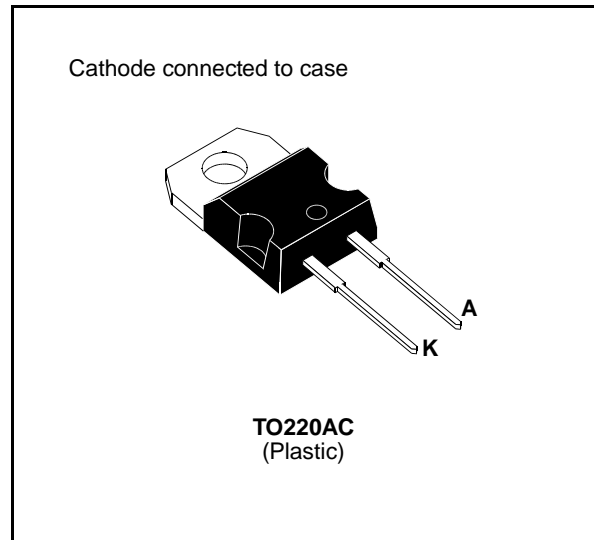


## FAST RECOVERY RECTIFIER DIODE

- VERY HIGH REVERSE VOLTAGE CAPABILITY
- VERY LOW REVERSES RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING

### 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
$V_{RRM}$	Repetitive Peak Reverse Voltage		1000	V
$V_{RSM}$	Non Repetitive Peak Reverse Voltage		1000	V
$I_{FRM}$	Repetitive Peak Forward Current	$t_p \leq 10\mu s$	100	A
$I_F (RMS)$	RMS Forward Current		16	A
$I_F (AV)$	Average Forward Current	$T_c = 115^\circ C$ $\delta = 0.5$	8	A
$I_{FSM}$	Surge Non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	50	A
P	Power Dissipation	$T_c = 115^\circ C$	17	W
$T_{stg}$ $T_j$	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	$^\circ C$

### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	2	$^\circ C/W$

**ELECTRICAL CHARACTERISTICS**
**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub>	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			35	μA
	T <sub>j</sub> = 100°C				2	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 8A			1.9	V
	T <sub>j</sub> = 100°C				1.8	

**RECOVERY CHARACTERISTICS**

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	di <sub>F</sub> /dt = - 15A/μs	V <sub>R</sub> = 30V		155	ns
		I <sub>F</sub> = 0.5A	I <sub>R</sub> = 1A		I <sub>rr</sub> = 0.25A		

**TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)**

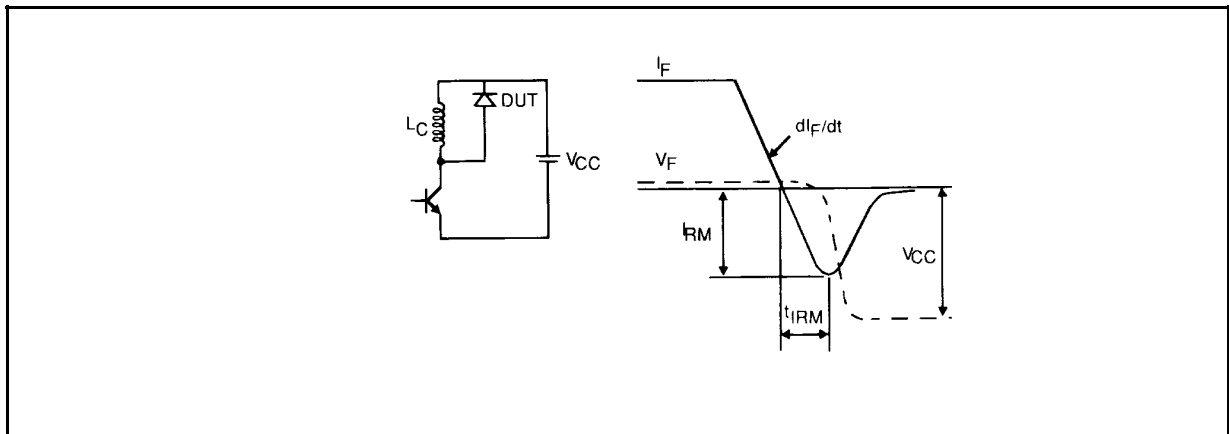
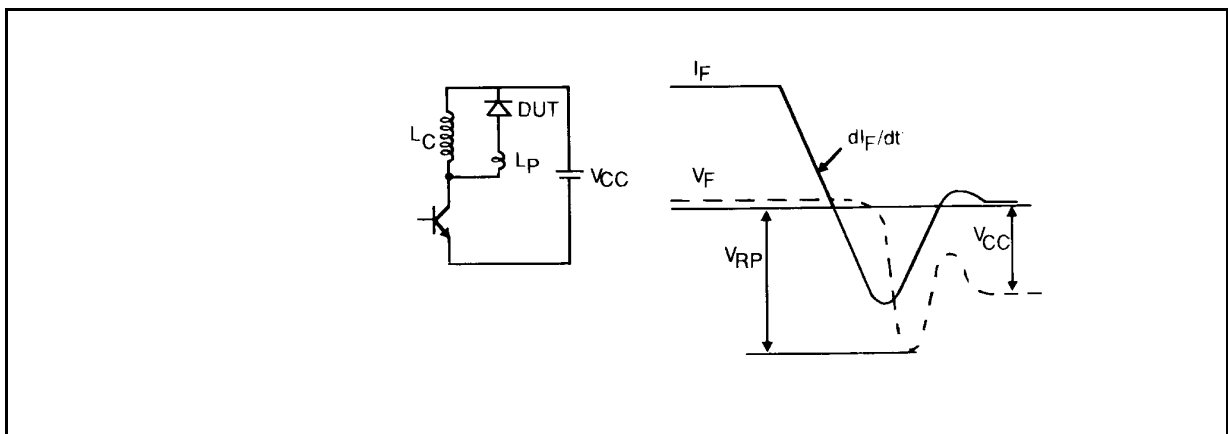
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>IRM</sub>	di <sub>F</sub> /dt = - 32A/μs	V <sub>CC</sub> = 200 V I <sub>F</sub> = 8A L <sub>p</sub> ≤ 0.05μH T <sub>j</sub> = 100°C See Figure 1			200	ns
	di <sub>F</sub> /dt = - 64A/μs			120		
I <sub>RM</sub>	di <sub>F</sub> /dt = - 32A/μs				5.5	A
	di <sub>F</sub> /dt = - 64A/μs			6		

**TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)**

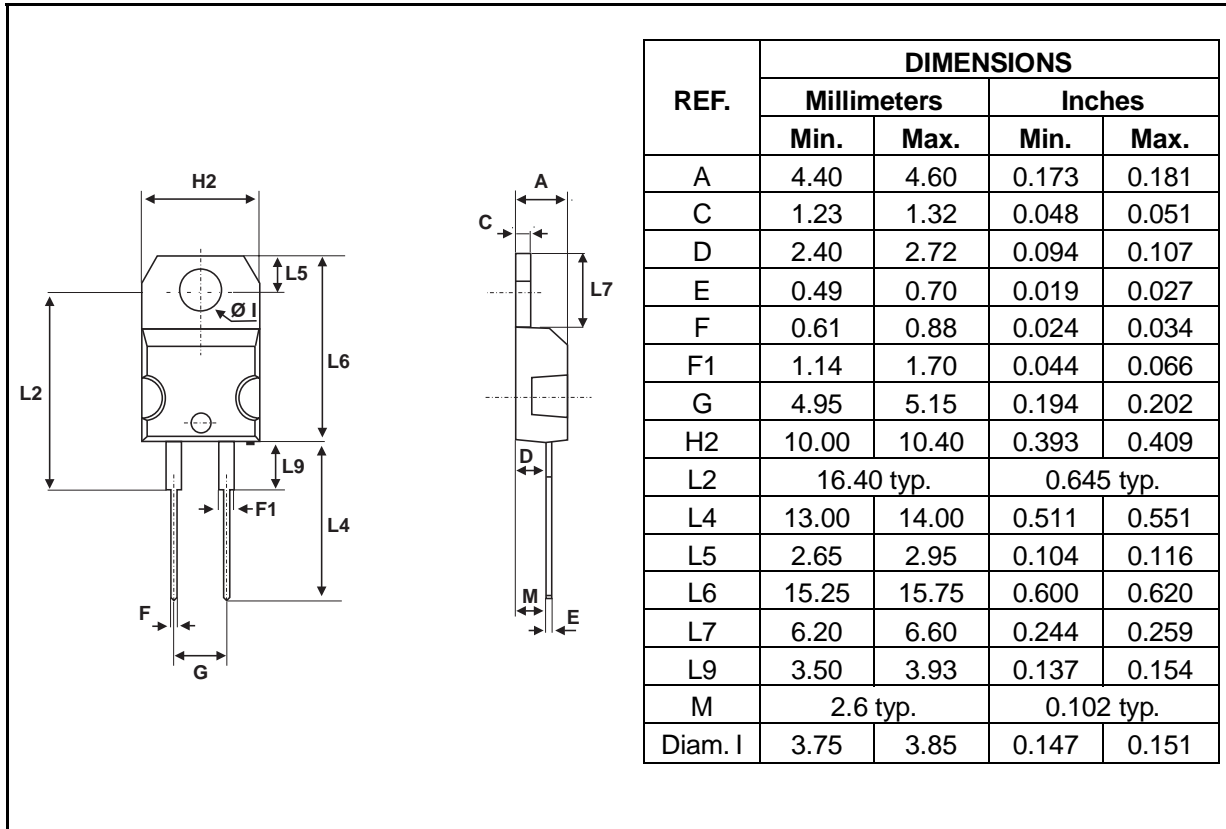
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	T <sub>j</sub> = 100°C	V <sub>CC</sub> = 200V	I <sub>F</sub> = I <sub>F(AV)</sub>			4.5	
	di <sub>F</sub> /dt = - 8A/μs	L <sub>p</sub> = 12μH	See figure 2				

To evaluate the conduction losses use the following equations:

$$V_F = 1.47 + 0.041 I_F \quad P = 1.47 \times I_{F(AV)} + 0.041 I_{F(RMS)}^2$$

**Figure 1. Turn-off switching characteristics (without series inductance).****Figure 2. Turn-off switching characteristics (with series inductance).**

PACKAGE MECHANICAL DATA : TO220AC Plastic



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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