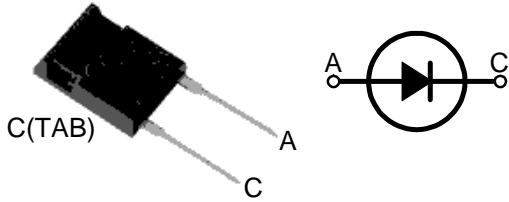


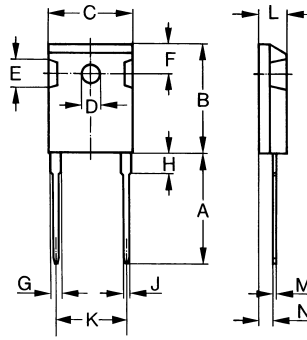
MUR3020, MUR3030

Ultra Fast Recovery Diodes



A=Anode, C=Cathode, TAB=Cathode

Dimensions TO-247AC



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

	V_{RSM}	V_{RRM}
	V	V
MUR3020	200	200
MUR3030	300	300

Symbol	Test Conditions	Maximum Ratings	Unit
I_{FRMS}	$T_C=145^\circ\text{C}$; rectangular, $d=0.5$	70	A
I_{FAVM}		30	
I_{FSM}	$T_{VJ}=45^\circ\text{C}$; $t_p=10\text{ms}$ (50Hz), sine	300	A
E_{AS}	$T_{VJ}=25^\circ\text{C}$; non-repetitive; $I_{AS}=3\text{A}$; $L=180\mu\text{H}$	1.2	mJ
I_{AR}	$V_A=1.5 \cdot V_R$ typ.; $f=10\text{kHz}$; repetitive	0.3	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{VJM}		175	
T_{stg}		-55...+150	
P_{tot}	$T_C=25^\circ\text{C}$	165	W
M_d	mounting torque	0.8...1.2	Nm
Weight	typical	6	g

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Ultra Fast Recovery Diodes

Symbol	Test Conditions	Characteristic Values		Unit
		typ.	max.	
I_R	T _{VJ} =25°C; V _R =V _{RRM} T _{VJ} =150°C; V _R =V _{RRM}		250	uA
			1	mA
V_F	I _F =30A; T _{VJ} =150°C T _{VJ} =25°C		0.91	V
			1.25	
R_{thJC} R_{thCH}		0.25	0.9	K/W
t_{rr}	I _F =1A; -di/dt=200A/us; V _R =30V; T _{VJ} =25°C		30	
I_{RM}	V _R =100V; I _F =50A; -di _F /dt=100A/us; T _{VJ} =100°C		7	A

FEATURES

- * International standard package
- * Planar passivated chips
- * Very short recovery time
- * Extremely low switching losses
- * Low I_{RM}-values
- * Soft recovery behaviour

APPLICATIONS

- * Antiparallel diode for high frequency switching devices
- * Antisaturation diode
- * Snubber diode
- * Free wheeling diode in converters and motor control circuits
- * Rectifiers in switch mode power supplies (SMPS)
- * Inductive heating
- * Uninterruptible power supplies (UPS)
- * Ultrasonic cleaners and welders

ADVANTAGES

- * 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

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Ultra Fast Recovery Diodes

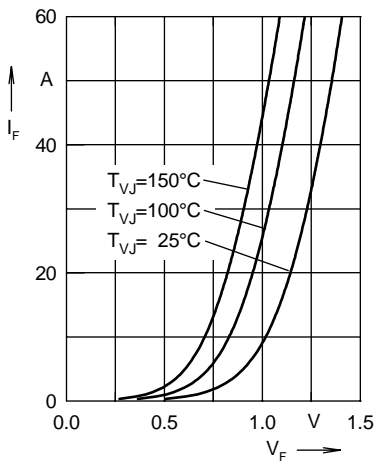


Fig. 1 Forward current I_F versus V_F

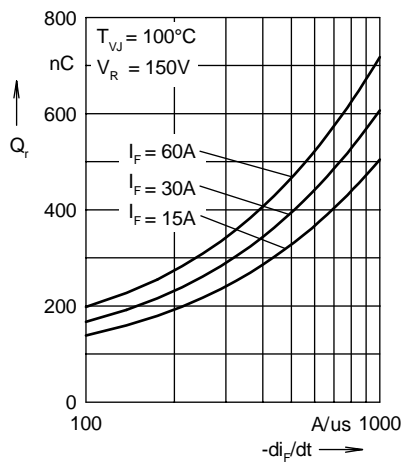


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

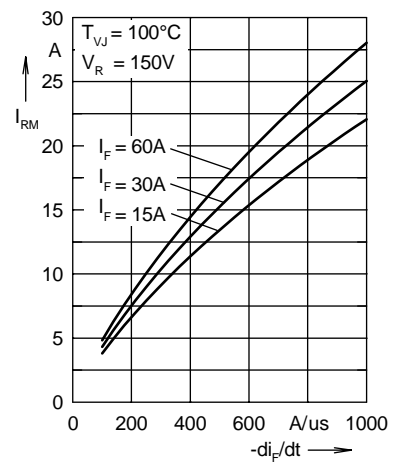


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

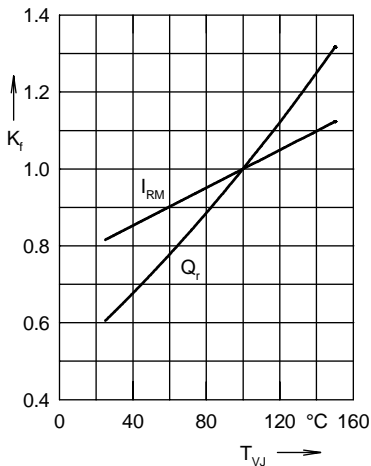


Fig. 4 Dynamic parameters Q_r , I_{RM} versus T_{VJ}

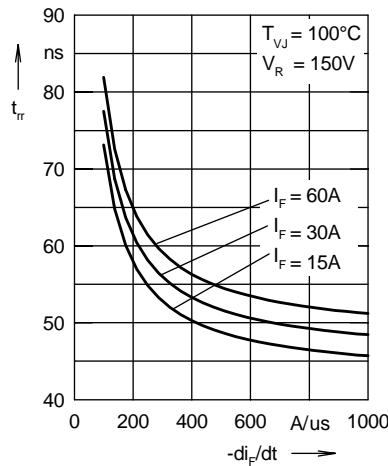


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

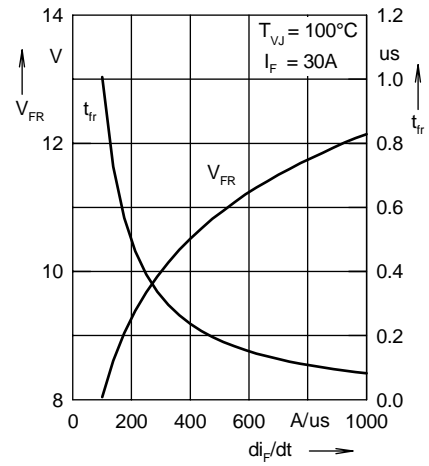


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

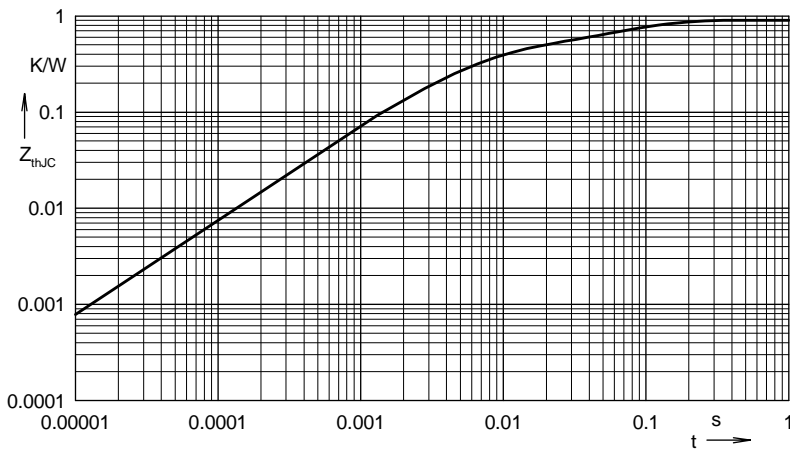


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.465	0.005
2	0.179	0.0003
3	0.256	0.04