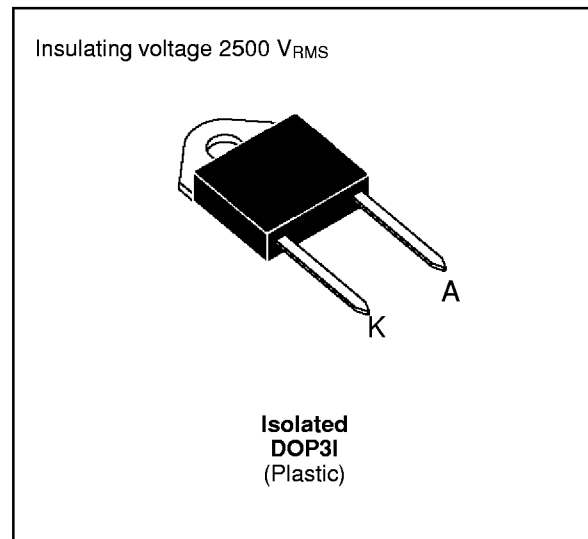


FAST RECOVERY RECTIFIER DIODES

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED: Capacitance 15pF

SUITABLE APPLICATIONS

- FREE WHEELING DIODE IN CONVERTERS AND MOTOR CONTROL CIRCUITS
- RECTIFIER IN S.M.P.S.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I _{FRM}	Repetitive Peak Forward Current	t _p ≤ 10μs	500	A
I _{F (RMS)}	RMS Forward Current		50	A
I _{F (AV)}	Average Forward Current	T _c = 60°C δ = 0.5	30	A
I _{FSM}	Surge non Repetitive Forward Current	t _p = 10ms Sinusoidal	350	A
P	Power Dissipation	T _c = 60°C	50	W
T _{stg} T _j	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	°C

Symbol	Parameter	BYT 30PI-			Unit
		200	300	400	
V _{RRM}	Repetitive Peak Reverse Voltage	200	300	400	V
V _{RSM}	Non Repetitive Peak Reverse Voltage	220	330	440	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R _{th (j - c)}	Junction-case	1.8	°C/W

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_J = 25^\circ\text{C}$	$V_R = V_{RRM}$			35	μA
	$T_J = 100^\circ\text{C}$				6	mA
V_F	$T_J = 25^\circ\text{C}$	$I_F = 30\text{A}$			1.5	V
	$T_J = 100^\circ\text{C}$				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$T_J = 25^\circ\text{C}$	$I_F = 1\text{A}$	$di_F/dt = -15\text{A}/\mu\text{s}$	$V_R = 30\text{V}$		100	ns
		$I_F = 0.5\text{A}$	$I_R = 1\text{A}$	$I_{rr} = 0.25\text{A}$		50	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	$di_F/dt = -120\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 30\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_J = 100^\circ\text{C}$ See figure 11			75	ns
	$di_F/dt = -240\text{A}/\mu\text{s}$			50		
I_{RM}	$di_F/dt = -120\text{A}/\mu\text{s}$				9	A
	$di_F/dt = -240\text{A}/\mu\text{s}$			12		

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$T_J = 100^\circ\text{C}$ $di_F/dt = -30\text{A}/\mu\text{s}$	$V_{CC} = 60\text{V}$ $L_p = 1\mu\text{H}$	$I_F = I_{F(AV)}$ See figure 12	See note	3.3		

To evaluate the conduction losses use the following equations:

$$V_F = 1.1 + 0.0095 I_F \quad P = 1.1 \times I_{F(AV)} + 0.0095 I_{F(RMS)}^2$$

Figure 1. Low frequency power losses versus average current

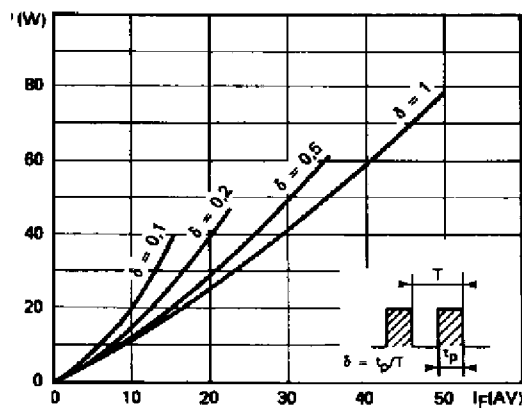


Figure 2. Peak current versus form factor

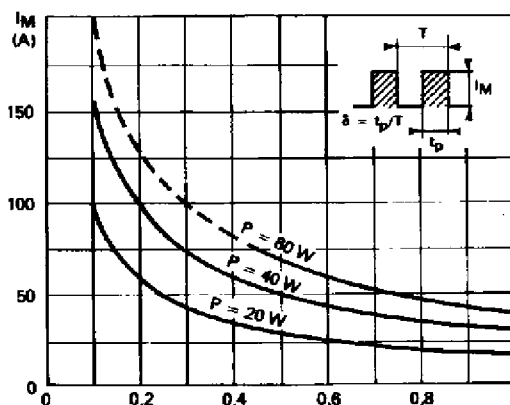


Figure 3. Non repetitive peak surge current versus overload duration

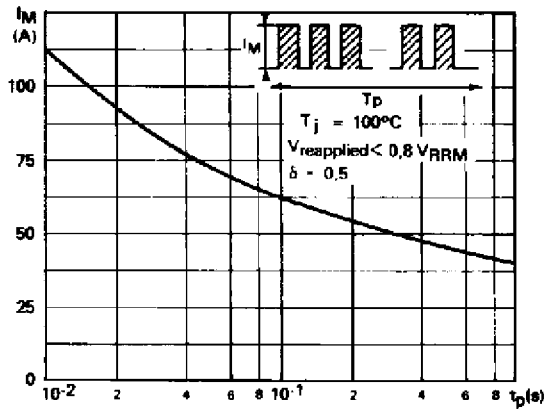


Figure 4. Thermal impedance versus pulse width

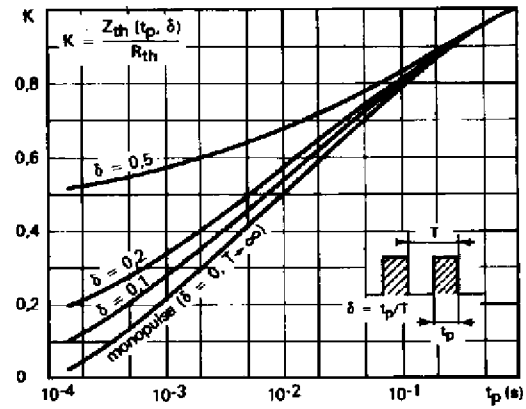


Figure 5. Voltage drop versus forward current

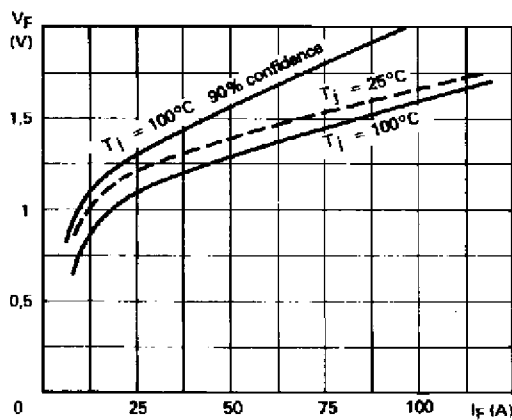


Figure 6. Recovery charge versus di_F/dt

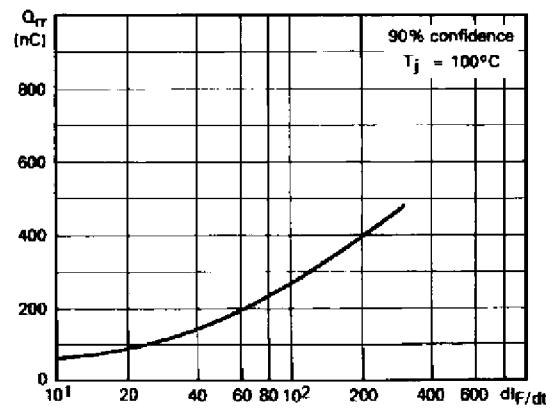


Figure 7. Recovery time versus di_F/dt

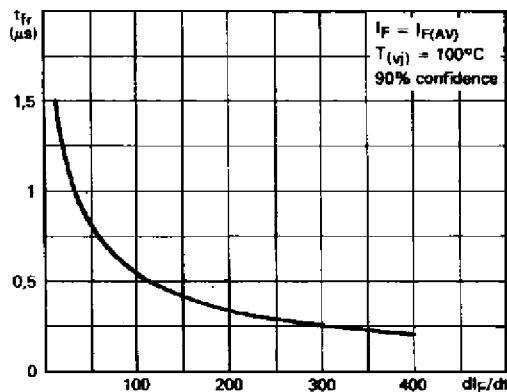


Figure 8. Peak reverse current versus di_F/dt

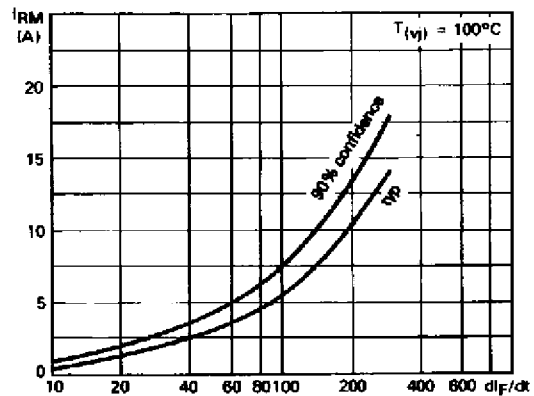


Figure 9. Peak forward voltage versus di_F/dt .

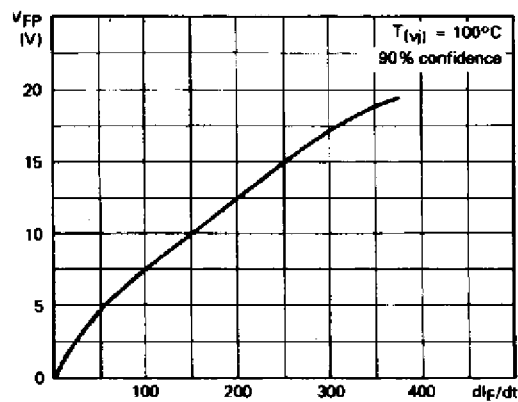


Figure 10. Dynamic parameters versus junction temperature.

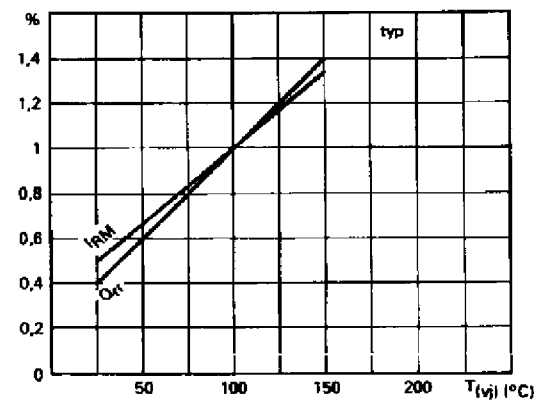


Figure 11. Turn-off switching characteristics (without series inductance).

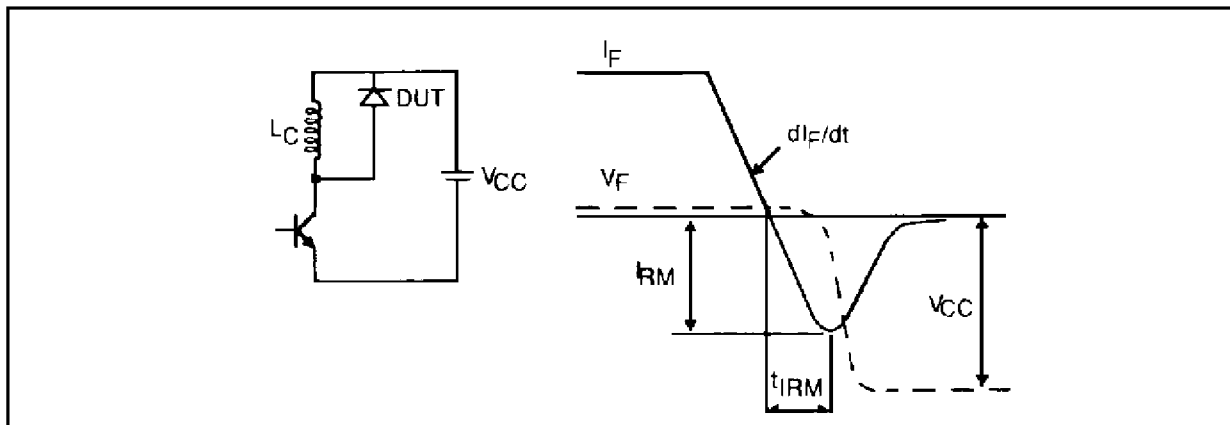
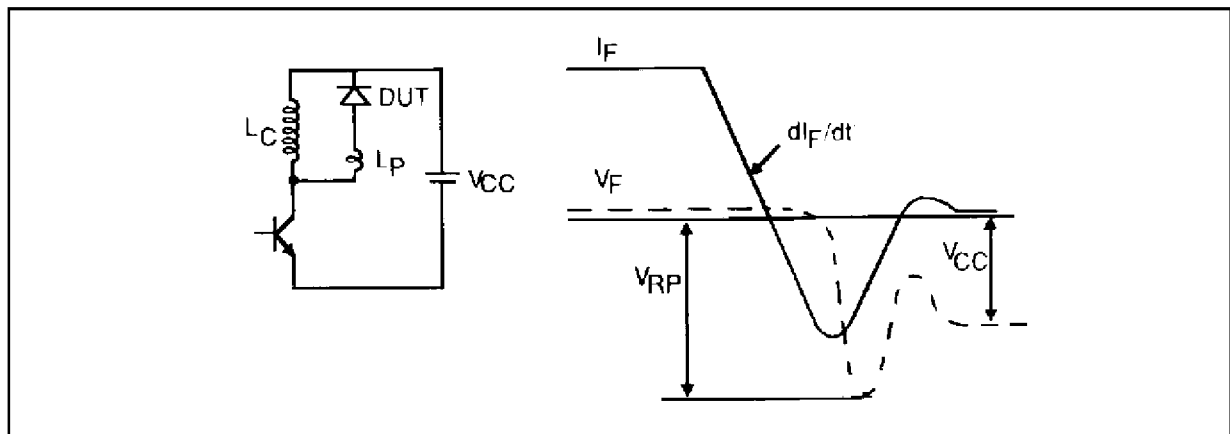
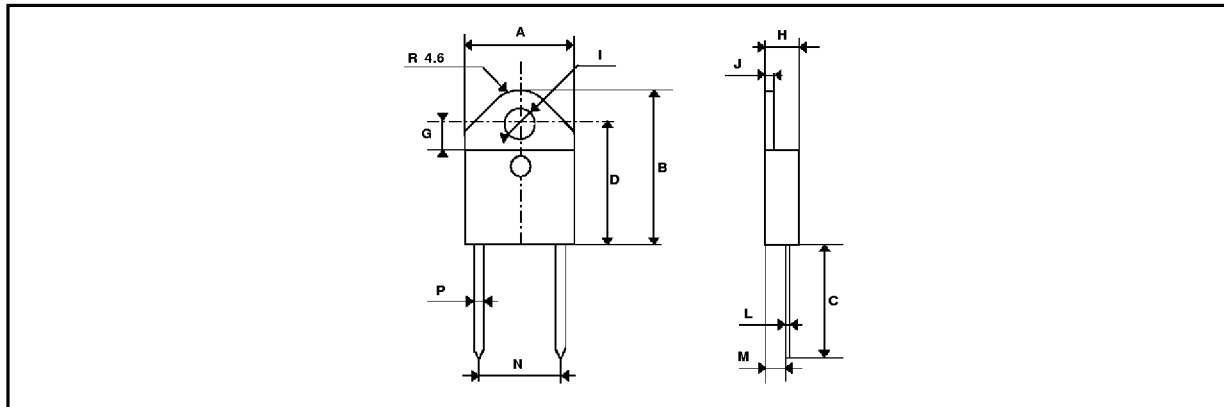


Figure 12. Turn-off switching characteristics (with series inductance)



PACKAGE MECHANICAL DATA :
Isolated DOP3I Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	15.10	15.50	0.594	0.611
B	20.70	21.10	0.814	0.831
C	14.30	15.60	0.561	0.615
D	16.10	16.50	0.632	0.650
G	3.40	-	0.133	-
H	4.40	4.60	0.173	0.182
I	4.08	4.17	0.161	0.164
J	1.45	1.55	0.057	0.062
L	0.50	0.70	0.019	0.028
M	2.70	2.90	0.106	0.115
N	10.80	11.30	0.42	0.45
P	1.20	1.40	0.047	0.056

Cooling method: by conduction (method C)

Marking: type number

Weight: 2.42g

Recommended torque value: 80cm. N

Maximum torque value: 100cm. N

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