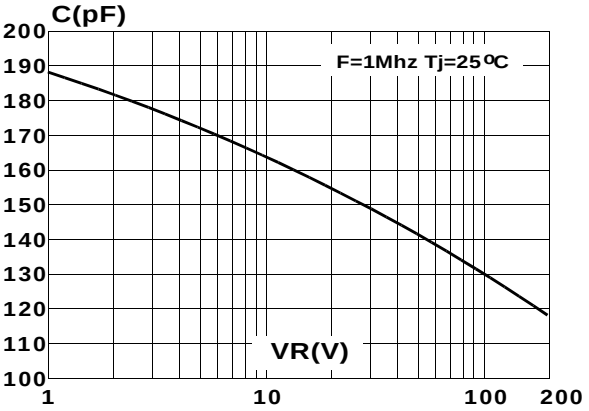


Fig.10 : Recovery charges versus dI_F/dt.

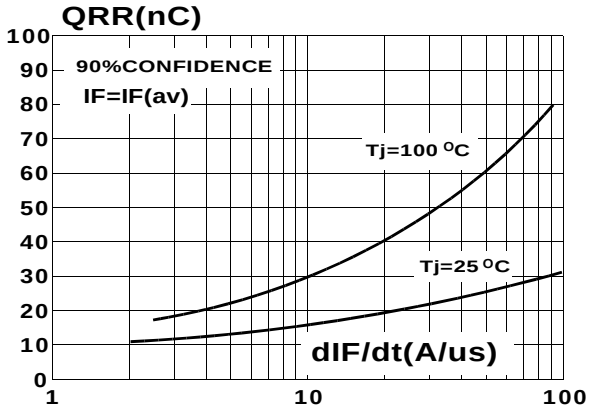


Fig.11 : Peak reverse current versus dIF/dt.

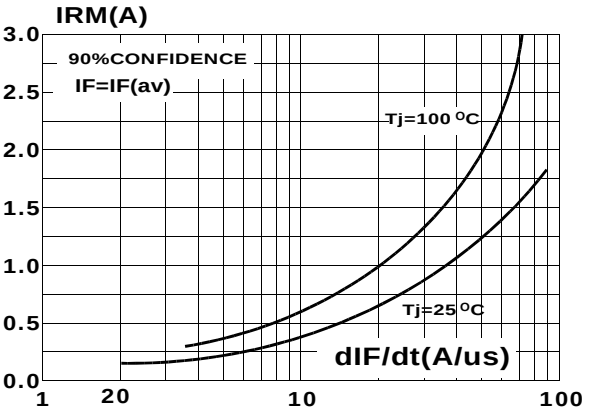
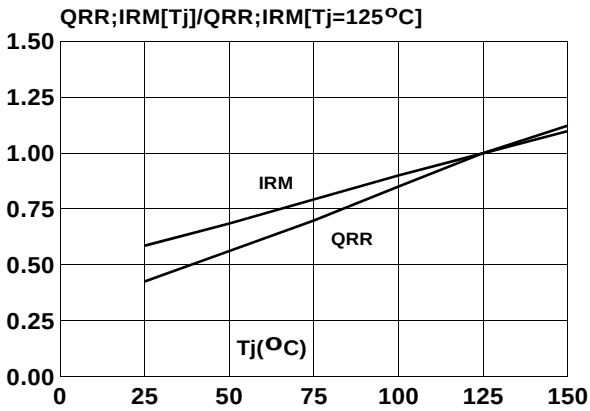
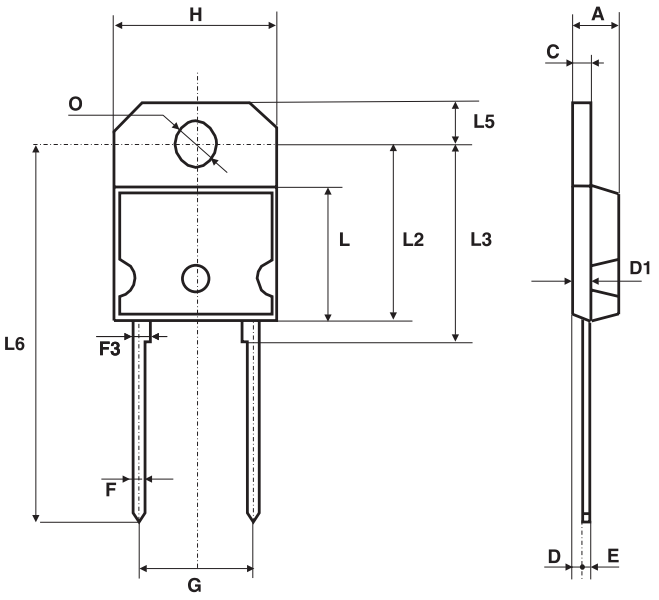


Fig.12 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA

SOD93

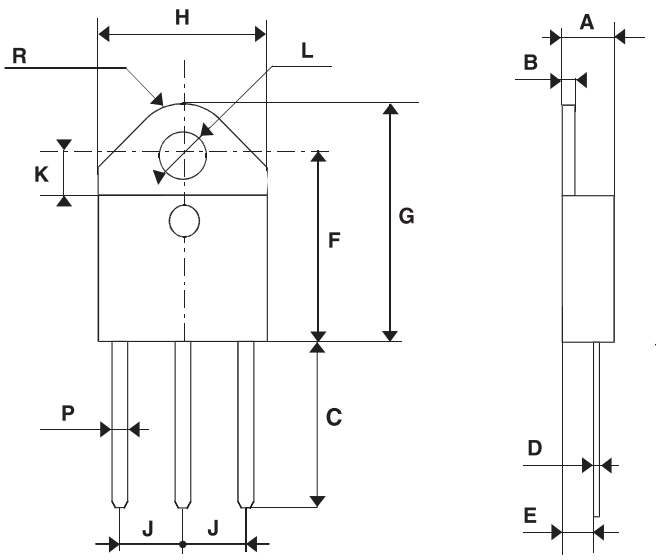


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.70		4.90	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.50			0.098	
D1		1.27			0.050	
E	0.50		0.78	0.020		0.031
F	1.10		1.30	0.043		0.051
F3		1.75			0.069	
G	10.80		11.10	0.425		0.437
H	14.70		15.20	0.578		0.598
L			12.20			0.480
L2			16.20			0.638
L3		18.0			0.709	
L5	3.95		4.15	0.156		0.163
L6		31.00			1.220	
O	4.00		4.10	0.157		0.161

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

PACKAGE MECHANICAL DATA

TOP3I (isolated)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
B	1.45	1.55	0.057	0.061
C	14.35	15.60	0.565	0.614
D	0.5	0.7	0.020	0.028
E	2.7	2.9	0.106	0.114
F	15.8	16.5	0.622	0.650
G	20.4	21.1	0.815	0.831
H	15.1	15.5	0.594	0.610
J	5.4	5.65	0.213	0.222
K	3.4	3.65	0.134	0.144
L	4.08	4.17	0.161	0.164
P	1.20	1.40	0.047	0.055
R	4.60 typ.		0.181 typ.	

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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

STMicroelectronics:

BYV52PI-200RG BYV52-200