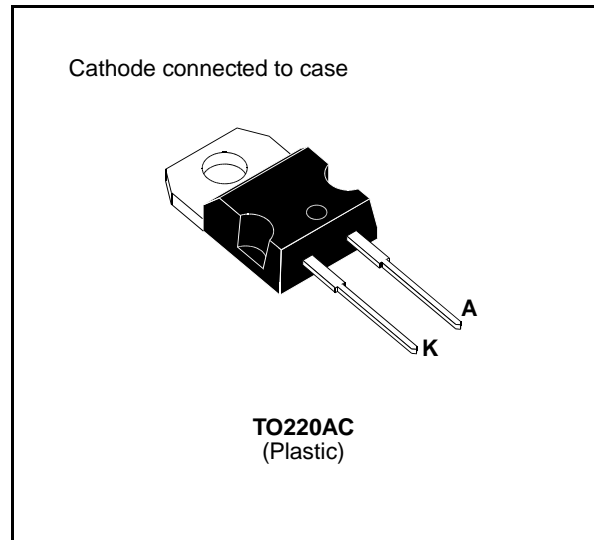


## FAST RECOVERY RECTIFIER DIODE

- 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
$I_R$	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			35	$\mu\text{A}$
	$T_j = 100^\circ\text{C}$				2	$\text{mA}$
$V_F$	$T_j = 25^\circ\text{C}$	$I_F = 8\text{A}$			1.9	$\text{V}$
	$T_j = 100^\circ\text{C}$				1.8	

**RECOVERY CHARACTERISTICS**

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
$t_{rr}$	$T_j = 25^\circ\text{C}$	$I_F = 1\text{A}$	$di_F/dt = -15\text{A}/\mu\text{s}$	$V_R = 30\text{V}$		155	$\text{ns}$
		$I_F = 0.5\text{A}$	$I_R = 1\text{A}$	$I_{rr} = 0.25\text{A}$		65	

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

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$t_{IRM}$	$di_F/dt = -32\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 8\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_j = 100^\circ\text{C}$ See Figure 1			200	$\text{ns}$
	$di_F/dt = -64\text{A}/\mu\text{s}$			120		
$I_{RM}$	$di_F/dt = -32\text{A}/\mu\text{s}$				5.5	$\text{A}$
	$di_F/dt = -64\text{A}/\mu\text{s}$			6		

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

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$T_j = 100^\circ\text{C}$	$V_{CC} = 200\text{V}$	$I_F = I_{F(AV)}$			4.5	
	$di_F/dt = -8\text{A}/\mu\text{s}$	$L_p = 12\mu\text{H}$	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).

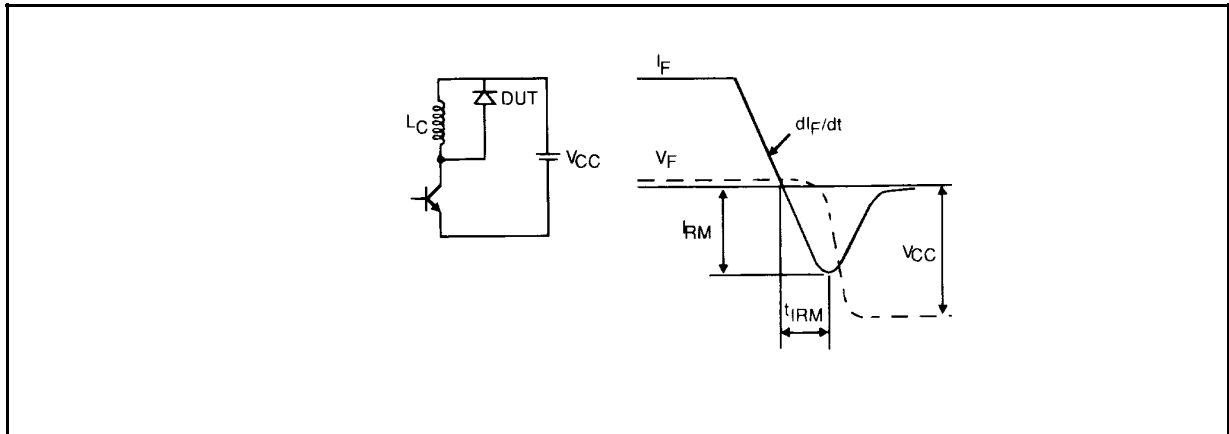
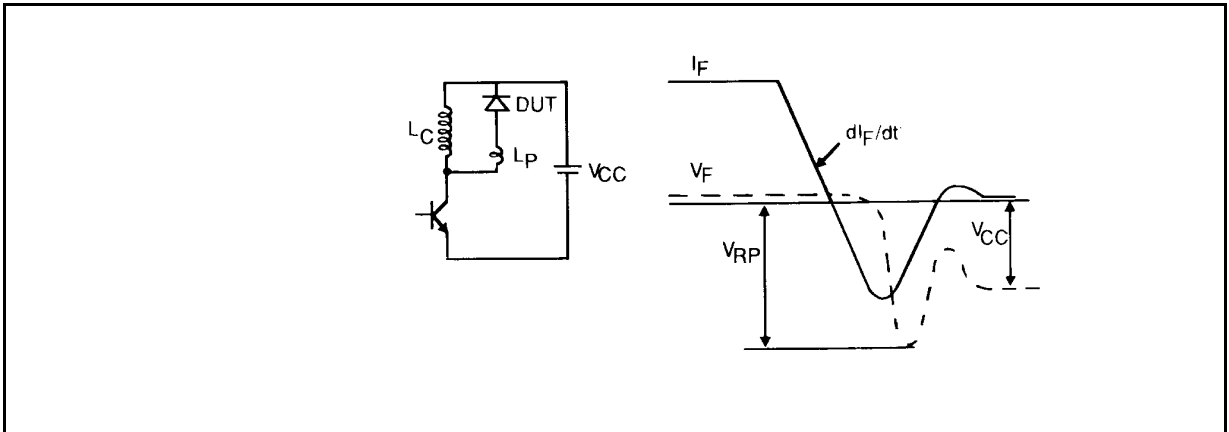
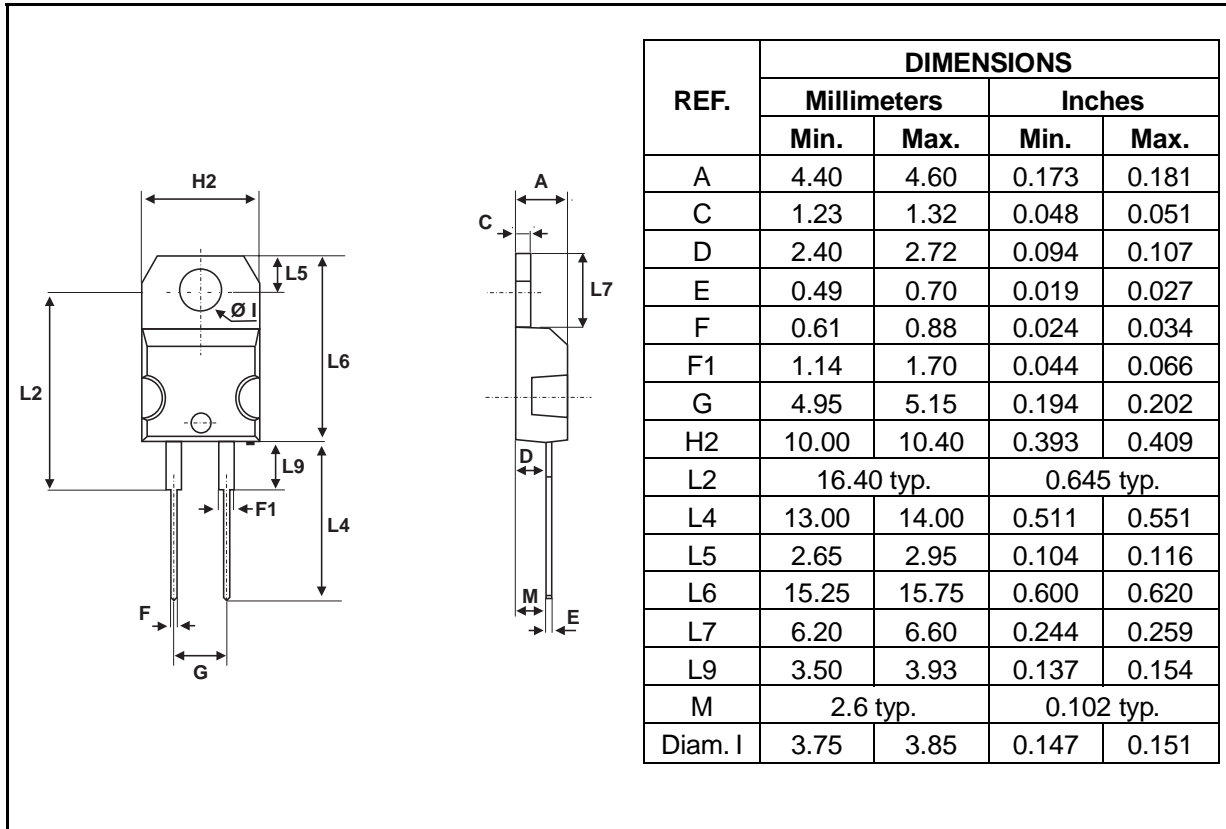


Figure 2. Turn-off switching characteristics (with series inductance).



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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