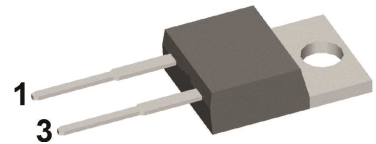


Features / Advantages:

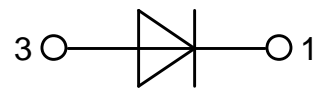
- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low I_{rm}-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{rm} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)



TO-220-2

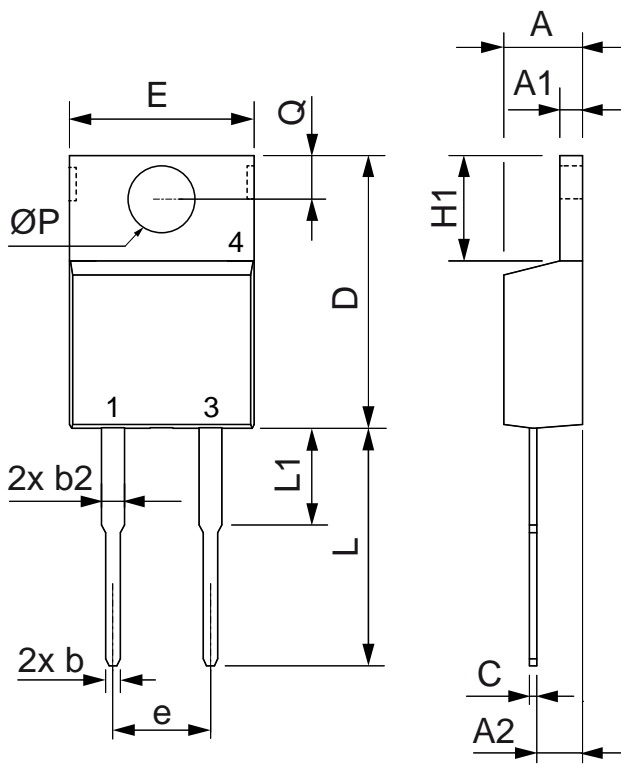


Fast Diode

Symbol	Definition	Conditions	Ratings			Unit	
			min.	typ.	max.		
V_{RSM}	max. non-repetitive reverse blocking voltage				600	V	
V_{RRM}	max. repetitive reverse blocking voltage				600	V	
I_R	reverse current, drain current	$V_R = 600\text{ V}$			250	μA	
		$V_R = 600\text{ V}$			1	mA	
V_F	forward voltage drop	$I_F = 30\text{ A}$			1.61	V	
		$I_F = 60\text{ A}$			1.94	V	
		$I_F = 30\text{ A}$	$T_{VJ} = 150^\circ\text{C}$			1.26	V
		$I_F = 60\text{ A}$				1.56	V
I_{FAV}	average forward current	$T_C = 135^\circ\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 175^\circ\text{C}$		30	A	
V_{FO}	threshold voltage	} for power loss calculation only	$T_{VJ} = 175^\circ\text{C}$		0.91	V	
r_F	slope resistance				9.4	m Ω	
R_{thJC}	thermal resistance junction to case				0.9	K/W	
R_{thCH}	thermal resistance case to heatsink			0.50		K/W	
P_{tot}	total power dissipation		$T_C = 25^\circ\text{C}$		165	W	
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^\circ\text{C}$		250	A	
C_J	junction capacitance	$V_R = 400\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		26	pF	
I_{RM}	max. reverse recovery current	} $I_F = 30\text{ A}; V_R = 300\text{ V}$ $-di_F/dt = 200\text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$		6	A	
			$T_{VJ} = 100^\circ\text{C}$		10	A	
t_{rr}	reverse recovery time		$T_{VJ} = 25^\circ\text{C}$		35	ns	
			$T_{VJ} = 100^\circ\text{C}$		100	ns	

Package TO-220			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	<i>RMS current</i>	per terminal			35	A
T_{VJ}	<i>virtual junction temperature</i>		-55		175	°C
T_{op}	<i>operation temperature</i>		-55		150	°C
T_{stg}	<i>storage temperature</i>		-55		150	°C
Weight				2		g
M_D	<i>mounting torque</i>		0.4		0.6	Nm
F_C	<i>mounting force with clip</i>		20		60	N

Outlines TO-220



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	5.08	BSC	0.200	BSC
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
ØP	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125

Fast Diode

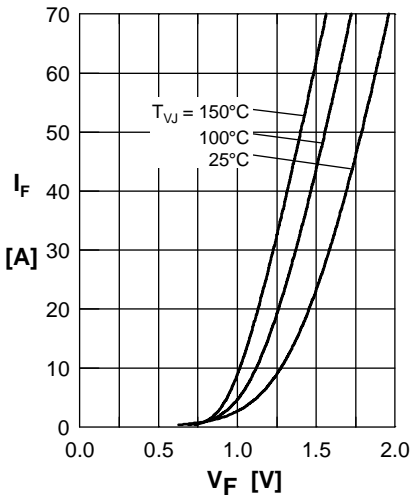


Fig. 1 Forward current I_F versus V_F

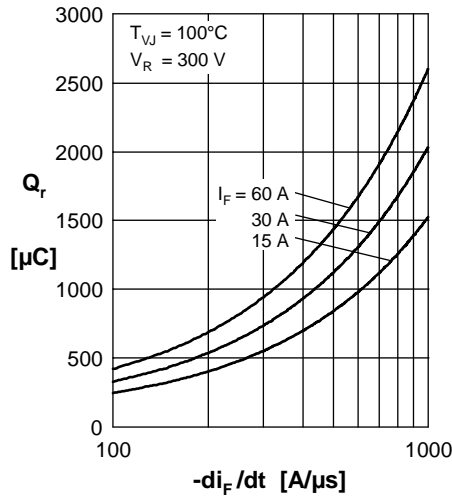


Fig. 2 Typ. reverse recov. charge Q_r versus $-di_F/dt$

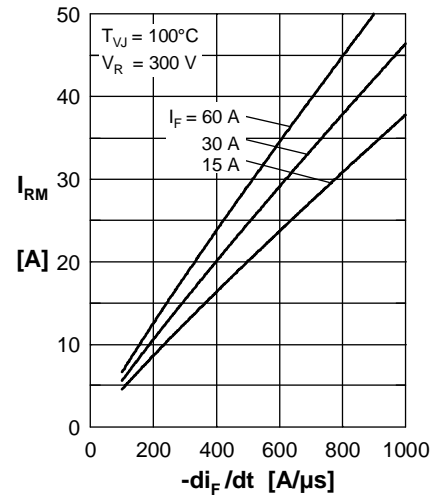


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

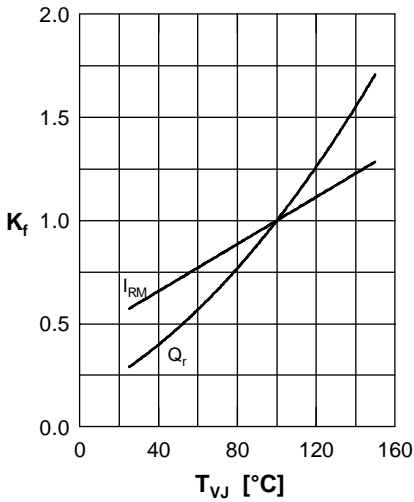


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

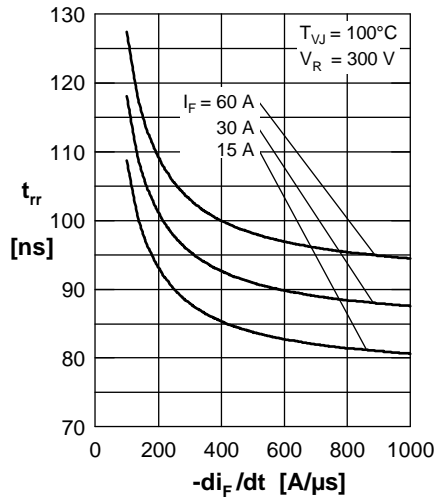


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

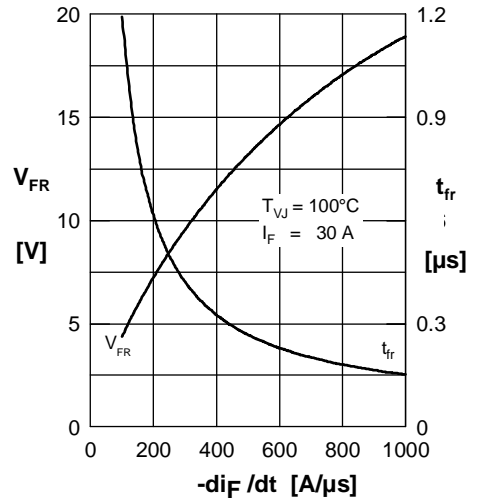


Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

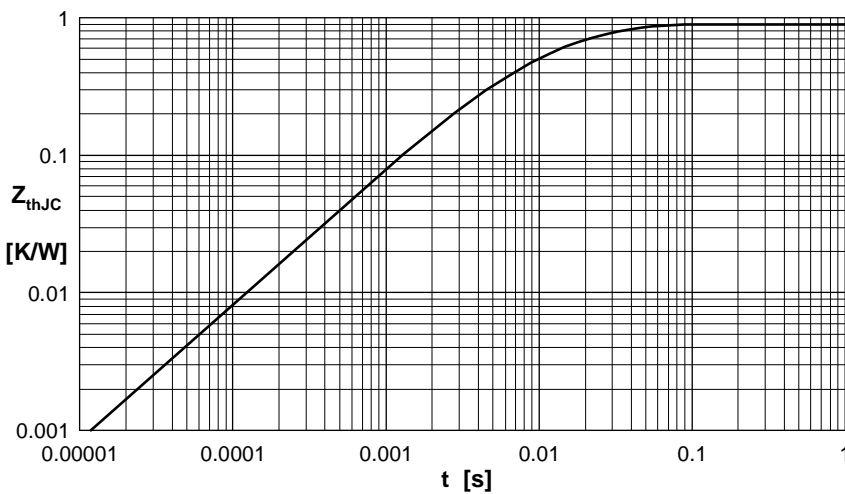


Fig. 7 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.030	0.001
2	0.080	0.030
3	0.300	0.006
4	0.490	0.060

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